



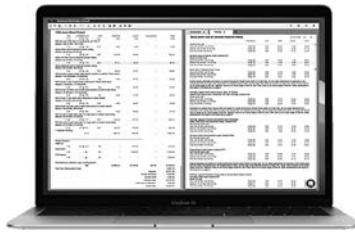
# 2024 NATIONAL HOME IMPROVEMENT ESTIMATOR

**\$98.75**

**Edited by Bilandra Chase and Richard Pray**  
**20th Edition**

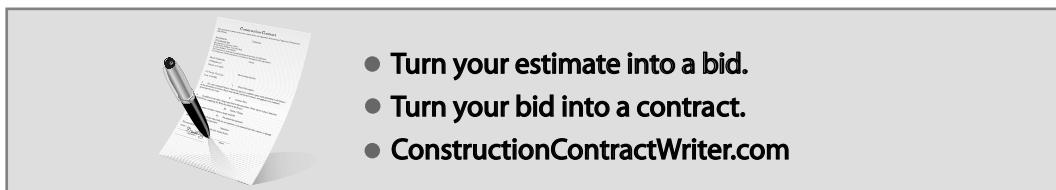


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Portions of chapters 8, 9 and 15 first appeared in the book *Renovating & Restyling Older Homes* by Lawrence Dworin. Mr. Dworin served as a resource in the development of this manuscript and contributed many valuable insights from his years of experience in the industry. Mr. Dworin is the author of both *Renovating & Restyling Older Homes* and *Profits in Buying & Renovating Homes*. Both are available from Craftsman Book Company.

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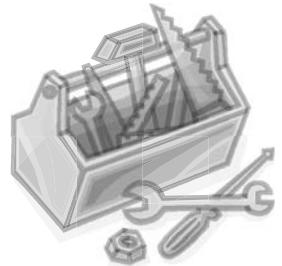
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# Pricing Home Improvement Jobs

1



Estimating home improvement costs requires specialized skills. You can't price home improvement work the same way you'd price new construction. The proportion of labor expense is greater. There's far more risk because there are far more variables and unknowns. An example will make this clear.

Hanging doors in new construction is a 1-2-3 affair. You know ahead of time exactly what's required. You built the wall, installed the frame and know each door will fit right the first time. There won't be any surprises. An experienced estimator can forecast the cost of hanging a door in a new home with a high degree of confidence.

Now let's look at the same task on a home improvement project. First, remember that you may be hanging only one door. There's no chance to improve the production rate on second or later doors. Installing this one door is probably different from the last door you installed on a similar project and will be different from your next door installation.

Work starts with removing the old door. That's probably not too hard — once you break through several coats of accumulated paint on the hinges. Let's assume you work carefully and don't damage the casing or trim. The next step is to install a blind Dutchman where the original hinges were attached. If the frame's badly chewed up from years of neglect and abuse, you'll have to remove and replace the entire frame. Don't forget that the building has settled over the years. The frame has probably twisted out of plumb. More time will be needed to shim and level the frame.

Finally, the door is installed and swings smoothly. But the job still isn't finished. You still have to paint the door to match and will certainly have to haul away the old door and the debris.

Every home improvement cost estimate comes with dozens of chances to make an expensive mistake. Surprises are inevitable and nearly all surprises will add to the cost, not reduce the cost. Estimating new construction is a snap by comparison.

## ***All home improvement has similar problems:***

- ❖ No chance for economies of scale (mass production),
- ❖ Difficulty in removing just enough of the old,
- ❖ Work doesn't follow the normal (from the ground, up) sequence of construction,
- ❖ Difficulty adding new materials to deteriorated or nonstandard existing materials,
- ❖ The need to match designs, colors and textures,
- ❖ Covering up for another contractor's mistakes,
- ❖ Struggling to get access to the place where the work is to be done,
- ❖ Protecting adjacent surfaces and pathway to the work area,
- ❖ Initial uncertainty about how much work is needed.

Now notice the word *risk* in first paragraph above. There are at least two risk categories in every home improvement job. The first is risk from the unknown – work you didn’t expect and couldn’t foresee. But there’s another type of risk that’s entirely different: That the owner won’t be satisfied with what you’ve done or the way you’ve done it. Nearly all home improvement is intended to solve a problem, something the owner wants or doesn’t want. Until that problem is resolved (at least in the mind of the owner) your work is not done. That makes owner satisfaction the essence of every home improvement project. Meeting requirements of the building code is never enough. You have to satisfy the owner. Worse still, many states require a very specific set of notices and disclosures in home improvement contracts. A home improvement contract that omits any of these notices and disclosures is an “unfair act or practice” and may subject the contractor to criminal penalties.

If you’re an experienced home improvement contractor, you understand this already. Whether experienced or not, you know full well that accurate pricing is crucial to survival in the home improvement business. Unfortunately, most home improvement specialists have far less experience in pricing their work than in getting the work done. No wonder so many home improvement companies wink out after a few years.

But it doesn’t have to be that way.

The chapters that follow explain how to price each type of home improvement work. Emphasis will be on avoiding risk — pricing pitfalls that can turn any home improvement contract into a financial nightmare.

## No Price Fits All Jobs

---

There’s no single way to arrive at the correct price for home improvement work. Neither is there a single correct price for most home improvement projects. But there are both good and bad ways to estimate prices and there are good and bad prices for any proposed job. Your task as a home improvement estimator is to produce consistently good estimates on most jobs. If you’re already doing that, congratulations. You don’t need this book. Return it where you bought it and get a refund. But if you’re not, information in the following chapters will make or save you many times what you paid for the book.

It’s accepted wisdom among home improvement specialists that salespeople need authority to quote prices when closing a deal. When trying to wrap up a deal, there’s no substitute for having current cost information at your fingertips. That’s especially true on larger jobs where you’ve prepared detailed plans and a written estimate. The owner will have questions and suggestions that change the job specs. If you want to close the sale then and there, you’d better know how much to add or subtract for each change the owner wants.

Most home improvement companies authorize salespeople to quote prices from an approved list in a price book. That simplifies the salesperson’s job, eliminates most major errors, and saves the owner of the company from approving every item in every estimate. In our opinion, quoting from a price book is the only way to

build sales volume in the home improvement business. That means every home improvement contractor needs a good price book.

Of course, the best price book for your company would be based on your actual cost experience — work done by your crews on your jobs with materials from your dealers and installed by your subcontractors. Since every contractor uses different crews, subcontractors and suppliers, every price book should be different. And, of course, prices in the company price book should be revised regularly to reflect current labor and material costs.

Having admitted that there's no substitute for developing your own price book, we'll suggest that you not bother. Most home improvement contractors don't have the time or patience to maintain current installed prices for thousands of repair and remodeling items. Even if you did, spending hundreds of hours a year keeping a price book current would be a waste of time. Prices for home improvement work are usually negotiated on site. There's little value in keeping a book of exact costs if you have to cut a special deal to close each sale.

Instead, we suggest that you let this manual serve as your company price book. Using the prices in this book (and included software download) will eliminate most of the common estimating mistakes. If your labor costs are higher or if your crews aren't as skilled as most tradesmen, you may have to increase the selling prices listed here to make a reasonable profit. And, of course, sometimes you're going to have a job with costs that exceed what any reasonable estimate could have predicted. This manual isn't a substitute for the exercise of good judgment. That's always your job.

## Cost Plus Markup Equals Selling Price

The difference between your cost and your selling price is your markup. Markup varies widely from job to job, far more than either material cost or labor cost. You're the final authority on markup. You decide what markup fits best — based on market conditions, your client, and the profit you feel is reasonable. Once you decide on the "right" markup, it's easy to plug that percentage into the bid, assuming you use *National Estimator Cloud*.

| Markup vs. Margin |                     |                     |                      |                      |
|-------------------|---------------------|---------------------|----------------------|----------------------|
| Hard Cost         | Price at 50% Markup | Price at 70% Markup | Price at 100% Markup | Price at 150% Markup |
| \$50              | \$75                | \$85                | \$100                | \$125                |
| \$100             | \$150               | \$170               | \$200                | \$250                |
| \$200             | \$300               | \$340               | \$400                | \$500                |
| \$300             | \$450               | \$510               | \$600                | \$750                |
| \$400             | \$600               | \$680               | \$800                | \$1,000              |
| \$500             | \$750               | \$850               | \$1,000              | \$1,250              |
| \$1,000           | \$1,500             | \$1,700             | \$2,000              | \$2,500              |
| \$2,000           | \$3,000             | \$3,400             | \$4,000              | \$5,000              |
| \$3,000           | \$4,500             | \$5,100             | \$6,000              | \$7,500              |
| \$4,000           | \$6,000             | \$6,800             | \$8,000              | \$10,000             |
| \$5,000           | \$7,500             | \$8,500             | \$10,000             | \$12,500             |
| \$6,000           | \$9,000             | \$10,200            | \$12,000             | \$15,000             |
| \$7,000           | \$10,500            | \$11,900            | \$14,000             | \$17,500             |
| \$8,000           | \$12,000            | \$13,600            | \$16,000             | \$20,000             |
| \$9,000           | \$13,500            | \$15,300            | \$18,000             | \$22,500             |
| \$10,000          | \$15,000            | \$17,000            | \$20,000             | \$25,000             |
| \$11,000          | \$16,500            | \$18,700            | \$22,000             | \$27,500             |
| \$12,000          | \$18,000            | \$20,600            | \$24,000             | \$30,000             |
| \$13,000          | \$19,500            | \$22,100            | \$26,000             | \$32,500             |
| \$14,000          | \$21,000            | \$23,800            | \$28,000             | \$35,000             |
| \$15,000          | \$22,500            | \$25,500            | \$30,000             | \$37,500             |
| \$16,000          | \$24,000            | \$27,200            | \$32,000             | \$40,000             |
| \$17,000          | \$25,500            | \$28,900            | \$34,000             | \$42,500             |
| \$18,000          | \$27,000            | \$30,600            | \$36,000             | \$45,000             |
| \$19,000          | \$28,500            | \$32,300            | \$38,000             | \$47,500             |
| \$20,000          | \$30,000            | \$34,000            | \$40,000             | \$50,000             |
| \$30,000          | \$45,000            | \$51,000            | \$60,000             | \$75,000             |
| \$40,000          | \$60,000            | \$68,000            | \$80,000             | \$100,000            |
| \$50,000          | \$75,000            | \$85,000            | \$100,000            | \$125,000            |
| Hard Cost         | 33% Margin          | 41% Margin          | 50% Margin           | 60% Margin           |

Figure 1-1

Markup (based on cost) vs. Margin (based on selling price)

Every construction contractor needs to distinguish between “markup” and “profit.” Markup is what you add to estimated labor and material costs (usually called “hard costs”) to find the selling price. Profit is what you have left when all bills have been paid. The two are very different. Profit is just the frosting on the cake.

Markup is also different from “margin.” Figure 1-1 shows percentages of markup for various levels of hard costs. For example, if your markup on a \$20,000 job is 50 percent, the selling price will be \$30,000. The margin on that job is 33 percent, \$10,000 divided by the selling price of \$30,000. (Note the bottom row in Figure 1-1.) Margin is what’s left after hard costs are recovered and includes profit.

Many successful home improvement contractors find they can stay in business if hard costs are 59 percent of selling price. Hard costs include material expense, subcontract costs and labor (including taxes and insurance). The other 41 percent of selling price (“margin”) compensates the sales staff, covers overhead, supervision and contingency, and should yield a modest profit. From Figure 1-1, you can see that markup on hard costs has to be 70 percent to yield a margin of 41 percent.

To put this formula to work in your home improvement company, add 70 percent to your hard costs to find the selling price. Of course, some jobs need more markup and others can get by on less. A smaller job with more risk done for a demanding client may require greater markup. A larger job done mostly by subcontractors can usually carry a smaller markup.

Home improvement contractors have all the overhead of any business: office rent, telephone, owner’s salary, office salaries, legal and accounting expense, insurance, auto and truck expense, and more. But unlike other contractors, home improvement specialists routinely deal with high risk, as explained earlier. Since most of what you didn’t or couldn’t anticipate will inflate your costs, you’re assuming significant risk. That’s why markups for home improvement work have to be higher than for new construction.

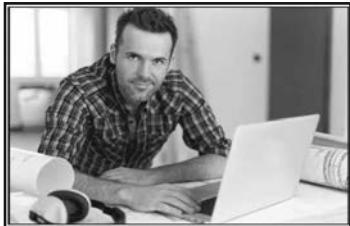
If you have trouble using *National Estimator Cloud*, we’ll be glad to help, and we don’t charge you for it.

Free telephone assistance is available from 8 a.m. until 5 p.m. Pacific time Monday through Friday (except holidays). Call 760-438-7828, Ext. 2.

Naturally, competition dictates markup. If you’re not getting enough work at 70 percent markup, maybe 70 percent is too much for your area. But remember that you shouldn’t have to bid remodeling work on a level playing field. New construction usually goes to the lowest responsible bidder. A creative salesman who follows the recommendations in this book has an advantage over lowball bidders who rely on price alone to sell their services.

## Two Ways to Use These Estimates

This manual is also available by subscription on the Web as part of *National Estimator Cloud*. For only a few dollars a month, you get all ten of Craftsman’s 2024 construction cost estimating guides. Each has about 400 pages of current labor and material costs for construction – all neatly organized and indexed. Use these costs to build estimates, bids and invoices for nearly any type of home improvement project.



#### *National Estimator Cloud:*

- Prints estimates, bids and invoices as Word, Excel or PDF documents.
- Runs as a secure app on the Web so you can write estimates anywhere you have a Web connection.
- Exports invoices to QuickBooks, either desktop or the online.
- Bids and invoices can show as much or as little detail as you want.
- Material costs are updated regularly as prices change.
- Costs only a few dollars a month. Cancel any time you want.

## Estimates That Work Two Ways

This manual is designed for use by both the owner of a home improvement business and by company sales staff. Prices in the printed version of this manual include both hard costs (labor and material) and a recommended selling price (usually based on 70 percent markup). Sales staff will use the selling price. Prices in *National Estimator Cloud* don't include markup. *National Estimator Cloud* makes it easy to apply whatever markup percentage you select.

Figure 1-2 shows the last page of an estimate for the Stillwell room addition, including 70 percent markup. The company estimator can create an estimate like this from a job survey prepared by a sales representative. Figure 1-2 is for company use and was created with the *National Estimator Cloud*.

Figure 1-3 shows the last page of a bid for the same job. This is what the customer sees. *National Estimator Cloud* creates bids like this from your estimate. Figure 1-2, the estimate, shows 70 percent markup on hard costs. Figure 1-3, the proposal, doesn't show any markup at all. Instead, markup has been distributed proportionately throughout each cost item in the job – material, labor,

**Stillwell Job**

| Qty   | Craft@Hours | Unit | Material | Labor    | Equipment | Total    |
|---|-------------|------|----------|----------|-----------|----------|
| 3.00  | 2P @ .750   | Ea   | 5.13     | 16.89    | -         | 22.02    |
| Roll 1st coat of water base stain on rough sawn or resawn wood siding |             |      |          |          |           |          |
| Medium 225 SF/MH, 213 SF/Gal  |             |      |          |          |           |          |
| 17.00   | 2P @ 7.55   | CSF  | 149.60   | 170.00   | -         | 319.60   |
| Roll & brush 1st finish coat of water base enamel on vanity cabinet   |             |      |          |          |           |          |
| Medium 103 SF/MH, 288 SF/Gal  |             |      |          |          |           |          |
| 0.90  | 2P @ .874   | CSF  | 6.69     | 19.68    | -         | 26.37    |
| Roll 1st coat of water base stain on rough sawn or resawn wood siding |             |      |          |          |           |          |
| Medium 225 SF/MH, 213 SF/Gal  |             |      |          |          |           |          |
| 17.00   | 2P @ 7.55   | CSF  | 149.60   | 170.00   | -         | 319.60   |
| Add for grouting cores per linear foot of core, pumped in place       |             |      |          |          |           |          |
| 4" thick wall, (.86 VLF per CF)                                       |             |      |          |          |           |          |
| 1.00  | M1 @ .011   | VLF  | 1.31     | 0.64     | -         | 1.95     |
| Roll 2nd coat of water base stain on rough sawn or resawn wood siding |             |      |          |          |           |          |
| Medium 275 SF/MH, 273 SF/Gal  |             |      |          |          |           |          |
| 17.00   | 2P @ 6.19   | CSF  | 116.79   | 139.40   | -         | 256.19   |
| ** Subtotal: Painting   |             |      |          |          |           |          |
| 56.8  |             |      | 1,607.75 | 1,314.17 | -         | 2,921.92 |

| Total Manhours, Material, Labor, and Equipment: |           |          |      |           |
|---|-----------|----------|------|-----------|
| 406   | 17,719.83 | 9,859.62 | 2.56 | 27,582.01 |
| Total Only (Subcontract) Costs:                 |           |          |      |           |
| Subtotal: 34,874.51                             |           |          |      |           |
| 70.00% Markup 24,412.16                         |           |          |      |           |
| Estimate total: 59,286.67                       |           |          |      |           |
| 8.25% Tax on Materials: 1,461.89                |           |          |      |           |
| Grand total: 60,748.56                          |           |          |      |           |

**Figure 1-2**

*Estimate with a 70 percent markup shown*

| Description   | Quantity | Rate  | Amount    |
|---|----------|-------|-----------|
| Roll & brush 1st finish coat of water base enamel on vanity cabinet   |          |       |           |
| Medium 103 SF/MH, 288 SF/Gal  |          |       |           |
| Material, per CSF   | 0.90     | 13.24 | 11.92     |
| Labor, per CSF  | 0.90     | 37.18 | 33.46     |
| Roll 1st coat of water base stain on rough sawn or resawn wood siding |          |       |           |
| Medium 225 SF/MH, 213 SF/Gal  |          |       |           |
| Material, per CSF   | 17       | 15.69 | 266.73    |
| Labor, per CSF  | 17       | 17.00 | 289.00    |
| Add for grouting cores per linear foot of core, pumped in place       |          |       |           |
| 4" thick wall, (8.86 VLF per CF)                                      |          |       |           |
| Material, per VLF   | 1        | 2.34  | 2.34      |
| Labor, per VLF  | 1        | 1.09  | 1.09      |
| Roll 2nd coat of water base stain on rough sawn or resawn wood siding |          |       |           |
| Medium 275 SF/MH, 273 SF/Gal  |          |       |           |
| Material, per CSF   | 17       | 12.25 | 208.25    |
| Labor, per CSF  | 17       | 13.94 | 236.98    |
| *Painting subtotal  |          |       | 5,100.30  |
|   |          |       |           |
| Total Material, Labor, and Equipment                                  |          |       | 48,352.66 |
| Total Only (Subcontract) Costs  |          |       | 12,397.25 |
| *Grand Total  |          |       | 60,749.91 |

**Figure 1-3**

*Proposal for the same job not showing the markup*

equipment and subcontract. *National Estimator Cloud* does this distribution at the click of a mouse button. Notice that the total is nearly the same in both documents, \$60,749.91. (The \$1.35 difference is due to rounding when markup is distributed among hundreds of unit costs.)

*National Estimator Cloud* offers dozens of choices on what you show and what you hide in estimates, bids and invoices. Each can be as long (full description for everything in the estimate) or as short (only a summary of each category) as you want. You can show or hide labor and material cost detail. You can show or hide markup and profit. You can print estimates, bids and invoices in either Word (RTF), PDF or Excel (XLS) format.

Once work begins, you'll want to monitor job expenses to be sure actual costs remain consistent with estimated costs. If you use QuickBooks to pay bills and figure payroll, let QuickBooks do the comparisons for you. *National Estimator Cloud* exports invoices to QuickBooks -- either the full invoice for the job or just an invoice for the percentage of each task completed in the current pay period.

If you send progress invoices, *National Estimator Cloud* keeps track of what's been completed and billed and what hasn't been billed yet. When a change order increases the contract price, simply add the new item to your estimate. That item will show up on your next progress invoice at whatever percent of completion you select.

## Job Survey (Scope of Work)

---

Of course, neither a good price book nor a computer estimating program will solve every estimating problem. Computers seldom make mistakes in addition or multiplication. But nothing prevents making an expensive estimating mistake on your own. By far the most common estimating mistake is omitting something essential to the job.

Get in the habit of completing an exhaustive job survey before beginning any estimate for home improvement work. Some of your estimates on a job may be too high. Other estimates on a job may be too low. With any luck, your over-estimates will roughly balance with your under-estimates, leaving the job total about where it should be. But the estimated price for anything omitted from a job survey is always zero. That's a 100 percent miss. It's hard to balance a complete miss with anything. A few of those can create a financial disaster.

## Material Costs in This Book

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Material Costs for each item are listed in the column headed "Material." These are neither retail nor wholesale prices. They are estimates of what most contractors who buy in moderate volume will pay suppliers as of early-2023. Discounts may be available for purchases in larger volumes.

Material costs can change rapidly. Material prices in *National Estimator Cloud* are revised regularly as material prices change and may be different from material prices in this manual. See the discount certificate inside the back cover of this manual for more on *National Estimator Cloud*.

**Add Delivery Expense** to the material cost for other than local delivery of reasonably large quantities. Cost of delivery varies with the distance from source of supply, method of transportation, and quantity to be delivered. But most material dealers absorb the delivery cost on local delivery (5 to 15 miles) of larger quantities to good customers. Add the expense of job site delivery when it's a significant part of the material cost. *National Estimator Cloud* makes it easy to add sales tax to your estimates, bids and invoices.

**Add Sales Tax** when sales tax will be charged to the contractor buying the materials. In some states, contractors have to collect sales tax based on the contract price. No matter what your state (or county) requires, *National Estimator Cloud* makes it easy to add sales tax to your estimates, bids and invoices.

**Waste and Coverage Loss** is included in the installed material cost. The cost of many materials per unit after installation is greater than the purchase price for the same unit because of waste, shrinkage or coverage loss during installation. For example, about 120 square feet of nominal 1" x 4" square edge boards will be needed to cover 100 square feet of floor or wall. There's no coverage loss with plywood sheathing, but waste due to cutting and fitting will average about 6 percent.

Costs in the Material column of this book assume normal waste and coverage loss. Small and irregular jobs may require a greater waste allowance. Materials priced without installation (with no labor cost) don't include an allowance for waste and coverage except as noted.

**Labor Costs** for installing the material or doing the work described are listed in the column headed Labor. The labor cost per unit is the labor cost per hour multiplied by the manhours per unit shown after the @ sign in the Craft@Hrs column. Labor cost includes the basic wage, the employer's contribution to welfare, pension, vacation and apprentice funds, and all tax and insurance charges based on wages. Hourly labor costs for the various crafts are listed on page 15.

**Supervision Expense** to the general contractor isn't included in the labor cost. The cost of supervision and non-productive labor varies widely from job to job. Calculate the cost of supervision and non-productive labor and add this to the estimate.

**Payroll Taxes and Insurance** are included in the labor cost. See page 15 for more on the "contractor's burden."

**Manhours per Unit and the Craft** performing the work are listed in the Craft@Hrs column. To find the units of work done per worker in an 8-hour day, divide 8 by the manhours per unit. To find the units done by a crew in an 8-hour day, multiply the units per worker per 8-hour day by the number of crew members.

**Manhours** include all productive labor normally associated with installing the materials described.

This will usually include tasks such as:

- ❖ Unloading and storing construction materials, tools and equipment on site.
- ❖ Moving tools and equipment from a storage area or truck on site at the beginning of the day.
- ❖ Returning tools and equipment to a storage area or truck on site at the end of the day.
- ❖ Normal time lost for work breaks.
- ❖ Planning and discussing the work to be performed.
- ❖ Normal handling, measuring, cutting and fitting.
- ❖ Keeping a record of the time spent and work done.
- ❖ Regular cleanup of construction debris.
- ❖ Infrequent correction or repairs required because of faulty installation.

**Adjust the Labor Cost** to the job you're figuring when your actual hourly labor cost is known or can be estimated. The labor costs listed in Figure 1-5 will apply within a few percent on many jobs. But labor costs may be much higher or much lower on the job you're estimating.

If the hourly wage rates listed in Figure 1-5 aren't accurate, divide your known or estimated cost per hour by the listed cost per hour. The result is your adjustment for any figure in the Labor column for that craft. *National Estimator Cloud* makes it easy to compile estimates using your own labor rates.

**Adjust for Unusual Labor Productivity.** Costs in the Labor column are for normal conditions: experienced craftsmen working on reasonably well-planned and managed home improvement projects with fair to good productivity. Labor estimates assume that materials are standard grade, appropriate tools are on hand, work done by other crafts is adequate, layout and installation are relatively uncomplicated, and working conditions don't slow progress.

Working conditions at the jobsite have a major effect on labor cost. Estimating experience and careful analysis can help you predict the effect of most changes in working conditions. Obviously, no single adjustment will apply on all jobs. But the adjustments that follow should help you produce more accurate labor estimates. More than one condition may apply on a job.

#### **Jobsite conditions affect labor costs**

- ❖ Add 10% to 15% when working temperatures are below 40 degrees or above 95 degrees.
- ❖ Add 30% to 35% when temperatures are below 20 degrees. Materials and tools are hard to handle. Bulky clothing restricts freedom of movement.
- ❖ Add 15% to 25% for work on a ladder or a scaffold, in a 36" crawl space, in a congested area, or remote from the material storage point.
- ❖ Add 50% for work in an 18" to 36" crawl space. Allow extra time for cleaning out the area before work begins.
- ❖ Add 200% if portions of the crawl space are less than 18". Allow extra time for passing tools and materials. Few contractors bid on work like this.
- ❖ Deduct 10% when the work is in an open area with excellent access and good light.
- ❖ Add 1% for each 10 feet that materials must be lifted above ground level.
- ❖ Add 5% to 50% for tradesmen with below-average skills. Deduct 5% to 25% for highly-motivated, highly-skilled tradesmen.
- ❖ Deduct 10% to 20% when an identical task is repeated many times for several days at the same site.
- ❖ Add 20% to 50% on small jobs where fitting and matching of materials is required, adjacent surfaces have to be protected and the job site is occupied during construction.
- ❖ Add 25% to 50% for work done following a major flood, fire, earthquake, hurricane or tornado while skilled tradesmen are not readily available. Material costs may also be higher after a major disaster.
- ❖ Add 10% to 35% for demanding specs, rigid inspections, unreliable suppliers, a difficult owner or an inexperienced architect.

**Use an Area Modification Factor** from pages 18 through 26 if your material, hourly labor or equipment costs are unknown and can't be estimated. Here's how: Use the labor and material costs in this manual without modification. Then add or deduct the percentages shown for labor, material and equipment. Area cost modifications in *National Estimator Cloud* make it easy to adjust all costs in this manual to any US zip or Canadian postal code you select.

**Equipment Costs** for small tools and expendable supplies (such as saws and tape) are usually considered overhead expense and are covered by your markup. Equipment costs for larger equipment (such as a compressor or backhoe) should be based on the rental rate for the period needed. Equipment rental costs are included in sections where heavy equipment may be needed.

**Labor and Material Costs Change.** Costs in this manual were compiled in the fall of 2023 and projected to 2024 based on recent price trends. These projections will be accurate for some materials but inaccurate for others. No one can predict material price changes accurately. Costs in *National Estimator Cloud* are revised as prices change and are likely to be different from the cost in this manual.

**How Accurate Are These Figures?** They're as accurate as possible considering that the estimators who compiled this book don't know your subcontractors or material suppliers, have never met the owner or been on site, have never seen the plans or specs, don't know what building code applies, and have no record of how much work your crews can handle. You wouldn't bid a job under those conditions. And we don't claim that all construction is done at these prices.

**Estimating Is an Art**, not a science. On many jobs the range between high and low bid will be 20 percent or more. There's room for legitimate disagreement on what the correct costs are, even when complete plans and specifications are available, the date and site are established, and labor and material costs are identical for all bidders.

No cost fits all jobs. Good estimates are custom-made for a particular project and a single contractor through judgment, analysis and experience.

This book isn't a substitute for judgment, analysis and sound estimating practice. It's an *aid* in developing an *informed opinion* of cost. If you're using this book as a sole cost authority for contract bids, you're reading more into these pages than the editors intend.

**Use These Figures** to compile preliminary estimates, when a "snap" bid is needed to close the deal, and when no actual costs are available. This book will reduce the chance of error or omission on bid estimates, speed "ball park" estimates, and be a good guide when there's no time to get a quote.

**Where Do We Get These Figures?** From the same sources all professional estimators use: material suppliers, material price services, analysis of plans, specifications, estimates and completed project costs, and both published and unpublished cost studies compiled by both private and government agencies. In addition, we conduct nationwide mail and phone surveys and have the use of several major national estimating databases.

**We'll Answer Your Questions** about any part of this book and explain how to apply these costs. Free telephone assistance is available from 8 a.m. until 5 p.m. Pacific time Monday through Friday except holidays. Phone 760-438-7828, Ext. 2. We don't accept collect calls and can't estimate the job for you. But if you need clarification on something in this manual, we can help.

## Labor Costs and Crews

Throughout this manual you'll see a column headed *Craft@Hrs*. Letters and numbers in this column show our estimates of:

- ❖ Who will do the work (the craft code)
- ❖ An @ symbol which means at
- ❖ How long the work will take (manhours).

For example, suppose you see the following in the *Craft@Hrs* column:

B1@.016

That means we estimate the installation rate for crew B1 at 0.016 manhours per unit. That's the same as 16 manhours per 1,000 units.

Figure 1-4 is a table that defines each of the craft codes used in this book. Notice that crew B1 is composed of two craftsmen: one laborer and one carpenter.

Notice also in the table that the cost per manhour for crew B1 is listed as \$37.19. That's the average for a laborer (listed at \$33.31 per hour) and a carpenter (listed at \$41.06 per hour): \$33.31 plus 41.06 is \$74.37. Divide by 2 to get \$37.19 (\$37.185 rounded up), the average cost per manhour for crew B1.

In the table, the cost per manhour is the sum of hourly costs of all crew members divided by the number of crew members. That's the average cost per manhour.

Costs in the Labor column in this book are the product of the installation time (in manhours) multiplied by the cost per manhour. For example, if the installation rate is 0.016 manhours per unit, the installation cost is 0.016 multiplied by \$37.19, the average cost per manhour for crew B1.

Figure 1-5 shows hourly labor costs components — base wage, typical fringe benefits, payroll taxes, insurance and the total hourly cost.

| Craft Codes |                  |   |
|-------------|------------------|---|
| Craft Code  | Cost Per Manhour | Crew Composition  |
| B1          | \$37.19          | 1 laborer, 1 carpenter  |
| B2          | \$38.48          | 1 laborer, 2 carpenters   |
| B3          | \$35.89          | 2 laborers, 1 carpenter   |
| B4          | \$41.23          | 1 laborer, 1 operating engineer, 1 reinforcing iron worker                              |
| B5          | \$40.80          | 1 laborer, 1 carpenter, 1 cement mason, 1 operating engineer, 1 reinforcing iron worker |
| B6          | \$36.29          | 1 laborer, 1 cement mason   |
| B7          | \$34.01          | 1 laborer, 1 truck driver   |
| B8          | \$40.20          | 1 laborer, 1 operating engineer   |
| B9          | \$36.45          | 1 bricklayer, 1 bricklayer's helper   |
| BB          | \$41.83          | 1 bricklayer  |
| BC          | \$41.06          | 1 carpenter   |
| BE          | \$44.88          | 1 electrician   |
| BF          | \$37.90          | 1 floor layer   |
| BG          | \$39.83          | 1 glazier   |
| BH          | \$31.07          | 1 bricklayer's helper   |
| BL          | \$33.31          | 1 laborer   |
| BR          | \$39.73          | 1 lather  |
| BS          | \$36.83          | 1 marblesetter  |
| CF          | \$39.27          | 1 cement mason  |
| CT          | \$39.06          | 1 mosaic & terrazzo worker  |
| D1          | \$40.51          | 1 drywall installer, 1 drywall taper  |
| DI          | \$40.29          | 1 drywall installer   |
| DT          | \$40.72          | 1 drywall taper   |
| HC          | \$32.41          | 1 plasterer helper  |
| OE          | \$47.09          | 1 operating engineer  |
| P1          | \$40.66          | 1 laborer, 1 plumber  |
| PM          | \$48.00          | 1 plumber   |
| PP          | \$37.73          | 1 painter, 1 laborer  |
| PR          | \$41.20          | 1 plasterer   |
| PT          | \$42.15          | 1 painter   |
| R1          | \$39.45          | 1 roofer, 1 laborer   |
| RI          | \$43.29          | 1 reinforcing iron worker   |
| RR          | \$45.59          | 1 roofer  |
| SW          | \$46.53          | 1 sheet metal worker  |
| T1          | \$36.39          | 1 tile layer, 1 laborer   |
| TL          | \$39.46          | 1 tile layer  |
| TR          | \$34.70          | 1 truck driver  |

**Figure 1-4**

Craft codes used in this manual

| Craft                    | Hourly Labor Cost       |   |                                       |  |   |  |
|--------------------------|-------------------------|---|---------------------------------------|--|---|--|
|                          | 1<br>Base wage per hour | 2<br>Taxable fringe benefits (5.65% of base wage) | 3<br>Insurance and employer taxes (%) | 4<br>Insurance and employer taxes (\$) | 5<br>Non-Taxable fringe benefits (4.99% of base wage) | 6<br>Total hourly cost used in this book |
| Bricklayer               | \$30.71                 | \$1.73  | 24.23%                                | \$7.86                                 | \$1.53  | \$41.83                                  |
| Bricklayer's Helper      | 22.80                   | 1.29  | 24.23                                 | 5.84                                   | 1.14  | 31.07                                    |
| Building Laborer         | 23.25                   | 1.31  | 30.91                                 | 7.59                                   | 1.16  | 33.31                                    |
| Carpenter                | 28.89                   | 1.63  | 29.81                                 | 9.10                                   | 1.44  | 41.06                                    |
| Cement Mason             | 29.23                   | 1.65  | 22.44                                 | 6.93                                   | 1.46  | 39.27                                    |
| Drywall Installer        | 29.95                   | 1.69  | 22.62                                 | 7.16                                   | 1.49  | 40.29                                    |
| Drywall Taper            | 30.27                   | 1.71  | 22.62                                 | 7.23                                   | 1.51  | 40.72                                    |
| Electrician              | 34.25                   | 1.93  | 19.32                                 | 6.99                                   | 1.71  | 44.88                                    |
| Floor Layer              | 28.09                   | 1.59  | 22.98                                 | 6.82                                   | 1.40  | 37.90                                    |
| Glazier                  | 29.16                   | 1.65  | 24.58                                 | 7.57                                   | 1.45  | 39.83                                    |
| Lather                   | 30.00                   | 1.69  | 20.65                                 | 6.54                                   | 1.50  | 39.73                                    |
| Marble Setter            | 27.79                   | 1.57  | 20.72                                 | 6.08                                   | 1.39  | 36.83                                    |
| Millwright               | 29.39                   | 1.66  | 20.62                                 | 6.40                                   | 1.47  | 38.92                                    |
| Mosaic & Terrazzo Worker | 29.48                   | 1.66  | 20.72                                 | 6.45                                   | 1.47  | 39.06                                    |
| Operating Engineer       | 34.58                   | 1.95  | 24.16                                 | 8.83                                   | 1.73  | 47.09                                    |
| Painter                  | 31.00                   | 1.75  | 23.98                                 | 7.85                                   | 1.55  | 42.15                                    |
| Plasterer                | 29.58                   | 1.67  | 27.10                                 | 8.47                                   | 1.48  | 41.20                                    |
| Plasterer Helper         | 23.28                   | 1.31  | 27.10                                 | 6.66                                   | 1.16  | 32.41                                    |
| Plumber                  | 35.42                   | 2.00  | 23.55                                 | 8.81                                   | 1.77  | 48.00                                    |
| Reinforcing Ironworker   | 31.05                   | 1.75  | 27.27                                 | 8.94                                   | 1.55  | 43.29                                    |
| Roofer                   | 29.61                   | 1.67  | 41.01                                 | 12.83                                  | 1.48  | 45.59                                    |
| Sheet Metal Worker       | 33.97                   | 1.92  | 24.94                                 | 8.95                                   | 1.69  | 46.53                                    |
| Sprinkler Fitter         | 34.81                   | 1.97  | 24.19                                 | 8.90                                   | 1.74  | 47.42                                    |
| Tile Layer               | 29.77                   | 1.68  | 20.72                                 | 6.52                                   | 1.49  | 39.46                                    |
| Truck Driver             | 25.29                   | 1.43  | 25.16                                 | 6.72                                   | 1.26  | 34.70                                    |

**Figure 1-5**

Components of hourly labor costs

The labor costs shown in Column 6 were used to compute the manhour costs for crews and the figures in the Labor column.

It's important that you understand what's included in the figures in each of the six columns in the table. Here's an explanation:

**Column 1**, the base wage per hour, is the craftsman's hourly wage. These figures are representative of what many contractors will be paying craftsmen working on home improvement jobs in 2024.

**Column 2**, taxable fringe benefits, includes vacation pay, sick leave and other taxable benefits. These fringe benefits average 5.65 percent of the base wage for many home improvement contractors. This benefit is in addition to the base wage.

**Column 3**, insurance and employer taxes in percent, shows the insurance and tax rate for construction trades. The cost of insurance in this column includes workers' compensation and contractor's casualty and liability coverage. Insurance rates

vary widely from state to state and depend on a contractor's loss experience. Note that taxes and insurance increase the hourly labor cost by 30 to 35 percent for most trades. There is no legal way to avoid these costs.

**Column 4**, insurance and employer taxes in dollars, shows the hourly cost of taxes and insurance for each construction trade. Insurance and taxes are paid on the costs in both columns 1 and 2.

**Column 5**, non-taxable fringe benefits, includes employer paid non-taxable benefits such as medical coverage and tax-deferred pension and profit sharing plans. These fringe benefits average 4.99 percent of the base wage for many home improvement contractors. The employer pays no taxes or insurance on these benefits.

**Column 6**, the total hourly cost in dollars, is the sum of columns 1, 2, 4 and 5.

These hourly labor costs will apply within a few percent on many jobs. But wage rates may be much higher or lower in the area where you do business. We recommend using your actual labor cost rather than national averages. That's easy with *National Estimator Cloud*. When copying and pasting costs to your estimate, adjust the assumed hourly labor cost to your actual hourly labor cost. You need do this only once for each trade. And you can make this adjustment at any time. Any change you make is applied to that trade throughout the estimate.

| Abbreviations |                                     |              |                                  |                |   |
|---------------|-------------------------------------|--------------|----------------------------------|----------------|---|
| <b>4WD</b>    | four-wheel drive                    | <b>EPA</b>   | Environmental Protection Agency  | <b>NEMA</b>    | National Electrical Manufacturer's Assoc. |
| <b>ABS</b>    | acrylonitrile butadiene styrene     | <b>F</b>     | Fahrenheit                       | <b>OC</b>      | spacing from center to center             |
| <b>AC</b>     | alternating current                 | <b>GFCI</b>  | ground fault circuit interrupter | <b>OD</b>      | outside diameter                          |
| <b>ACQ</b>    | Alkaline Copper Quat                | <b>GRS</b>   | galvanized rigid steel           | <b>OSB</b>     | oriented strand board                     |
| <b>ADA</b>    | Americans with Disabilities Act     | <b>H</b>     | height                           | <b>OSHA</b>    | Occupational Safety & Health Admin.       |
| <b>ANSI</b>   | American Nat. Standards Institute   | <b>HOM</b>   | higher order mode                | <b>oz.</b>     | ounce(s)                                  |
| <b>APP</b>    | atactic polypropylene               | <b>HP</b>    | horsepower                       | <b>PSI</b>     | pounds per square inch                    |
| <b>ASTM</b>   | Amer. Society for Testing Materials | <b>HVAC</b>  | heating, ventilating & air cond. | <b>PVC</b>     | polyvinyl chloride                        |
| <b>AWG</b>    | American Wire Gauge                 | <b>ID</b>    | inside diameter                  | <b>R</b>       | thermal resistance                        |
| <b>BF</b>     | board foot                          | <b>IMC</b>   | intermediate metal conduit       | <b>S4S</b>     | surfaced 4 sides                          |
| <b>Btr</b>    | better                              | <b>KD</b>    | kiln dried                       | <b>SBS</b>     | styrene butadiene styrene                 |
| <b>Btu(s)</b> | British thermal unit(s)             | <b>KO</b>    | knockout                         | <b>SF</b>      | square foot                               |
| <b>C</b>      | Celsius/Centigrade                  | <b>KW</b>    | kilowatt(s)                      | <b>SFCA</b>    | (per) square foot of contact area         |
| <b>CF</b>     | cubic foot                          | <b>L</b>     | length                           | <b>Sq</b>      | 100 square feet                           |
| <b>CFM</b>    | cubic feet per minute               | <b>Lb(s)</b> | pound(s)                         | <b>Std</b>     | standard                                  |
| <b>CLF</b>    | 100 linear feet                     | <b>LF</b>    | linear foot                      | <b>SY</b>      | square yard                               |
| <b>CPM</b>    | cycles per minute                   | <b>LS</b>    | lump sum                         | <b>T</b>       | thick                                     |
| <b>CSF</b>    | 100 square feet                     | <b>MBF</b>   | 1,000 board feet                 | <b>T&amp;G</b> | tongue & groove edge                      |
| <b>CY</b>     | cubic yard                          | <b>MDF</b>   | medium density fiberboard        | <b>UL</b>      | Underwriter's Laboratory                  |
| <b>d</b>      | penny                               | <b>mm</b>    | millimeter(s)                    | <b>USDA</b>    | United States Dept. of Agriculture        |
| <b>D</b>      | depth                               | <b>Mo</b>    | month                            | <b>UV</b>      | ultraviolet                               |
| <b>DWV</b>    | drain, waste & vent                 | <b>MPH</b>   | miles per hour                   | <b>W</b>       | width                                     |
| <b>Ea</b>     | each                                | <b>MSF</b>   | 1,000 square feet                | <b>X</b>       | by or times                               |
| <b>EMT</b>    | electric metallic tube              | <b>NEC</b>   | National Electrical Code         |                |   |

**Figure 1-6**

Abbreviations used in this manual

## Area Modification Factors

Construction costs are higher in some areas than in other areas. Add or deduct the percentages shown on the following pages to adapt the costs in this book to your jobsite. Adjust your cost estimate by the appropriate percentages in this table to find the estimated cost for the site selected. Where 0% is shown, it means no modification is required. *National Estimator Cloud* will apply an area modification factor for any five-digit zip or Canadian postal code you select.

Modification factors are listed by state and province. Areas within each state are listed by the first three digits of the postal zip code. For convenience, one representative city is identified in each three-digit zip or range of zips. Percentages are based on the average of all data points in the table. Factors listed for each state and province are the average of all data in that state or province. Figures for the zips are the average of all information in that area. And figures in the Total column are the weighted average of factors for Labor, Material and Equipment.

These percentages are composites of many costs and will not necessarily be accurate when estimating the cost of any particular part of a building. But when used to modify costs for an entire structure, they should improve the accuracy of your estimates.

### Area Modification Factors

| Location               | Zip     | Total Wtd. |           |          |            | Total Wtd.              |         |           |            |          |            |
|------------------------|---------|------------|-----------|----------|------------|-------------------------|---------|-----------|------------|----------|------------|
|                        |         | Mat.       | Lab.      | Equip.   | Avg.       |                         |         |           |            |          |            |
| <b>Alabama Average</b> |         | <b>-1</b>  | <b>-4</b> | <b>0</b> | <b>-3%</b> | <b>Arizona Average</b>  |         |           |            |          |            |
| Anniston               | 362     | -3         | -8        | -1       | -5%        | Chambers                | 865     | 1         | -38        | 0        | -17%       |
| Auburn                 | 368     | -1         | -5        | 0        | -3%        | Douglas                 | 855     | 0         | -22        | 0        | -10%       |
| Bellamy                | 369     | -2         | 0         | -1       | -1%        | Flagstaff               | 860     | 2         | -20        | 1        | -8%        |
| Birmingham             | 350-352 | -3         | 14        | -1       | 5%         | Kingman                 | 864     | 1         | -8         | 0        | -3%        |
| Dothan                 | 363     | -1         | -6        | 0        | -3%        | Mesa                    | 852     | 1         | 10         | 0        | 5%         |
| Evergreen              | 364     | -2         | -11       | -1       | -6%        | Phoenix                 | 850     | 1         | 10         | 0        | 5%         |
| Gadsden                | 359     | -4         | -9        | -1       | -6%        | Prescott                | 863     | 3         | -13        | 1        | -4%        |
| Huntsville             | 358     | 1          | 5         | 0        | 3%         | Show Low                | 859     | 2         | -22        | 1        | -9%        |
| Jasper                 | 355     | -2         | -17       | -1       | -9%        | Tucson                  | 856-857 | 0         | -10        | 0        | -5%        |
| Mobile                 | 365-366 | -1         | -5        | 0        | -3%        | Yuma                    | 853     | 0         | 9          | 0        | 4%         |
| Montgomery             | 360-361 | -1         | 3         | 0        | 1%         |                         |         |           |            |          |            |
| Scottsboro             | 357     | 0          | -2        | 0        | -1%        | <b>Arkansas Average</b> |         | <b>-2</b> | <b>-13</b> | <b>0</b> | <b>-7%</b> |
| Selma                  | 367     | -1         | -9        | 0        | -5%        | Batesville              | 725     | 0         | -17        | 0        | -8%        |
| Sheffield              | 356     | -1         | 1         | 0        | 0%         | Camden                  | 717     | -4        | -8         | -1       | -6%        |
| Tuscaloosa             | 354     | 0          | -11       | 0        | -5%        | Fayetteville            | 727     | 0         | -7         | 0        | -3%        |
| <b>Alaska Average</b>  |         | <b>14</b>  | <b>14</b> | <b>4</b> | <b>14%</b> | Fort Smith              | 729     | -1        | -15        | 0        | -7%        |
| Anchorage              | 995     | 16         | 18        | 5        | 17%        | Harrison                | 726     | -1        | -27        | 0        | -13%       |
| Fairbanks              | 997     | 16         | 25        | 5        | 20%        | Hope                    | 718     | -3        | -19        | -1       | -10%       |
| Juneau                 | 998     | 18         | 7         | 6        | 13%        | Hot Springs             | 719     | -2        | -27        | -1       | -13%       |
| Ketchikan              | 999     | 3          | 12        | 1        | 7%         | Jonesboro               | 724     | -1        | -4         | 0        | -2%        |
| King Salmon            | 996     | 16         | 10        | 5        | 13%        | Little Rock             | 720-722 | -1        | -3         | 0        | -2%        |
|                        |         |            |           |          |            | Pine Bluff              | 716     | -4        | -19        | -1       | -11%       |

**Area Modification Factors**

|                           |          |           |          |           |                 | Total Wtd.                  |           |           |          |            |      |
|---------------------------|----------|-----------|----------|-----------|-----------------|-----------------------------|-----------|-----------|----------|------------|------|
| Location                  | Zip      | Mat.      | Lab.     | Equip.    | Avg.            | Location                    | Zip       | Mat.      | Lab.     | Equip.     | Avg. |
| Russellville              | 728      | 0         | -12      | 0         | -6%             | Connecticut Average         |           | 1         | 16       | 0          | 8%   |
| West Memphis              | 723      | -3        | 3        | -1        | 0%              | Bridgeport                  | 066       | 0         | 20       | 0          | 9%   |
| <b>California Average</b> | <b>2</b> | <b>17</b> | <b>1</b> | <b>9%</b> |                 | Bristol                     | 060       | 1         | 23       | 0          | 11%  |
| Alhambra                  | 917-918  | 3         | 18       | 1         | 10%             | Fairfield                   | 064       | 2         | 19       | 1          | 10%  |
| Bakersfield               | 932-933  | 0         | -1       | 0         | 0%              | Hartford                    | 061       | 0         | 21       | 0          | 10%  |
| El Centro                 | 922      | 1         | -2       | 0         | 0%              | New Haven                   | 065       | 1         | 13       | 0          | 7%   |
| Eureka                    | 955      | 1         | -3       | 0         | -1%             | Norwich                     | 063       | 0         | 6        | 0          | 3%   |
| Fresno                    | 936-938  | 0         | -1       | 0         | 0%              | Stamford                    | 068-069   | 4         | 27       | 1          | 15%  |
| Herlong                   | 961      | 2         | 0        | 1         | 1%              | Waterbury                   | 067       | 1         | 13       | 0          | 7%   |
| Inglewood                 | 902-905  | 3         | 18       | 1         | 10%             | West Hartford               | 062       | 1         | 4        | 0          | 2%   |
| Irvine                    | 926-927  | 3         | 27       | 1         | 14%             | <b>Delaware Average</b>     | <b>1</b>  | <b>3</b>  | <b>0</b> | <b>2%</b>  |      |
| Lompoc                    | 934      | 3         | -1       | 1         | 1%              | Dover                       | 199       | 1         | -4       | 0          | -1%  |
| Long Beach                | 907-908  | 3         | 20       | 1         | 11%             | Newark                      | 197       | 2         | 7        | 1          | 4%   |
| Los Angeles               | 900-901  | 3         | 16       | 1         | 9%              | Wilmington                  | 198       | 0         | 5        | 0          | 2%   |
| Marysville                | 959      | 1         | 4        | 0         | 2%              | <b>District of Columbia</b> |           |           |          |            |      |
| Modesto                   | 953      | 1         | 1        | 0         | 1%              | Washington                  | 200-205   | 2         | 21       | 1          | 11%  |
| Mojave                    | 935      | 0         | 13       | 0         | 6%              | <b>Florida Average</b>      | <b>-1</b> | <b>-9</b> | <b>0</b> | <b>-4%</b> |      |
| Novato                    | 949      | 3         | 33       | 1         | 17%             | Altamonte Springs           | 327       | -1        | -4       | 0          | -2%  |
| Oakland                   | 945-947  | 3         | 38       | 1         | 19%             | Bradenton                   | 342       | 0         | -10      | 0          | -5%  |
| Orange                    | 928      | 3         | 25       | 1         | 13%             | Brooksville                 | 346       | 0         | -14      | 0          | -6%  |
| Oxnard                    | 930      | 3         | 4        | 1         | 3%              | Daytona Beach               | 321       | -2        | -18      | -1         | -9%  |
| Pasadena                  | 910-912  | 4         | 18       | 1         | 10%             | Fort Lauderdale             | 333       | 3         | 2        | 1          | 3%   |
| Rancho Cordova            | 956-957  | 2         | 15       | 1         | 8%              | Fort Myers                  | 339       | 0         | -14      | 0          | -6%  |
| Redding                   | 960      | 1         | 4        | 0         | 2%              | Fort Pierce                 | 349       | -2        | -17      | -1         | -9%  |
| Richmond                  | 948      | 2         | 41       | 1         | 20%             | Gainesville                 | 326       | -1        | -13      | 0          | -7%  |
| Riverside                 | 925      | 1         | 6        | 0         | 3%              | Jacksonville                | 322       | -1        | -1       | 0          | -1%  |
| Sacramento                | 958      | 1         | 17       | 0         | 8%              | Lakeland                    | 338       | -3        | -14      | -1         | -8%  |
| Salinas                   | 939      | 3         | 4        | 1         | 3%              | Melbourne                   | 329       | -2        | -10      | -1         | -6%  |
| San Bernardino            | 923-924  | 0         | 8        | 0         | 4%              | Miami                       | 330-332   | 2         | -5       | 1          | -1%  |
| San Diego                 | 919-921  | 3         | 13       | 1         | 8%              | Naples                      | 341       | 3         | -9       | 1          | -3%  |
| San Francisco             | 941      | 3         | 58       | 1         | 28%             | Ocala                       | 344       | -3        | -21      | -1         | -11% |
| San Jose                  | 950-951  | 3         | 53       | 1         | 26%             | Orlando                     | 328       | 0         | 0        | 0          | 0%   |
| San Mateo                 | 943-944  | 4         | 50       | 1         | 25%             | Panama City                 | 324       | -2        | -16      | -1         | -8%  |
| Santa Barbara             | 931      | 3         | 4        | 1         | 3%              | Pensacola                   | 325       | -1        | -12      | 0          | -6%  |
| Santa Rosa                | 954      | 3         | 22       | 1         | 12%             | Saint Augustine             | 320       | -1        | -5       | 0          | -3%  |
| Stockton                  | 952      | 2         | 12       | 1         | 7%              | Saint Cloud                 | 347       | -1        | -2       | 0          | -1%  |
| Sunnyvale                 | 940      | 3         | 54       | 1         | 26%             | St Petersburg               | 337       | 0         | -10      | 0          | -5%  |
| Van Nuys                  | 913-916  | 3         | 16       | 1         | 9%              | Tallahassee                 | 323       | 0         | -15      | 0          | -7%  |
| Whittier                  | 906      | 3         | 17       | 1         | 9%              | Tampa                       | 335-336   | -1        | 2        | 0          | 0%   |
| <b>Colorado Average</b>   | <b>2</b> | <b>1</b>  | <b>1</b> | <b>1%</b> | West Palm Beach | 334                         | 1         | 2         | 0        | 1%         |      |
| Aurora                    | 800-801  | 3         | 17       | 1         | 9%              | <b>Georgia Average</b>      | <b>-1</b> | <b>1</b>  | <b>0</b> | <b>0%</b>  |      |
| Boulder                   | 803-804  | 3         | 11       | 1         | 7%              | Albany                      | 317       | -2        | -9       | -1         | -5%  |
| Colorado Springs          | 808-809  | 2         | 2        | 1         | 2%              | Athens                      | 306       | 0         | 4        | 0          | 2%   |
| Denver                    | 802      | 3         | 21       | 1         | 11%             | Atlanta                     | 303       | 3         | 43       | 1          | 21%  |
| Durango                   | 813      | 1         | -14      | 0         | -6%             | Augusta                     | 308-309   | -2        | 0        | -1         | -1%  |
| Fort Morgan               | 807      | 2         | -9       | 1         | -3%             | Buford                      | 305       | 0         | 0        | 0          | 0%   |
| Glenwood Springs          | 816      | 2         | 8        | 1         | 5%              | Calhoun                     | 307       | -1        | 0        | 0          | -1%  |
| Grand Junction            | 814-815  | 1         | -10      | 0         | -4%             | Columbus                    | 318-319   | -1        | -6       | 0          | -3%  |
| Greeley                   | 806      | 3         | 8        | 1         | 5%              | Dublin/Fort Valley          | 310       | -3        | -14      | -1         | -8%  |
| Longmont                  | 805      | 3         | 4        | 1         | 3%              | Hinesville                  | 313       | -2        | 10       | -1         | 4%   |
| Pagosa Springs            | 811      | 0         | -16      | 0         | -7%             | Kings Bay                   | 315       | -2        | -19      | -1         | -10% |
| Pueblo                    | 810      | -1        | -5       | 0         | -3%             |                             |           |           |          |            |      |
| Salida                    | 812      | 2         | -5       | 1         | -1%             |                             |           |           |          |            |      |

## Area Modification Factors

| Total Wtd.              |         |           |            |          |            | Total Wtd.            |         |      |      |        |      |
|-------------------------|---------|-----------|------------|----------|------------|-----------------------|---------|------|------|--------|------|
| Location                | Zip     | Mat.      | Lab.       | Equip.   | Avg.       | Location              | Zip     | Mat. | Lab. | Equip. | Avg. |
| Macon                   | 312     | -2        | 3          | -1       | 0%         | Aurora                | 470     | -1   | -15  | 0      | -7%  |
| Marietta                | 300-302 | 1         | 13         | 0        | 7%         | Bloomington           | 474     | 1    | -7   | 0      | -3%  |
| Savannah                | 314     | -1        | -2         | 0        | -1%        | Columbus              | 472     | 0    | -1   | 0      | 0%   |
| Statesboro              | 304     | -2        | 8          | -1       | 3%         | Elkhart               | 465     | -2   | -2   | -1     | -2%  |
| Valdosta                | 316     | -1        | -10        | 0        | -5%        | Evansville            | 476-477 | -2   | 0    | -1     | -1%  |
| <b>Hawaii Average</b>   |         | <b>17</b> | <b>18</b>  | <b>6</b> | <b>17%</b> | Fort Wayne            | 467-468 | -3   | 0    | -1     | -2%  |
| Aliamanu                | 968     | 17        | 22         | 6        | 19%        | Gary                  | 463-464 | -4   | 14   | -1     | 4%   |
| Ewa                     | 967     | 17        | 16         | 6        | 16%        | Indianapolis          | 460-462 | -1   | 14   | 0      | 6%   |
| Halawa Heights          | 967     | 17        | 16         | 6        | 16%        | Jasper                | 475     | -2   | -6   | -1     | -4%  |
| Hilo                    | 967     | 17        | 16         | 6        | 16%        | Jeffersonville        | 471     | -1   | -15  | 0      | -7%  |
| Honolulu                | 968     | 17        | 22         | 6        | 19%        | Kokomo                | 469     | -2   | -14  | -1     | -8%  |
| Kailua                  | 968     | 17        | 22         | 6        | 19%        | Lafayette             | 479     | -2   | -1   | -1     | -2%  |
| Lualualei               | 967     | 17        | 16         | 6        | 16%        | Muncie                | 473     | -4   | -13  | -1     | -8%  |
| Mililani Town           | 967     | 17        | 16         | 6        | 16%        | South Bend            | 466     | -4   | -2   | -1     | -3%  |
| Pearl City              | 967     | 17        | 16         | 6        | 16%        | Terre Haute           | 478     | -4   | -8   | -1     | -6%  |
| Wahiawa                 | 967     | 17        | 16         | 6        | 16%        | <b>Iowa Average</b>   |         |      |      |        |      |
| Waianae                 | 967     | 17        | 16         | 6        | 16%        | Burlington            | 526     | 0    | -11  | 0      | -5%  |
| Wailuku (Maui)          | 967     | 17        | 16         | 6        | 16%        | Carroll               | 514     | -3   | -6   | -1     | -4%  |
| <b>Idaho Average</b>    |         | <b>0</b>  | <b>-16</b> | <b>0</b> | <b>-8%</b> | Cedar Falls           | 506     | -1   | 2    | 0      | 0%   |
| Boise                   | 837     | 1         | -4         | 0        | -1%        | Cedar Rapids          | 522-524 | 0    | 2    | 0      | 1%   |
| Coeur d'Alene           | 838     | 0         | -14        | 0        | -6%        | Cherokee              | 510     | -2   | -2   | -1     | -2%  |
| Idaho Falls             | 834     | -1        | -20        | 0        | -10%       | Council Bluffs        | 515     | -2   | -3   | -1     | -2%  |
| Lewiston                | 835     | 0         | -27        | 0        | -12%       | Creston               | 508     | -3   | -16  | -1     | -9%  |
| Meridian                | 836     | 0         | -14        | 0        | -6%        | Davenport             | 527-528 | -1   | 6    | 0      | 2%   |
| Pocatello               | 832     | -1        | -19        | 0        | -9%        | Decorah               | 521     | -3   | -5   | -1     | -4%  |
| Sun Valley              | 833     | 0         | -17        | 0        | -8%        | Des Moines            | 500-503 | -2   | 5    | -1     | 1%   |
| <b>Illinois Average</b> |         | <b>-1</b> | <b>9</b>   | <b>0</b> | <b>4%</b>  | Dubuque               | 520     | -2   | 4    | -1     | 1%   |
| Arlington Heights       | 600     | 1         | 27         | 0        | 13%        | Fort Dodge            | 505     | -2   | 2    | -1     | 0%   |
| Aurora                  | 605     | 2         | 28         | 1        | 14%        | Mason City            | 504     | 0    | -3   | 0      | -1%  |
| Belleville              | 622     | -2        | 6          | -1       | 2%         | Ottumwa               | 525     | 0    | -19  | 0      | -9%  |
| Bloomington             | 617     | 1         | 0          | 0        | 1%         | Sheldon               | 512     | -1   | -2   | 0      | -1%  |
| Carbondale              | 629     | -3        | -16        | -1       | -9%        | Shenandoah            | 516     | -3   | -28  | -1     | -14% |
| Carol Stream            | 601     | 2         | 28         | 1        | 14%        | Sioux City            | 511     | -2   | -4   | -1     | -3%  |
| Centralia               | 628     | -3        | -8         | -1       | -5%        | Spencer               | 513     | -2   | -12  | -1     | -7%  |
| Champaign               | 618     | -1        | -2         | 0        | -1%        | Waterloo              | 507     | -4   | -2   | -1     | -3%  |
| Chicago                 | 606-608 | 2         | 29         | 1        | 14%        | <b>Kansas Average</b> |         |      |      |        |      |
| Decatur                 | 623     | -2        | -6         | -1       | -4%        | Colby                 | 677     | -1   | -5   | 0      | -3%  |
| Galesburg               | 614     | -2        | -4         | -1       | -3%        | Concordia             | 669     | -1   | -28  | 0      | -13% |
| Granite City            | 620     | -3        | 4          | -1       | 0%         | Dodge City            | 678     | -2   | -17  | -1     | -9%  |
| Green River             | 612     | -1        | 3          | 0        | 1%         | Emporia               | 668     | -3   | -19  | -1     | -10% |
| Joliet                  | 604     | 0         | 27         | 0        | 12%        | Fort Scott            | 667     | -2   | -15  | -1     | -8%  |
| Kankakee                | 609     | -2        | 9          | -1       | 3%         | Hays                  | 676     | -2   | -22  | -1     | -11% |
| Lawrenceville           | 624     | -4        | -1         | -1       | -3%        | Hutchinson            | 675     | -3   | -15  | -1     | -8%  |
| Oak Park                | 603     | 3         | 32         | 1        | 16%        | Independence          | 673     | -3   | -6   | -1     | -4%  |
| Peoria                  | 615-616 | -1        | 15         | 0        | 6%         | Kansas City           | 660-662 | 0    | 8    | 0      | 4%   |
| Peru                    | 613     | 0         | 10         | 0        | 5%         | Liberal               | 679     | -2   | -26  | -1     | -13% |
| Quincy                  | 602     | 3         | 28         | 1        | 14%        | Salina                | 674     | -3   | -12  | -1     | -7%  |
| Rockford                | 610-611 | -2        | 10         | -1       | 4%         | Topeka                | 664-666 | -3   | -3   | -1     | -3%  |
| Springfield             | 625-627 | -2        | -4         | -1       | -3%        | Wichita               | 670-672 | -2   | -7   | -1     | -4%  |
| Urbana                  | 619     | -3        | -5         | -1       | -4%        |                       |         |      |      |        |      |

## Area Modification Factors

|                          |         |           |            |           |            | Total Wtd.                   |         |           |           |           |            |
|--------------------------|---------|-----------|------------|-----------|------------|------------------------------|---------|-----------|-----------|-----------|------------|
| Location                 | Zip     | Mat.      | Lab.       | Equip.    | Avg.       | Location                     | Zip     | Mat.      | Lab.      | Equip.    | Avg.       |
| <b>Kentucky Average</b>  |         | <b>-1</b> | <b>-11</b> | <b>0</b>  | <b>-6%</b> | <b>Massachusetts Average</b> |         | <b>2</b>  | <b>25</b> | <b>1</b>  | <b>13%</b> |
| Ashland                  | 411-412 | -4        | -13        | -1        | -8%        | Ayer                         | 015-016 | 1         | 15        | 0         | 7%         |
| Bowling Green            | 421     | 0         | -6         | 0         | -3%        | Bedford                      | 017     | 3         | 41        | 1         | 20%        |
| Campton                  | 413-414 | -1        | -29        | 0         | -14%       | Boston                       | 021-022 | 3         | 59        | 1         | 29%        |
| Covington                | 410     | -1        | 6          | 0         | 2%         | Brockton                     | 023-024 | 3         | 44        | 1         | 22%        |
| Elizabethtown            | 427     | -1        | -12        | 0         | -6%        | Cape Cod                     | 026     | 2         | 12        | 1         | 7%         |
| Frankfort                | 406     | 1         | -13        | 0         | -5%        | Chicopee                     | 010     | 1         | 12        | 0         | 6%         |
| Hazard                   | 417-418 | -2        | -26        | -1        | -13%       | Dedham                       | 019     | 2         | 33        | 1         | 16%        |
| Hopkinsville             | 422     | -2        | -8         | -1        | -5%        | Fitchburg                    | 014     | 2         | 29        | 1         | 14%        |
| Lexington                | 403-405 | 1         | 11         | 0         | 6%         | Hingham                      | 020     | 3         | 42        | 1         | 21%        |
| London                   | 407-409 | -1        | -8         | 0         | -4%        | Lawrence                     | 018     | 2         | 38        | 1         | 19%        |
| Louisville               | 400-402 | -1        | 2          | 0         | 0%         | Nantucket                    | 025     | 3         | 25        | 1         | 13%        |
| Owensboro                | 423     | -2        | -15        | -1        | -8%        | New Bedford                  | 027     | 1         | 17        | 0         | 8%         |
| Paducah                  | 420     | -2        | -13        | -1        | -7%        | Northfield                   | 013     | 2         | 0         | 1         | 1%         |
| Pikeville                | 415-416 | -3        | -21        | -1        | -11%       | Pittsfield                   | 012     | 1         | -1        | 0         | 0%         |
| Somerset                 | 425-426 | 0         | -21        | 0         | -10%       | Springfield                  | 011     | -1        | 13        | 0         | 5%         |
| White Plains             | 424     | -3        | -6         | -1        | -4%        |                              |         |           |           |           |            |
| <b>Louisiana Average</b> |         | <b>-1</b> | <b>3</b>   | <b>-1</b> | <b>1%</b>  | <b>Michigan Average</b>      |         | <b>-2</b> | <b>5</b>  | <b>-1</b> | <b>1%</b>  |
| Alexandria               | 713-714 | -3        | -15        | -1        | -8%        | Battle Creek                 | 490-491 | -3        | 2         | -1        | -1%        |
| Baton Rouge              | 707-708 | 0         | 24         | 0         | 11%        | Detroit                      | 481-482 | 0         | 16        | 0         | 7%         |
| Houma                    | 703     | -2        | 18         | -1        | 7%         | Flint                        | 484-485 | -3        | 1         | -1        | -1%        |
| Lafayette                | 705     | 0         | 9          | 0         | 4%         | Grand Rapids                 | 493-495 | -2        | 12        | -1        | 4%         |
| Lake Charles             | 706     | -2        | 14         | -1        | 5%         | Grayling                     | 497     | 1         | -10       | 0         | -4%        |
| Mandeville               | 704     | -1        | 14         | 0         | 6%         | Jackson                      | 492     | -3        | 1         | -1        | -1%        |
| Minden                   | 710     | -2        | -14        | -1        | -8%        | Lansing                      | 488-489 | -1        | 7         | 0         | 3%         |
| Monroe                   | 712     | -2        | -17        | -1        | -9%        | Marquette                    | 498-499 | -1        | -10       | 0         | -5%        |
| New Orleans              | 700-701 | 0         | 11         | 0         | 5%         | Pontiac                      | 483     | -3        | 23        | -1        | 9%         |
| Shreveport               | 711     | -2        | -11        | -1        | -6%        | Royal Oak                    | 480     | -2        | 18        | -1        | 7%         |
| <b>Maine Average</b>     |         | <b>0</b>  | <b>-9</b>  | <b>0</b>  | <b>-5%</b> | Saginaw                      | 486-487 | -2        | 0         | -1        | -1%        |
| Auburn                   | 042     | -1        | -6         | 0         | -3%        | Traverse City                | 496     | -1        | -1        | 0         | -1%        |
| Augusta                  | 043     | -1        | -8         | 0         | -4%        | <b>Minnesota Average</b>     |         | <b>-1</b> | <b>3</b>  | <b>0</b>  | <b>1%</b>  |
| Bangor                   | 044     | -1        | -7         | 0         | -4%        | Bemidji                      | 566     | -1        | -3        | 0         | -2%        |
| Bath                     | 045     | 1         | -13        | 0         | -5%        | Brainerd                     | 564     | -1        | -5        | 0         | -3%        |
| Brunswick                | 039-040 | 1         | 1          | 0         | 1%         | Duluth                       | 556-558 | -2        | 3         | -1        | 0%         |
| Camden                   | 048     | -1        | -16        | 0         | -8%        | Fergus Falls                 | 565     | -1        | -10       | 0         | -5%        |
| Cutler                   | 046     | -1        | -20        | 0         | -10%       | Magnolia                     | 561     | -1        | -13       | 0         | -7%        |
| Dexter                   | 049     | -1        | -12        | 0         | -6%        | Mankato                      | 560     | 0         | 4         | 0         | 2%         |
| Northern Area            | 047     | -2        | -20        | -1        | -10%       | Minneapolis                  | 553-555 | 1         | 25        | 0         | 12%        |
| Portland                 | 041     | 2         | 7          | 1         | 4%         | Rochester                    | 559     | 0         | 0         | 0         | 0%         |
| <b>Maryland Average</b>  |         | <b>1</b>  | <b>5</b>   | <b>0</b>  | <b>3%</b>  | St Cloud                     | 563     | -1        | 16        | 0         | 7%         |
| Annapolis                | 214     | 4         | 14         | 1         | 9%         | St Paul                      | 550-551 | 1         | 19        | 0         | 9%         |
| Baltimore                | 210-212 | -1        | 13         | 0         | 5%         | Thief River Falls            | 567     | 0         | -3        | 0         | -1%        |
| Bethesda                 | 208-209 | 3         | 25         | 1         | 13%        | Willmar                      | 562     | -1        | 3         | 0         | 1%         |
| Church Hill              | 216     | 2         | -9         | 1         | -3%        | <b>Mississippi Average</b>   |         | <b>-3</b> | <b>1</b>  | <b>-1</b> | <b>-1%</b> |
| Cumberland               | 215     | -4        | -13        | -1        | -8%        | Clarksdale                   | 386     | -3        | 4         | -1        | 0%         |
| Elkton                   | 219     | 2         | 4          | 1         | 3%         | Columbus                     | 397     | -1        | -3        | 0         | -2%        |
| Frederick                | 217     | 1         | 6          | 0         | 3%         | Greenville                   | 387     | -4        | -8        | -1        | -6%        |
| Laurel                   | 206-207 | 2         | 15         | 1         | 8%         | Greenwood                    | 389     | -3        | 4         | -1        | 0%         |
| Salisbury                | 218     | 1         | -14        | 0         | -6%        | Gulfport                     | 395     | -2        | 3         | -1        | 0%         |
|                          |         |           |            |           |            | Jackson                      | 390-392 | -3        | 9         | -1        | 3%         |
|                          |         |           |            |           |            | Laurel                       | 394     | -3        | 8         | -1        | 2%         |

## Area Modification Factors

| Total Wtd.              |         |           |            |          |            | Total Wtd.                |         |          |            |          |             |
|-------------------------|---------|-----------|------------|----------|------------|---------------------------|---------|----------|------------|----------|-------------|
| Location                | Zip     | Mat.      | Lab.       | Equip.   | Avg.       | Location                  | Zip     | Mat.     | Lab.       | Equip.   | Avg.        |
| McComb                  | 396     | -2        | -9         | -1       | -5%        | New Hampshire Average     |         | 1        | 9          | 0        | 4%          |
| Meridian                | 393     | -2        | 1          | -1       | -1%        | Charlestown               | 036     | 0        | -7         | 0        | -3%         |
| Tupelo                  | 388     | -2        | -3         | -1       | -2%        | Concord                   | 034     | 1        | 3          | 0        | 2%          |
| <b>Missouri Average</b> |         | <b>-1</b> | <b>-8</b>  | <b>0</b> | <b>-4%</b> | Dover                     | 038     | 1        | 15         | 0        | 7%          |
| Cape Girardeau          | 637     | -2        | -3         | -1       | -2%        | Lebanon                   | 037     | 2        | -5         | 1        | -1%         |
| Caruthersville          | 638     | -1        | -7         | 0        | -4%        | Littleton                 | 035     | -1       | 17         | 0        | 7%          |
| Chillicothe             | 646     | -2        | -8         | -1       | -5%        | Manchester                | 032-033 | 0        | 13         | 0        | 6%          |
| Columbia                | 652     | 0         | -9         | 0        | -4%        | New Boston                | 030-031 | 1        | 24         | 0        | 12%         |
| East Lynne              | 647     | -1        | -9         | 0        | -5%        | <b>New Jersey Average</b> |         | <b>1</b> | <b>20</b>  | <b>0</b> | <b>10%</b>  |
| Farmington              | 636     | -3        | -16        | -1       | -9%        | Atlantic City             | 080-084 | -2       | 11         | -1       | 4%          |
| Hannibal                | 634     | 0         | -18        | 0        | -8%        | Brick                     | 087     | 2        | 1          | 1        | 2%          |
| Independence            | 640     | -1        | 11         | 0        | 5%         | Dover                     | 078     | 1        | 23         | 0        | 11%         |
| Jefferson City          | 650-651 | 1         | -11        | 0        | -5%        | Edison                    | 088-089 | 1        | 30         | 0        | 14%         |
| Joplin                  | 648     | -2        | -10        | -1       | -6%        | Hackensack                | 076     | 3        | 21         | 1        | 11%         |
| Kansas City             | 641     | -2        | 13         | -1       | 5%         | Monmouth                  | 077     | 3        | 24         | 1        | 13%         |
| Kirksville              | 635     | 0         | -25        | 0        | -12%       | Newark                    | 071-073 | 1        | 19         | 0        | 9%          |
| Knob Noster             | 653     | 0         | -18        | 0        | -8%        | Passaic                   | 070     | 2        | 21         | 1        | 11%         |
| Lebanon                 | 654-655 | -2        | -26        | -1       | -13%       | Paterson                  | 074-075 | 2        | 16         | 1        | 8%          |
| Poplar Bluff            | 639     | -1        | -21        | 0        | -10%       | Princeton                 | 085     | -2       | 24         | -1       | 10%         |
| Saint Charles           | 633     | 0         | 0          | 0        | 0%         | Summit                    | 079     | 3        | 32         | 1        | 16%         |
| Saint Joseph            | 644-645 | -3        | 4          | -1       | 0%         | Trenton                   | 086     | -3       | 20         | -1       | 8%          |
| Springfield             | 656-658 | -2        | -16        | -1       | -8%        | <b>New Mexico Average</b> |         | <b>0</b> | <b>-22</b> | <b>0</b> | <b>-10%</b> |
| St Louis                | 630-631 | -2        | 18         | -1       | 7%         | Alamogordo                | 883     | -1       | -28        | 0        | -13%        |
| <b>Montana Average</b>  |         | <b>0</b>  | <b>-4</b>  | <b>0</b> | <b>-2%</b> | Albuquerque               | 870-871 | 2        | -7         | 1        | -2%         |
| Billings                | 590-591 | 0         | 0          | 0        | 0%         | Clovis                    | 881     | -2       | -34        | -1       | -17%        |
| Butte                   | 597     | 1         | 6          | 0        | 3%         | Farmington                | 874     | 2        | -13        | 1        | -5%         |
| Fairview                | 592     | -1        | 9          | 0        | 4%         | Fort Sumner               | 882     | -3       | 1          | -1       | -1%         |
| Great Falls             | 594     | -1        | 0          | 0        | -1%        | Gallup                    | 873     | 1        | -29        | 0        | -13%        |
| Havre                   | 595     | -1        | -9         | 0        | -5%        | Holman                    | 877     | 2        | -26        | 1        | -11%        |
| Helena                  | 596     | 0         | -6         | 0        | -3%        | Las Cruces                | 880     | -1       | -21        | 0        | -10%        |
| Kalispell               | 599     | 1         | -11        | 0        | -5%        | Santa Fe                  | 875     | 3        | -18        | 1        | -7%         |
| Miles City              | 593     | -1        | -17        | 0        | -8%        | Socorro                   | 878     | 1        | -45        | 0        | -20%        |
| Missoula                | 598     | 1         | -7         | 0        | -3%        | Truth or Consequences     | 879     | -2       | -20        | -1       | -10%        |
| <b>Nebraska Average</b> |         | <b>-1</b> | <b>-15</b> | <b>0</b> | <b>-7%</b> | Tucumcari                 | 884     | -1       | -21        | 0        | -10%        |
| Alliance                | 693     | -1        | -23        | 0        | -11%       | <b>New York Average</b>   |         | <b>0</b> | <b>14</b>  | <b>0</b> | <b>6%</b>   |
| Columbus                | 686     | -1        | -9         | 0        | -5%        | Albany                    | 120-123 | -1       | 14         | 0        | 6%          |
| Grand Island            | 688     | 0         | -17        | 0        | -8%        | Amityville                | 117     | 2        | 19         | 1        | 10%         |
| Hastings                | 689     | 0         | -6         | 0        | -3%        | Batavia                   | 140     | -3       | 2          | -1       | -1%         |
| Lincoln                 | 683-685 | 0         | -8         | 0        | -4%        | Binghamton                | 137-139 | -3       | 3          | -1       | 0%          |
| McCook                  | 690     | 0         | -23        | 0        | -11%       | Bronx                     | 104     | 2        | 24         | 1        | 12%         |
| Norfolk                 | 687     | -3        | -10        | -1       | -6%        | Brooklyn                  | 112     | 3        | 11         | 1        | 7%          |
| North Platte            | 691     | 0         | -18        | 0        | -8%        | Buffalo                   | 142     | -4       | 2          | -1       | -1%         |
| Omaha                   | 680-681 | -1        | 1          | 0        | 0%         | Elmira                    | 149     | -4       | 0          | -1       | -2%         |
| Valentine               | 692     | -2        | -34        | -1       | -17%       | Flushing                  | 113     | 3        | 25         | 1        | 13%         |
| <b>Nevada Average</b>   |         | <b>2</b>  | <b>2</b>   | <b>1</b> | <b>2%</b>  | Garden City               | 115     | 3        | 24         | 1        | 13%         |
| Carson City             | 897     | 2         | -6         | 1        | -2%        | Hicksville                | 118     | 3        | 22         | 1        | 12%         |
| Elko                    | 898     | 1         | 3          | 0        | 2%         | Ithaca                    | 148     | -4       | -11        | -1       | -7%         |
| Ely                     | 893     | 2         | -6         | 1        | -2%        | Jamaica                   | 114     | 3        | 22         | 1        | 12%         |
| Fallon                  | 894     | 2         | 6          | 1        | 4%         | Jamestown                 | 147     | -4       | -10        | -1       | -7%         |
| Las Vegas               | 889-891 | 2         | 6          | 1        | 4%         | Kingston                  | 124     | 0        | -5         | 0        | -2%         |
| Reno                    | 895     | 2         | 6          | 1        | 4%         | Long Island               | 111     | 3        | 68         | 1        | 33%         |

## Area Modification Factors

| Total Wtd.                    |         |           |           |           |            | Total Wtd.                  |         |      |      |        |      |
|-------------------------------|---------|-----------|-----------|-----------|------------|-----------------------------|---------|------|------|--------|------|
| Location                      | Zip     | Mat.      | Lab.      | Equip.    | Avg.       | Location                    | Zip     | Mat. | Lab. | Equip. | Avg. |
| Montauk                       | 119     | 1         | 19        | 0         | 9%         | Lima                        | 458     | -3   | -4   | -1     | -3%  |
| New York (Manhattan) 100-102  | 3       | 70        | 1         | 34%       | Marietta   | 457                         | -2      | -12  | -1   | -7%    |      |
| New York City 100-102         | 3       | 70        | 1         | 34%       | Marion     | 433                         | -3      | 16   | -1   | 6%     |      |
| Newcomb                       | 128     | -1        | 8         | 0         | 3%         | Newark                      | 430-431 | -1   | 13   | 0      | 5%   |
| Niagara Falls                 | 143     | -4        | 1         | -1        | -2%        | Sandusky                    | 448-449 | -1   | 6    | 0      | 2%   |
| Plattsburgh                   | 129     | 1         | 3         | 0         | 2%         | Steubenville                | 439     | -3   | -3   | -1     | -3%  |
| Poughkeepsie                  | 125-126 | 1         | 1         | 0         | 1%         | Toledo                      | 434-436 | -1   | 9    | 0      | 4%   |
| Queens                        | 110     | 4         | 28        | 1         | 15%        | Warren                      | 444     | -4   | -5   | -1     | -4%  |
| Rochester                     | 144-146 | -3        | 2         | -1        | -1%        | Youngstown                  | 445     | -5   | 0    | -2     | -3%  |
| Rockaway                      | 116     | 3         | 14        | 1         | 8%         | Zanesville                  | 437-438 | -2   | -2   | -1     | -2%  |
| Rome                          | 133-134 | -3        | -5        | -1        | -4%        | <b>Oklahoma Average</b>     |         |      |      |        |      |
| Staten Island                 | 103     | 3         | 14        | 1         | 8%         | Adams                       | 739     | -2   | -6   | -1     | -4%  |
| Stewart                       | 127     | -1        | 22        | 0         | 10%        | Ardmore                     | 734     | -3   | -14  | -1     | -8%  |
| Syracuse                      | 130-132 | -3        | 7         | -1        | 2%         | Clinton                     | 736     | -3   | -16  | -1     | -9%  |
| Tonawanda                     | 141     | -4        | 1         | -1        | -2%        | Durant                      | 747     | -4   | -12  | -1     | -8%  |
| Utica                         | 135     | -4        | -4        | -1        | -4%        | Enid                        | 737     | -4   | -16  | -1     | -9%  |
| Watertown                     | 136     | -2        | -4        | -1        | -3%        | Lawton                      | 735     | -3   | -23  | -1     | -12% |
| West Point                    | 109     | 1         | 6         | 0         | 3%         | McAlester                   | 745     | -4   | -19  | -1     | -11% |
| White Plains                  | 105-108 | 3         | 22        | 1         | 12%        | Muskogee                    | 744     | -2   | -8   | -1     | -5%  |
| <b>North Carolina Average</b> |         | <b>1</b>  | <b>-2</b> | <b>0</b>  | <b>-1%</b> | Norman                      | 730     | -2   | -7   | -1     | -4%  |
| Asheville                     | 287-289 | 1         | -10       | 0         | -4%        | Oklahoma City               | 731     | -2   | -4   | -1     | -3%  |
| Charlotte                     | 280-282 | 1         | 12        | 0         | 6%         | Ponca City                  | 746     | -3   | -12  | -1     | -7%  |
| Durham                        | 277     | 2         | 8         | 1         | 5%         | Poteau                      | 749     | -2   | -25  | -1     | -13% |
| Elizabeth City                | 279     | 1         | -17       | 0         | -7%        | Pryor                       | 743     | -2   | -12  | -1     | -7%  |
| Fayetteville                  | 283     | -1        | -10       | 0         | -5%        | Shawnee                     | 748     | -4   | -13  | -1     | -8%  |
| Goldsboro                     | 275     | 1         | 6         | 0         | 3%         | Tulsa                       | 740-741 | -1   | -7   | 0      | -4%  |
| Greensboro                    | 274     | 1         | 6         | 0         | 3%         | Woodward                    | 738     | -4   | -26  | -1     | -14% |
| Hickory                       | 286     | -1        | -7        | 0         | -4%        | <b>Oregon Average</b>       |         |      |      |        |      |
| Kinston                       | 285     | -1        | -13       | 0         | -7%        | Adrian                      | 979     | -1   | -30  | 0      | -14% |
| Raleigh                       | 276     | 3         | 10        | 1         | 6%         | Bend                        | 977     | 1    | 6    | 0      | 3%   |
| Rocky Mount                   | 278     | -1        | -6        | 0         | -3%        | Eugene                      | 974     | 2    | -9   | 1      | -3%  |
| Wilmington                    | 284     | 1         | -9        | 0         | -4%        | Grants Pass                 | 975     | 2    | -13  | 1      | -5%  |
| Winston-Salem                 | 270-273 | 0         | -1        | 0         | 0%         | Klamath Falls               | 976     | 2    | -22  | 1      | -9%  |
| <b>North Dakota Average</b>   |         | <b>-1</b> | <b>2</b>  | <b>0</b>  | <b>0%</b>  | Pendleton                   | 978     | 0    | -5   | 0      | -2%  |
| Bismarck                      | 585     | -1        | -1        | 0         | -1%        | Portland                    | 970-972 | 2    | 29   | 1      | 14%  |
| Dickinson                     | 586     | -1        | 13        | 0         | 5%         | Salem                       | 973     | 2    | -5   | 1      | -1%  |
| Fargo                         | 580-581 | 0         | 6         | 0         | 3%         | <b>Pennsylvania Average</b> |         |      |      |        |      |
| Grand Forks                   | 582     | 0         | -2        | 0         | -1%        | Allentown                   | 181     | -2   | 7    | -1     | 2%   |
| Jamestown                     | 584     | -1        | -5        | 0         | -3%        | Altoona                     | 166     | -3   | -17  | -1     | -9%  |
| Minot                         | 587     | -1        | 0         | 0         | -1%        | Beaver Springs              | 178     | -3   | -14  | -1     | -8%  |
| Nekoma                        | 583     | -1        | -26       | 0         | -12%       | Bethlehem                   | 180     | -1   | 12   | 0      | 5%   |
| Williston                     | 588     | -1        | 29        | 0         | 13%        | Bradford                    | 167     | -4   | -20  | -1     | -11% |
| <b>Ohio Average</b>           |         | <b>-2</b> | <b>3</b>  | <b>-1</b> | <b>0%</b>  | Butler                      | 160     | -4   | -1   | -1     | -3%  |
| Akron                         | 442-443 | -2        | 7         | -1        | 2%         | Chambersburg                | 172     | -1   | -7   | 0      | -4%  |
| Canton                        | 446-447 | -3        | 4         | -1        | 0%         | Clearfield                  | 168     | 2    | -9   | 1      | -3%  |
| Chillicothe                   | 456     | -2        | -11       | -1        | -6%        | DuBois                      | 158     | -2   | -21  | -1     | -11% |
| Cincinnati                    | 450-452 | -1        | 9         | 0         | 4%         | East Stroudsburg            | 183     | 0    | -17  | 0      | -8%  |
| Cleveland                     | 440-441 | -3        | 7         | -1        | 2%         | Erie                        | 164-165 | -3   | -15  | -1     | -8%  |
| Columbus                      | 432     | -1        | 15        | 0         | 6%         | Genesee                     | 169     | -4   | -14  | -1     | -9%  |
| Dayton                        | 453-455 | -3        | 4         | -1        | 0%         | Greensburg                  | 156     | -4   | -2   | -1     | -3%  |
|                               |         |           |           |           |            | Harrisburg                  | 170-171 | -2   | 1    | -1     | -1%  |

## ***Area Modification Factors***

| Total Wtd.                    |         |           |            |          | Total Wtd. |                          |         |      |      |        |                |
|-------------------------------|---------|-----------|------------|----------|------------|--------------------------|---------|------|------|--------|----------------|
| Location                      | Zip     | Mat.      | Lab.       | Equip.   | Avg.       | Location                 | Zip     | Mat. | Lab. | Equip. | Avg.           |
| Hazleton                      | 182     | -3        | -5         | -1       | -4%        | Sioux Falls              | 570-571 | 0    | 1    | 0      | 0%             |
| Johnstown                     | 159     | -4        | -17        | -1       | -10%       | Watertown                | 572     | -1   | -11  | 0      | -6%            |
| Kittanning                    | 162     | -4        | -13        | -1       | -8%        | <b>Tennessee Average</b> |         |      |      |        | <b>2%</b>      |
| Lancaster                     | 175-176 | -2        | 1          | -1       | -1%        | Chattanooga              | 374     | -1   | 13   | 0      | 5%             |
| Meadville                     | 163     | -4        | -26        | -1       | -14%       | Clarksville              | 370     | 1    | 16   | 0      | 8%             |
| Montrose                      | 188     | -3        | -6         | -1       | -4%        | Cleveland                | 373     | -1   | 9    | 0      | 4%             |
| New Castle                    | 161     | -4        | -6         | -1       | -5%        | Columbia                 | 384     | -1   | -12  | 0      | -6%            |
| Philadelphia                  | 190-191 | -3        | 27         | -1       | 11%        | Cookeville               | 385     | 0    | -13  | 0      | -6%            |
| Pittsburgh                    | 152     | -4        | 10         | -1       | 2%         | Jackson                  | 383     | -1   | 17   | 0      | 7%             |
| Pottsville                    | 179     | -4        | -8         | -1       | -6%        | Kingsport                | 376     | 0    | -6   | 0      | -3%            |
| Punxsutawney                  | 157     | -4        | -17        | -1       | -10%       | Knoxville                | 377-379 | -1   | 6    | 0      | 2%             |
| Reading                       | 195-196 | -4        | 1          | -1       | -2%        | McKenzie                 | 382     | -1   | -7   | 0      | -4%            |
| Scranton                      | 184-185 | -2        | -5         | -1       | -3%        | Memphis                  | 380-381 | -1   | 16   | 0      | 7%             |
| Somerset                      | 155     | -4        | -16        | -1       | -9%        | Nashville                | 371-372 | 1    | 18   | 0      | 9%             |
| Southeastern                  | 193     | 0         | 21         | 0        | 10%        | <b>Texas Average</b>     |         |      |      |        | <b>-1% -1%</b> |
| Uniontown                     | 154     | -4        | -14        | -1       | -9%        | Abilene                  | 795-796 | -4   | -10  | -1     | -7%            |
| Valley Forge                  | 194     | -3        | 36         | -1       | 15%        | Amarillo                 | 790-791 | -2   | -6   | -1     | -4%            |
| Warminster                    | 189     | -1        | 21         | 0        | 9%         | Arlington                | 760     | -1   | 16   | 0      | 7%             |
| Warrendale                    | 150-151 | -4        | 10         | -1       | 2%         | Austin                   | 786-787 | 1    | 18   | 0      | 9%             |
| Washington                    | 153     | -4        | 8          | -1       | 2%         | Bay City                 | 774     | -1   | 22   | 0      | 10%            |
| Wilkes Barre                  | 186-187 | -3        | -3         | -1       | -3%        | Beaumont                 | 776-777 | -3   | 12   | -1     | 4%             |
| Williamsport                  | 177     | -3        | -14        | -1       | -8%        | Brownwood                | 768     | -3   | -11  | -1     | -7%            |
| York                          | 173-174 | -3        | 4          | -1       | 0%         | Bryan                    | 778     | 0    | -4   | 0      | -2%            |
| <b>Rhode Island Average</b>   |         | <b>1</b>  | <b>8</b>   | <b>0</b> | <b>4%</b>  | Childress                | 792     | -3   | -24  | -1     | -13%           |
| Bristol                       | 028     | 1         | 8          | 0        | 4%         | Corpus Christi           | 783-784 | -2   | 3    | -1     | 0%             |
| Coventry                      | 028     | 1         | 8          | 0        | 4%         | Dallas                   | 751-753 | -1   | 19   | 0      | 8%             |
| Cranston                      | 029     | 0         | 8          | 0        | 4%         | Del Rio                  | 788     | -3   | -22  | -1     | -12%           |
| Davisville                    | 028     | 1         | 8          | 0        | 4%         | El Paso                  | 798-799 | -3   | -18  | -1     | -10%           |
| Narragansett                  | 028     | 1         | 8          | 0        | 4%         | Fort Worth               | 761-762 | -1   | 16   | -1     | 7%             |
| Newport                       | 028     | 1         | 8          | 0        | 4%         | Galveston                | 775     | -3   | 18   | -1     | 7%             |
| Providence                    | 029     | 0         | 8          | 0        | 4%         | Giddings                 | 789     | 0    | -1   | 0      | 0%             |
| Warwick                       | 028     | 1         | 8          | 0        | 4%         | Greenville               | 754     | -3   | 9    | -1     | 3%             |
| <b>South Carolina Average</b> |         | <b>-1</b> | <b>-1</b>  | <b>0</b> | <b>-1%</b> | Houston                  | 770-772 | -1   | 19   | 0      | 8%             |
| Aiken                         | 298     | 0         | 4          | 0        | 2%         | Huntsville               | 773     | -2   | 13   | -1     | 5%             |
| Beaufort                      | 299     | -1        | -2         | 0        | -1%        | Longview                 | 756     | -2   | -10  | -1     | -6%            |
| Charleston                    | 294     | -1        | 8          | 0        | 3%         | Lubbock                  | 793-794 | -3   | -10  | -1     | -6%            |
| Columbia                      | 290-292 | 0         | -3         | 0        | -1%        | Lufkin                   | 759     | -3   | -5   | -1     | -4%            |
| Greenville                    | 296     | 0         | 3          | 0        | 1%         | McAllen                  | 785     | -3   | -22  | -1     | -12%           |
| Myrtle Beach                  | 295     | 0         | -10        | 0        | -5%        | Midland                  | 797     | -3   | 18   | -1     | 7%             |
| Rock Hill                     | 297     | -1        | -8         | 0        | -4%        | Palestine                | 758     | -2   | -7   | -1     | -4%            |
| Spartanburg                   | 293     | -2        | -3         | -1       | -2%        | Plano                    | 750     | 0    | 18   | 0      | 8%             |
| <b>South Dakota Average</b>   |         | <b>-1</b> | <b>-14</b> | <b>0</b> | <b>-7%</b> | San Angelo               | 769     | -3   | -3   | -1     | -3%            |
| Aberdeen                      | 574     | -1        | -11        | 0        | -6%        | San Antonio              | 780-782 | -2   | 2    | -1     | 0%             |
| Mitchell                      | 573     | -1        | -8         | 0        | -4%        | Texarkana                | 755     | -3   | -16  | -1     | -9%            |
| Mobridge                      | 576     | -2        | -32        | -1       | -16%       | Tyler                    | 757     | -1   | -13  | 0      | -7%            |
| Pierre                        | 575     | -2        | -25        | -1       | -13%       | Victoria                 | 779     | -3   | -3   | -1     | -3%            |
| Rapid City                    | 577     | -2        | -13        | -1       | -7%        | Waco                     | 765-767 | -3   | -4   | -1     | -3%            |

**Area Modification Factors**

| Total Wtd.                       |         |          |            |          |            |
|----------------------------------|---------|----------|------------|----------|------------|
| Location                         | Zip     | Mat.     | Lab.       | Equip.   | Avg.       |
| <b>Utah Average</b>              |         | <b>1</b> | <b>-8</b>  | <b>1</b> | <b>-3%</b> |
| Clearfield                       | 840     | 2        | 0          | 1        | 1%         |
| Green River                      | 845     | 1        | -16        | 0        | -7%        |
| Ogden                            | 843-844 | 0        | -14        | 0        | -6%        |
| Provo                            | 846-847 | 2        | -15        | 1        | -6%        |
| Salt Lake City                   | 841     | 2        | 4          | 1        | 3%         |
| <b>Vermont Average</b>           |         | <b>1</b> | <b>-10</b> | <b>0</b> | <b>-4%</b> |
| Albany                           | 058     | 1        | -14        | 0        | -6%        |
| Battleboro                       | 053     | 1        | -12        | 0        | -5%        |
| Beecher Falls                    | 059     | 1        | -15        | 0        | -6%        |
| Bennington                       | 052     | -1       | -15        | 0        | -7%        |
| Burlington                       | 054     | 3        | 3          | 1        | 3%         |
| Montpelier                       | 056     | 2        | -9         | 1        | -3%        |
| Rutland                          | 057     | -1       | -15        | 0        | -7%        |
| Springfield                      | 051     | -1       | -12        | 0        | -6%        |
| White River Junction             | 050     | 1        | -1         | 0        | 0%         |
| <b>Virginia Average</b>          |         | <b>0</b> | <b>-5</b>  | <b>0</b> | <b>-3%</b> |
| Abingdon                         | 242     | -2       | -13        | -1       | -7%        |
| Alexandria                       | 220-223 | 3        | 23         | 1        | 12%        |
| Charlottesville                  | 229     | 1        | -5         | 0        | -2%        |
| Chesapeake                       | 233     | -1       | -1         | 0        | -1%        |
| Culpeper                         | 227     | 1        | -12        | 0        | -5%        |
| Farmville                        | 239     | -2       | -16        | -1       | -8%        |
| Fredericksburg                   | 224-225 | 1        | -10        | 0        | -4%        |
| Galax                            | 243     | -2       | -18        | -1       | -9%        |
| Harrisonburg                     | 228     | 1        | -14        | 0        | -6%        |
| Lynchburg                        | 245     | -2       | -9         | -1       | -5%        |
| Norfolk                          | 235-237 | 0        | 3          | 0        | 1%         |
| Petersburg                       | 238     | -2       | 1          | -1       | -1%        |
| Radford                          | 241     | -2       | -14        | -1       | -8%        |
| Reston                           | 201     | 3        | 18         | 1        | 10%        |
| Richmond                         | 232     | -1       | 4          | 0        | 1%         |
| Roanoke                          | 240     | -1       | -6         | 0        | -3%        |
| Staunton                         | 244     | 0        | -11        | 0        | -5%        |
| Tazewell                         | 246     | -3       | -22        | -1       | -12%       |
| Virginia Beach                   | 234     | 0        | -2         | 0        | -1%        |
| Williamsburg                     | 230-231 | 0        | 5          | 0        | 2%         |
| Winchester                       | 226     | 0        | -15        | 0        | -7%        |
| <b>Washington Average</b>        |         | <b>1</b> | <b>-1</b>  | <b>1</b> | <b>0%</b>  |
| Clarkston                        | 994     | 0        | -3         | 0        | -1%        |
| Everett                          | 982     | 2        | 5          | 1        | 3%         |
| Olympia                          | 985     | 2        | -2         | 1        | 0%         |
| Pasco                            | 993     | 0        | -1         | 0        | 0%         |
| Seattle                          | 980-981 | 3        | 24         | 1        | 13%        |
| Spokane                          | 990-992 | 0        | -6         | 0        | -3%        |
| Tacoma                           | 983-984 | 2        | 5          | 1        | 3%         |
| Vancouver                        | 986     | 2        | 0          | 1        | 1%         |
| <b>West Virginia Average</b>     |         |          |            |          |            |
| Beckley                          | 258-259 | 0        | -18        | 0        | -8%        |
| Bluefield                        | 247-248 | -1       | -24        | 0        | -12%       |
| Charleston                       | 250-253 | 1        | 4          | 0        | 2%         |
| Clarksburg                       | 263-264 | -3       | -6         | -1       | -4%        |
| Fairmont                         | 266     | 0        | -30        | 0        | -14%       |
| Huntington                       | 255-257 | -1       | -7         | 0        | -4%        |
| Lewisburg                        | 249     | -2       | -30        | -1       | -15%       |
| Martinsburg                      | 254     | -1       | -18        | 0        | -9%        |
| Morgantown                       | 265     | -3       | -11        | -1       | -7%        |
| New Martinsville                 | 262     | -2       | -24        | -1       | -12%       |
| Parkersburg                      | 261     | -3       | -11        | -1       | -7%        |
| Romney                           | 267     | -4       | -16        | -1       | -9%        |
| Sugar Grove                      | 268     | -3       | -27        | -1       | -14%       |
| Wheeling                         | 260     | -3       | 5          | -1       | 1%         |
| <b>Wisconsin Average</b>         |         |          |            |          |            |
| Amery                            | 540     | 0        | 4          | 0        | 2%         |
| Beloit                           | 535     | 0        | 7          | 0        | 3%         |
| Clam Lake                        | 545     | -1       | -12        | 0        | -6%        |
| Eau Claire                       | 547     | -1       | -2         | 0        | -1%        |
| Green Bay                        | 541-543 | 0        | 7          | 0        | 3%         |
| La Crosse                        | 546     | -2       | -4         | -1       | -3%        |
| Ladysmith                        | 548     | -2       | 11         | -1       | 4%         |
| Madison                          | 537     | 2        | 11         | 1        | 6%         |
| Milwaukee                        | 530-534 | 0        | 12         | 0        | 6%         |
| Oshkosh                          | 549     | -1       | 16         | 0        | 7%         |
| Portage                          | 539     | 0        | 2          | 0        | 1%         |
| Prairie du Chien                 | 538     | -2       | -5         | -1       | -3%        |
| Wausau                           | 544     | -1       | -5         | 0        | -3%        |
| <b>Wyoming Average</b>           |         |          |            |          |            |
| Casper                           | 826     | -2       | -4         | -1       | -3%        |
| Cheyenne/Laramie                 | 820     | 1        | -10        | 0        | -4%        |
| Gillette                         | 827     | -1       | -5         | 0        | -3%        |
| Powell                           | 824     | 0        | -19        | 0        | -9%        |
| Rawlins                          | 823     | 0        | -6         | 0        | -3%        |
| Riverton                         | 825     | -1       | -15        | 0        | -7%        |
| Rock Springs                     | 829-831 | 0        | 3          | 0        | 1%         |
| Sheridan                         | 828     | 1        | -14        | 0        | -6%        |
| Wheatland                        | 822     | 0        | -22        | 0        | -10%       |
| <b>UNITED STATES TERRITORIES</b> |         |          |            |          |            |
| Guam                             |         | 53       | -21        | -5       | 18%        |
| Puerto Rico                      |         | 2        | -47        | -5       | -21%       |
| <b>VIRGIN ISLANDS (U.S.)</b>     |         |          |            |          |            |
| St. Croix                        |         | 18       | -15        | -4       | 2%         |
| St. John                         |         | 52       | -15        | -4       | 20%        |
| St. Thomas                       |         | 23       | -15        | -4       | 5%         |

## **Canadian Area Modification Factors**

To find the cost in Canada in Canadian dollars, increase the costs in this book by the appropriate percentage listed below. These figures convert costs to Canadian dollars based on \$1.00 Canadian to \$0.76 U.S.

| <b>Location</b>                 | <b>Mat.</b> | <b>Lab.</b> | <b>Equip.</b> | <b>Total<br/>Wtd.</b> |  |
|---------------------------------|-------------|-------------|---------------|-----------------------|--|
|                                 |             |             |               | <b>Avg.</b>           |  |
| <b>Alberta Average</b>          | <b>26</b>   | <b>-1</b>   | <b>7</b>      | <b>13%</b>            |  |
| Calgary                         | 26          | 1           | 7             | 14%                   |  |
| Edmonton                        | 25          | 2           | 7             | 14%                   |  |
| Fort McMurray                   | 28          | -7          | 7             | 12%                   |  |
| <b>British Columbia Average</b> | <b>26</b>   | <b>-15</b>  | <b>7</b>      | <b>7%</b>             |  |
| Fraser Valley                   | 26          | -16         | 7             | 6%                    |  |
| Okanagan                        | 27          | -18         | 7             | 6%                    |  |
| Vancouver                       | 26          | -11         | 7             | 9%                    |  |
| <b>Manitoba Average</b>         | <b>20</b>   | <b>-22</b>  | <b>5</b>      | <b>0%</b>             |  |
| North Manitoba                  | 20          | -22         | 5             | 0%                    |  |
| Selkirk                         | 20          | -22         | 5             | 0%                    |  |
| South Manitoba                  | 20          | -22         | 5             | 0%                    |  |
| Winnipeg                        | 20          | -22         | 5             | 0%                    |  |
| <b>New Brunswick</b>            | <b>16</b>   | <b>-47</b>  | <b>3</b>      | <b>-13%</b>           |  |
| Moncton                         | 16          | -47         | 3             | -13%                  |  |

| <b>Location</b>              | <b>Mat.</b> | <b>Lab.</b> | <b>Equip.</b> | <b>Total<br/>Wtd.</b> |  |
|------------------------------|-------------|-------------|---------------|-----------------------|--|
|                              |             |             |               | <b>Avg.</b>           |  |
| <b>Newfoundland/Labrador</b> | <b>19</b>   | <b>-29</b>  | <b>4</b>      | <b>-3%</b>            |  |
| <b>Nova Scotia Average</b>   | <b>17</b>   | <b>-36</b>  | <b>4</b>      | <b>-8%</b>            |  |
| Amherst                      | 16          | -36         | 3             | -8%                   |  |
| Nova Scotia                  | 17          | -35         | 4             | -7%                   |  |
| Sydney                       | 17          | -37         | 4             | -8%                   |  |
| <b>Ontario Average</b>       | <b>22</b>   | <b>-11</b>  | <b>5</b>      | <b>7%</b>             |  |
| London                       | 22          | -10         | 5             | 7%                    |  |
| Thunder Bay                  | 24          | -14         | 6             | 6%                    |  |
| Toronto                      | 21          | -9          | 5             | 7%                    |  |
| <b>Quebec Average</b>        | <b>19</b>   | <b>-24</b>  | <b>4</b>      | <b>-1%</b>            |  |
| Montreal                     | 19          | -24         | 4             | -1%                   |  |
| Quebec City                  | 19          | -24         | 4             | -1%                   |  |
| <b>Saskatchewan Average</b>  | <b>23</b>   | <b>-18</b>  | <b>5</b>      | <b>4%</b>             |  |
| La Ronge                     | 24          | -21         | 6             | 3%                    |  |
| Prince Albert                | 22          | -20         | 5             | 2%                    |  |
| Saskatoon                    | 22          | -14         | 5             | 5%                    |  |

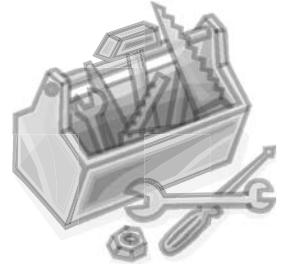
# Demolition

2

Nearly all home improvement projects require some breaking out and removing of existing materials and disposal of debris. Most will require protection of adjacent surfaces, taking safety precautions (such as setting up barricades), closing off doorways or windows, and normal cleanup. The demolition figures in this chapter include these tasks and will apply on most home improvement jobs that don't involve unusual conditions or complications. Costs will be higher when access to the work is limited, when your crew doesn't have complete control of the construction site, or when debris must be moved longer distances or around obstacles. All figures assume that debris is piled on site or in a bin. Add the cost of hauling to the nearest disposal site and tippage charges, if required. No salvage value is assumed except as noted.

Many of the following chapters include estimated costs to remove the old and replace with new materials of a similar description. For example, you'll find costs for removing shingles and replacing shingles in the roofing chapter. That's appropriate because they're part of the same task and usually performed by the same contractor. The estimates in this chapter are for demolition only and don't consider the cost of replacing what has been removed.

Of all construction tasks, demolition is probably the most difficult to estimate with any certainty. You're never sure what's in a wall to be demolished until the job begins. That's why it's best to exclude from your demolition bid what isn't in your estimate. Use the checklist to the right to help identify potential problems before they develop.



## Demolition Checklist

- Can you anticipate any problem getting a demolition permit for this job?
- Is there a noise ordinance which will limit hours of operation or selection of equipment?
- Can the debris box be located close to the work?
- Can a trencher get to the job site?
- Is the site accessible to wheeled equipment?
- Will the debris have to be hand-carried to the roll-off box or gondola?
- Is there a direct route from the demolition site to the debris box?
- Will you need to re-route any plumbing, electrical, phone or gas lines?
- Will you need to remove and replace lawn sprinklers?
- Will you need to cut back or remove any bushes or trees?
- Will you have to remove and re-install a fence or gate?
- Does a septic tank or drain field extend into the site of construction?
- Can (must) materials generated from your project be recycled or salvaged?

Some classes of waste require special treatment. For example, paint cans with liquid paint may have to be delivered to an approved paint disposal facility. Brick and broken concrete delivered to a recycling company may have salvage value. Hot embers should not be removed from the site. Most public dumps and waste pickup services won't accept hazardous materials such as asbestos, explosives, pesticides, contaminated soils, absorbents, fuel oil or medical waste. State law may prohibit mixing of toxic minerals (such as mercury) with other waste materials. Wood, plaster, insulation, styrofoam, tile, and drywall are routinely accepted by most waste disposal companies. If you anticipate problems disposing of debris, get advice from an office of your local county government before bidding the job.

|   | Day    | Week     | Month    |
|---|--------|----------|----------|
| <b>Equipment Rental for Demolition.</b>                 |        |          |          |
| Air compressors, wheel-mounted                          |        |          |          |
| 16 CFM, shop type, electric                             | 82.60  | 194.00   | 578.00   |
| 30 CFM, shop type, electric                             | 88.40  | 265.00   | 796.00   |
| 80 CFM, shop type, electric                             | 103.00 | 315.00   | 940.00   |
| 100 CFM, gasoline unit                                  | 141.00 | 420.00   | 1,180.00 |
| 125 CFM, gasoline unit                                  | 174.00 | 524.00   | 1,570.00 |
| Paving breakers (no bits included) hand-held, pneumatic |        |          |          |
| To 40 lb  | 57.80  | 185.00   | 408.00   |
| 41 - 55 lb  | 92.90  | 331.00   | 695.00   |
| 56 - 70 lb  | 77.40  | 266.00   | 526.00   |
| 71 - 90 lb  | 133.00 | 315.00   | 674.00   |
| Paving breakers jackhammer bits                         |        |          |          |
| Moil points, 15" to 18"                                 | 6.00   | 14.00    | 30.00    |
| Chisels, 3"   | 7.00   | 17.00    | 44.00    |
| Clay spades, 5-1/2"                                     | 10.00  | 23.00    | 62.00    |
| Asphalt cutters, 5"                                     | 8.00   | 24.00    | 51.00    |
| Pneumatic chippers, medium weight, 10 lb                | 38.00  | 110.00   | 307.00   |
| Air hose rental, 50 LF section                          |        |          |          |
| 5/8" air hose   | 11.40  | 21.70    | 51.60    |
| 3/4" air hose   | 13.40  | 27.90    | 65.00    |
| 1" air hose   | 16.50  | 38.20    | 78.40    |
| 1-1/2" air hose   | 25.80  | 74.30    | 192.00   |
| Dump truck rental rate plus mileage                     |        |          |          |
| 3 CY  | 479.00 | 1,260.00 | 2,460.00 |
| 5 CY  | 507.00 | 1,340.00 | 3,870.00 |
| Hammer rental   |        |          |          |
| Electric brute breaker                                  | 67.10  | 268.00   | 805.00   |
| Gas breaker   | 99.10  | 399.00   | 1,080.00 |
| Demolition hammer, electric                             | 59.80  | 239.00   | 718.00   |
| Roto hammer, 7/8", electric                             | 68.10  | 272.00   | 817.00   |
| Roto hammer, 1-1/2", electric                           | 69.10  | 277.00   | 669.00   |
| Stump grinder, 9 HP                                     | 170.00 | 681.00   | 2,040.00 |
| Brush chipper, trailer-mounted 40 HP                    | 343.00 | 1,000.00 | 2,500.00 |
| Chain saw, 18", gasoline                                | 74.30  | 298.00   | 864.00   |
| Chop saw, 14", electric                                 | 43.30  | 172.00   | 504.00   |
| Backhoe/loader, wheel-mounted, diesel or gasoline       |        |          |          |
| 1/2 CY bucket capacity, 55 HP                           | 272.00 | 838.00   | 1,940.00 |
| 1 CY bucket capacity, 65 HP                             | 253.00 | 779.00   | 2,350.00 |
| 1-1/4 CY bucket capacity, 75 HP                         | 247.00 | 829.00   | 2,290.00 |
| 1-1/2 CY bucket capacity, 100 HP                        | 439.00 | 1,210.00 | 3,100.00 |
| Wheel loader, front-end load and dump, diesel           |        |          |          |
| 3/4 CY bucket, 4WD, articulated                         | 226.00 | 771.00   | 2,200.00 |
| 1 CY bucket, 4WD, articulated                           | 399.00 | 1,160.00 | 3,250.00 |
| 2 CY bucket, 4WD, articulated                           | 650.00 | 1,840.00 | 4,860.00 |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Sitework Demolition</b>  |           |      |          |        |        |        |
| <b>Debris disposal and removal.</b> Tippage charges for solid waste disposal at the dump vary from \$50 to \$150 per ton. For planning purposes, estimate waste disposal at \$80 per ton, plus the hauling cost. Call the dump or trash disposal company for actual charges. Typical costs are shown below.   |           |      |          |        |        |        |
| Dumpster, 3 CY trash bin, emptied weekly  | —         | Mo   | —        | —      | 463.00 | —      |
| Dumpster, 40 CY solid waste bin (lumber, drywall, roofing)  |           |      |          |        |        |        |
| Hauling cost, per load  | —         | Ea   | —        | —      | 327.00 | —      |
| Add to per load charge, per ton   | —         | Ton  | —        | —      | 80.30  | —      |
| Low-boy, 14 CY solid waste container (asphalt, dirt, masonry, concrete)   |           |      |          |        |        |        |
| Hauling cost, per load (7 CY maximum load)  | —         | Ea   | —        | —      | 315.00 | —      |
| Add to per load charge, per ton   | —         | Ton  | —        | —      | 80.30  | —      |
| <b>Recycler fees.</b> Recycling construction waste materials can substantially reduce disposal costs. Recycling charges vary from \$100 to \$140 per load, depending on the type of material and the size of the load. Add the cost of hauling to a recycling facility.   |           |      |          |        |        |        |
| Greenwaste  | —         | Ton  | —        | —      | 43.20  | —      |
| Asphalt, per load (7 CY)  | —         | Ea   | —        | —      | 136.00 | —      |
| Concrete, masonry or rock, per load (7 CY)  | —         | Ea   | —        | —      | 133.00 | —      |
| Dirt, per load (7 CY)   | —         | Ea   | —        | —      | 130.00 | —      |
| Mixed loads, per load (7 CY)  | —         | Ea   | —        | —      | 140.00 | —      |
| <b>Bush and tree removal.</b> Includes cutting into manageable pieces with power hand tools and dumping debris in a trash bin on site. Add the cost of power equipment rental, if needed.   |           |      |          |        |        |        |
| Shrubs and bushes, including stump removal.   |           |      |          |        |        |        |
| 4' high, per each   | BL@.750   | Ea   | —        | 25.00  | 25.00  | 42.50  |
| Tree removal. Costs will vary widely depending on the condition, size, location and accessibility of the tree. Small quantities. Includes cutting into manageable pieces with power hand tools and dumping debris in a trash bin or chipper on site. Does not include stump removal or grinding. Add the cost of power equipment rental, bucket truck, and other specialized equipment if needed. Large shade tree removal may require a crew of 5 or more. Use \$2,000 as a minimum job charge for trees with a 26" diameter trunk and larger. |           |      |          |        |        |        |
| 8" to 12" diameter trunk  | B8@5.00   | Ea   | —        | 201.00 | 201.00 | 342.00 |
| 13" to 18" diameter trunk   | B8@7.00   | Ea   | —        | 281.00 | 281.00 | 478.00 |
| 19" to 24" diameter trunk   | B8@11.0   | Ea   | —        | 442.00 | 442.00 | 751.00 |
| 25" to 36" diameter trunk   | B8@14.0   | Ea   | —        | 563.00 | 563.00 | 957.00 |
| Stump grinding, using a 9 HP wheel-mounted stump grinder  |           |      |          |        |        |        |
| 6" to 10" diameter stump  | B8@.800   | Ea   | —        | 32.20  | 32.20  | 54.70  |
| 11" to 14" diameter stump   | B8@1.04   | Ea   | —        | 41.80  | 41.80  | 71.10  |
| 15" to 18" diameter stump   | B8@1.30   | Ea   | —        | 52.30  | 52.30  | 88.90  |
| 19" to 24" diameter stump   | B8@1.50   | Ea   | —        | 60.30  | 60.30  | 103.00 |
| <b>Fencing demolition.</b> Remove chain link fence and cemented posts for disposal. These figures assume fencing is removed by cutting ties at posts and rails and rolling the fabric. These rolls can be heavy. A larger crew will be needed on larger jobs.   |           |      |          |        |        |        |
| To 6' high  | BL@.100   | LF   | —        | 3.33   | 3.33   | 5.66   |
| Remove chain link fence and cemented posts for salvage,   |           |      |          |        |        |        |
| To 6' high  | BL@.120   | LF   | —        | 4.00   | 4.00   | 6.80   |
| Remove board fence and cemented posts for disposal,   |           |      |          |        |        |        |
| To 6' high  | BL@.100   | LF   | —        | 3.33   | 3.33   | 5.66   |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Building Demolition

**Single-story room demolition.** Includes breaking out a concrete or masonry foundation using pneumatic tools, breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site. Includes the cost of erecting a temporary vapor barrier to seal the wall opening in the existing structure. Add the cost of wall patching on the remaining structure. Add the cost of equipment rental.

Demolish a wood-frame addition built on a concrete slab, including grade beams. Use these figures to estimate the cost of demolishing an attached garage.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| Per square foot of floor area demolished  | BL@.100 | SF | — | 3.33 | 3.33 | 5.66 |
| Demolish a wood-frame addition built on a conventional foundation, including wood deck, stairs to grade, and the concrete or concrete block foundation. |         |    |   |      |      |      |
| Per square foot of floor area demolished  | BL@.120 | SF | — | 4.00 | 4.00 | 6.80 |

**Detached garage demolition.** Includes breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site. No slab or foundation demolition included. No salvage of materials assumed.

Frame garage with wood or aluminum siding

|   |         |    |   |        |        |          |
|---|---------|----|---|--------|--------|----------|
| One-car garage, to 10' wide by 22' deep | BL@16.5 | Ea | — | 550.00 | 550.00 | 935.00   |
| Two-car garage, to 20' wide by 28' deep | BL@23.0 | Ea | — | 766.00 | 766.00 | 1,300.00 |

Frame garage with stucco siding

|  |         |    |   |          |          |          |
|--|---------|----|---|----------|----------|----------|
| One-car garage to 12' wide by 22' deep | BL@23.5 | Ea | — | 783.00   | 783.00   | 1,330.00 |
| One-car to 16' wide by 22' deep        | BL@28.5 | Ea | — | 949.00   | 949.00   | 1,610.00 |
| Two-car garage to 22' wide by 28' deep | BL@42.5 | Ea | — | 1,420.00 | 1,420.00 | 2,410.00 |

Brick or block garage

|  |         |    |   |          |          |          |
|--|---------|----|---|----------|----------|----------|
| One-car garage to 12' wide by 22' deep | BL@23.0 | Ea | — | 766.00   | 766.00   | 1,300.00 |
| One-car garage to 16' wide by 22' deep | BL@28.0 | Ea | — | 933.00   | 933.00   | 1,590.00 |
| Two-car garage to 20' wide by 22' deep | BL@33.0 | Ea | — | 1,100.00 | 1,100.00 | 1,870.00 |

**Gutting a building.** Interior finish stripped back to the structural walls. Building structure to remain. No allowance for salvage value. These costs include loading and hauling up to 6 miles but no dump fees. Costs are per square foot of floor area based on 8' ceiling height. Add the cost of equipment rental. Figures in parentheses show the approximate "loose" volume of materials after demolition.

|                                      |         |    |   |      |      |      |
|--------------------------------------|---------|----|---|------|------|------|
| Residential building (125 SF per CY) | BL@.100 | SF | — | 3.33 | 3.33 | 5.66 |
|--------------------------------------|---------|----|---|------|------|------|

**Building Component Demolition.** Itemized costs for demolition of building components when building is being remodeled, repaired or rehabilitated and not completely demolished. Costs include protecting adjacent areas and normal clean-up. Costs are to break out the items listed and pile debris on site or in a bin.

**Brick wall demolition.** Cost per square foot removed measured on one face. Removed using a pneumatic breaker. Add the cost of equipment rental. Figures in parentheses show the volume before and after demolition and weight of the materials after demolition.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| 4" thick walls<br>(60 SF per CY and 36 lbs. per SF) | BL@.061 | SF | — | 2.03 | 2.03 | 3.45 |
| 8" thick walls<br>(30 SF per CY and 72 lbs. per SF) |         |    |   |      |      |      |
| 8" thick walls<br>(30 SF per CY and 72 lbs. per SF) | BL@.110 | SF | — | 3.66 | 3.66 | 6.22 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Brick sidewalk demolition.** Cost per square foot removed. Add the cost of Bobcat rental. Larger jobs will require a crew of 2 or more. Figures in parentheses show the volume before and after demolition and weight of materials after demolition.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| 2-1/2" thick brick on sand base, no mortar bed, removed using hand tools<br>(100 SF per CY and 28 lbs. per SF)          | BL@.020 | SF | — | 0.67 | 0.67 | 1.14 |
| Brick pavers up to 4-1/2" thick with mortar bed, removed using a pneumatic breaker<br>(55 SF per CY and 50 lbs. per SF) | BL@.050 | SF | — | 1.67 | 1.67 | 2.84 |

**Concrete masonry wall demolition.** Cost per square foot of wall removed measured on one side. Removed using a pneumatic breaker. Add the cost of equipment rental. Figures in parentheses show the volume before and after demolition and weight of materials after demolition.

|  |         |    |   |      |      |      |
|--|---------|----|---|------|------|------|
| 4" thick walls<br>(60 SF per CY and 19 lbs. per SF)  | BL@.066 | SF | — | 2.20 | 2.20 | 3.74 |
| 6" thick walls<br>(40 SF per CY and 28 lbs. per SF)  | BL@.075 | SF | — | 2.50 | 2.50 | 4.25 |
| 8" thick walls<br>(30 SF per CY and 34 lbs. per SF)  | BL@.098 | SF | — | 3.26 | 3.26 | 5.54 |
| 12" thick walls<br>(20 SF per CY and 46 lbs. per SF) | BL@.140 | SF | — | 4.66 | 4.66 | 7.92 |
| Reinforced or grouted walls add                      | —       | %  | — | —    | 50.0 | —    |

**Concrete foundation demolition (footings).** Steel reinforced, removed using a pneumatic breaker. Add the cost of equipment rental. Figures in parentheses show the volume before and after demolition.

|   |         |    |   |        |        |        |
|---|---------|----|---|--------|--------|--------|
| Cost per CY (.75 CY per CY)               | BL@3.96 | CY | — | 132.00 | 132.00 | 224.00 |
| Cost per LF with width and depth as shown |         |    |   |        |        |        |
| 6" W x 12" D (35 LF per CY)               | BL@.075 | LF | — | 2.50   | 2.50   | 4.25   |
| 8" W x 12" D (30 LF per CY)               | BL@.098 | LF | — | 3.26   | 3.26   | 5.54   |
| 8" W x 16" D (20 LF per CY)               | BL@.133 | LF | — | 4.43   | 4.43   | 7.53   |
| 8" W x 18" D (18 LF per CY)               | BL@.147 | LF | — | 4.90   | 4.90   | 8.33   |
| 10" W x 12" D (21 LF per CY)              | BL@.121 | LF | — | 4.03   | 4.03   | 6.85   |
| 10" W x 16" D (16 LF per CY)              | BL@.165 | LF | — | 5.50   | 5.50   | 9.35   |
| 10" W x 18" D (14 LF per CY)              | BL@.185 | LF | — | 6.16   | 6.16   | 10.50  |
| 12" W x 12" D (20 LF per CY)              | BL@.147 | LF | — | 4.90   | 4.90   | 8.33   |
| 12" W x 16" D (13 LF per CY)              | BL@.196 | LF | — | 6.53   | 6.53   | 11.10  |
| 12" W x 20" D (11 LF per CY)              | BL@.245 | LF | — | 8.16   | 8.16   | 13.90  |
| 12" W x 24" D ( 9 LF per CY)              | BL@.294 | LF | — | 9.79   | 9.79   | 16.60  |

**Concrete sidewalk demolition.** To 4" thick, cost per SF removed. Figures in parentheses show the volume before and after demolition.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| Non-reinforced, removed by hand with sledge<br>(60 SF per CY)   | BL@.050 | SF | — | 1.67 | 1.67 | 2.84 |
| Reinforced with wire mesh. Mesh cut into manageable pieces, then removed using pneumatic breaker. Add the cost of equipment rental.<br>(55 SF per CY) | BL@.060 | SF | — | 2.00 | 2.00 | 3.40 |

|  | Craft@Hrs | Unit | Material | Labor  | Total  | Sell     |
|--|-----------|------|----------|--------|--------|----------|
| <b>Porch and deck demolition.</b> Includes breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site.   |           |      |          |        |        |          |
| Demolish an enclosed wood-frame porch. Includes breaking out the concrete or masonry pier foundation. Per square foot of floor.  |           |      |          |        |        |          |
| One story  | BL@.250   | SF   | —        | 8.33   | 8.33   | 14.20    |
| Two story  | BL@.225   | SF   | —        | 7.49   | 7.49   | 12.70    |
| Three story  | BL@.196   | SF   | —        | 6.53   | 6.53   | 11.10    |
| Demolish a screened porch built on a concrete slab. Includes demolition of one concrete or wood frame step to grade. Per square foot of floor area.  |           |      |          |        |        |          |
| Porch and one step (no slab demolition)  | BL@.100   | SF   | —        | 3.33   | 3.33   | 5.66     |
| Demolish a wood deck with railing or kneewall. Includes demolition of the wood deck and up to 7 steps to grade.  |           |      |          |        |        |          |
| Deck to 150 SF   | BL@18.5   | Ea   | —        | 616.00 | 616.00 | 1,050.00 |
| Add per SF for deck over 150 SF  | BL@.100   | SF   | —        | 3.33   | 3.33   | 5.66     |
| <b>Concrete slab demolition.</b> Break up and remove concrete slab using a compressor and pneumatic hammer. Includes loosening concrete with a pick and handling debris to a trash bin on site. Costs for demolition of reinforced concrete slab include burning off rebars with an acetylene torch. Add the rental cost of a compressor, pneumatic hammer and a torch, as required. Figures in parentheses show the volume before and after demolition. |           |      |          |        |        |          |
| 4" non-reinforced concrete (60 SF per CY)  | BL@.057   | SF   | —        | 1.90   | 1.90   | 3.23     |
| 4" reinforced concrete (60 SF per CY)  | BL@.071   | SF   | —        | 2.37   | 2.37   | 4.03     |
| 6" non-reinforced concrete (45 SF per CY)  | BL@.083   | SF   | —        | 2.76   | 2.76   | 4.69     |
| 6" reinforced concrete (45 SF per CY)  | BL@.103   | SF   | —        | 3.43   | 3.43   | 5.83     |
| 8" non-reinforced concrete (30 SF per CY)  | BL@.109   | SF   | —        | 3.63   | 3.63   | 6.17     |
| 8" reinforced concrete (30 SF per CY)  | BL@.122   | SF   | —        | 4.06   | 4.06   | 6.90     |
| <b>Asphalt pavement demolition.</b> Asphaltic concrete (bituminous) 3" thick, removed using a pneumatic spade. Add the cost of equipment rental and dump fees. Figures in parentheses show the volume before and after demolition and weight of debris.  |           |      |          |        |        |          |
| Break up and shovel on to a truck<br>(4 SY per CY and 660 lbs. per SY)   | BL@.140   | SY   | —        | 4.66   | 4.66   | 7.92     |
| <b>Concrete wall demolition.</b> Steel reinforced, removed using a compressor and pneumatic breaker. Add the cost of equipment rental. Figures in parentheses show the volume before and after demolition.   |           |      |          |        |        |          |
| Cost per CY (1.33 CY per CY)   | BL@4.76   | CY   | —        | 159.00 | 159.00 | 270.00   |
| Cost per SF with thickness as shown  |           |      |          |        |        |          |
| 3" wall thickness (80 SF per CY)   | BL@.045   | SF   | —        | 1.50   | 1.50   | 2.55     |
| 4" wall thickness (55 SF per CY)   | BL@.058   | SF   | —        | 1.93   | 1.93   | 3.28     |
| 5" wall thickness (45 SF per CY)   | BL@.075   | SF   | —        | 2.50   | 2.50   | 4.25     |
| 6" wall thickness (40 SF per CY)   | BL@.090   | SF   | —        | 3.00   | 3.00   | 5.10     |
| 8" wall thickness (30 SF per CY)   | BL@.120   | SF   | —        | 4.00   | 4.00   | 6.80     |
| 10" wall thickness (25 SF per CY)  | BL@.147   | SF   | —        | 4.90   | 4.90   | 8.33     |
| 12" wall thickness (20 SF per CY)  | BL@.176   | SF   | —        | 5.86   | 5.86   | 9.96     |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Wood Framing Demolition.** Typical costs for demolition of wood frame structural components using hand tools. Normal center-to-center spacing (12" thru 24" OC) is assumed. Includes breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site. Costs include removal of Romex cable as necessary, protecting adjacent areas, and normal clean-up. Costs do not include temporary shoring to support structural elements above or adjacent to the work area. (Add for demolition of flooring, roofing, sheathing, etc.) Figures in parentheses give the approximate "loose" volume and weight of the materials after being demolished.

**Ceiling joist demolition.** Per in-place SF of ceiling area removed.

|   |         |    |   |     |     |      |
|---|---------|----|---|-----|-----|------|
| 2" x 4" (720 SF per CY and 1.18 lbs. per SF)  | BL@.009 | SF | — | .30 | .30 | .51  |
| 2" x 6" (410 SF per CY and 1.76 lbs. per SF)  | BL@.013 | SF | — | .43 | .43 | .73  |
| 2" x 8" (290 SF per CY and 2.34 lbs. per SF)  | BL@.018 | SF | — | .60 | .60 | 1.02 |
| 2" x 10" (220 SF per CY and 2.94 lbs. per SF) | BL@.023 | SF | — | .77 | .77 | 1.31 |
| 2" x 12" (190 SF per CY and 3.52 lbs. per SF) | BL@.027 | SF | — | .90 | .90 | 1.53 |

**Floor joist demolition.** Per in-place SF of floor area removed.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| 2" x 6" (290 SF per CY and 2.04 lbs. per SF)  | BL@.016 | SF | — | .53  | .53  | .90  |
| 2" x 8" (190 SF per CY and 2.72 lbs. per SF)  | BL@.021 | SF | — | .70  | .70  | 1.19 |
| 2" x 10" (160 SF per CY and 3.42 lbs. per SF) | BL@.026 | SF | — | .87  | .87  | 1.48 |
| 2" x 12" (120 SF per CY and 4.10 lbs. per SF) | BL@.031 | SF | — | 1.03 | 1.03 | 1.75 |

**Rafter demolition.** Per in-place SF of actual roof area removed.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| 2" x 4" (610 SF per CY and 1.42 lbs. per SF)  | BL@.011 | SF | — | .37  | .37  | .63  |
| 2" x 6" (360 SF per CY and 2.04 lbs. per SF)  | BL@.016 | SF | — | .53  | .53  | .90  |
| 2" x 8" (270 SF per CY and 2.68 lbs. per SF)  | BL@.020 | SF | — | .67  | .67  | 1.14 |
| 2" x 10" (210 SF per CY and 3.36 lbs. per SF) | BL@.026 | SF | — | .87  | .87  | 1.48 |
| 2" x 12" (180 SF per CY and 3.94 lbs. per SF) | BL@.030 | SF | — | 1.00 | 1.00 | 1.70 |

**Stud wall demolition.** Interior or exterior, includes allowance for plates and blocking, per in-place SF of wall area removed, measured on one face.

|  |         |    |   |     |     |      |
|--|---------|----|---|-----|-----|------|
| 2" x 3" (430 SF per CY and 1.92 lbs. per SF) | BL@.013 | SF | — | .43 | .43 | .73  |
| 2" x 4" (310 SF per CY and 2.58 lbs. per SF) | BL@.017 | SF | — | .57 | .57 | .97  |
| 2" x 6" (190 SF per CY and 3.74 lbs. per SF) | BL@.025 | SF | — | .83 | .83 | 1.41 |

**Stud wall demolition, salvage condition.** Remove wall cover (nailed hardboard or fiberboard) from partition wall and salvage the stud framing. Per linear foot of stud wall.

|                             |         |    |   |      |      |      |
|-----------------------------|---------|----|---|------|------|------|
| 2" x 4" x 8', 16" on center | BL@.156 | LF | — | 5.20 | 5.20 | 8.84 |
|-----------------------------|---------|----|---|------|------|------|

**Roof cover demolition.** Includes breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site. Cost per Sq or "square". (1 square = 100 square feet.) Figures in parentheses show the approximate "loose" volume and weight of materials after being demolished.

Built-up, 5 ply

|   |         |    |   |       |       |        |
|---|---------|----|---|-------|-------|--------|
| (2.5 Sq per CY and 250 lbs per Sq)                                | BL@1.50 | Sq | — | 50.00 | 50.00 | 85.00  |
| Shingles, asphalt, single layer                                   |         |    |   |       |       |        |
| (2.5 Sq per CY and 240 lbs per Sq)                                | BL@1.33 | Sq | — | 44.30 | 44.30 | 75.30  |
| Shingles, asphalt, double layer                                   |         |    |   |       |       |        |
| (1.2 Sq per CY and 480 lbs per Sq)                                | BL@2.00 | Sq | — | 66.60 | 66.60 | 113.00 |
| Shingles, slate. Weight ranges from 600 lbs. to 1,200 lbs. per Sq |         |    |   |       |       |        |
| (1 Sq per CY and 900 lbs per Sq)                                  | BL@1.79 | Sq | — | 59.60 | 59.60 | 101.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| Shingles, wood<br>(1.7 Sq per CY and 400 lbs per Sq)   | BL@2.02   | Sq   | —        | 67.30 | 67.30 | 114.00 |
| Clay or concrete tile<br>(.70 Sq per CY)   | BL@1.65   | Sq   | —        | 55.00 | 55.00 | 93.50  |
| Remove gravel stop or flashing   | BL@.070   | LF   | —        | 2.33  | 2.33  | 3.96   |
| <b>Interior and exterior finish demolition.</b> Includes breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site. Figures in parentheses show the approximate "loose" volume and weight of the materials after being demolished. Demolition for disposal. No salvage of materials included. |           |      |          |       |       |        |
| Plywood sheathing, up to 1" thick, cost per in-place SF<br>(200 SF per CY and 2 lbs. per SF)   | BL@.017   | SF   | —        | .57   | .57   | .97    |
| Wood board sheathing<br>(250 SF per CY and 2 lbs. per SF)  | BL@.030   | SF   | —        | 1.00  | 1.00  | 1.70   |
| Metal siding, using hand tools<br>(200 SF per CY and 2 lbs. per SF)  | BL@.027   | SF   | —        | .90   | .90   | 1.53   |
| Stucco on walls or soffits, cost per in-place SF, removed using hand tools<br>(150 SF per CY and 8 lbs. per SF)  | BL@.036   | SF   | —        | 1.20  | 1.20  | 2.04   |
| Wallboard 1/2" thick, cost per in-place SF, removed using hand tools. Add 50% to labor costs for 1" wallboard.   |           |      |          |       |       |        |
| Gypsum, walls or ceilings<br>(250 SF per CY and 2.3 lbs. per SF)   | BL@.010   | SF   | —        | .33   | .33   | .56    |
| Including strip furring  | BL@.015   | SF   | —        | .50   | .50   | .85    |
| Plywood or insulation board<br>(200 SF per CY and 2 lbs. per SF)   | BL@.018   | SF   | —        | .60   | .60   | 1.02   |
| Insulation, fiberglass batts or rolls, cost per square foot removed<br>(500 SF per CY and .3 lb per SF)  | BL@.003   | SF   | —        | .10   | .10   | .17    |
| Plaster on walls, cost per square foot removed by hand<br>(150 SF per CY and 8 lbs. per SF)  | BL@.015   | SF   | —        | .50   | .50   | .85    |
| Remove baseboard molding   |           |      |          |       |       |        |
| Single member base, no salvage   | BL@.022   | LF   | —        | .73   | .73   | 1.24   |
| Base and base shoe, no salvage   | BL@.038   | LF   | —        | 1.27  | 1.27  | 2.16   |
| Remove and salvage single member base  | BL@.025   | LF   | —        | .83   | .83   | 1.41   |
| Remove and salvage base and base shoe  | BL@.044   | LF   | —        | 1.47  | 1.47  | 2.50   |
| <b>Ceiling demolition.</b> Knock down with hand tools at heights to 9' and handle debris to a trash bin on site. Building structure to remain. No allowance for salvage value. Costs shown are per square foot of ceiling. Figures in parentheses show the approximate "loose" volume after demolition.                                  |           |      |          |       |       |        |
| Plaster ceiling (typically 175 to 200 SF per CY)   |           |      |          |       |       |        |
| Including lath and furring   | BL@.025   | SF   | —        | .83   | .83   | 1.41   |
| Including suspended grid   | BL@.020   | SF   | —        | .67   | .67   | 1.14   |
| Acoustic tile ceiling (typically 200 to 250 SF per CY)   |           |      |          |       |       |        |
| Including suspended grid   | BL@.010   | SF   | —        | .33   | .33   | .56    |
| Including grid in salvage condition  | BL@.019   | SF   | —        | .63   | .63   | 1.07   |
| Tile glued or stapled to ceiling   | BL@.015   | SF   | —        | .50   | .50   | .85    |
| Tile on strip furring, including furring   | BL@.025   | SF   | —        | .83   | .83   | 1.41   |
| Drywall ceiling (typically 250 to 300 SF per CY)   |           |      |          |       |       |        |
| Nailed or attached with screws to joists   | BL@.010   | SF   | —        | .33   | .33   | .56    |

**Floor cover demolition.** Includes breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site. Cost per square yard of floor removed. (1 square yard = 9 square feet.) Figures in parentheses show the approximate “loose” volume and weight of the materials after demolition.

Ceramic tile

(25 SY per CY and 34 lbs. per SY) BL@.263 SY — 8.76 8.76 14.90

Hardwood, nailed

(25 SY per CY and 18 lbs. per SY) BL@.290 SY — 9.66 9.66 16.40

Hardwood, glued

(25 SY per CY and 18 lbs. per SY) BL@.503 SY — 16.80 16.80 28.60

Linoleum, sheet

(30 SY per CY and 3 lbs. per SY) BL@.056 SY — 1.87 1.87 3.18

Resilient tile

(30 SY per CY and 3 lbs. per SY) BL@.300 SY — 9.99 9.99 17.00

Terrazzo

(25 SY per CY and 34 lbs. per SY) BL@.286 SY — 9.53 9.53 16.20

Carpet on tack strip

(40 SY per CY and 5 lbs. per SY) BL@.028 SY — .93 .93 1.58

Glue-down carpet with rubber backing

(35 SY per CY and 1.7 lbs. per SY) BL@.160 SY — 5.33 5.33 9.06

Add for each LF of room perimeter BL@.008 LF — .27 .27 .46

Carpet pad

(35 SY per CY and 1.7 lbs. per SY) BL@.014 SY — .47 .47 .80

**Removal of interior items.** Includes breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site. Items removed in salvageable condition do not include an allowance for salvage value. Figures in parentheses give the approximate “loose” volume of the materials after demolition. Removed in non-salvageable condition (demolished) except as noted.

Windows, typical cost to remove window, frame and hardware, cost per SF of window

Metal (36 SF per CY) BL@.058 SF — 1.93 1.93 3.28

Wood (36 SF per CY) BL@.063 SF — 2.10 2.10 3.57

Wood stairs, cost per in-place SF or LF

Risers (25 SF per CY) BL@.116 SF — 3.86 3.86 6.56

Landings (50 SF per CY) BL@.021 SF — .70 .70 1.19

Handrails (100 LF per CY) BL@.044 LF — 1.47 1.47 2.50

Posts (200 LF per CY) BL@.075 LF — 2.50 2.50 4.25

Hollow metal door and frame in a masonry wall. (2 doors per CY)

Single door to 4' x 7' BL@1.00 Ea — 33.30 33.30 56.60

Two doors, per opening to 8' x 7' BL@1.50 Ea — 50.00 50.00 85.00

Wood door and frame in a wood frame wall (2 doors per CY)

Single door to 4' x 7' BL@.500 Ea — 16.70 16.70 28.40

Two doors, per opening to 8' x 7' BL@.750 Ea — 25.00 25.00 42.50

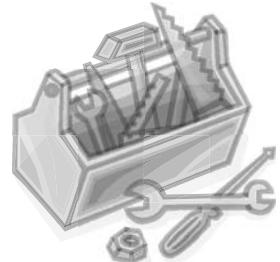
Metal door and frame in masonry wall, salvage condition

Hollow metal door to 4' x 7' BL@2.00 Ea — 66.60 66.60 113.00

Wood door to 4' x 7' BL@1.00 Ea — 33.30 33.30 56.60

# Foundations and Slabs

3



**B**efore starting any extensive home improvement project, check the foundation for serious defects. A home with a fractured, heaving, or settling foundation may not be worth repairing. The cost of making permanent repairs could exceed the value of the home after repairs are complete. It's better to face this issue squarely before bidding the job. Ignoring the problem won't help. The lender's appraiser is almost certain to note and report serious defects in the foundation.

Many older homes have foundations that have cracked or settled. Check the foundation wall for deterioration that could allow water to enter the basement. Check both foundation walls and piers for settling. Windows or door frames out of square or loosened interior wall finish suggest that the foundation has settled. The next chapter explains how to correct minor settling by jacking and re-leveling beams and floor joists.

Most concrete foundation walls develop minor hairline cracks that are merely cosmetic -- have no effect on the structure. However, open cracks may indicate a failure of the foundation that's getting progressively worse. To find out if a crack is active or dormant, scratch a line at the end of the crack and wedge a nail tightly into the crack. If the crack grows beyond the scratch mark or if the nail can be removed easily several months later, the crack is probably active.

If a crack is dormant, make repairs by routing and sealing. Enlarge the crack with an angle grinder or by chipping with hand tools. The crack should be routed  $1\frac{1}{4}$ " or more in width and about the same depth. Rinse the joint clean and let dry. Then apply a joint sealer such as an epoxy-cement compound in accord with the manufacturer's instructions. Chapter 18 shows prices and procedures for making repairs to concrete using epoxy materials.

Active cracks require an elastic sealant. Again, follow the manufacturer's instructions. Good-quality concrete sealant will remain pliable for many years. The minimum routing depth and width for these sealants is  $\frac{3}{4}$ ". The elastic material will deform but maintain a tight seal as the crack moves. You could also apply a strip sealant over the crack. But these protrude from the surface and are a poor choice if the wall is visible from the building exterior.

Repair loose mortar by brushing thoroughly to remove dust and loose particles. Before applying new mortar, dampen the clean surface so that it won't absorb water during repair. You can buy premixed mortar with the consistency of putty. Apply mortar over the cavity as if you were filling a void with painter's caulk. For a good bond, force mortar into the crack. Then smooth the surface with a trowel.

### Foundation and Slab Pre-Construction Checklist

- Is the site accessible to wheeled equipment?
- Is the site accessible to a concrete truck?
- Will you need to re-route plumbing, electrical, gas or communication lines?
- Will you need to remove and replace lawn sprinklers?
- Will you need to cut back or remove bushes or trees?
- Will you have to remove and re-install a fence or gate?
- Does a septic tank or drain field extend into the site of construction?
- Can excess soil be spread on the premises?
- Will dirt need to be imported or exported for site balance?
- Will heavy equipment damage the roots of trees?
- Is a permit needed to move heavy equipment across city sidewalks?
- Do city sidewalks have to be planked?
- Will swales or culverts pose problems for equipment?
- Will a septic system, catch basins or wells have to be relocated?
- Will barricades and warning lights be needed?

Cover with a vapor barrier for a few days to keep the mortar from drying too fast.

In colder climates where basements are common, basement conversion is popular home improvement project. The first step in converting any basement to living area should be a careful evaluation of existing moisture issues. Don't start hanging drywall and laying floor materials in a basement if moisture is likely to destroy anything you install. Solve the moisture problem first.

The best way to approach any moisture problem in a basement is to do first what costs the least. Start by removing or controlling the source of moisture. Then proceed in logical order, taking the next least costly steps.

The first and simplest step is to ensure that moisture sources in the basement have an adequate vent -- humidifiers, cooking, clothes dryer, bathroom.

Second, if condensation in the summer is a problem, don't ventilate by blowing warm, humid air into the basement. Instead, duct conditioned (dry) air into the basement. Dehumidification can reduce humidity and odor in a basement, but it is not a permanent

or complete solution. In fact, a dehumidifier can accelerate damage. Drying out basement air by itself may cause efflorescence and spalling of concrete.

Damp or leaky basement walls are usually caused by clogged drain tile, clogged or broken downspouts, cracks in walls, or by water that puddles against the foundation. Look for downspouts that empty against the foundation wall or surface drainage channeling by the foundation. For a dry basement, keep water away from the foundation by proper grading.

When homes are built, soil adjacent to the foundation is often backfilled without proper compaction. Settling over a period of years can create depressions that fill with water in wet weather. If you see signs of puddling near the foundation, pile earth around the foundation wall. Create a 6-foot wide slope away from the foundation with at least 6 inches of drainage.

High water table is a more serious problem. To find the water table height, dig a hole outside the building foundation. When you see water puddle at the bottom of the hole, you've found height of the water table. A basement will never be completely dry when the water table is above the basement floor. Capillary suction will wick moisture through the concrete footing and slab and laterally through walls. The result will be a ring of dampness around the basement wall. Heavy

foundation waterproofing or footing drains may help, but they're unlikely to do more than minimize the problem.

Many older homes simply have no subsurface drainage system. That was OK when basements were not used as habitable space. But it's not OK if the owner is planning a basement conversion. Many newer homes and some older homes have a subsurface drainage system complete with a sump and an electric pump. When accumulated water reaches a certain level, a float valve in the sump energizes the pump, lifting water to the exterior surface. But even good drainage systems need occasional maintenance. Look for drain pipe that's collapsed or filled with silt or been invaded by tree roots. Or there may be a broken connection to the sump. Or the pump may have failed.

If heating ducts are installed under a basement floor slab, check depth of the duct. A drainage system installed at a level higher than the duct won't be effective. The heating duct becomes the drainage system. Water accumulating in heat duct can cause serious health problems and will almost always spread mold.

Adding a membrane or a waterproof coating on basement wall interiors may solve moisture problems temporarily. But the water is still there. Wall membrane or coating will deteriorate in a few years. In the meantime, moisture will find another way into the basement.

If the moisture problem persists, an interior or exterior drainage system may be required. The best (and usually most expensive) system is an active sub-slab depressurization system. Moist air is sucked from under the slab and exhausted to the exterior. Sub-slab depressurization both reduces moisture vapor in the home and controls radon and other soil gases. This type of work is best done by specialists.

|   | Day       | Week     | Month    |       |       |      |
|---|-----------|----------|----------|-------|-------|------|
| <b>Equipment Rental for Foundations and Slabs.</b>              |           |          |          |       |       |      |
| Buggies, push type, 7 CF  | 95.96     | 671.73   | 989.53   |       |       |      |
| Buggies, walking type, 12 CF                                    | 140.33    | 303.36   | 879.13   |       |       |      |
| Buggies, riding type, 14 CF                                     | 190.89    | 534.49   | 878.10   |       |       |      |
| Buggies, riding type, 18 CF                                     | 132.08    | 416.86   | 860.55   |       |       |      |
| Vibrator, electric, 3 HP, flexible shaft                        | 74.29     | 235.26   | 553.07   |       |       |      |
| Vibrator, gasoline, 6 HP, flexible shaft                        | 103.18    | 303.36   | 904.92   |       |       |      |
| Troweling machine, 36", 4 paddle                                | 79.45     | 255.90   | 706.81   |       |       |      |
| Cement mixer, 6 CF  | 142.39    | 423.05   | 883.25   |       |       |      |
| Towable mixer (10+ CF)  | 133.11    | 443.69   | 721.26   |       |       |      |
| Power trowel 36", gas, with standard handle                     | 79.45     | 255.90   | 706.81   |       |       |      |
| Bull float  | 17.54     | 50.56    | 118.66   |       |       |      |
| Concrete saws, gas powered, excluding blade cost                |           |          |          |       |       |      |
| 10 HP, push type  | 162.00    | 398.29   | 879.13   |       |       |      |
| 20 HP, self propelled   | 221.85    | 643.87   | 1,300.12 |       |       |      |
| 37 HP, self propelled   | 298.20    | 968.90   | 2,166.86 |       |       |      |
| Concrete conveyor, belt type, portable, gas powered, all sizes  | 171.29    | 623.23   | 1,805.72 |       |       |      |
| Vibrating screed, 16', single beam                              | 105.25    | 336.38   | 725.38   |       |       |      |
| Column clamps, to 48", per set                                  | —         | —        | 12.38    |       |       |      |
| Skid steer loaders  |           |          |          |       |       |      |
| Bobcat 643, 1,000-lb. capacity                                  | 272.41    | 949.29   | 2,166.86 |       |       |      |
| Bobcat 753, 1,350-lb. capacity                                  | 267.25    | 857.46   | 1,898.59 |       |       |      |
| Bobcat 763, 1,750-lb. capacity                                  | 326.06    | 949.29   | 2,146.23 |       |       |      |
| Bobcat 863, 1,900-lb. capacity                                  | 316.77    | 957.55   | 2,249.41 |       |       |      |
| Skid steer attachments  |           |          |          |       |       |      |
| Auger   | 171.29    | 544.81   | 988.50   |       |       |      |
| Hydraulic breaker   | 212.56    | 624.26   | 1,826.36 |       |       |      |
| Backhoe   | 139.30    | 317.81   | 1,279.48 |       |       |      |
| Sweeper   | 173.35    | 419.96   | 938.97   |       |       |      |
| Grapple bucket  | 68.10     | 189.86   | 554.10   |       |       |      |
| Trenchers, inclined chain boom type, pneumatic tired            |           |          |          |       |       |      |
| 15 HP, 12" wide, 48" max. depth, walking                        | 254.86    | 739.83   | 2,032.72 |       |       |      |
| 20 HP, 12" wide, 60" max. depth, riding                         | 389.00    | 1,158.76 | 2,362.91 |       |       |      |
| Wheel loaders, front-end load and dump, diesel                  |           |          |          |       |       |      |
| 3/4 CY bucket, 4WD, articulated                                 | 225.97    | 770.78   | 2,197.82 |       |       |      |
| 1 CY bucket, 4WD, articulated                                   | 399.32    | 1,155.66 | 3,250.30 |       |       |      |
| 2 CY bucket, 4WD, articulated                                   | 650.06    | 1,836.67 | 4,859.97 |       |       |      |
| Vibro plate, 300 lb, 24" plate width, gas                       | 182.64    | 584.02   | 1,238.21 |       |       |      |
| Vibro plate, 600 lb, 32" plate width, gas                       | 371.46    | 978.18   | 2,146.23 |       |       |      |
| Rammer, 60 CPM, 200 lb, gas powered                             | 127.95    | 391.07   | 830.63   |       |       |      |
|   | Craft@Hrs | Unit     | Material | Labor | Total | Sell |
| <b>Concrete pumping.</b> Using a trailer-mounted gasoline pump. |           |          |          |       |       |      |
| 3/8" aggregate mix (pea gravel), using hose to 200'             |           |          |          |       |       |      |
| Cost per cubic yard (pumping only)                              | —         | CY       | —        | —     | 15.76 | —    |
| Add for hose over 200', per LF                                  | —         | LF       | —        | —     | 1.00  | —    |
| 3/4" aggregate mix, using hose to 200'                          |           |          |          |       |       |      |
| Cost per cubic yard (pumping only)                              | —         | CY       | —        | —     | 15.76 | —    |
| Add for hose over 200', per LF                                  | —         | LF       | —        | —     | 1.00  | —    |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell     |
|---|-----------|------|----------|--------|--------|----------|
| <b>Concrete Flatwork</b>  |           |      |          |        |        |          |
| Most concrete work on home improvement jobs will be slabs such as sidewalks, driveways and floors. All concrete flatwork requires fine grading, edge forms, concrete pouring, and finishing.  |           |      |          |        |        |          |
| <b>4" thick concrete slab.</b> Typical cost for a 100-square-foot slab, based on costs in this chapter. Use the figures that follow to adjust for other conditions: grading, base, forms, concrete thickness, concrete mix characteristics and finishing. |           |      |          |        |        |          |
| Fine grading and shaping, 100 SF  | BL@.800   | CSF  | —        | 26.60  | 26.60  | 45.20    |
| Aggregate 4" base (1.23 CY per CSF)   | BL@.600   | CSF  | 49.10    | 20.00  | 69.10  | 117.00   |
| Lay out and set edge forms, 50 LF, 1 use  | B2@2.50   | 50LF | 38.50    | 96.20  | 134.70 | 229.00   |
| .006" polyethylene vapor barrier  | B5@.118   | CSF  | 12.00    | 4.81   | 16.81  | 28.60    |
| Place W2.9 x W2.9 x 6" x 6" mesh, 100 SF  | RI@.400   | CSF  | 69.10    | 17.30  | 86.40  | 147.00   |
| Place ready-mix concrete, from chute 1.25 CY  | B5@.540   | CSF  | 185.00   | 22.00  | 207.00 | 352.00   |
| Steel trowel finish   | B6@1.00   | CSF  | —        | 36.30  | 36.30  | 61.70    |
| Acrylic concrete cure and seal  | B6@.300   | CSF  | 14.90    | 10.90  | 25.80  | 43.90    |
| Strip edge forms, 50 LF, no re-use  | BL@.600   | 50LF | —        | 20.00  | 20.00  | 34.00    |
| Total job cost for 4" thick 100 SF slab   | —@6.86    | CSF  | 368.60   | 254.11 | 622.71 | 1,060.00 |
| Cost per SF for 4" thick 100 SF job   | —@.069    | SF   | 3.69     | 2.54   | 6.23   | 10.60    |
| <b>Excavation and Backfill by Hand.</b> Using hand tools.   |           |      |          |        |        |          |
| General excavation, using a pick and shovel (loosening and one throw)   |           |      |          |        |        |          |
| Light soil  | BL@1.10   | CY   | —        | 36.60  | 36.60  | 62.20    |
| Average soil  | BL@1.70   | CY   | —        | 56.60  | 56.60  | 96.20    |
| Heavy soil or loose rock  | BL@2.25   | CY   | —        | 74.90  | 74.90  | 127.00   |
| Backfilling (one shovel throw from stockpile)   |           |      |          |        |        |          |
| Sand  | BL@.367   | CY   | —        | 12.20  | 12.20  | 20.70    |
| Average soil  | BL@.467   | CY   | —        | 15.60  | 15.60  | 26.50    |
| Rock or clay  | BL@.625   | CY   | —        | 20.80  | 20.80  | 35.40    |
| Add for compaction, average soil or sand  |           |      |          |        |        |          |
| Fine grading  | BL@.400   | CY   | —        | 13.30  | 13.30  | 22.60    |
| BL@.008   | SF        | —    | .27      | .27    | .27    | .46      |
| Footings, average soil, using a pick and shovel   |           |      |          |        |        |          |
| 6" deep x 12" wide (1.85 CY per CLF)  | BL@.034   | LF   | —        | 1.13   | 1.13   | 1.92     |
| 8" deep x 12" wide (2.47 CY per CLF)  | BL@.050   | LF   | —        | 1.67   | 1.67   | 2.84     |
| 8" deep x 16" wide (3.29 CY per CLF)  | BL@.055   | LF   | —        | 1.83   | 1.83   | 3.11     |
| 8" deep x 18" wide (3.70 CY per CLF)  | BL@.060   | LF   | —        | 2.00   | 2.00   | 3.40     |
| 10" deep x 12" wide (3.09 CY per CLF)   | BL@.050   | LF   | —        | 1.67   | 1.67   | 2.84     |
| 10" deep x 16" wide (4.12 CY per CLF)   | BL@.067   | LF   | —        | 2.23   | 2.23   | 3.79     |
| 10" deep x 18" wide (4.63 CY per CLF)   | BL@.075   | LF   | —        | 2.50   | 2.50   | 4.25     |
| 12" deep x 12" wide (3.70 CY per CLF)   | BL@.060   | LF   | —        | 2.00   | 2.00   | 3.40     |
| 12" deep x 16" wide (4.94 CY per CLF)   | BL@.081   | LF   | —        | 2.70   | 2.70   | 4.59     |
| 12" deep x 20" wide (6.17 CY per CLF)   | BL@.100   | LF   | —        | 3.33   | 3.33   | 5.66     |
| 12" deep x 24" wide (7.41 CY per CLF)   | BL@.125   | LF   | —        | 4.16   | 4.16   | 7.07     |
| 16" deep x 16" wide (6.59 CY per CLF)   | BL@.110   | LF   | —        | 3.66   | 3.66   | 6.22     |
| Loading trucks (shoveling, one throw)   |           |      |          |        |        |          |
| Average soil  | BL@1.45   | CY   | —        | 48.30  | 48.30  | 82.10    |
| Rock or clay  | BL@2.68   | CY   | —        | 89.30  | 89.30  | 152.00   |
| Pits to 5'. Pits over 5' deep require special consideration: shoring, liners and a way to lift the soil.  |           |      |          |        |        |          |
| Light soil  | BL@1.34   | CY   | —        | 44.60  | 44.60  | 75.80    |
| Average soil  | BL@2.00   | CY   | —        | 66.60  | 66.60  | 113.00   |
| Heavy soil  | BL@2.75   | CY   | —        | 91.60  | 91.60  | 156.00   |
| Shaping trench bottom for pipe  |           |      |          |        |        |          |
| To 10" pipe   | BL@.024   | LF   | —        | .80    | .80    | 1.36     |
| 12" to 20" pipe   | BL@.076   | LF   | —        | 2.53   | 2.53   | 4.30     |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| Shaping embankment slopes                |           |      |          |       |       |        |
| Up to 1-in-4 slope                       | BL@.060   | SY   | —        | 2.00  | 2.00  | 3.40   |
| Over 1-in-4 slope                        | BL@.075   | SY   | —        | 2.50  | 2.29  | 3.89   |
| Add for top crown or toe                 | —         | %    | —        | 50.0  | —     | —      |
| Add for swales                           | —         | %    | —        | 90.0  | —     | —      |
| Spreading material piled on site         |           |      |          |       |       |        |
| Average soil                             | BL@.367   | CY   | —        | 12.20 | 12.20 | 20.70  |
| Stone or clay                            | BL@.468   | CY   | —        | 15.60 | 15.60 | 26.50  |
| Strip and pile top soil                  | BL@.024   | SF   | —        | .80   | .80   | 1.36   |
| Tamping, hand tamp only                  | BL@.612   | CY   | —        | 20.40 | 20.40 | 34.70  |
| Trenches to 5', soil piled beside trench |           |      |          |       |       |        |
| Light soil                               | BL@1.13   | CY   | —        | 37.60 | 37.60 | 63.90  |
| Average soil                             | BL@1.84   | CY   | —        | 61.30 | 61.30 | 104.00 |
| Heavy soil or loose rock                 | BL@2.86   | CY   | —        | 95.30 | 95.30 | 162.00 |
| Add for depth over 5' to 9'              | BL@.250   | CY   | —        | 8.33  | 8.33  | 14.20  |

**Trenching and backfill with power equipment.** Using a 55 HP wheel loader with integral backhoe to excavate utility line trenches and continuous footings where soil is piled adjacent to the trench. Linear feet (LF) and cubic yards (CY) per hour shown are based on a 2-man crew. Reduce productivity by 10 to 25 percent when soil is loaded in trucks. Shoring, dewatering and unusual conditions will increase these costs. Add the cost of equipment rental.

12" wide bucket, for 12" wide trench. Depths 3' to 5'

|                                    |         |    |   |      |      |      |
|------------------------------------|---------|----|---|------|------|------|
| Light soil (60 LF per hour)        | B8@.033 | LF | — | 1.33 | 1.33 | 2.26 |
| Medium soil (55 LF per hour)       | B8@.036 | LF | — | 1.45 | 1.45 | 2.47 |
| Heavy or wet soil (35 LF per hour) | B8@.057 | LF | — | 2.29 | 2.29 | 3.89 |

18" wide bucket, for 18" wide trench. Depths 3' to 5'

|                                    |         |    |   |      |      |      |
|------------------------------------|---------|----|---|------|------|------|
| Light soil (55 LF per hour)        | B8@.036 | LF | — | 1.45 | 1.45 | 2.47 |
| Medium soil (50 LF per hour)       | B8@.040 | LF | — | 1.61 | 1.61 | 2.74 |
| Heavy or wet soil (30 LF per hour) | B8@.067 | LF | — | 2.69 | 2.69 | 4.57 |

24" wide bucket, for 24" wide trench. Depths 3' to 5'

|                                    |         |    |   |      |      |      |
|------------------------------------|---------|----|---|------|------|------|
| Light soil (50 LF per hour)        | B8@.040 | LF | — | 1.61 | 1.61 | 2.74 |
| Medium soil (45 LF per hour)       | B8@.044 | LF | — | 1.77 | 1.77 | 3.01 |
| Heavy or wet soil (25 LF per hour) | B8@.080 | LF | — | 3.22 | 3.22 | 5.47 |

**Soil compaction.** Add the cost of equipment rental.

Compaction of soil in trenches in 8" layers.

|  |         |    |   |      |      |      |
|--|---------|----|---|------|------|------|
| Pneumatic tampers<br>(40 CY per hour)                                  | BL@.050 | CY | — | 1.67 | 1.67 | 2.84 |
| Vibrating rammers, gasoline powered "Jumping Jack"<br>(20 CY per hour) | BL@.100 | CY | — | 3.33 | 3.33 | 5.66 |

**Calculating slab area.** Patio slabs and driveways are often irregular in shape. For example, a driveway may be wider at the garage end and narrower at the street. The easy way to figure the area is to measure the width at both ends and then divide by two. Then multiply the result by the length of the driveway. For example, assume:

The length of the driveway is 30 feet

The driveway width at the apron end is 22 feet

The driveway width at the street tapers to 8 feet

Add width at the two ends:  $20' + 8' = 28'$

Then divide by two: 28 feet divided by 2 is 14 feet

Then multiply by the average width by the length: 14 feet times 30 feet is 420 square feet.

A cubic yard of concrete will cover the following area, assuming no waste:

At 2" thick, 1 cubic yard covers 162 square feet

At 3" thick, 1 cubic yard covers 108 square feet

At 4" thick, 1 cubic yard covers 81 square feet

At 5" thick, 1 cubic yard covers 64.8 square feet

At 6" thick, 1 cubic yard covers 54 square feet

At 7" thick, 1 cubic yard covers 46.2 square feet

At 8" thick, 1 cubic yard covers 40.5 square feet.

If the job requires 420 square feet of 4" concrete, divide 420 by 81 to determine that 5.18 cubic yards are needed. It's good estimating practice to allow 5 percent for waste and over-excavation (removing more soil than needed to maintain slab or footing depth). Add 5 percent to find the order quantity of 5.44 cubic yards.

**Garage slabs.** Slabs are poured monolithic and should be pitched from rear to the front opening so snow melt drains to the street. Garage slab floor drains are poor practice in colder climates, as melted snow freezes in the drain and tends to crack the slab. Keep the slab surface 4" above grade to provide good drainage. When grade beams are required by code, excavate the additional depth around the perimeter of the slab. No additional forming is needed. The beam is poured as an integral part of the garage floor. Wire mesh or rod reinforcement is good practice, even if not required by code. If the driveway includes a change in grade, be sure the incline, including any swale, won't be too steep for most cars. Be sure the grade at the street or alley matches the existing grade.

Consider the drainage pattern before quoting concrete work. Water draining around the perimeter of a slab can cause damage that's expensive to repair.

**Concrete forms.** Most concrete form lumber can be used more than once, either several times for concrete forming or once for forming and then on some other part of the job when forming is done. The figures that follow include options for multiple use of form lumber. These options assume that forms can be removed, partially disassembled and cleaned. Then 75 percent of the form material will be reused. Costs include assembly, oiling, setting, stripping and cleaning. Adjust material costs in this section to reflect your actual cost of lumber. Here's how: Divide your actual lumber cost per MBF by the assumed lumber cost. Then multiply the cost in the material column by this adjustment factor.

|  | Craft@Hrs | Unit | Material | Labor | Total    | Sell  |
|--|-----------|------|----------|-------|----------|-------|
| <b>Driveway and walkway edge forms.</b> Material costs include stakes, nails, form oil and 5 percent waste. Per LF of edge form. When forms are required on both sides of the concrete, include the length of each side plus the end widths.   |           |      |          |       |          |       |
| Using 2" x 4" lumber, .7 BF per LF   | —         | MBF  | 874.00   | —     | 874.00   | —     |
| Using nails, ties and form oil, per SF   | —         | LF   | .22      | —     | .22      | —     |
| 1 use  | B2@.050   | LF   | .77      | 1.92  | 2.69     | 4.57  |
| 3 use  | B2@.050   | LF   | .44      | 1.92  | 2.36     | 4.01  |
| 5 use  | B2@.050   | LF   | .36      | 1.92  | 2.28     | 3.88  |
| 2" x 6" edge form  |           |      |          |       |          |       |
| Using 2" x 6" lumber, 1.05 BF per LF   | —         | MBF  | 906.00   | —     | 906.00   | —     |
| 1 use  | B2@.050   | LF   | 1.11     | 1.92  | 3.03     | 5.15  |
| 3 use  | B2@.050   | LF   | .59      | 1.92  | 2.51     | 4.27  |
| 5 use  | B2@.050   | LF   | .47      | 1.92  | 2.39     | 4.06  |
| 2" x 8" edge form  |           |      |          |       |          |       |
| Using 2" x 8" lumber, 1.4 BF per LF  | —         | MBF  | 797.00   | —     | 797.00   | —     |
| 1 use  | B2@.055   | LF   | 1.34     | 2.12  | 3.46     | 5.88  |
| 3 use  | B2@.055   | LF   | .69      | 2.12  | 2.81     | 4.78  |
| 5 use  | B2@.055   | LF   | .55      | 2.12  | 2.67     | 4.54  |
| 2" x 10" edge form   |           |      |          |       |          |       |
| Using 2" x 10" lumber, 1.75 BF per LF  | —         | MBF  | 869.00   | —     | 869.00   | —     |
| 1 use  | B2@.055   | LF   | 1.68     | 2.12  | 3.80     | 6.46  |
| 3 use  | B2@.055   | LF   | .84      | 2.12  | 2.96     | 5.03  |
| 5 use  | B2@.055   | LF   | .66      | 2.12  | 2.78     | 4.73  |
| 2" x 12" edge form   |           |      |          |       |          |       |
| Using 2" x 12" lumber, 2.1 BF per LF   | —         | MBF  | 1,110.00 | —     | 1,110.00 | —     |
| 1 use  | B2@.055   | LF   | 2.49     | 2.12  | 4.61     | 7.84  |
| 3 use  | B2@.055   | LF   | 1.21     | 2.12  | 3.33     | 5.66  |
| 5 use  | B2@.055   | LF   | .93      | 2.12  | 3.05     | 5.19  |
| <b>Plywood forming.</b> For foundation walls, building walls and retaining walls, using 3/4" plyform with 10 percent waste, and 2" bracing with 20 percent waste. All material costs include nails, ties, clamps, form oil and stripping. Costs shown are per square foot of contact area (SFCA). When forms are required on both sides of the concrete, include the contact surface area for each side. |           |      |          |       |          |       |
| Using 3/4" plyform, per MSF  | —         | MSF  | 2,110.00 | —     | 2,110.00 | —     |
| Using 2" bracing, per MBF  | —         | MBF  | 890.00   | —     | 890.00   | —     |
| Using nails, ties, clamps & form oil, per SF   | —         | SFCA | .22      | —     | .22      | —     |
| Walls up to 4' high (1.10 SF of plywood and .42 BF of bracing per SF of form area)   |           |      |          |       |          |       |
| 1 use  | B2@.051   | SFCA | 2.91     | 1.96  | 4.87     | 8.28  |
| 3 use  | B2@.051   | SFCA | 1.43     | 1.96  | 3.39     | 5.76  |
| 5 use  | B2@.051   | SFCA | 1.11     | 1.96  | 3.07     | 5.22  |
| Walls 4' to 8' high (1.10 SF of plywood and .60 BF of bracing per SF of form area)   |           |      |          |       |          |       |
| 1 use  | B2@.060   | SFCA | 3.07     | 2.31  | 5.38     | 9.15  |
| 3 use  | B2@.060   | SFCA | 1.50     | 2.31  | 3.81     | 6.48  |
| 5 use  | B2@.060   | SFCA | 1.16     | 2.31  | 3.47     | 5.90  |
| Walls 8' to 12' high (1.10 SF of plywood and .90 BF of bracing per SF of form area)  |           |      |          |       |          |       |
| 1 use  | B2@.095   | SFCA | 3.34     | 3.66  | 7.00     | 11.90 |
| 3 use  | B2@.095   | SFCA | 1.62     | 3.66  | 5.28     | 8.98  |
| 5 use  | B2@.095   | SFCA | 1.25     | 3.66  | 4.91     | 8.35  |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell  |
|--|-----------|------|----------|-------|--------|-------|
| <b>Form stripping.</b> Labor to remove forms and bracing, clean, and stack on job site.  |           |      |          |       |        |       |
| Board forms at wall footings, grade beams and column footings. Per SF of contact area  |           |      |          |       |        |       |
| 1" thick lumber  | BL@.010   | SF   | —        | .33   | .33    | .56   |
| 2" thick lumber  | BL@.012   | SF   | —        | .40   | .40    | .68   |
| Removing keyways, 2" x 4" and 2" x 6"  | BL@.006   | LF   | —        | .20   | .20    | .34   |
| Slab edge forms. Per LF of edge form   |           |      |          |       |        |       |
| 2" x 4" to 2" x 6"   | BL@.012   | LF   | —        | .40   | .40    | .68   |
| 2" x 8" to 2" x 12"  | BL@.013   | LF   | —        | .43   | .43    | .73   |
| Walls, plywood forms. Per SF of contact area stripped  |           |      |          |       |        |       |
| To 4' high   | BL@.017   | SFCA | —        | .57   | .57    | .97   |
| Over 4' to 8' high   | BL@.018   | SFCA | —        | .60   | .60    | 1.02  |
| Over 8' to 12' high  | BL@.020   | SFCA | —        | .67   | .67    | 1.14  |
| Over 12' to 16' high   | BL@.027   | SFCA | —        | .90   | .90    | 1.53  |
| Over 16' high  | BL@.040   | SFCA | —        | 1.33  | 1.33   | 2.26  |
| <b>Board forming and stripping.</b> For wall footings, grade beams, column footings, site curbs and steps. Includes 5 percent waste. Per SF of contact area. When forms are required on both sides of the concrete, include the contact surface for each side. 2" thick forms and bracing, using 2.85 BF of form lumber per SF. Includes nails, ties, and form oil     |           |      |          |       |        |       |
| Using 2" lumber, per MBF   | —         | MBF  | 890.00   | —     | 890.00 | —     |
| Using nails, ties and form oil, per SF   | —         | SFCA | .22      | —     | .22    | —     |
| 1 use  | B2@.115   | SFCA | 2.86     | 4.43  | 7.29   | 12.40 |
| 3 use  | B2@.115   | SFCA | 1.34     | 4.43  | 5.77   | 9.81  |
| 5 use  | B2@.115   | SFCA | 1.04     | 4.43  | 5.47   | 9.30  |
| Add for keyway beveled on two edges, one use. No stripping included  |           |      |          |       |        |       |
| 2" x 4"  | B2@.027   | LF   | .61      | 1.04  | 1.65   | 2.81  |
| 2" x 6"  | B2@.027   | LF   | .95      | 1.04  | 1.99   | 3.38  |
| <b>Concrete Reinforcing Steel.</b> Steel reinforcing bars (rebar), ASTM A615 Grade 60. Material costs are for deformed steel reinforcing rebars, including 10 percent lap allowance, cutting and bending. Add for epoxy or galvanized coating of rebars, chairs and splicing, if required. Costs per pound (Lb) and per linear foot (LF) including tie wire and tying. |           |      |          |       |        |       |
| Reinforcing steel placed and tied in footings and grade beams  |           |      |          |       |        |       |
| 1/4" diameter, #2 rebar  | RI@.015   | Lb   | 1.75     | .65   | 2.40   | 4.08  |
| 1/4" diameter, #2 rebar (.17 lb per LF)  | RI@.003   | LF   | .30      | .13   | .43    | .73   |
| 3/8" diameter, #3 rebar  | RI@.011   | Lb   | 1.19     | .48   | 1.67   | 2.84  |
| 3/8" diameter, #3 rebar (.38 lb per LF)  | RI@.004   | LF   | .45      | .17   | .62    | 1.05  |
| 1/2" diameter, #4 rebar  | RI@.010   | Lb   | 1.03     | .43   | 1.46   | 2.48  |
| 1/2" diameter, #4 rebar (.67 lb per LF)  | RI@.007   | LF   | .69      | .30   | .99    | 1.68  |
| 5/8" diameter, #5 rebar  | RI@.009   | Lb   | 1.09     | .39   | 1.48   | 2.52  |
| 5/8" diameter, #5 rebar (1.04 lb per LF)   | RI@.009   | LF   | 1.13     | .39   | 1.52   | 2.58  |
| 3/4" diameter, #6 rebar  | RI@.008   | Lb   | .92      | .35   | 1.27   | 2.16  |
| 3/4" diameter, #6 rebar (1.50 lb per LF)   | RI@.012   | LF   | 1.38     | .52   | 1.90   | 3.23  |
| 7/8" diameter, #7 rebar  | RI@.008   | Lb   | 1.12     | .35   | 1.47   | 2.50  |
| 7/8" diameter, #7 rebar (2.04 lb per LF)   | RI@.016   | LF   | 2.29     | .69   | 2.98   | 5.07  |
| 1" diameter, #8 rebar  | RI@.008   | Lb   | .95      | .35   | 1.30   | 2.21  |
| 1" diameter, #8 rebar (2.67 lb per LF)   | RI@.021   | LF   | 2.54     | .91   | 3.45   | 5.87  |
| Reinforcing steel placed and tied in structural slabs  |           |      |          |       |        |       |
| 1/4" diameter, #2 rebar  | RI@.014   | Lb   | 1.75     | .61   | 2.36   | 4.01  |
| 1/4" diameter, #2 rebar (.17 lb per LF)  | RI@.002   | LF   | .30      | .09   | .39    | .66   |
| 3/8" diameter, #3 rebar  | RI@.010   | Lb   | 1.19     | .43   | 1.62   | 2.75  |
| 3/8" diameter, #3 rebar (.38 lb per LF)  | RI@.004   | LF   | .45      | .17   | .62    | 1.05  |

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| 1/2" diameter, #4 rebar  | RI@.009          | Lb          | 1.03            | .39          | 1.42         | 2.41        |
| 1/2" diameter, #4 rebar (.67 lb per LF)  | RI@.006          | LF          | .69             | .26          | .95          | 1.62        |
| 5/8" diameter, #5 rebar  | RI@.008          | Lb          | 1.09            | .35          | 1.44         | 2.45        |
| 5/8" diameter, #5 rebar (1.04 lb per LF)   | RI@.008          | LF          | 1.13            | .35          | 1.48         | 2.52        |
| 3/4" diameter, #6 rebar  | RI@.007          | Lb          | .92             | .30          | 1.22         | 2.07        |
| 3/4" diameter, #6 rebar (1.50 lb per LF)   | RI@.011          | LF          | 1.38            | .48          | 1.86         | 3.16        |
| 7/8" diameter, #7 rebar  | RI@.007          | Lb          | 1.12            | .30          | 1.42         | 2.41        |
| 7/8" diameter, #7 rebar (2.04 lb per LF)   | RI@.014          | LF          | 2.29            | .61          | 2.90         | 4.93        |
| 1" diameter, #8 rebar  | RI@.007          | Lb          | .95             | .30          | 1.25         | 2.13        |
| 1" diameter, #8 rebar (2.67 lb per LF)   | RI@.019          | LF          | 2.54            | .82          | 3.36         | 5.71        |
| Reinforcing steel placed and tied in walls   |                  |             |                 |              |              |             |
| 1/4" diameter, #2 rebar  | RI@.017          | Lb          | 1.75            | .74          | 2.49         | 4.23        |
| 1/4" diameter, #2 rebar (.17 lb per LF)  | RI@.003          | LF          | .30             | .13          | .43          | .73         |
| 3/8" diameter, #3 rebar  | RI@.012          | Lb          | 1.19            | .52          | 1.71         | 2.91        |
| 3/8" diameter, #3 rebar (.38 lb per LF)  | RI@.005          | LF          | .45             | .22          | .67          | 1.14        |
| 1/2" diameter, #4 rebar  | RI@.011          | Lb          | 1.03            | .48          | 1.51         | 2.57        |
| 1/2" diameter, #4 rebar (.67 lb per LF)  | RI@.007          | LF          | .69             | .30          | .99          | 1.68        |
| 5/8" diameter, #5 rebar  | RI@.010          | Lb          | 1.09            | .43          | 1.52         | 2.58        |
| 5/8" diameter, #5 rebar (1.04 lb per LF)   | RI@.010          | LF          | 1.13            | .43          | 1.56         | 2.65        |
| 3/4" diameter, #6 rebar  | RI@.009          | Lb          | .92             | .39          | 1.31         | 2.23        |
| 3/4" diameter, #6 rebar (1.50 lb per LF)   | RI@.014          | LF          | 1.38            | .61          | 1.99         | 3.38        |
| 7/8" diameter, #7 rebar  | RI@.009          | Lb          | 1.12            | .39          | 1.51         | 2.57        |
| 7/8" diameter, #7 rebar (2.04 lb per LF)   | RI@.018          | LF          | 2.29            | .78          | 3.07         | 5.22        |
| 1" diameter, #8 rebar  | RI@.009          | Lb          | .95             | .39          | 1.34         | 2.28        |
| 1" diameter, #8 rebar (2.67 lb per LF)   | RI@.024          | LF          | 2.54            | 1.04         | 3.58         | 6.09        |
| Add for reinforcing steel coating. Coating applied prior to shipment to job site. Labor for placing coated rebar is the same as that shown for plain rebar above. Cost per pound of reinforcing steel. |                  |             |                 |              |              |             |
| Epoxy coating  |                  |             |                 |              |              |             |
| Any size rebar, add  | —                | Lb          | .43             | —            | .43          | —           |
| Galvanized coating   |                  |             |                 |              |              |             |
| Any #2 rebar, #3 rebar or #4 rebar, add  | —                | Lb          | .56             | —            | .56          | —           |
| Any #5 rebar or #6 rebar, add  | —                | Lb          | .53             | —            | .53          | —           |
| Any #7 rebar or #8 rebar, add  | —                | Lb          | .49             | —            | .49          | —           |
| <b>Welded wire mesh.</b> Electric weld, including 15 percent waste and overlap.  |                  |             |                 |              |              |             |
| 2" x 2" W.9 x W.9 (#12 x #12), slabs   | RI@.004          | SF          | 1.63            | .17          | 1.80         | 3.06        |
| 2" x 2" W.9 x W.9 (#12 x #12), beams and columns   | RI@.020          | SF          | 1.63            | .87          | 2.50         | 4.25        |
| 4" x 4" W1.4 x W1.4 (#10 x #10), slabs   | RI@.003          | SF          | .78             | .13          | .91          | 1.55        |
| 4" x 4" W2.0 x W2.0 (#8 x #8), slabs   | RI@.004          | SF          | .91             | .17          | 1.08         | 1.84        |
| 4" x 4" W2.9 x W2.9 (#6 x #6), slabs   | RI@.005          | SF          | 1.01            | .22          | 1.23         | 2.09        |
| 4" x 4" W4.0 x W4.0 (#4 x #4), slabs   | RI@.006          | SF          | 1.35            | .26          | 1.61         | 2.74        |
| 6" x 6" W1.4 x W1.4 (#10 x #10), slabs   | RI@.003          | SF          | .34             | .13          | .47          | .80         |
| 6" x 6" W2.0 x W2.0 (#8 x #8), slabs   | RI@.004          | SF          | .60             | .17          | .77          | 1.31        |
| 6" x 6" W2.9 x W2.9 (#6 x #6), slabs   | RI@.004          | SF          | .69             | .17          | .86          | 1.46        |
| 6" x 6" W4.0 x W4.0 (#4 x #4), slabs   | RI@.005          | SF          | .95             | .22          | 1.17         | 1.99        |
| Add for lengthwise cut, LF of cut  | RI@.002          | LF          | —               | .09          | .09          | .15         |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Concrete expansion joints.</b> Fiber or asphaltic-felt sided. Per linear foot.  |           |      |          |       |        |      |
| 1/4" wall thickness  |           |      |          |       |        |      |
| 3" deep  | B1@.030   | LF   | .12      | 1.12  | 1.24   | 2.10 |
| 3-1/2" deep  | B1@.030   | LF   | .13      | 1.12  | 1.25   | 2.12 |
| 4" deep  | B1@.030   | LF   | .15      | 1.12  | 1.27   | 2.16 |
| 6" deep  | B1@.030   | LF   | .17      | 1.12  | 1.29   | 2.20 |
| 3/8" wall thickness  |           |      |          |       |        |      |
| 3" deep  | B1@.030   | LF   | .23      | 1.12  | 1.35   | 2.29 |
| 3-1/2" deep  | B1@.030   | LF   | .28      | 1.12  | 1.40   | 2.39 |
| 4" deep  | B1@.030   | LF   | .30      | 1.12  | 1.42   | 2.42 |
| 6" deep  | B1@.030   | LF   | .38      | 1.12  | 1.50   | 2.55 |
| 1/2" wall thickness  |           |      |          |       |        |      |
| 3" deep  | B1@.030   | LF   | .42      | 1.12  | 1.54   | 2.62 |
| 3-1/2" deep  | B1@.030   | LF   | .53      | 1.12  | 1.65   | 2.80 |
| 4" deep  | B1@.030   | LF   | .63      | 1.12  | 1.75   | 2.97 |
| 6" deep  | B1@.030   | LF   | .55      | 1.12  | 1.67   | 2.85 |
| <b>Concrete.</b> Ready-mix delivered by truck. Typical prices for most cities. Includes delivery up to 20 miles for 10 CY or more, 3" to 4" slump. Material cost only, no placing or pumping included. See forming and finishing costs on the following pages. |           |      |          |       |        |      |
| Footing and foundation concrete, 1-1/2" aggregate  |           |      |          |       |        |      |
| 2,000 PSI, 4.8 sack mix  | —         | CY   | 140.00   | —     | 140.00 | —    |
| 2,500 PSI, 5.2 sack mix  | —         | CY   | 143.00   | —     | 143.00 | —    |
| 3,000 PSI, 5.7 sack mix  | —         | CY   | 146.00   | —     | 146.00 | —    |
| 3,500 PSI, 6.3 sack mix  | —         | CY   | 151.00   | —     | 151.00 | —    |
| 4,000 PSI, 6.9 sack mix  | —         | CY   | 155.00   | —     | 155.00 | —    |
| Slab, sidewalk, and driveway concrete, 1" aggregate  |           |      |          |       |        |      |
| 2,000 PSI, 5.0 sack mix  | —         | CY   | 142.00   | —     | 142.00 | —    |
| 2,500 PSI, 5.5 sack mix  | —         | CY   | 146.00   | —     | 146.00 | —    |
| 3,000 PSI, 6.0 sack mix  | —         | CY   | 148.00   | —     | 148.00 | —    |
| 3,500 PSI, 6.6 sack mix  | —         | CY   | 151.00   | —     | 151.00 | —    |
| 4,000 PSI, 7.1 sack mix  | —         | CY   | 154.00   | —     | 154.00 | —    |
| Pea gravel pump mix / grout mix, 3/8" aggregate  |           |      |          |       |        |      |
| 2,000 PSI, 6.0 sack mix  | —         | CY   | 154.00   | —     | 154.00 | —    |
| 2,500 PSI, 6.5 sack mix  | —         | CY   | 155.00   | —     | 155.00 | —    |
| 3,000 PSI, 7.2 sack mix  | —         | CY   | 161.00   | —     | 161.00 | —    |
| 3,500 PSI, 7.9 sack mix  | —         | CY   | 165.00   | —     | 165.00 | —    |
| 5,000 PSI, 8.5 sack mix  | —         | CY   | 176.00   | —     | 176.00 | —    |
| Extra delivery costs for ready-mix concrete  |           |      |          |       |        |      |
| Add for delivery over 20 miles   | —         | Mile | 11.30    | —     | 11.30  | —    |
| Add for standby charge in excess of 5 minutes per CY delivered per minute of extra time  | —         | Ea   | 3.54     | —     | 3.54   | —    |
| Add for less than 10 CY per load delivered   | —         | CY   | 62.00    | —     | 62.00  | —    |
| Extra costs for non-standard aggregates  |           |      |          |       |        |      |
| Add for lightweight aggregate, typical   | —         | CY   | 65.10    | —     | 65.10  | —    |
| Add for lightweight aggregate, pump mix  | —         | CY   | 68.10    | —     | 68.10  | —    |
| Add for granite aggregate, typical   | —         | CY   | 10.20    | —     | 10.20  | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell  |
|--|-----------|------|----------|-------|--------|-------|
| Extra costs for non-standard mix additives   |           |      |          |       |        |       |
| High early strength 5 sack mix   | —         | CY   | 18.40    | —     | 18.40  | —     |
| High early strength 6 sack mix   | —         | CY   | 24.40    | —     | 24.40  | —     |
| Add for white cement (architectural)   | —         | CY   | 84.30    | —     | 84.30  | —     |
| Add for 1% calcium chloride  | —         | CY   | 2.37     | —     | 2.37   | —     |
| Add for chemical compensated shrinkage   | —         | CY   | 31.00    | —     | 31.00  | —     |
| Add for colored concrete, typical prices. The ready-mix supplier charges for cleanup of the ready-mix truck used for delivery of colored concrete. The usual practice is to provide one truck per day for delivery of all colored concrete for a particular job. Add the cost below to the cost per cubic yard for the design mix required. Also add the cost for truck cleanup. |           |      |          |       |        |       |
| Adobe  | —         | CY   | 37.20    | —     | 37.20  | —     |
| Black  | —         | CY   | 52.10    | —     | 48.00  | —     |
| Blended red  | —         | CY   | 37.20    | —     | 37.20  | —     |
| Brown  | —         | CY   | 36.50    | —     | 36.50  | —     |
| Green  | —         | CY   | 66.20    | —     | 66.20  | —     |
| Yellow   | —         | CY   | 36.50    | —     | 36.50  | —     |
| Colored concrete, truck cleanup, per day   | —         | LS   | 113.00   | —     | 113.00 | —     |
| <b>Concrete for walls.</b> Cast-in-place concrete walls for buildings or retaining walls. Material costs for concrete placed direct from chute are based on a 2,000 PSI, 5.0 sack mix, with 1" aggregate, including 5 percent waste.   |           |      |          |       |        |       |
| Pump mix cost includes an additional \$10.00 per CY for the pump. Labor costs are for placing only. Add the cost of excavation, formwork, steel reinforcing, finishes and curing. Square foot costs are based on SF of wall measured on one face only. Costs don't include engineering, design or foundations.   |           |      |          |       |        |       |
| Using concrete (before 5% waste allowance) at  | —         | CY   | 142.00   | —     | 142.00 | —     |
| 4" thick walls (1.23 CY per CSF)   |           |      |          |       |        |       |
| To 4' high, direct from chute  | B1@.013   | SF   | 1.84     | .48   | 2.32   | 3.94  |
| 4' to 8' high, pumped  | B3@.015   | SF   | 2.02     | .54   | 2.56   | 4.35  |
| 8' to 12' high, pumped   | B3@.017   | SF   | 2.02     | .61   | 2.63   | 4.47  |
| 12' to 16' high, pumped  | B3@.018   | SF   | 2.02     | .65   | 2.67   | 4.54  |
| 16' high, pumped   | B3@.020   | SF   | 2.02     | .72   | 2.74   | 4.66  |
| 6" thick walls (1.85 CY per CSF)   |           |      |          |       |        |       |
| To 4' high, direct from chute  | B1@.020   | SF   | 2.76     | .74   | 3.50   | 5.95  |
| 4' to 8' high, pumped  | B3@.022   | SF   | 3.04     | .79   | 3.83   | 6.51  |
| 8' to 12' high, pumped   | B3@.025   | SF   | 3.04     | .90   | 3.94   | 6.70  |
| 12' to 16' high, pumped  | B3@.027   | SF   | 3.04     | .97   | 4.01   | 6.82  |
| 16' high, pumped   | B3@.030   | SF   | 3.04     | 1.08  | 4.12   | 7.00  |
| 8" thick walls (2.47 CY per CSF)   |           |      |          |       |        |       |
| To 4' high, direct from chute  | B1@.026   | SF   | 3.69     | .97   | 4.66   | 7.92  |
| 4' to 8' high, pumped  | B3@.030   | SF   | 4.06     | 1.08  | 5.14   | 8.74  |
| 8' to 12' high, pumped   | B3@.033   | SF   | 4.06     | 1.18  | 5.24   | 8.91  |
| 12' to 16' high, pumped  | B3@.036   | SF   | 4.06     | 1.29  | 5.35   | 9.10  |
| 16' high, pumped   | B3@.040   | SF   | 4.06     | 1.44  | 5.50   | 9.35  |
| 10" thick walls (3.09 CY per CSF)  |           |      |          |       |        |       |
| To 4' high, direct from chute  | B1@.032   | SF   | 4.61     | 1.19  | 5.80   | 9.86  |
| 4' to 8' high, pumped  | B3@.037   | SF   | 5.07     | 1.33  | 6.40   | 10.90 |
| 8' to 12' high, pumped   | B3@.041   | SF   | 5.07     | 1.47  | 6.54   | 11.10 |
| 12' to 16' high, pumped  | B3@.046   | SF   | 5.07     | 1.65  | 6.72   | 11.40 |
| 16' high, pumped   | B3@.050   | SF   | 5.07     | 1.79  | 6.86   | 11.70 |
| 12" thick walls (3.70 CY per CSF)  |           |      |          |       |        |       |
| To 4' high, placed direct from chute   | B1@.040   | SF   | 5.52     | 1.49  | 7.01   | 11.90 |
| 4' to 8' high, pumped  | B3@.045   | SF   | 6.08     | 1.62  | 7.70   | 13.10 |
| 8' to 12' high, pumped   | B3@.050   | SF   | 6.08     | 1.79  | 7.87   | 13.40 |
| 12' to 16' high, pumped  | B3@.055   | SF   | 6.08     | 1.97  | 8.05   | 13.70 |
| 16' high, pumped   | B3@.060   | SF   | 6.08     | 2.15  | 8.23   | 14.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Concrete Footings, Grade Beams and Stem Walls.** Use the figures below for preliminary estimates. Concrete costs are based on a 2,000 PSI, 5.0 sack mix with 1" aggregate placed directly from the chute of a ready-mix truck. Figures in parentheses show the cubic yards of concrete per linear foot of foundation including 5 percent waste. Costs shown include concrete, 60 pounds of reinforcing per CY of concrete, and typical excavation using a 3/4 CY backhoe with excess backfill spread on site.

**Concrete footings and grade beams.** Cast directly against the earth, including excavation, steel reinforcing and concrete but no forming or finishing. These costs assume the top of the foundation will be at finished grade. For scheduling purposes estimate that a crew of 3 can lay out, excavate, place and tie the reinforcing steel and place 13 CY of concrete in an 8-hour day. Add the cost of equipment rental. Use \$900.00 as a minimum job charge.

|                                   |         |    |        |       |        |        |
|-----------------------------------|---------|----|--------|-------|--------|--------|
| Using 2,000 PSI concrete, per CY  | —       | CY | 142.00 | —     | 142.00 | —      |
| Using reinforcing bars, per pound | —       | Lb | 1.03   | —     | 1.03   | —      |
| Typical cost per CY               | B4@1.80 | CY | 204.00 | 74.20 | 278.20 | 473.00 |
| 12" W x 6" D (0.019CY per LF)     | B4@.034 | LF | 3.87   | 1.40  | 5.27   | 8.96   |
| 12" W x 8" D (0.025CY per LF)     | B4@.045 | LF | 5.09   | 1.86  | 6.95   | 11.80  |
| 12" W x 10" D (0.032 CY per LF)   | B4@.058 | LF | 6.52   | 2.39  | 8.91   | 15.10  |
| 12" W x 12" D (0.039 CY per LF)   | B4@.070 | LF | 7.94   | 2.89  | 10.83  | 18.40  |
| 12" W x 18" D (0.058 CY per LF)   | B4@.104 | LF | 11.80  | 4.29  | 16.09  | 27.40  |
| 16" W x 8" D (0.035 CY per LF)    | B4@.063 | LF | 7.13   | 2.60  | 9.73   | 16.50  |
| 16" W x 10" D (0.043 CY per LF)   | B4@.077 | LF | 8.76   | 3.17  | 11.93  | 20.30  |
| 16" W x 12" D (0.052 CY per LF)   | B4@.094 | LF | 10.60  | 3.88  | 14.48  | 24.60  |
| 18" W x 8" D (0.037 CY per LF)    | B4@.067 | LF | 7.53   | 2.76  | 10.29  | 17.50  |
| 18" W x 10" D (0.049 CY per LF)   | B4@.088 | LF | 9.98   | 3.63  | 13.61  | 23.10  |
| 18" W x 24" D (0.117 CY per LF)   | B4@.216 | LF | 23.80  | 8.91  | 32.71  | 55.60  |
| 20" W x 12" D (0.065 CY per LF)   | B4@.117 | LF | 13.20  | 4.82  | 18.02  | 30.60  |
| 24" W x 12" D (0.078 CY per LF)   | B4@.140 | LF | 15.90  | 5.77  | 21.67  | 36.80  |
| 24" W x 24" D (0.156 CY per LF)   | B4@.281 | LF | 31.80  | 11.60 | 43.40  | 73.80  |
| 24" W x 30" D (0.195 CY per LF)   | B4@.351 | LF | 39.70  | 14.50 | 54.20  | 92.10  |
| 24" W x 36" D (0.234 CY per LF)   | B4@.421 | LF | 47.70  | 17.40 | 65.10  | 111.00 |
| 30" W x 36" D (0.292 CY per LF)   | B4@.526 | LF | 59.50  | 21.70 | 81.20  | 138.00 |
| 30" W x 42" D (0.341 CY per LF)   | B4@.614 | LF | 69.40  | 25.30 | 94.70  | 161.00 |
| 36" W x 48" D (0.467 CY per LF)   | B4@.841 | LF | 95.10  | 34.70 | 129.80 | 221.00 |

To estimate the cost of footing or grade beam sizes not shown, multiply the width in inches by the depth in inches and divide the result by 3700. This is the CY of concrete per LF of footing including 5 percent waste. Multiply by the "Typical cost per CY" in the prior table to find the cost per LF.

**Continuous concrete footing with foundation stem wall.** These figures assume the foundation stem wall projects 24" above the finished grade and extends into the soil 18" to the top of the footing. Costs shown include typical excavation using a 3/4 CY backhoe with excess backfill spread on site, forming both sides of the foundation wall and the footing, based on three uses of the forms and 2 #4 rebar. Use \$1,200.00 as a minimum cost for this type work. Add the cost of equipment rental.

|                     |         |    |        |        |        |        |
|---------------------|---------|----|--------|--------|--------|--------|
| Typical cost per CY | B5@7.16 | CY | 240.00 | 292.00 | 532.00 | 904.00 |
|---------------------|---------|----|--------|--------|--------|--------|

**Concrete footing and stem wall for single-story structure.**

|  |         |    |       |       |       |       |
|--|---------|----|-------|-------|-------|-------|
| Typical single-story structure, footing 12" W x 8" D,<br>wall 6" T x 42" D (.10 CY per LF) | B5@.716 | LF | 24.00 | 29.20 | 53.20 | 90.40 |
|--|---------|----|-------|-------|-------|-------|

**Concrete footing and stem wall for two-story structure.**

|  |         |    |       |       |       |        |
|--|---------|----|-------|-------|-------|--------|
| Typical two-story structure, footing 18" W x 10" D,<br>wall 8" T x 42" D (.14 CY per LF) | B5@1.00 | LF | 33.70 | 40.80 | 74.50 | 127.00 |
|--|---------|----|-------|-------|-------|--------|

**Concrete footing and stem wall for three-story structure.**

|   |         |    |       |       |        |        |
|---|---------|----|-------|-------|--------|--------|
| Typical three-story structure, footing 24" W x 12" D,<br>wall 10" T x 42" D (.19 CY per LF) | B5@1.36 | LF | 45.70 | 55.50 | 101.20 | 172.00 |
|---|---------|----|-------|-------|--------|--------|

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Concrete slabs, walks and driveways.** Typical costs for reinforced concrete slabs-on-grade including fine grading, slab base, forms, vapor barrier, wire mesh, 3,000 PSI concrete, finishing and curing. For thickened edge slabs, add the area of the thickened edge. Use 500 square feet as the minimum job size.

|          |         |    |      |      |      |       |
|----------|---------|----|------|------|------|-------|
| 2" thick | B5@.067 | SF | 2.77 | 2.73 | 5.50 | 9.34  |
| 3" thick | B5@.068 | SF | 3.23 | 2.77 | 6.00 | 10.20 |
| 4" thick | B5@.069 | SF | 3.69 | 2.82 | 6.51 | 11.10 |
| 5" thick | B5@.070 | SF | 4.15 | 2.86 | 7.01 | 11.90 |
| 6" thick | B5@.071 | SF | 4.61 | 2.90 | 7.51 | 12.80 |

**Slab Base.** Aggregate base for slabs. No waste included. Labor costs are for spreading aggregate from piles only. Add for fine grading, using hand tools.

Crushed stone base 1.4 tons equal one cubic yard

|                             |         |    |       |     |       |      |
|-----------------------------|---------|----|-------|-----|-------|------|
| Using crushed stone, per CY | —       | CY | 39.90 | —   | 39.90 | —    |
| 1" base (.309 CY per CSF)   | BL@.001 | SF | .12   | .03 | .15   | .26  |
| 2" base (.617 CY per CSF)   | BL@.003 | SF | .25   | .10 | .35   | .60  |
| 3" base (.926 CY per CSF)   | BL@.004 | SF | .37   | .13 | .50   | .85  |
| 4" base (1.23 CY per CSF)   | BL@.006 | SF | .49   | .20 | .69   | 1.17 |
| 5" base (1.54 CY per CSF)   | BL@.007 | SF | .61   | .23 | .84   | 1.43 |
| 6" base (1.85 CY per CSF)   | BL@.008 | SF | .74   | .27 | 1.01  | 1.72 |

Sand fill base 1.40 tons equal one cubic yard

|  |         |    |       |     |       |      |
|--|---------|----|-------|-----|-------|------|
| Using sand, per CY                     | —       | CY | 45.10 | —   | 45.10 | —    |
| 1" fill (.309 CY per CSF)              | BL@.001 | SF | .14   | .03 | .17   | .29  |
| 2" fill (.617 CY per CSF)              | BL@.002 | SF | .28   | .07 | .35   | .60  |
| 3" fill (.926 CY per CSF)              | BL@.003 | SF | .42   | .10 | .52   | .88  |
| 4" fill (1.23 CY per CSF)              | BL@.004 | SF | .55   | .13 | .68   | 1.16 |
| 5" fill (1.54 CY per CSF)              | BL@.006 | SF | .69   | .20 | .89   | 1.51 |
| 6" fill (1.85 CY per CSF)              | BL@.007 | SF | .83   | .23 | 1.06  | 1.80 |
| Add for fine grading for slab on grade | BL@.008 | SF | —     | .27 | .27   | .46  |

## Concrete finishing.

Slab finishes

|              |         |    |   |     |     |     |
|--------------|---------|----|---|-----|-----|-----|
| Broom finish | B6@.012 | SF | — | .44 | .44 | .75 |
| Float finish | B6@.010 | SF | — | .36 | .36 | .61 |

Trowel finishing

|                     |         |    |   |     |     |      |
|---------------------|---------|----|---|-----|-----|------|
| Steel, machine work | B6@.015 | SF | — | .54 | .54 | .92  |
| Steel, hand work    | B6@.018 | SF | — | .65 | .65 | 1.11 |

Finish treads and risers

|  |         |    |     |      |      |      |
|--|---------|----|-----|------|------|------|
| No abrasives, no plastering, per LF of tread | B6@.042 | LF | —   | 1.52 | 1.52 | 2.58 |
| With abrasives, plastered, per LF of tread   | B6@.063 | LF | .85 | 2.29 | 3.14 | 5.34 |
| Scoring concrete surface, hand work          | B6@.005 | LF | —   | .18  | .18  | .31  |
| Sweep, scrub and wash down                   | B6@.006 | SF | .04 | .22  | .26  | .44  |

Liquid curing and sealing compound, spray-on, acrylic concrete cure and seal, 400 SF per gallon

|         |    |     |     |     |     |
|---------|----|-----|-----|-----|-----|
| B6@.003 | SF | .15 | .11 | .26 | .44 |
|---------|----|-----|-----|-----|-----|

Exposed aggregate (washed, including finishing), no disposal of slurry

|         |    |     |     |     |      |
|---------|----|-----|-----|-----|------|
| B6@.017 | SF | .28 | .62 | .90 | 1.53 |
|---------|----|-----|-----|-----|------|

Non-metallic color and concrete hardener, troweled on, 2 applications, red, gray or black,

|                       |         |    |      |     |      |      |
|-----------------------|---------|----|------|-----|------|------|
| 60 pounds per 100 SF  | B6@.021 | SF | .80  | .76 | 1.56 | 2.65 |
| 100 pounds per 100 SF | B6@.025 | SF | 1.34 | .91 | 2.25 | 3.83 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---|-----------|------|----------|-------|-------|------|
| <b>Concrete wall finish.</b>                              |           |      |          |       |       |      |
| Cut back ties and patch                                   | B6@.011   | SF   | .17      | .40   | .57   | .97  |
| Remove fins   | B6@.008   | LF   | .06      | .29   | .35   | .60  |
| Grind smooth  | B6@.021   | SF   | .12      | .76   | .88   | 1.50 |
| Sack, burlap grout rub                                    | B6@.013   | SF   | .07      | .47   | .54   | .92  |
| Wire brush, green   | B6@.015   | SF   | .07      | .54   | .61   | 1.04 |
| Wash with acid and rinse                                  | B6@.004   | SF   | .26      | .15   | .41   | .70  |
| Break fins, patch voids, carborundum rub                  | B6@.035   | SF   | .08      | 1.27  | 1.35  | 2.30 |
| Break fins, patch voids, burlap grout rub                 | B6@.026   | SF   | .09      | .94   | 1.03  | 1.75 |
| Specialty finishes  |           |      |          |       |       |      |
| Monolithic natural aggregate topping                      |           |      |          |       |       |      |
| 3/16"   | B6@.020   | SF   | .70      | .73   | 1.43  | 2.43 |
| 1/2"  | B6@.022   | SF   | 1.77     | .80   | 2.57  | 4.37 |
| Integral colors   |           |      |          |       |       |      |
| Primary colors, based on 25 lb sack                       | —         | Lb   | 8.11     | —     | 8.11  | —    |
| Blends, based on 25 lb sack                               | —         | Lb   | 2.72     | —     | 2.72  | —    |
| Colored release agent                                     | —         | Lb   | 3.01     | —     | 3.01  | —    |
| Dry shake colored hardener                                | —         | Lb   | .67      | —     | .67   | —    |
| Stamped finish (embossed concrete) of joints, if required |           |      |          |       |       |      |
| Diamond, square, octagonal patterns                       | B6@.047   | SF   | —        | 1.71  | 1.71  | 2.91 |
| Spanish paver pattern                                     | B6@.053   | SF   | —        | 1.92  | 1.92  | 3.26 |
| Add for grouting  | B6@.023   | SF   | .43      | .83   | 1.26  | 2.14 |

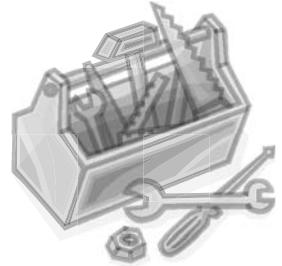
**Concrete slab sawing, Subcontract.** Typical rates quoted by concrete sawing subcontractors. Using a gasoline powered saw. Costs per linear foot for cured concrete assuming a level surface with good access and saw cut lines laid out and pre-marked by others. Costs include local travel time. Minimum cost will be \$250. Electric powered slab sawing will be approximately 40 percent higher for the same depth.

| Depth       | Unit | Under<br>200' | 200' to<br>1,000' | Over<br>1,000' |
|-------------|------|---------------|-------------------|----------------|
| 1" deep     | LF   | .81           | .70               | .59            |
| 1-1/2" deep | LF   | 1.20          | 1.10              | .91            |
| 2" deep     | LF   | 1.57          | 1.39              | 1.20           |
| 2-1/2" deep | LF   | 1.99          | 1.79              | 1.48           |
| 3" deep     | LF   | 2.38          | 2.08              | 1.79           |
| 3-1/2" deep | LF   | 2.76          | 2.48              | 2.08           |
| 4" deep     | LF   | 3.15          | 2.76              | 2.38           |
| 5" deep     | LF   | 4.26          | 3.47              | 2.96           |
| 6" deep     | LF   | 4.75          | 4.17              | 3.57           |
| 7" deep     | LF   | 5.74          | 4.92              | 4.26           |
| 8" deep     | LF   | 6.53          | 5.74              | 4.92           |
| 9" deep     | LF   | 7.42          | 6.53              | 5.66           |
| 10" deep    | LF   | 8.41          | 7.42              | 6.44           |
| 11" deep    | LF   | 9.38          | 8.30              | 7.20           |
| 12" deep    | LF   | 10.40         | 9.21              | 8.02           |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| <b>Asphalt paving.</b> Small jobs and repairs. Using hand tools, except as noted. Add the cost of equipment rental (pneumatic hammer, compressor, front end loader, roller), hauling and dump fees, as required. |           |      |          |       |       |        |
| Break up and remove asphalt pavement up to 3" thick using a pneumatic hammer, loosen and load bituminous debris on truck with shovel   |           |      |          |       |       |        |
| Per square yard of pavement  | B8@.147   | SY   | —        | 5.91  | 5.91  | 10.00  |
| Trim area, break up pavement with a pneumatic hammer, load debris on truck with a front end loader, remove existing base to depth of 3"  |           |      |          |       |       |        |
| Per square yard of pavement  | B8@.470   | SY   | —        | 18.90 | 18.90 | 32.10  |
| Add for job setup  | B8@.053   | SY   | —        | 2.13  | 2.13  | 3.62   |
| Spread hot mix 3" thick with shovel, rake smooth and hand tamp   |           |      |          |       |       |        |
| Per square yard of pavement  | BL@.266   | SY   | 35.70    | 8.86  | 44.56 | 75.80  |
| Add for job setup  | BL@.026   | SY   | —        | .87   | .87   | 1.48   |
| Shovel, rake and hand tamp 3" thick base material, sweep and tack coat, shovel, rake and hand tamp 3" bituminous pavement  |           |      |          |       |       |        |
| Per square yard of pavement  | BL@.316   | SY   | 44.30    | 10.50 | 54.80 | 93.20  |
| Add for extra 1" of thickness  | BL@.024   | SY   | 12.00    | .80   | 12.80 | 21.80  |
| Add for job setup  | BL@.039   | SY   | —        | 1.30  | 1.30  | 2.21   |
| Shovel, rake and machine roll 3" thick base material, sweep and tack coat area, shovel, rake and machine roll 3" bituminous mix  |           |      |          |       |       |        |
| Per square yard of pavement  | B8@.407   | SY   | 44.30    | 16.40 | 60.70 | 103.00 |
| Add for each 1" of thickness   | B8@.022   | SY   | 12.00    | .88   | 12.88 | 21.90  |
| Add for job setup  | B8@.104   | SY   | —        | 4.18  | 4.18  | 7.11   |

# Rough Carpentry

# 4



**B**efore bidding a home improvement job, spend a few minutes checking the integrity of the framing. While wood framing doesn't just wear out (some wood-frame structures in Japan have been in daily use for over a thousand years), there are destructive organisms that attack wood. Framing that has serious decay, mold, or termite infestation may be deteriorated past the point of economical repair, and makes the home more a candidate for demolition than renovation. Financing for home repair may not be available from conventional lenders when a home has serious structural defects.

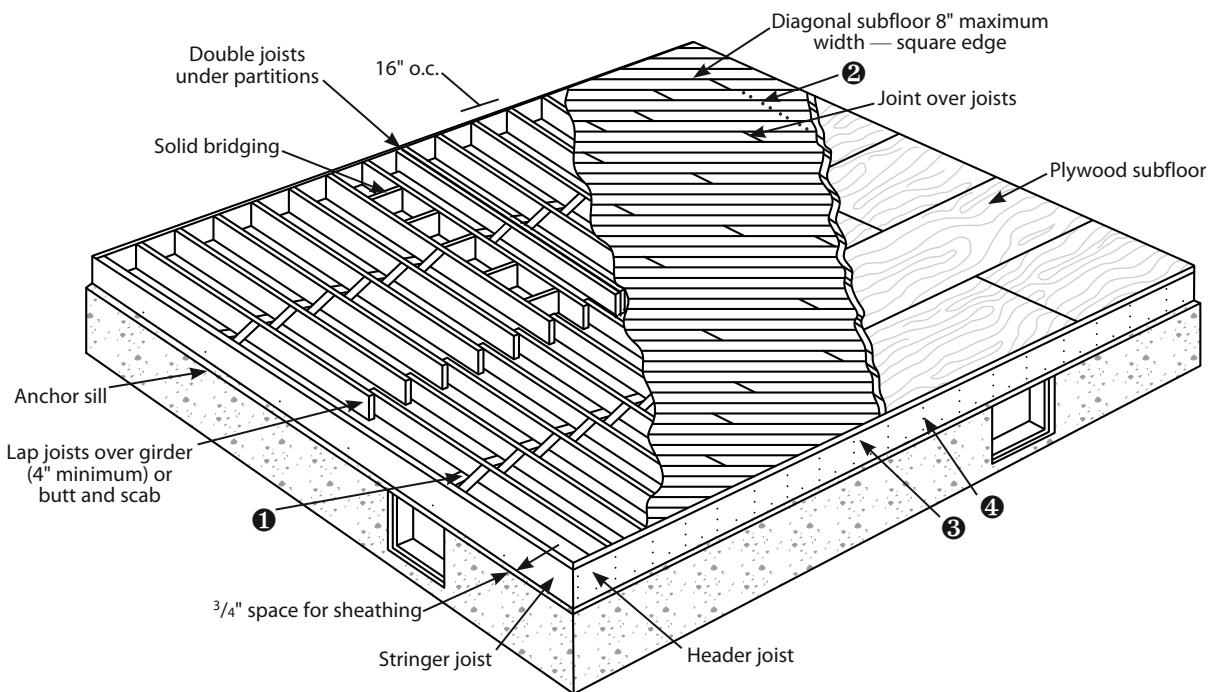
Fortunately, the organisms that attack wood can be controlled with wood preservative and by keeping wood dry. With a little care and attention, nearly any wood-frame structure will reach functional obsolescence long before the wood deteriorates.

## Floor Beams

Figure 4-1 shows the principal components of a framed floor. If the house has a basement, at least one wood or steel floor beam will support joists under the first floor.

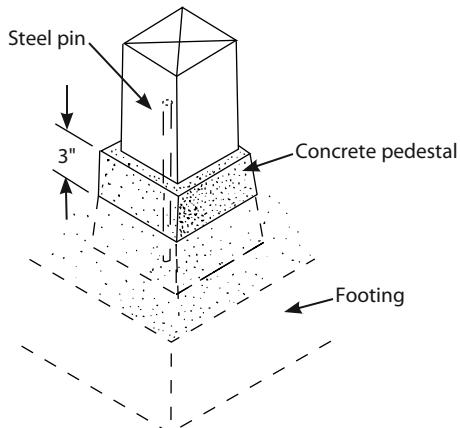
Wood posts that support floor beams should rest on pedestals. Posts embedded in a concrete slab or foundation tend to absorb moisture and eventually decay. See Figure 4-2. Examine the base of wood support posts for decay, even if not in contact with concrete. Steel posts are normally supported on metal plates. Any wood in contact with concrete should be pressure-treated with a preservative such as ACQ (Alkaline Copper Quat), a product made from recycled copper waste. Use lumber treated with 0.25 pounds of ACQ per cubic foot for applications not in direct contact with the ground. For lumber in direct contact with the ground, use 0.40 ACQ-treated lumber. Use 0.60 ACQ-treated lumber for wood foundation systems.

Decayed beams and sills can be replaced, but it's slow, difficult work, especially when done in a crawlspace. However difficult the repairs, they may be the only alternative to demolishing the home. Using temporary needle beams, most homes can be lifted enough to remove weight from the floor beam to make repairs. Insert a needle beam (6" x 6" or greater) through the foundation wall. Then lift the joists off the decayed beam with bottle jacks. All lifting in basements and crawlspaces should be done very slowly to minimize stress damage to the structure. A good rule is to lift no more than  $\frac{1}{4}$ " per day.

**Figure 4-1**

Floor framing: (1) nailing bridging to joists; (2) nailing board subfloor to joists; (3) nailing header to joists; (4) toenailing header to sill

When the weight is off the beam, cut out the decayed member and replace it. Then lower the needle beam slowly, again not more than  $\frac{1}{4}$ " per day. This work is easier if you set additional support piers or posts and replace the beam in sections shorter than the original member.

**Figure 4-2**

Basement post on pedestal above the floor

## Sagging Floors

It's seldom practical to replace decayed floor joists, especially longer joists set with adhesive to the floor sheathing. It's much easier and just as effective to spike a new joist into position beside the old joist. First, remove the joist blocking to make room for the new joist. Then lift the section of decayed joists just enough to level the floor. A heavy 6" x 6" crossarm on top of a hydraulic jack will support a 4' to 6' width of a single-story house. Where you need additional support, add more jacks and crossarms. Raise the jacks slowly, over several days, and only just enough to allow you to insert a new pressure-treated joist beside the old joist. Excessive jacking will pull the building frame out of

square. Insert the new joist, supporting it with joist hangers, a ledger, or by spiking it firmly to the old joist. Lower the jack. Then replace the joist bridges.

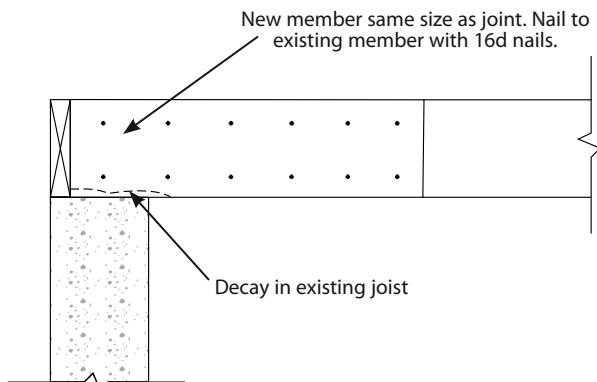
If only the joist end is decayed, brush wood preservative on the affected area. Then jack the existing joist up to the correct level and nail a short length of new material to the side of the existing joist. See Figure 4-3.

Some sag is normal in permanently-loaded wood beams. It's not a structural problem unless the walls above are obviously distorted. Deflection that doesn't exceed  $\frac{3}{8}$ " in 10' is generally acceptable for structural purposes.

Sagging floor joists aren't serious unless the foundation system has settled unevenly, causing excessive deflection in the floor. Look for deflection caused by poor support of heavy partition walls or by joist sections cut away by a plumbing, HVAC or electrical crew. If the floor appears to be reasonably level, joist sag is probably acceptable. Otherwise, jack the floor back to a level position and double the joists or add a floor beam supported at each end by concrete piers.

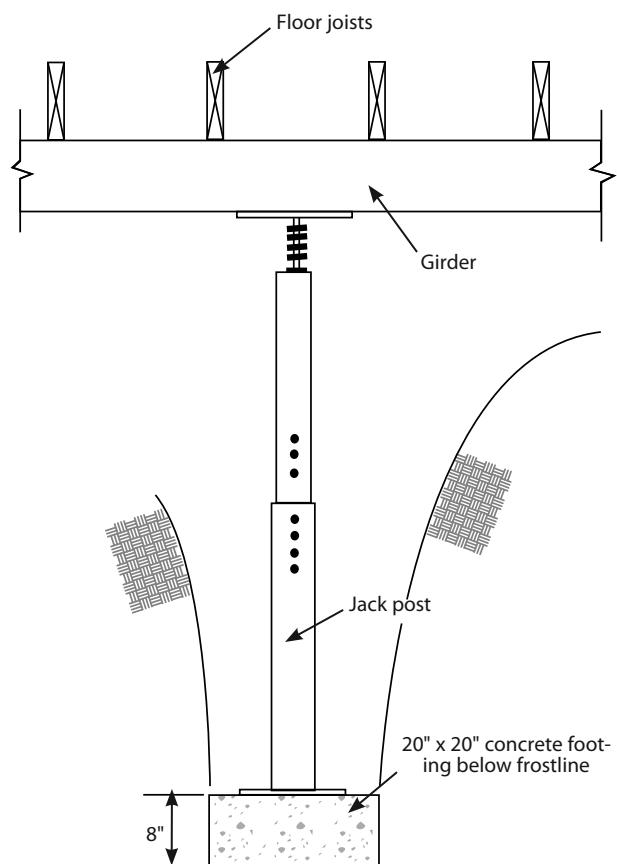
You can reinforce a sagging floor beam with jack posts. See Figures 4-4 and 4-5. Jack posts used to stiffen a springy floor can set directly on concrete. Where a jack post has to carry a heavy load, install a steel plate to distribute the load over a larger area of floor slab. Jack posts aren't made for heavy jacking. If heavy jacking is required, use cribbing and an automotive bottle jack to lift the load. Then slip the jack post into place.

If the floor bounces under foot traffic, check to be sure joist bridges are installed between joists every eight feet. If you see adequate bridging, consider adding extra joists alongside every second joist in the affected area. Be sure to place new joists with the crown up. It's more work, but you could also add a supplemental beam at mid-span under the joists. Support the beam on both ends by installing concrete piers or posts. Sagging or bouncy floors may also indicate one or more broken floor joists. Inspect the area around the furnace — furnace heat may have caused excessive drying and cracking of floor joists.



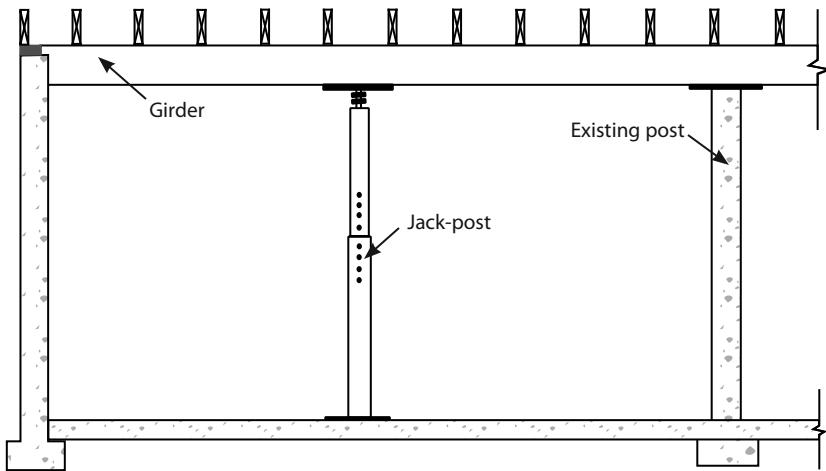
**Figure 4-3**

*Repair of joist with decay in end contacting the foundation*



**Figure 4-4**

*Jack post supporting a sagging girder in a crawl space house*

**Figure 4-5**

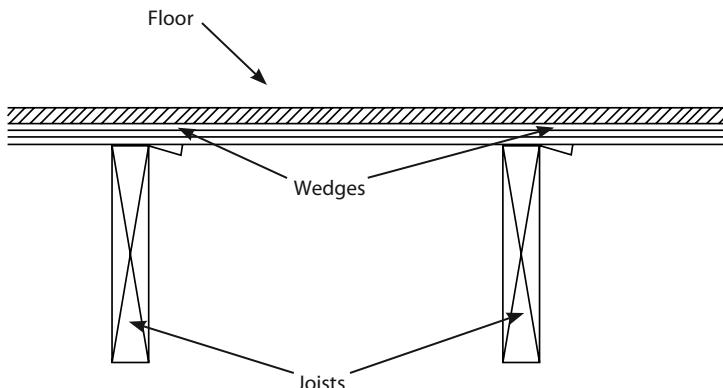
Jack post used to level a sagging girder in a basement

## Squeaky Wood Floors

Floor squeaks are usually caused by two edges rubbing together, such as the tongue of one flooring strip rubbing against the groove in the adjacent strip. Applying a small amount of mineral oil to the joint may solve the problem.

A sagging floor joist can pull away from the subfloor, leaving a small gap between the two. If you suspect this is the cause of squeaks, open a joint and squeeze construction mastic into the cavity. An alternate remedy is to drive small wedges into the space between the joists and subfloor. See Figure 4-6. Drive wedges only far enough for a snug fit. This repair only works for a small area. Too many wedges will make the finish floor look bumpy.

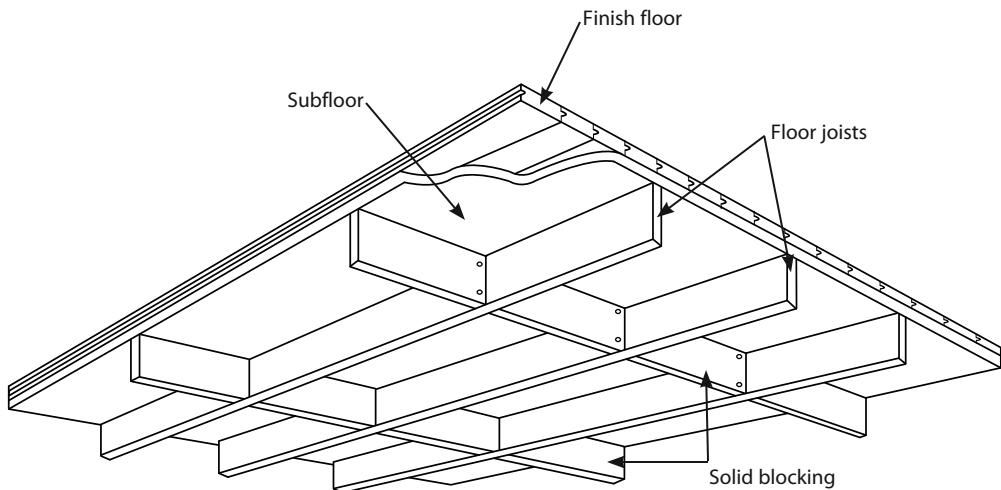
Floor joists that are too small for the span will squeak as the floor deflects under load. The best solution is to add a girder to shorten the joist span.

**Figure 4-6**

Wedges driven between joists and subfloor to stop squeaks

Strip flooring installed parallel to the joists usually deflects more under load than flooring installed perpendicular. If this is the cause of squeaks, solid blocking nailed between joists and fitted snugly against the subfloor (Figure 4-7) will limit deflection and help silence the floor.

Another common cause of squeaking is insufficient nails. If you decide to face nail the floor where it squeaks, countersink the nails and then fill each nail hole with wood putty. A better choice is to drill a small pilot hole through the tongue edge of a floor strip. Then nail through the pilot hole into a joist,



**Figure 4-7**

*Solid blocking between floor joists where finish floor is laid parallel to joists*

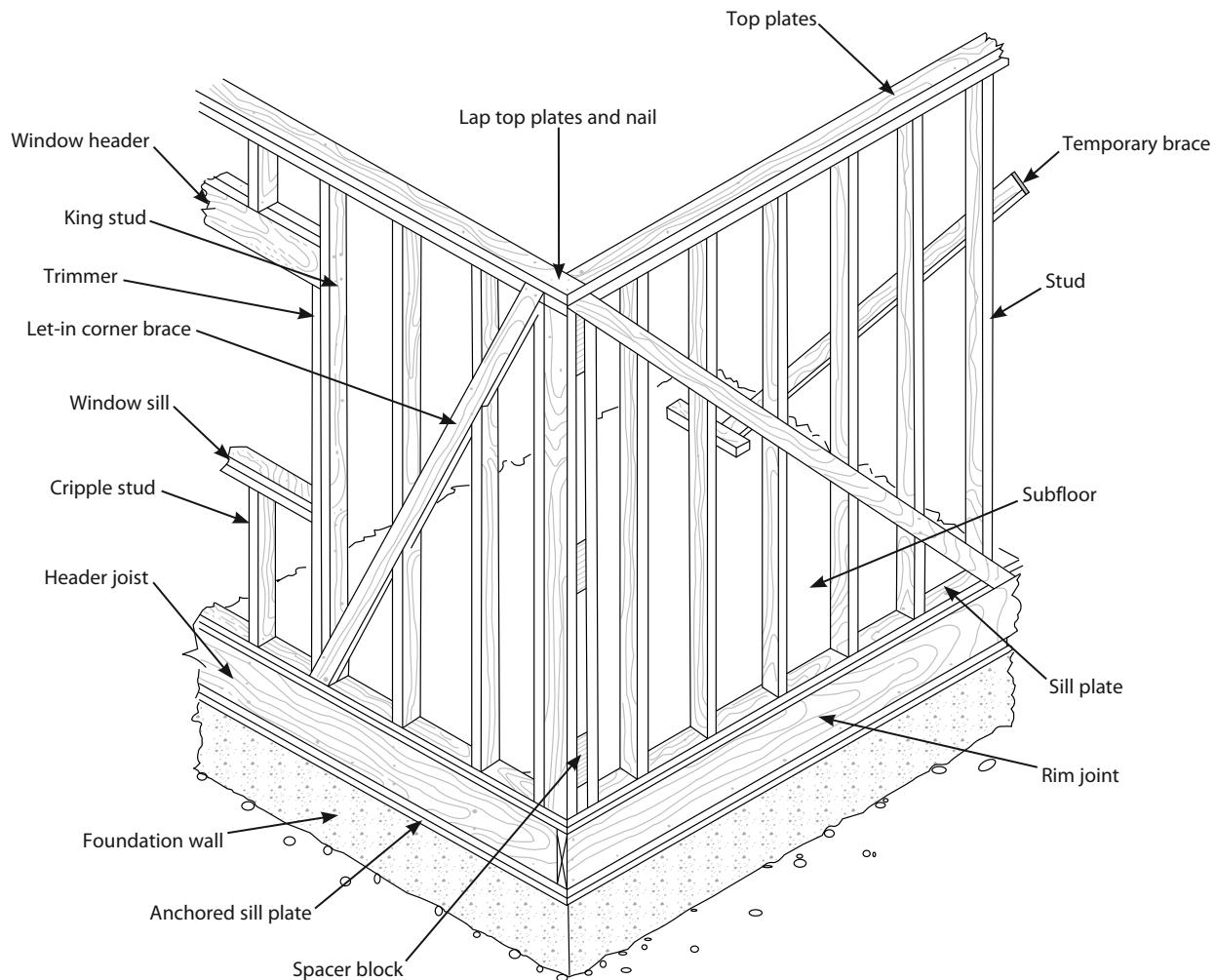
if possible. Even better, work from under the floor using screws driven through the subfloor into the finish floor. This method will also bring warped flooring flush with the subfloor.

## Wall Framing

Stud walls made of 2" x 4" lumber set 16" on center (Figure 4-8) and stiffened by fireblocks seldom need to be repaired. The studs are stiff enough to hold the roof up for many years. But individual studs may have to be replaced if they've been weakened, either by cuts made for plumbing or electrical lines, or by insect damage.

Attic conversions or adding a second story to a home generally require that the studs be doubled — another stud added between the original studs set 16" on center. Just installing ceramic tile in a second-story bathroom or adding a bathtub on a second floor can increase the load carried by studs below by several thousand pounds. When installing new ceramic tile, you should also add solid blocking to the floor joists directly under the bathroom. A ceramic tile floor can't tolerate any movement. Any flexing of the floor will cause tile popping or cracking. Consider doubling studs in the first floor support wall when adding fixtures to the room above.

Occasionally you'll see a remodeled home where a partition wall, supported only by floor joists, is carrying a load from the second story. This is common when an attic has been converted to a storage room or an extra bedroom. The additional weight will tend to deform the main floor downward. Think of partition walls as curtains that simply divide up space. They aren't intended to support roof loads or any weight from the floor above. Doubling the support studs won't help if those studs rest on a plate supported only by floor joists. You have to convert the partition

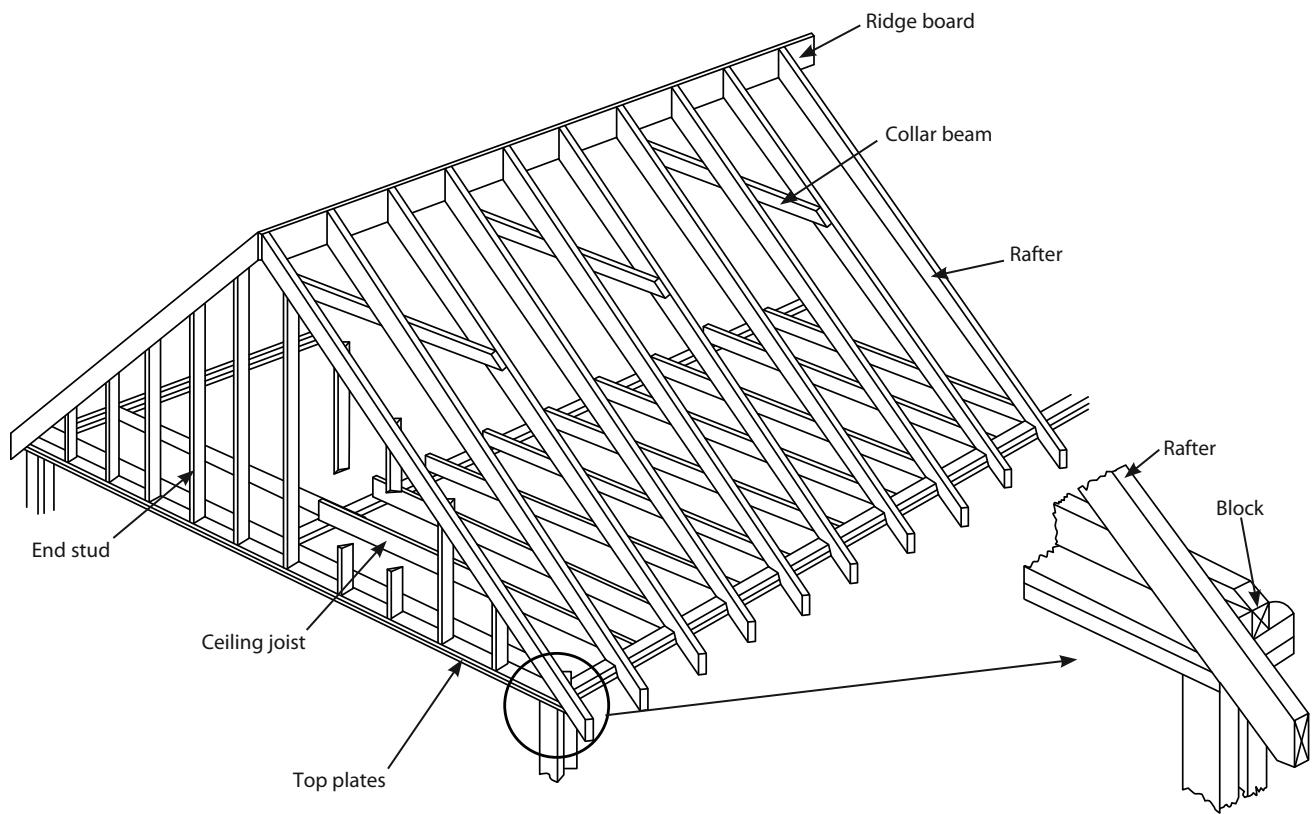
**Figure 4-8**

Wall framing used with platform construction

wall to a load-bearing wall by adding a support beam and posts in the crawlspace or basement below.

## Defects in the Roof

Roof leaks are usually caused by a failure of the roof cover, and can lead to rot damage to both the sheathing and the rafters. It would be poor practice to replace roof cover without making repairs to a sagging or decayed roof deck. Unlike problems with floor joists and floor beams, nearly all roof framing problems can be repaired economically. See Figure 4-9. Examine the roof for sagging at the ridge, rafters and in the sheathing. A ridge board can sag due to improper sup-

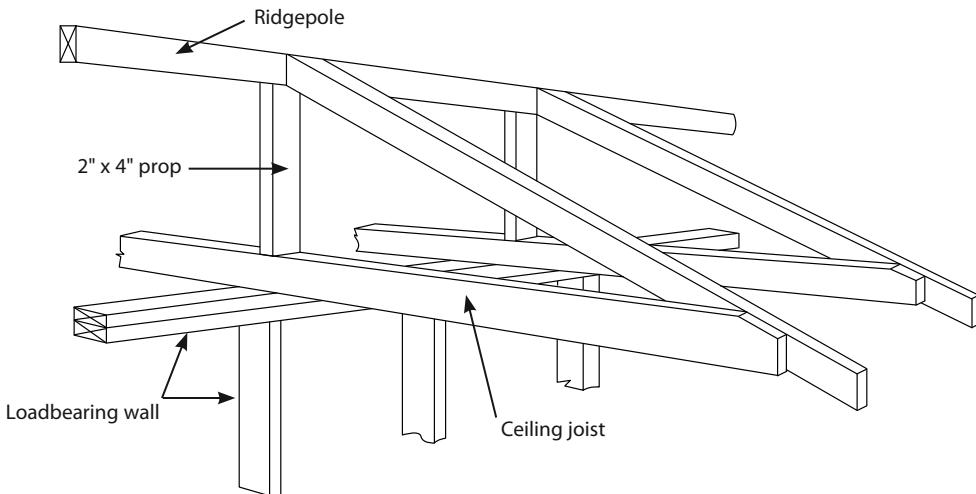


**Figure 4-9**

*Ceiling and roof framing: Overall gable roof framing*

port, inadequate ties at the plate level, or even from sagging rafters. Rafters sag if the lumber wasn't well seasoned or if the lumber didn't have enough strength for the span. Sheathing sag is the result of rafter spacing that's too wide or sheathing material that's too thin. Occasionally, plywood sheathing will de-laminate and lose load-carrying capacity.

You can level a sagging ridge board or roof truss by jacking up points between supports and then installing braces to hold the member in place. When jacking any roof component, be sure to set the jack where the load will be transferred directly down through the structure to the foundation. Otherwise, pressure from the jack will deform the ceiling joists downward, damaging the ceiling below. If there's no bearing wall available, lay a beam in position where it can transfer loads to remote bearing points. When a ridge or truss chord is jacked into level position, cut a 2 x 4 just long enough to fit between the ceiling joist and ridge or chord. Then nail the prop at both ends. See Figure 4-10. For a short ridge board, one prop may be enough. Add more props as needed. If a rafter is sagging, jack the rafter into alignment. Then nail a new rafter into position at the side of the sagging rafter. That won't remove the sag from the old rafter, but it will transfer the load to a new, straight rafter.

**Figure 4-10**

Prop to hold sagging ridgepole in level position

## Sheathing

A wavy roof surface is evidence that the sheathing has sagged. The only practical repair is to remove and replace the sheathing. However, you may be able to nail new sheathing right over the old. This saves both the labor of removing the old sheathing and a big cleanup job. Of course, you must remove old sheathing that shows signs of decay or mold.

New sheathing that's nailed over existing sheathing must be secured with longer nails than normally used on roof sheathing, because the nails still need to penetrate the framing  $1\frac{1}{4}$ " to  $1\frac{1}{2}$ ". You should nail the sheathing edges at 6" spacing and nail to the intermediate framing members at 12" spacing. Install sheathing with the long edge at right angles to the rafters. For a built-up roof, join panel edges with plywood clips where edges don't meet over a rafter. You can use  $\frac{3}{8}$ " thick sheathing for 16" rafter spacing, which is the minimum thickness required. However,  $\frac{1}{2}$ " sheathing plywood is better, and is required for heavy roofing materials such as clay or concrete tile. You'll find that Oriented Strand Board (OSB) sheathing costs less and works just as well as plywood sheathing.

Strip sheathing helps promote air circulation, which is an important consideration in any climate. Slate and tile roofs are commonly installed on furring strips rather than plywood sheathing. However, strip sheathing is not appropriate for asphalt shingle applications.

When replacing the roof cover, roof sheathing or roof supports, check the roof flashing for rust and physical damage. Inadequate or damaged flashing could result in leaks. Replace any flashing that shows signs of age. Then renew the caulking around chimneys and parapet walls.

## Adding a Roof Overhang

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Many older homes have little or no roof overhang. Without an adequate overhang, rain and melting snow trickle down the wall finish, creating moisture problems in siding and trim, and at window and door openings, as well as increasing the moisture content at the foundation.

Extending the roof overhang will both improve the appearance of the house and reduce the maintenance required on siding and exterior trim. If you're adding new sheathing, consider extending the sheathing an inch or two beyond the edge of the existing roof. This is both an inexpensive and comparatively easy improvement.

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Framing Repairs

**Pricing for floor framing repairs.** Place temporary 6" x 6" x 10' needle beam under joists for floor jacking, using 4" x 4" pre-cut cribbing for end supports. Includes removing the needle beam when lifting is complete. All jacking materials to be salvaged. No concrete work included.

|                                       |         |    |   |        |        |        |
|---------------------------------------|---------|----|---|--------|--------|--------|
| Beam set in a basement or first floor | B1@1.72 | Ea | — | 61.40  | 61.40  | 104.00 |
| Beam set in a crawl space             | B1@3.44 | Ea | — | 123.00 | 123.00 | 209.00 |

Remove a floor beam. Includes jacking and cutting out the old beam. Add the cost of repairs to sheathing, siding and interior finish. Assumes all jacking materials are salvaged. Add the cost of the beam from the section that follows. Add needle beam placement costs from the lines above. Lifting and lowering should be done slowly. A good rule is to lift no more than 1/4" per day.

|  |         |    |   |        |        |        |
|--|---------|----|---|--------|--------|--------|
| Per 8' section, basement or first floor  | B1@6.87 | Ea | — | 245.00 | 245.00 | 417.00 |
| Per 16' section, basement or first floor | B1@9.34 | Ea | — | 333.00 | 333.00 | 566.00 |
| Per 8' section, work in a crawl space    | B1@10.3 | Ea | — | 368.00 | 368.00 | 626.00 |
| Per 16' section, work in a crawl space   | B1@14.0 | Ea | — | 500.00 | 500.00 | 850.00 |

Needle beam, purchase

|  |   |    |       |   |       |   |
|--|---|----|-------|---|-------|---|
| 6" x 6" x 10', green No. 1 Douglas fir | — | Ea | 69.20 | — | 69.20 | — |
|--|---|----|-------|---|-------|---|

Cribbing, 4" x 4" x 8' No. 2 fir

|                    |   |    |       |   |       |   |
|--------------------|---|----|-------|---|-------|---|
| Per crib, purchase | — | Ea | 11.00 | — | 11.00 | — |
|--------------------|---|----|-------|---|-------|---|

Bottle (hydraulic) jack. Two-piece handle with internal overload valve, 9" to 18" lift

|                           |   |    |       |   |       |   |
|---------------------------|---|----|-------|---|-------|---|
| 6 ton capacity, purchase  | — | Ea | 33.00 | — | 33.00 | — |
| 12 ton capacity, purchase | — | Ea | 50.00 | — | 50.00 | — |
| 20 ton capacity, purchase | — | Ea | 70.00 | — | 70.00 | — |

**Beams and girders.** Std & Btr. First floor work. See beam removal costs in the previous section. Crawl space work assumes a minimum 24" high reasonably accessible area. Work done in crawl spaces less than 24" high may cost up to 100% more. Figures in parentheses show board feet per linear foot of beam or girder, including 7% waste.

|  |         |     |          |        |          |          |
|--|---------|-----|----------|--------|----------|----------|
| 4" x 6", per MBF                                 | B1@16.0 | MBF | 1,010.00 | 595.00 | 1,605.00 | 2,730.00 |
| 4" x 8", 10", 12", per MBF                       | B1@16.0 | MBF | 1,090.00 | 595.00 | 1,685.00 | 2,860.00 |
| 6" x 6", per MBF                                 | B1@16.0 | MBF | 2,310.00 | 595.00 | 2,905.00 | 4,940.00 |
| 6" x 8", 10", 12", 8" x 8", per MBF              | B1@16.0 | MBF | 2,310.00 | 595.00 | 2,905.00 | 4,940.00 |
| 4" x 6" (2.15 BF per LF)                         | B1@.034 | LF  | 2.23     | 1.26   | 3.49     | 5.93     |
| 4" x 8" (2.85 BF per LF)                         | B1@.045 | LF  | 3.18     | 1.67   | 4.85     | 8.25     |
| 4" x 10" (3.58 BF per LF)                        | B1@.057 | LF  | 3.99     | 2.12   | 6.11     | 10.40    |
| 4" x 12" (4.28 BF per LF)                        | B1@.067 | LF  | 4.78     | 2.49   | 7.27     | 12.40    |
| 6" x 6" (3.21 BF per LF)                         | B1@.051 | LF  | 7.61     | 1.90   | 9.51     | 16.20    |
| 6" x 8" (4.28 BF per LF)                         | B1@.067 | LF  | 10.10    | 2.49   | 12.59    | 21.40    |
| 6" x 10" (5.35 BF per LF)                        | B1@.083 | LF  | 12.70    | 3.09   | 15.79    | 26.80    |
| 6" x 12" (6.42 BF per LF)                        | B1@.098 | LF  | 15.20    | 3.64   | 18.84    | 32.00    |
| 8" x 8" (5.71 BF per LF)                         | B1@.088 | LF  | 13.20    | 3.27   | 16.47    | 28.00    |
| Add if replacing a beam, basement or first floor | B1@.047 | LF  | —        | 1.75   | 1.75     | 2.98     |
| Add if replacing a beam in a crawl space         | B1@.095 | LF  | —        | 3.53   | 3.53     | 6.00     |

**Shim up a floor beam.** Jack a floor beam into position with a crossarm mounted on a hydraulic jack. Insert a pressure-treated shim above the pier or column and remove the jack. Per jacking point. Work done on sloping or unstable ground will cost more. Assumes all jacking materials are salvaged and includes cost of removing the jack. Lifting and lowering should not exceed 1/4" per day.

|                               |         |    |   |       |       |       |
|-------------------------------|---------|----|---|-------|-------|-------|
| Jacking done in a basement    | B1@.700 | Ea | — | 26.00 | 26.00 | 44.20 |
| Jacking done in a crawl space | B1@1.25 | Ea | — | 46.50 | 46.50 | 79.10 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Adjustable steel jack posts.** Temporary or permanent support for beams during home improvement work. Two height-adjustment pins seated in separate pockets. Top and bottom plates fit steel or wood beams. 8" turning bar, 5" screw height adjustment. 14,300 to 15,500 pound capacity. Set on an existing slab or pier.

|                                     |         |    |        |      |        |        |
|-------------------------------------|---------|----|--------|------|--------|--------|
| 6' 6" to 6' 10", 15,500 lb capacity | B1@.250 | Ea | 115.00 | 9.30 | 124.30 | 211.00 |
| 6' 9" to 7', 15,500 lb capacity     | B1@.250 | Ea | 120.00 | 9.30 | 129.30 | 220.00 |
| 7' to 7' 4", 15,500 lb capacity     | B1@.250 | Ea | 123.00 | 9.30 | 132.30 | 225.00 |
| 7' 3" to 7' 7", 15,500 lb capacity  | B1@.250 | Ea | 128.00 | 9.30 | 137.30 | 233.00 |
| 7' 6" to 7' 10", 14,300 lb capacity | B1@.250 | Ea | 135.00 | 9.30 | 144.30 | 245.00 |
| 7' 9" to 8' 1", 14,300 lb capacity  | B1@.250 | Ea | 151.00 | 9.30 | 160.30 | 273.00 |
| 8' to 8' 4", 14,300 lb capacity     | B1@.250 | Ea | 164.00 | 9.30 | 173.30 | 295.00 |

**Remove basement post and replace concrete pier.** Add the cost of placing a temporary jack post from the previous section and setting the post itself from the following section.

Remove an existing 4" x 4" x 7' wood basement post

|  |         |      |       |       |       |       |
|--|---------|------|-------|-------|-------|-------|
| Per post   | B1@.250 | Ea   | —     | 9.30  | 9.30  | 15.80 |
| Break out an existing isolated concrete pier           |         |      |       |       |       |       |
| Using hand tools, per cubic foot of concrete           | B1@.435 | CF   | —     | 16.20 | 16.20 | 27.50 |
| Hand excavate for a concrete pad or pier, average soil |         |      |       |       |       |       |
| Per cubic foot of soil                                 | B1@.100 | CF   | —     | 3.57  | 3.57  | 6.07  |
| Set and strip square concrete form for pier            |         |      |       |       |       |       |
| Per square foot of contact area, 1 use                 | B1@.090 | SFCA | 31.20 | 3.35  | 34.55 | 58.70 |
| Mix, pour and finish concrete for an isolated pier     |         |      |       |       |       |       |
| Per cubic foot of concrete                             | B1@.400 | CF   | 15.60 | 14.90 | 30.50 | 51.90 |
| Place post anchor in concrete pier                     |         |      |       |       |       |       |
| Per anchor   | B1@.132 | Ea   | 17.00 | 4.91  | 21.91 | 37.20 |

**Wood support posts.** S4S, green. Set in basement or first floor. Material costs include 10% waste. For posts incorporated in wall framing, see stud wall costs.

|                                   |         |    |       |      |       |       |
|-----------------------------------|---------|----|-------|------|-------|-------|
| 4" x 4", 4" x 6" posts, per BF    | —       | BF | 1.03  | —    | 1.03  | —     |
| 4" x 8" to 4" x 12" posts, per BF | —       | BF | 1.09  | —    | 1.09  | —     |
| 6" x 6" to 8" x 12" posts, per BF | —       | BF | 2.31  | —    | 2.31  | —     |
| 4" x 4" per LF                    | B1@.110 | LF | 1.51  | 4.09 | 5.60  | 9.52  |
| 4" x 6" per LF                    | B1@.120 | LF | 2.27  | 4.46 | 6.73  | 11.40 |
| 4" x 8" per LF                    | B1@.140 | LF | 3.19  | 5.21 | 8.40  | 14.30 |
| 4" x 10" per LF                   | B1@.143 | LF | 3.99  | 5.32 | 9.31  | 15.80 |
| 4" x 12" per LF                   | B1@.145 | LF | 4.78  | 5.39 | 10.17 | 17.30 |
| 6" x 6" per LF                    | B1@.145 | LF | 7.61  | 5.39 | 13.00 | 22.10 |
| 6" x 8" per LF                    | B1@.145 | LF | 8.38  | 5.39 | 13.77 | 23.40 |
| 6" x 10" per LF                   | B1@.147 | LF | 12.70 | 5.47 | 18.17 | 30.90 |
| 6" x 12" per LF                   | B1@.150 | LF | 15.20 | 5.58 | 20.78 | 35.30 |
| 8" x 8" per LF                    | B1@.150 | LF | 13.50 | 5.58 | 19.08 | 32.40 |
| 8" x 10" per LF                   | B1@.155 | LF | 16.90 | 5.76 | 22.66 | 38.50 |

**Remove a sill plate.** Includes jacking and cutting out the old plate. Add the cost of repairs to sheathing, siding and interior finish. All jacking materials salvaged. Add the cost of placing a temporary needle beam from the previous section. Add the cost of setting the sill plate from the following section.

|  |         |    |   |        |        |        |
|--|---------|----|---|--------|--------|--------|
| Per 8' section, work in a basement     | B1@6.87 | Ea | — | 255.00 | 255.00 | 434.00 |
| Per 16' section, work in a basement    | B1@9.34 | Ea | — | 347.00 | 347.00 | 590.00 |
| Per 8' section, work in a crawl space  | B1@10.3 | Ea | — | 383.00 | 383.00 | 651.00 |
| Per 16' section, work in a crawl space | B1@14.0 | Ea | — | 521.00 | 521.00 | 886.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Sill plate.** Mud sill at foundation, #2 pressure treated lumber, drilled and installed with foundation bolts at 48" OC, no bolts, nuts or washers included. Figures in parentheses show board feet per LF of foundation, including 5% waste.

|                                       |         |     |          |        |          |          |
|---------------------------------------|---------|-----|----------|--------|----------|----------|
| Sill plates, per MBF                  | B1@22.9 | MBF | 1,100.00 | 852.00 | 1,952.00 | 3,320.00 |
| 2" x 3" (.53 BF per LF)               | B1@.020 | LF  | .49      | .74    | 1.23     | 2.09     |
| 2" x 4" (.73 BF per LF)               | B1@.023 | LF  | .91      | .86    | 1.77     | 3.01     |
| 2" x 6" (1.05 BF per LF)              | B1@.024 | LF  | 1.24     | .89    | 2.13     | 3.62     |
| 2" x 8" (1.40 BF per LF)              | B1@.031 | LF  | 1.56     | 1.15   | 2.71     | 4.61     |
| Add for installation in a basement    | B1@.095 | LF  | —        | 3.53   | 3.53     | 6.00     |
| Add for installation in a crawl space | B1@.158 | LF  | —        | 5.88   | 5.88     | 10.00    |

## Framing Room Additions

**Floor joists — room addition.** Per SF of area covered. Figures in parentheses indicate board feet per square foot of floor including box or band joist, typical double joists (under partition walls), and 6% waste. No beams, blocking or bridging included. Deduct for openings over 25 SF. Costs shown are based on a job with 1,000 SF of area covered. For scheduling purposes, estimate that a crew of two can complete 750 SF of area per 8-hour day for 12" center-to-center framing; 925 SF for 16" OC; 1,100 SF for 20" OC; or 1,250 SF for 24" OC. See the following section for costs of repairing floor joists in an existing building. For more complete coverage, see *National Framing and Finish Carpentry Estimator* at <https://craftsman-book.com/national-estimator-cloud>.

### 2" x 6" Std & Btr

|                               |         |     |        |     |        |      |
|-------------------------------|---------|-----|--------|-----|--------|------|
| 2" x 6" floor joists, per MBF | —       | MBF | 906.00 | —   | 906.00 | —    |
| 12" centers (1.28 BF per SF)  | B1@.021 | SF  | 1.16   | .78 | 1.94   | 3.30 |
| 16" centers (1.02 BF per SF)  | B1@.017 | SF  | .92    | .63 | 1.55   | 2.64 |
| 20" centers (.88 BF per SF)   | B1@.014 | SF  | .80    | .52 | 1.32   | 2.24 |
| 24" centers (.73 BF per SF)   | B1@.012 | SF  | .66    | .45 | 1.11   | 1.89 |

### 2" x 8" Std & Btr

|                               |         |     |        |     |        |      |
|-------------------------------|---------|-----|--------|-----|--------|------|
| 2" x 8" floor joists, per MBF | —       | MBF | 797.00 | —   | 797.00 | —    |
| 12" centers (1.71 BF per SF)  | B1@.023 | SF  | 1.36   | .86 | 2.22   | 3.77 |
| 16" centers (1.36 BF per SF)  | B1@.018 | SF  | 1.08   | .67 | 1.75   | 2.98 |
| 20" centers (1.17 BF per SF)  | B1@.015 | SF  | .93    | .56 | 1.49   | 2.53 |
| 24" centers (1.03 BF per SF)  | B1@.013 | SF  | .82    | .48 | 1.30   | 2.21 |

### 2" x 10" Std & Btr

|                                |         |     |        |     |        |      |
|--------------------------------|---------|-----|--------|-----|--------|------|
| 2" x 10" floor joists, per MBF | —       | MBF | 869.00 | —   | 869.00 | —    |
| 12" centers (2.14 BF per SF)   | B1@.025 | SF  | 1.86   | .93 | 2.79   | 4.74 |
| 16" centers (1.71 BF per SF)   | B1@.020 | SF  | 1.49   | .74 | 2.23   | 3.79 |
| 20" centers (1.48 BF per SF)   | B1@.016 | SF  | 1.29   | .60 | 1.89   | 3.21 |
| 24" centers (1.30 BF per SF)   | B1@.014 | SF  | 1.13   | .52 | 1.65   | 2.81 |

### 2" x 12" Std & Btr

|                                |         |     |          |     |          |      |
|--------------------------------|---------|-----|----------|-----|----------|------|
| 2" x 12" floor joists, per MBF | —       | MBF | 1,110.00 | —   | 1,110.00 | —    |
| 12" centers (2.56 BF per SF)   | B1@.026 | SF  | 2.84     | .97 | 3.81     | 6.48 |
| 16" centers (2.05 BF per SF)   | B1@.021 | SF  | 2.27     | .78 | 3.05     | 5.19 |
| 20" centers (1.77 BF per SF)   | B1@.017 | SF  | 1.96     | .63 | 2.59     | 4.40 |
| 24" centers (1.56 BF per SF)   | B1@.015 | SF  | 1.73     | .56 | 2.29     | 3.89 |

**Add floor joists under an existing building.** Per linear foot of new joist set in joist hangers or "doubled" by spiking to an existing joist. Jack two or three adjacent joists into position with a crossarm mounted on a hydraulic jack. Per jacking point. Work done on sloping or unstable ground will cost more. Includes the cost of removing the jack.

|                               |         |    |   |       |       |       |
|-------------------------------|---------|----|---|-------|-------|-------|
| Jacking done in a basement    | B1@.700 | Ea | — | 26.00 | 26.00 | 44.20 |
| Jacking done in a crawl space | B1@1.25 | Ea | — | 46.50 | 46.50 | 79.10 |

### Set 2" x 6" floor joist

|                            |         |    |     |      |      |      |
|----------------------------|---------|----|-----|------|------|------|
| Work done in a basement    | B1@.042 | LF | .94 | 1.56 | 2.50 | 4.25 |
| Work done in a crawl space | B1@.070 | LF | .94 | 2.60 | 3.54 | 6.02 |

|                            | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|----------------------------|-----------|------|----------|-------|-------|------|
| Set 2" x 8" floor joist    |           |      |          |       |       |      |
| Work done in a basement    | B1@.046   | LF   | 1.24     | 1.71  | 2.95  | 5.02 |
| Work done in a crawl space | B1@.077   | LF   | 1.24     | 2.86  | 4.10  | 6.97 |
| Set 2" x 10" floor joist   |           |      |          |       |       |      |
| Work done in a basement    | B1@.050   | LF   | 1.69     | 1.86  | 3.55  | 6.04 |
| Work done in a crawl space | B1@.083   | LF   | 1.69     | 3.09  | 4.78  | 8.13 |
| Set 2" x 12" floor joist   |           |      |          |       |       |      |
| Work done in a basement    | B1@.052   | LF   | 2.61     | 1.93  | 4.54  | 7.72 |
| Work done in a crawl space | B1@.087   | LF   | 2.61     | 3.24  | 5.85  | 9.95 |

**Floor joist wood, TJI truss type.** Initial use, 50 PSF floor load design. Costs shown are per square foot (SF) of floor area, based on joists at 16" OC, for a job with 1,000 SF of floor area. Figure 1.22 SF of floor area for each LF of joist. Add the cost of beams, supports and blocking. For scheduling purposes, estimate that a crew of two can install 900 to 950 SF of joists in an 8-hour day.

|               |         |    |      |     |      |       |
|---------------|---------|----|------|-----|------|-------|
| 9-1/2" TJI/15 | B1@.017 | SF | 4.03 | .63 | 4.66 | 7.92  |
| 14" TJI/35    | B1@.018 | SF | 6.45 | .67 | 7.12 | 12.10 |

**Bridging or blocking.** Installed between 2" x 6" thru 2" x 12" joists. Costs shown are per each set of cross bridges or per each block for solid bridging and include normal waste. Spacing between the bridging or blocking, sometimes called a "bay", depends on job requirements. Labor costs assume bridging is cut to size on site.

|   |         |     |          |      |          |       |
|---|---------|-----|----------|------|----------|-------|
| 1" x 4" cross                             |         |     |          |      |          |       |
| Joist bridging, per MBF                   | —       | MBF | 2,090.00 | —    | 2,090.00 | —     |
| Joists on 12" centers                     | B1@.034 | Ea  | 1.04     | 1.26 | 2.30     | 3.91  |
| Joists on 16" centers                     | B1@.034 | Ea  | 1.43     | 1.26 | 2.69     | 4.57  |
| Joists on 20" centers                     | B1@.034 | Ea  | 1.81     | 1.26 | 3.07     | 5.22  |
| Joists on 24" centers                     | B1@.034 | Ea  | 2.19     | 1.26 | 3.45     | 5.87  |
| Add for work in a basement or first floor | B1@.068 | Ea  | —        | 2.53 | 2.53     | 4.30  |
| Add for work in a crawl space             | B1@.115 | Ea  | —        | 4.28 | 4.28     | 7.28  |
| 2" x 6" solid, Std & Btr                  |         |     |          |      |          |       |
| 2" x 6" blocking, per MBF                 | —       | MBF | 906.00   | —    | 906.00   | —     |
| Joists on 12" centers                     | B1@.042 | Ea  | 1.00     | 1.56 | 2.56     | 4.35  |
| Joists on 16" centers                     | B1@.042 | Ea  | 1.33     | 1.56 | 2.89     | 4.91  |
| Joists on 20" centers                     | B1@.042 | Ea  | 1.66     | 1.56 | 3.22     | 5.47  |
| Joists on 24" centers                     | B1@.042 | Ea  | 1.99     | 1.56 | 3.55     | 6.04  |
| Add for work in a basement or first floor | B1@.084 | Ea  | —        | 3.12 | 3.12     | 5.30  |
| Add for work in a crawl space             | B1@.140 | Ea  | —        | 5.21 | 5.21     | 8.86  |
| 2" x 8" solid, Std & Btr                  |         |     |          |      |          |       |
| 2" x 8" blocking, per MBF                 | —       | MBF | 797.00   | —    | 797.00   | —     |
| Joists on 12" centers                     | B1@.042 | Ea  | 1.17     | 1.56 | 2.73     | 4.64  |
| Joists on 16" centers                     | B1@.042 | Ea  | 1.56     | 1.56 | 3.12     | 5.30  |
| Joists on 20" centers                     | B1@.042 | Ea  | 1.95     | 1.56 | 3.51     | 5.97  |
| Joists on 24" centers                     | B1@.042 | Ea  | 2.34     | 1.56 | 3.90     | 6.63  |
| Add for work in a basement or first floor | B1@.084 | Ea  | —        | 3.12 | 3.12     | 5.30  |
| Add for work in a crawl space             | B1@.140 | Ea  | —        | 5.21 | 5.21     | 8.86  |
| 2" x 10" solid, Std & Btr                 |         |     |          |      |          |       |
| 2" x 10" blocking, per MBF                | —       | MBF | 869.00   | —    | 869.00   | —     |
| Joists on 12" centers                     | B1@.057 | Ea  | 1.59     | 2.12 | 3.71     | 6.31  |
| Joists on 16" centers                     | B1@.057 | Ea  | 2.12     | 2.12 | 4.24     | 7.21  |
| Joists on 20" centers                     | B1@.057 | Ea  | 2.65     | 2.12 | 4.77     | 8.11  |
| Joists on 24" centers                     | B1@.057 | Ea  | 3.18     | 2.12 | 5.30     | 9.01  |
| Add for work in a basement or first floor | B1@.114 | Ea  | —        | 4.24 | 4.24     | 7.21  |
| Add for work in a crawl space             | B1@.190 | Ea  | —        | 7.07 | 7.07     | 12.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total    | Sell  |
|---|-----------|------|----------|-------|----------|-------|
| 2" x 12" solid, Std & Btr                 |           |      |          |       |          |       |
| 2" x 12" blocking, per MBF                | —         | MBF  | 1,110.00 | —     | 1,110.00 | —     |
| Joists on 12" centers                     | B1@.057   | Ea   | 2.44     | 2.12  | 4.56     | 7.75  |
| Joists on 16" centers                     | B1@.057   | Ea   | 3.25     | 2.12  | 5.37     | 9.13  |
| Joists on 20" centers                     | B1@.057   | Ea   | 4.06     | 2.12  | 6.18     | 10.50 |
| Joists on 24" centers                     | B1@.057   | Ea   | 4.88     | 2.12  | 7.00     | 11.90 |
| Add for work in a basement or first floor | B1@.114   | Ea   | —        | 4.24  | 4.24     | 7.21  |
| Add for work in a crawl space             | B1@.190   | Ea   | —        | 7.07  | 7.07     | 12.00 |
| Steel, no nail type, cross                |           |      |          |       |          |       |
| Wood joists on 12" centers                | B1@.020   | Ea   | 3.79     | .74   | 4.53     | 7.70  |
| Wood joists on 16" centers                | B1@.020   | Ea   | 2.92     | .74   | 3.66     | 6.22  |
| Wood joists on 20" centers                | B1@.020   | Ea   | 3.45     | .74   | 4.19     | 7.12  |
| Wood joists on 24" centers                | B1@.020   | Ea   | 3.45     | .74   | 4.19     | 7.12  |

### Subflooring.

Plywood sheathing, CD standard exterior grade. Material costs shown include fasteners and 5% for waste.

|                                |         |    |      |     |      |      |
|--------------------------------|---------|----|------|-----|------|------|
| 3/8"                           | B1@.011 | SF | .71  | .41 | 1.12 | 1.90 |
| 1/2"                           | B1@.012 | SF | .91  | .45 | 1.36 | 2.31 |
| 5/8"                           | B1@.012 | SF | .92  | .45 | 1.37 | 2.33 |
| 3/4"                           | B1@.013 | SF | 1.10 | .48 | 1.58 | 2.69 |
| Remove plywood floor sheathing | B1@.020 | SF | —    | .74 | .74  | 1.26 |

OSB sheathing, Material costs shown include fasteners and 5% for waste.

|                            |         |    |      |     |      |      |
|----------------------------|---------|----|------|-----|------|------|
| 3/8"                       | B1@.011 | SF | .81  | .41 | 1.22 | 2.07 |
| 1/2"                       | B1@.012 | SF | .92  | .45 | 1.37 | 2.33 |
| 5/8"                       | B1@.012 | SF | .92  | .45 | 1.37 | 2.33 |
| 3/4"                       | B1@.013 | SF | 1.10 | .48 | 1.58 | 2.69 |
| 7/8"                       | B1@.014 | SF | 2.29 | .52 | 2.81 | 4.78 |
| 1"                         | B1@.014 | SF | 3.33 | .52 | 3.85 | 6.55 |
| Remove OSB floor sheathing | B1@.020 | SF | —    | .74 | .74  | 1.26 |

Board sheathing, laid diagonal, 1" x 6" #3 & Btr, 1.18 board feet per square foot. Costs shown include nails, 12% shrinkage, and 5% waste.

|                               |         |     |          |      |          |      |
|-------------------------------|---------|-----|----------|------|----------|------|
| Board sheathing, per MBF      | —       | MBF | 3,590.00 | —    | 3,590.00 | —    |
| 1" x 6", joists 16" on center | B1@.027 | SF  | 4.66     | 1.00 | 5.66     | 9.62 |
| 1" x 6", joists 24" on center | B1@.030 | SF  | 4.66     | 1.12 | 5.78     | 9.83 |
| 1" x 8", joists 16" on center | B1@.016 | SF  | 5.12     | .60  | 5.72     | 9.72 |
| 1" x 8", joists 24" on center | B1@.017 | SF  | 5.12     | .63  | 5.75     | 9.78 |
| Remove board floor sheathing  | B1@.030 | SF  | —        | 1.12 | 1.12     | 1.90 |

**Wall studs — room addition.** Per square foot of wall area. Do not subtract for openings less than 16' wide. Figures in parentheses indicate typical board feet per SF of wall area, measured on one side, and include normal waste. Add for each corner and partition from below. Costs include studding and nails. Add for plates from the sections above and below. Add for door and window opening framing, backing, let-in bracing, fire blocking, and sheathing for shear walls from the sections that follow. Labor includes layout, plumb and align.

2" x 3", Std & Btr

|                                     |         |     |        |      |        |       |
|-------------------------------------|---------|-----|--------|------|--------|-------|
| 2" x 3" studs, 16" centers, per MBF | —       | MBF | 944.00 | —    | 944.00 | —     |
| 12" centers (.55 BF per SF)         | B1@.024 | SF  | .52    | .89  | 1.41   | 2.40  |
| 16" centers (.41 BF per SF)         | B1@.018 | SF  | .39    | .67  | 1.06   | 1.80  |
| 20" centers (.33 BF per SF)         | B1@.015 | SF  | .31    | .56  | .87    | 1.48  |
| 24" centers (.28 BF per SF)         | B1@.012 | SF  | .26    | .45  | .71    | 1.21  |
| Add for each corner or partition    | B1@.083 | Ea  | 12.30  | 3.09 | 15.39  | 26.20 |

2" x 4", Std & Btr

|                                     |         |     |        |      |        |      |
|-------------------------------------|---------|-----|--------|------|--------|------|
| 2" x 4" studs, 16" centers, per MBF | —       | MBF | 874.00 | —    | 874.00 | —    |
| 12" centers (.73 BF per SF)         | B1@.031 | SF  | .64    | 1.15 | 1.79   | 3.04 |
| 16" centers (.54 BF per SF)         | B1@.023 | SF  | .47    | .86  | 1.33   | 2.26 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell  |
|---|-----------|------|----------|-------|--------|-------|
| 20" centers (.45 BF per SF)               | B1@.020   | SF   | .39      | .74   | 1.13   | 1.92  |
| 24" centers (.37 BF per SF)               | B1@.016   | SF   | .32      | .60   | .92    | 1.56  |
| Add for each corner or partition          | B1@.083   | Ea   | 14.80    | 3.09  | 17.89  | 30.40 |
| 2" x 6", Std & Btr                        |           |      |          |       |        |       |
| 2" x 6" studs, 24" centers, per MBF       | —         | MBF  | 906.00   | —     | 906.00 | —     |
| 12" centers (1.10 BF per SF)              | B1@.044   | SF   | 1.00     | 1.64  | 2.64   | 4.49  |
| 16" centers (.83 BF per SF)               | B1@.033   | SF   | .75      | 1.23  | 1.98   | 3.37  |
| 20" centers (.67 BF per SF)               | B1@.027   | SF   | .61      | 1.00  | 1.61   | 2.74  |
| 24" centers (.55 BF per SF)               | B1@.022   | SF   | .50      | .82   | 1.32   | 2.24  |
| Add for each corner or partition          | B1@.083   | Ea   | 21.60    | 3.09  | 24.69  | 42.00 |
| 4" x 4", Std & Btr                        |           |      |          |       |        |       |
| Installed in wall framing, with 10% waste | B1@.064   | LF   | 1.51     | 2.38  | 3.89   | 6.61  |

**Stud wall repair.** Costs per stud added or repaired. Costs will be higher when plumbing or electrical lines run through the stud wall affected.

Straighten stud by cutting saw kerf. Drive shim or screw into the kerf

|  |         |    |   |       |       |       |
|--|---------|----|---|-------|-------|-------|
| Reinforce with a plywood scab          | BC@.300 | Ea | — | 12.30 | 12.30 | 20.90 |
| Remove and replace a badly warped stud | BC@.300 | Ea | — | 12.30 | 12.30 | 20.90 |

**Add stud to an existing stud wall.** Remove blocking, insert an additional stud in an existing wall, replace blocking.

|                   |         |    |      |       |       |       |
|-------------------|---------|----|------|-------|-------|-------|
| 2" x 3" x 8' stud | B1@.300 | Ea | 4.15 | 11.20 | 15.35 | 26.10 |
| 2" x 4" x 8' stud | B1@.346 | Ea | 5.12 | 12.90 | 18.02 | 30.60 |
| 2" x 6" x 8' stud | B1@.392 | Ea | 7.97 | 14.60 | 22.57 | 38.40 |

**Plates.** (Wall plates), Std & Btr, untreated. For pressure-treated plates see also Sill Plates in this chapter. Figures in parentheses indicate board feet per LF. Costs shown include 10% for waste and nails.

|                              |         |     |        |     |        |      |
|------------------------------|---------|-----|--------|-----|--------|------|
| 2" x 3" Wall plates, per MBF | —       | MBF | 944.00 | —   | 944.00 | —    |
| 2" x 3" (.55 BF per LF)      | B1@.010 | LF  | .57    | .37 | .94    | 1.60 |
| 2" x 4" Wall plates, per MBF | —       | MBF | 874.00 | —   | 874.00 | —    |
| 2" x 4" (.73 BF per LF)      | B1@.012 | LF  | .70    | .45 | 1.15   | 1.96 |
| 2" x 6" Wall plates, per MBF | —       | MBF | 906.00 | —   | 906.00 | —    |
| 2" x 6" (1.10 BF per LF)     | B1@.018 | LF  | 1.10   | .67 | 1.77   | 3.01 |

**Wall Bracing.** See also sheathing for plywood bracing and shear panels.

Let-in wall bracing, using Std & Btr lumber

|         |         |    |      |      |      |      |
|---------|---------|----|------|------|------|------|
| 1" x 4" | B1@.021 | LF | 1.14 | .78  | 1.92 | 3.26 |
| 1" x 6" | B1@.027 | LF | 1.66 | 1.00 | 2.66 | 4.52 |
| 2" x 4" | B1@.035 | LF | .58  | 1.30 | 1.88 | 3.20 |

Steel strap bracing, 1-1/4" wide

|                       |         |    |      |     |      |      |
|-----------------------|---------|----|------|-----|------|------|
| 9'6" or 11'6" lengths | B1@.010 | LF | 1.62 | .37 | 1.99 | 3.38 |
|-----------------------|---------|----|------|-----|------|------|

Steel V-bracing, 3/4" x 3/4"

|                       |         |    |      |     |      |      |
|-----------------------|---------|----|------|-----|------|------|
| 9'6" or 11'6" lengths | B1@.010 | LF | 2.51 | .37 | 2.88 | 4.90 |
|-----------------------|---------|----|------|-----|------|------|

Temporary wood frame wall bracing, assumes salvage at 50% and 3 uses

|                   |         |    |     |     |     |      |
|-------------------|---------|----|-----|-----|-----|------|
| 1" x 4" Std & Btr | B1@.006 | LF | .29 | .22 | .51 | .87  |
| 1" x 6" Std & Btr | B1@.010 | LF | .42 | .37 | .79 | 1.34 |
| 2" x 4" utility   | B1@.012 | LF | .15 | .45 | .60 | 1.02 |
| 2" x 6" utility   | B1@.018 | LF | .23 | .67 | .90 | 1.53 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Fireblocks.</b> Installed in wood frame walls, per LF of wall to be blocked. Figures in parentheses indicate board feet of fire blocking per linear foot of wall, including 10% cutting waste. See also Bridging and Backing and Nailers. |           |      |          |       |        |      |
| 2" x 3" blocking, Std & Btr  |           |      |          |       |        |      |
| 2" x 3" fireblocks, 16" centers, per MBF   | —         | MBF  | 944.00   | —     | 944.00 | —    |
| 12" OC members (.48 BF per LF)   | B1@.026   | LF   | .45      | .97   | 1.42   | 2.41 |
| 16" OC members (.50 BF per LF)   | B1@.025   | LF   | .47      | .93   | 1.40   | 2.38 |
| 20" OC members (.51 BF per LF)   | B1@.022   | LF   | .48      | .82   | 1.30   | 2.21 |
| 24" OC members (.52 BF per LF)   | B1@.020   | LF   | .49      | .74   | 1.23   | 2.09 |
| Add for removing and replacing, per block  | B1@.026   | LF   | —        | .97   | .97    | 1.65 |
| 2" x 4" blocking, Std & Btr  |           |      |          |       |        |      |
| 2" x 4" fireblocks, 16" centers, per MBF   | —         | MBF  | 874.00   | —     | 874.00 | —    |
| 12" OC members (.64 BF per LF)   | B1@.030   | LF   | .56      | 1.12  | 1.68   | 2.86 |
| 16" OC members (.67 BF per LF)   | B1@.025   | LF   | .59      | .93   | 1.52   | 2.58 |
| 20" OC members (.68 BF per LF)   | B1@.022   | LF   | .59      | .82   | 1.41   | 2.40 |
| 24" OC members (.69 BF per LF)   | B1@.020   | LF   | .60      | .74   | 1.34   | 2.28 |
| Add to remove and replace, per block   | B1@.030   | LF   | —        | 1.12  | 1.12   | 1.90 |
| 2" x 6" blocking, Std & Btr  |           |      |          |       |        |      |
| 2" x 6" fireblocks, 24" centers, per MBF   | —         | MBF  | 906.00   | —     | 906.00 | —    |
| 12" OC members (.96 BF per LF)   | B1@.031   | LF   | .87      | 1.15  | 2.02   | 3.43 |
| 16" OC members (1.00 BF per LF)  | B1@.026   | LF   | .91      | .97   | 1.88   | 3.20 |
| 20" OC members (1.02 BF per LF)  | B1@.022   | LF   | .92      | .82   | 1.74   | 2.96 |
| 24" OC members (1.03 BF per LF)  | B1@.020   | LF   | .93      | .74   | 1.67   | 2.84 |
| Add to remove and replace, per block   | B1@.034   | LF   | —        | 1.26  | 1.26   | 2.14 |

**Ceiling beams — room addition.** Std & Btr. Installed over wall openings and around floor, ceiling and roof openings or where a flush beam is called out in the plans, including 10% waste. Don't use these cost estimates for door or window headers in framed walls. See the door or window opening framing assemblies costs that follow.

|   |         |     |          |        |          |          |
|---|---------|-----|----------|--------|----------|----------|
| 2" x 6" beams, per MBF                    | B1@24.5 | MBF | 906.00   | 911.00 | 1,817.00 | 3,090.00 |
| 2" x 8" beams, per MBF                    | B1@25.2 | MBF | 797.00   | 937.00 | 1,734.00 | 2,950.00 |
| 2" x 10" beams, per MBF                   | B1@25.1 | MBF | 869.00   | 933.00 | 1,802.00 | 3,060.00 |
| 2" x 12" beams, per MBF                   | B1@25.9 | MBF | 1,110.00 | 963.00 | 2,073.00 | 3,520.00 |
| 4" x 6" beams, per MBF                    | B1@25.9 | MBF | 1,010.00 | 963.00 | 1,973.00 | 3,350.00 |
| 4" x 8", 10", 12", 14" beams, per MBF     | B1@25.5 | MBF | 1,090.00 | 948.00 | 2,038.00 | 3,460.00 |
| 6" x 6", 8", 10", 12", 14" beams, per MBF | B1@19.1 | MBF | 2,310.00 | 710.00 | 3,020.00 | 5,130.00 |
| 2" x 6" (1.10 BF per LF)                  | B1@.028 | LF  | 1.00     | 1.04   | 2.04     | 3.47     |
| 2" x 8" (1.47 BF per LF)                  | B1@.037 | LF  | 1.17     | 1.38   | 2.55     | 4.34     |
| 2" x 10" (1.83 BF per LF)                 | B1@.046 | LF  | 1.59     | 1.71   | 3.30     | 5.61     |
| 2" x 12" (2.20 BF per LF)                 | B1@.057 | LF  | 2.44     | 2.12   | 4.56     | 7.75     |
| 4" x 8" (2.93 BF per LF)                  | B1@.073 | LF  | 3.18     | 2.71   | 5.89     | 10.00    |
| 4" x 10" (3.67 BF per LF)                 | B1@.094 | LF  | 3.99     | 3.50   | 7.49     | 12.70    |
| 4" x 12" (4.40 BF per LF)                 | B1@.112 | LF  | 4.78     | 4.17   | 8.95     | 15.20    |
| 4" x 14" (5.13 BF per LF)                 | B1@.115 | LF  | 5.58     | 4.28   | 9.86     | 16.80    |
| 6" x 6" (3.30 BF per LF)                  | B1@.060 | LF  | 7.61     | 2.23   | 9.84     | 16.70    |
| 6" x 8" (4.40 BF per LF)                  | B1@.080 | LF  | 10.10    | 2.98   | 13.08    | 22.20    |
| 6" x 10" (5.50 BF per LF)                 | B1@.105 | LF  | 12.70    | 3.90   | 16.60    | 28.20    |
| 6" x 12" (6.60 BF per LF)                 | B1@.115 | LF  | 15.20    | 4.28   | 19.48    | 33.10    |
| 6" x 14" (7.70 BF per LF)                 | B1@.120 | LF  | 17.70    | 4.46   | 22.16    | 37.70    |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Window opening framing.** In 2" x 4" stud wall, based on 8' wall height. Costs shown are per window opening framed into a new stud wall and include a header of appropriate size, sub-sill plate (double sub-sill if opening is 8' wide or wider), double vertical studs each side of openings less than 8' wide (triple vertical studs each side of openings 8' wide or wider), top and bottom cripples, blocking, nails, and normal waste. Figures in parentheses indicate header size.

|   |         |    |        |        |        |        |
|---|---------|----|--------|--------|--------|--------|
| To 2' wide (4" x 4" header)                   | B1@1.00 | Ea | 23.70  | 37.20  | 60.90  | 104.00 |
| Over 2' to 3' wide (4" x 4" header)           | B1@1.17 | Ea | 29.40  | 43.50  | 72.90  | 124.00 |
| Over 3' to 4' wide (4" x 6" header)           | B1@1.45 | Ea | 35.90  | 53.90  | 89.80  | 153.00 |
| Over 4' to 5' wide (4" x 6" header)           | B1@1.73 | Ea | 40.00  | 64.30  | 104.30 | 177.00 |
| Over 5' to 6' wide (4" x 8" header)           | B1@2.01 | Ea | 48.80  | 74.80  | 123.60 | 210.00 |
| Over 6' to 7' wide (4" x 8" header)           | B1@2.29 | Ea | 62.30  | 85.20  | 147.50 | 251.00 |
| Over 7' to 8' wide (4" x 10" header)          | B1@2.57 | Ea | 74.40  | 95.60  | 170.00 | 289.00 |
| Over 8' to 10' wide (4" x 12" header)         | B1@2.57 | Ea | 92.70  | 95.60  | 188.30 | 320.00 |
| Over 10' to 12' wide (4" x 14" header)        | B1@2.85 | Ea | 120.00 | 106.00 | 226.00 | 384.00 |
| Add per foot of height for walls over 8' high | —       | Ea | 3.50   | —      | 3.50   | —      |

In 2" x 6" stud wall, based on 8' wall height. Costs shown are per window opening framed into a new stud wall and include a header of appropriate size, sub-sill plate (double sub-sill if opening is 8' wide or wider), double vertical studs each side of openings less than 8' wide (triple vertical studs each side of openings 8' wide or wider), top and bottom cripples, blocking, nails, and normal waste. Figures in parentheses indicate header size.

|   |         |    |        |        |        |        |
|---|---------|----|--------|--------|--------|--------|
| To 2' wide (4" x 4" header)                   | B1@1.17 | Ea | 31.00  | 43.50  | 74.50  | 127.00 |
| Over 2' to 3' wide (6" x 4" header)           | B1@1.45 | Ea | 39.10  | 53.90  | 93.00  | 158.00 |
| Over 3' to 4' wide (6" x 6" header)           | B1@1.73 | Ea | 63.80  | 64.30  | 128.10 | 218.00 |
| Over 4' to 5' wide (6" x 6" header)           | B1@2.01 | Ea | 76.10  | 74.80  | 150.90 | 257.00 |
| Over 5' to 6' wide (6" x 8" header)           | B1@2.29 | Ea | 95.50  | 85.20  | 180.70 | 307.00 |
| Over 6' to 8' wide (6" x 8" header)           | B1@2.85 | Ea | 150.00 | 106.00 | 256.00 | 435.00 |
| Over 8' to 10' wide (6" x 12" header)         | B1@2.85 | Ea | 207.00 | 106.00 | 313.00 | 532.00 |
| Over 8' to 12' wide (6" x 14" header)         | B1@3.13 | Ea | 267.00 | 116.00 | 383.00 | 651.00 |
| Add per foot of height for walls over 8' high | —       | Ea | 5.44   | —      | 5.44   | —      |

**Door opening framing.** In 2" x 4" stud wall, based on 8' wall height. Costs shown are per each door opening framed into a new stud wall and include a header of appropriate size, double vertical studs each side of the opening less than 8' wide (triple vertical studs each side of openings 8' wide or wider), cripples, blocking, nails, and normal waste. Width shown is size of finished opening. Figures in parentheses indicate header size.

|   |         |    |       |       |        |        |
|---|---------|----|-------|-------|--------|--------|
| To 3' wide (4" x 4" header)                   | B1@.830 | Ea | 25.90 | 30.90 | 56.80  | 96.60  |
| Over 3' to 4' wide (4" x 6" header)           | B1@1.11 | Ea | 31.20 | 41.30 | 72.50  | 123.00 |
| Over 4' to 5' wide (4" x 6" header)           | B1@1.39 | Ea | 34.10 | 51.70 | 85.80  | 146.00 |
| Over 5' to 6' wide (4" x 8" header)           | B1@1.66 | Ea | 41.90 | 61.70 | 103.60 | 176.00 |
| Over 6' to 8' wide (4" x 10" header)          | B1@1.94 | Ea | 65.20 | 72.10 | 137.30 | 233.00 |
| Over 8' to 10' wide (4" x 12" header)         | B1@1.94 | Ea | 81.10 | 72.10 | 153.20 | 260.00 |
| Over 10' to 12' wide (4" x 14" header)        | B1@2.22 | Ea | 99.30 | 82.60 | 181.90 | 309.00 |
| Add per foot of height for walls over 8' high | —       | Ea | 3.50  | —     | 3.50   | —      |

In 2" x 6" stud wall, based on 8' wall height. Costs shown are per each door opening framed into a new stud wall and include a header of appropriate size, double vertical studs each side of the opening less than 8' wide (triple vertical studs each side of openings 8' wide or wider), cripples, blocking, nails, and normal waste. Width shown is size of finished opening. Figures in parentheses indicate header size.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| To 3' wide (6" x 4" header)                   | B1@1.11 | Ea | 41.60  | 41.30 | 82.90  | 141.00 |
| Over 3' to 4' wide (4" x 6" header)           | B1@1.39 | Ea | 58.90  | 51.70 | 110.60 | 188.00 |
| Over 4' to 5' wide (4" x 6" header)           | B1@1.66 | Ea | 66.70  | 61.70 | 128.40 | 218.00 |
| Over 5' to 6' wide (4" x 8" header)           | B1@1.94 | Ea | 88.30  | 72.10 | 160.40 | 273.00 |
| Over 6' to 8' wide (4" x 10" header)          | B1@2.22 | Ea | 140.00 | 82.60 | 222.60 | 378.00 |
| Over 8' to 10' wide (4" x 12" header)         | B1@2.22 | Ea | 189.00 | 82.60 | 271.60 | 462.00 |
| Over 10' to 12' wide (4" x 14" header)        | B1@2.50 | Ea | 245.00 | 93.00 | 338.00 | 575.00 |
| Add per foot of height for walls over 8' high | —       | Ea | 5.44   | —     | 5.44   | —      |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**OSB sheathing.** Oriented strand board. Compressed wood strands bonded by phenolic resin. By nominal thickness.

|                                   |         |    |      |     |      |      |
|-----------------------------------|---------|----|------|-----|------|------|
| 3/8" x 4' x 8'                    | B1@.014 | SF | .81  | .52 | 1.33 | 2.26 |
| 7/16" x 4' x 8'                   | B1@.015 | SF | .71  | .56 | 1.27 | 2.16 |
| 15/32" x 4' x 8'                  | B1@.016 | SF | .81  | .60 | 1.41 | 2.40 |
| 1/2" x 4' x 8'                    | B1@.016 | SF | .92  | .60 | 1.52 | 2.58 |
| 5/8" x 4' x 8', square edge       | B1@.018 | SF | .89  | .67 | 1.56 | 2.65 |
| 5/8" x 4' x 8', tongue and groove | B1@.018 | SF | .98  | .67 | 1.65 | 2.81 |
| 3/4" x 4' x 8', square edge       | B1@.018 | SF | 1.10 | .67 | 1.77 | 3.01 |
| 3/4" x 4' x 8', tongue and groove | B1@.018 | SF | 1.15 | .67 | 1.82 | 3.09 |
| Remove OSB sheathing              | B1@.017 | SF | —    | .63 | .63  | 1.07 |

**Wall sheathing.** Per square foot of wall surface, including 5% waste. See also OSB sheathing.

BC plywood wall sheathing, plugged and touch sanded, interior grade

|                               |         |    |      |     |      |      |
|-------------------------------|---------|----|------|-----|------|------|
| 1/4"                          | B1@.013 | SF | 1.18 | .48 | 1.66 | 2.82 |
| 3/8"                          | B1@.015 | SF | 1.57 | .56 | 2.13 | 3.62 |
| 1/2"                          | B1@.016 | SF | 1.68 | .60 | 2.28 | 3.88 |
| 5/8"                          | B1@.018 | SF | 1.54 | .67 | 2.21 | 3.76 |
| 3/4"                          | B1@.020 | SF | 1.89 | .74 | 2.63 | 4.47 |
| Remove plywood wall sheathing | B1@.017 | SF | —    | .63 | .63  | 1.07 |

Board wall sheathing 1" x 6" or 1" x 8" utility T&G

|                                    |         |     |          |      |          |      |
|------------------------------------|---------|-----|----------|------|----------|------|
| 1" x 6" or 8" utility T&G, per MBF | —       | MBF | 2,240.00 | —    | 2,240.00 | —    |
| (1.13 BF per SF)                   | B1@.020 | SF  | 2.53     | .74  | 3.27     | 5.56 |
| Add for diagonal patterns          | B1@.006 | SF  | —        | .22  | .22      | .37  |
| Remove board sheathing             | B1@.030 | SF  | —        | 1.12 | 1.12     | 1.90 |

**Patch wall sheathing.** Studs 16" on center, remove and replace panels in several places on wall surface.

|  |         |    |       |       |       |        |
|--|---------|----|-------|-------|-------|--------|
| 1" x 8" x 12' long, per board          | B1@.248 | Ea | 11.20 | 9.22  | 20.42 | 34.70  |
| 1" x 8", per square foot               | B1@.031 | SF | 1.55  | 1.15  | 2.70  | 4.59   |
| 1/2", 4-ply plywood, per 4' x 8' sheet | B1@.960 | Ea | 27.90 | 35.70 | 63.60 | 108.00 |
| 1/2", 4-ply plywood, per square foot   | B1@.030 | SF | .96   | 1.12  | 2.08  | 3.54   |

## Changes to Walls and Ceilings

**Remove and replace interior partition wall.** Use 16 linear feet as the minimum job size. No interior floor finish included.

2" x 4" stud walls with 1/2" gypsum drywall both sides, ready for painting

|                                     |         |    |       |       |       |       |
|-------------------------------------|---------|----|-------|-------|-------|-------|
| Cost per square foot of wall        | B1@.105 | SF | 1.76  | 3.90  | 5.66  | 9.62  |
| Cost per running foot, 8' high wall | B1@.842 | LF | 14.10 | 31.30 | 45.40 | 77.20 |

2" x 4" stud walls with 5/8" gypsum fire-rated drywall both sides, ready for painting

|                                     |         |    |       |       |       |       |
|-------------------------------------|---------|----|-------|-------|-------|-------|
| Cost per square foot of wall        | B1@.108 | SF | 1.81  | 4.02  | 5.83  | 9.91  |
| Cost per running foot, 8' high wall | B1@.864 | LF | 14.50 | 32.10 | 46.60 | 79.20 |

2" x 6" stud walls with 1/2" gypsum drywall both sides, ready for painting

|                                     |         |    |       |       |       |       |
|-------------------------------------|---------|----|-------|-------|-------|-------|
| Cost per square foot of wall        | B1@.112 | SF | 2.19  | 4.17  | 6.36  | 10.80 |
| Cost per running foot, 8' high wall | B1@.896 | LF | 17.50 | 33.30 | 50.80 | 86.40 |

2" x 6" stud walls with 5/8" gypsum fire-rated drywall both sides, ready for painting

|                                     |         |    |       |       |       |       |
|-------------------------------------|---------|----|-------|-------|-------|-------|
| Cost per square foot of wall        | B1@.116 | SF | 2.24  | 4.31  | 6.55  | 11.10 |
| Cost per running foot, 8' high wall | B1@.928 | LF | 17.90 | 34.50 | 52.40 | 89.10 |

|   | Craft@Hrs | Unit | Material | Labor | Total    | Sell   |
|---|-----------|------|----------|-------|----------|--------|
| <b>Remove and replace exterior wall.</b> Add temporary joist support costs from below. Use 16 linear feet as the minimum job size. No interior floor finish included. 2" x 4" stud walls with drywall interior, wood siding exterior, 1/2" gypsum drywall inside face ready for painting, over 3-1/2" R-11 insulation with 5/8" thick rough sawn T-1-11 exterior grade plywood siding on the outside face |           |      |          |       |          |        |
| Using 5/8" rough sawn T-1-11 siding at  | —         | MSF  | 1,420.00 | —     | 1,420.00 | —      |
| Cost per square foot of wall  | B1@.108   | SF   | 3.13     | 4.02  | 7.15     | 12.20  |
| Cost per running foot, 8' high wall   | B1@.864   | LF   | 25.00    | 32.10 | 57.10    | 97.10  |
| 2" x 6" stud walls with drywall interior, wood siding exterior, same construction as above, except with 6-1/4" R-19 insulation.   |           |      |          |       |          |        |
| Cost per square foot of wall  | B1@.117   | SF   | 4.14     | 4.35  | 8.49     | 14.40  |
| Cost per running foot, 8' high wall   | B1@.936   | LF   | 33.10    | 34.80 | 67.90    | 115.00 |
| 2" x 4" stud walls with drywall interior, 1/2" gypsum drywall inside face ready for painting, over 3-1/2" R-11 insulation with .042" vinyl lap siding on the outside face.  |           |      |          |       |          |        |
| Using .042" vinyl lap siding at   | —         | MSF  | 914.00   | —     | 914.00   | —      |
| Cost per square foot of wall  | B1@.112   | SF   | 2.63     | 4.17  | 6.80     | 11.60  |
| Cost per running foot, 8' high wall   | B1@.896   | LF   | 21.00    | 33.30 | 54.30    | 92.30  |
| 2" x 4" stud walls with drywall interior, 1/2" gypsum drywall on inside face ready for painting, over 3-1/2" R-11 insulation with 1" x 6" southern yellow pine drop siding, D Grade, 1.19 BF per SF at 5-1/4" exposure on the outside face.   |           |      |          |       |          |        |
| Using D grade yellow pine drop siding at  | —         | MSF  | 3,810.00 | —     | 3,810.00 | —      |
| Cost per square foot of wall  | B1@.114   | SF   | 5.52     | 4.24  | 9.76     | 16.60  |
| Cost per running foot, 8' high wall   | B1@.912   | LF   | 44.20    | 33.90 | 78.10    | 133.00 |
| 2" x 6" stud walls with drywall interior, 1" x 6" drop siding exterior, same construction as above, except with 6-1/4" R-19 insulation  |           |      |          |       |          |        |
| Cost per square foot of wall  | B1@.123   | SF   | 6.53     | 4.57  | 11.10    | 18.90  |
| Cost per running foot, 8' high wall   | B1@.984   | LF   | 52.30    | 36.60 | 88.90    | 151.00 |
| 2" x 4" stud walls with drywall interior, stucco exterior, 1/2" gypsum drywall on inside face ready for painting, over 3-1/2" R-11 insulation and a three-coat exterior plaster (stucco) finish with integral color on the outside face   |           |      |          |       |          |        |
| Cost per square foot of wall  | B1@.090   | SF   | 5.42     | 3.35  | 8.77     | 14.90  |
| Cost per running foot, 8' high wall   | B1@.720   | LF   | 43.30    | 26.80 | 70.10    | 119.00 |
| 2" x 6" stud walls with drywall interior, stucco exterior, same construction as above, except with 6-1/4" R-19 insulation   |           |      |          |       |          |        |
| Cost per square foot of wall  | B1@.099   | SF   | 6.43     | 3.68  | 10.11    | 17.20  |
| Cost per running foot, 8' high wall   | B1@.792   | LF   | 51.50    | 29.50 | 81.00    | 138.00 |
| Add for other types of gypsum board   |           |      |          |       |          |        |
| 1/2" or 5/8" moisture-resistant greenboard  | —         | SF   | .14      | —     | .14      | —      |
| Cost per SF, greenboard per side, add   | —         | —    | —        | —     | —        | —      |
| 1/2" or 5/8" moisture-resistant greenboard  | —         | LF   | 1.09     | —     | 1.09     | —      |
| Cost per running foot per side 8' high  | —         | —    | —        | —     | —        | —      |
| 5/8" thick fire-rated Type X gypsum drywall   | —         | SF   | .12      | —     | .12      | —      |
| Cost per SF, per side, add  | —         | —    | —        | —     | —        | —      |
| 5/8" thick fire-rated Type X gypsum drywall   | —         | LF   | 1.00     | —     | 1.00     | —      |
| Cost per running foot per side 8' high  | —         | —    | —        | —     | —        | —      |
| Support ceiling joists during replacement of a stud wall, using one 4" x 4" post, 2" x 8" pads and wedges, 4" x 4" strong back. All materials salvaged. Allow one post per each 5' of wall.   |           |      |          |       |          |        |
| Per support post set and removed  | B1@.567   | Ea   | —        | 21.10 | 21.10    | 35.90  |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Breakthrough wall opening.** Includes breaking an opening in an existing interior or exterior wall, cutting out the existing wall frame and cover, installing a header where studs or brick are removed, and trimming and casing the opening. Add the cost of floor and wall finish to match the existing surfaces on both sides of the new opening. In multi-story construction or in wide openings, a steel lintel may be required to support the framing above the opening. Add the cost of engineering, the lintel, and one hour of carpenter time for each foot of lintel length. Door or cased opening to 3' wide x 7' high. Includes the door frame. Add the cost of the door and jamb, as required.

|                                    |         |    |   |        |        |        |
|------------------------------------|---------|----|---|--------|--------|--------|
| Frame wall                         | B1@5.25 | Ea | — | 195.00 | 195.00 | 332.00 |
| Add for each foot of width over 3' | B1@.700 | LF | — | 26.00  | 26.00  | 44.20  |
| Brick veneer over frame wall       | B1@6.25 | Ea | — | 232.00 | 232.00 | 394.00 |
| Add for each foot of width over 3' | B1@.750 | LF | — | 27.90  | 27.90  | 47.40  |
| Block or brick wall                | B1@6.75 | Ea | — | 251.00 | 251.00 | 427.00 |
| Add for each foot of width over 3' | B1@.850 | LF | — | 31.60  | 31.60  | 53.70  |

Wall breakthrough for window or wall air conditioner, to 3' wide x 4' high. Includes the window frame and cripple stud fill below the new opening. Add the cost of the window, as required.

|                              |         |    |   |        |        |        |
|------------------------------|---------|----|---|--------|--------|--------|
| Frame wall                   | B1@6.50 | Ea | — | 242.00 | 242.00 | 411.00 |
| Brick veneer over frame wall | B1@10.5 | Ea | — | 390.00 | 390.00 | 663.00 |
| Block or brick               | B1@11.8 | Ea | — | 439.00 | 439.00 | 746.00 |

**Furring.** Per SF of surface area to be covered, including typical wedging. Figures in parentheses show coverage, including 7% waste, typical job.

Over masonry, utility grade

|                                 |         |     |          |     |          |      |
|---------------------------------|---------|-----|----------|-----|----------|------|
| 1" furring, per MBF             | —       | MBF | 2,090.00 | —   | 2,090.00 | —    |
| 12" OC, 1" x 2" (.24 BF per SF) | B1@.025 | SF  | .50      | .93 | 1.43     | 2.43 |
| 16" OC, 1" x 2" (.20 BF per SF) | B1@.020 | SF  | .42      | .74 | 1.16     | 1.97 |
| 20" OC, 1" x 2" (.17 BF per SF) | B1@.018 | SF  | .36      | .67 | 1.03     | 1.75 |
| 24" OC, 1" x 2" (.15 BF per SF) | B1@.016 | SF  | .31      | .60 | .91      | 1.55 |
| 12" OC, 1" x 3" (.36 BF per SF) | B1@.025 | SF  | .75      | .93 | 1.68     | 2.86 |
| 16" OC, 1" x 3" (.29 BF per SF) | B1@.020 | SF  | .61      | .74 | 1.35     | 2.30 |
| 20" OC, 1" x 3" (.25 BF per SF) | B1@.018 | SF  | .52      | .67 | 1.19     | 2.02 |
| 24" OC, 1" x 3" (.22 BF per SF) | B1@.016 | SF  | .46      | .60 | 1.06     | 1.80 |

Over wood frame, utility grade

|                                 |         |     |          |     |          |      |
|---------------------------------|---------|-----|----------|-----|----------|------|
| 1" furring, per MBF             | —       | MBF | 2,090.00 | —   | 2,090.00 | —    |
| 12" OC, 1" x 2" (.24 BF per SF) | B1@.016 | SF  | .50      | .60 | 1.10     | 1.87 |
| 16" OC, 1" x 2" (.20 BF per SF) | B1@.013 | SF  | .42      | .48 | .90      | 1.53 |
| 20" OC, 1" x 2" (.17 BF per SF) | B1@.011 | SF  | .36      | .41 | .77      | 1.31 |
| 24" OC, 1" x 2" (.15 BF per SF) | B1@.010 | SF  | .31      | .37 | .68      | 1.16 |
| 12" OC, 1" x 3" (.36 BF per SF) | B1@.016 | SF  | .75      | .60 | 1.35     | 2.30 |
| 16" OC, 1" x 3" (.29 BF per SF) | B1@.013 | SF  | .61      | .48 | 1.09     | 1.85 |
| 20" OC, 1" x 3" (.25 BF per SF) | B1@.011 | SF  | .52      | .41 | .93      | 1.58 |
| 24" OC, 1" x 3" (.22 BF per SF) | B1@.010 | SF  | .46      | .37 | .83      | 1.41 |

Over wood subfloor

|   |         |     |          |      |          |      |
|---|---------|-----|----------|------|----------|------|
| 1" furring, per MBF                       | —       | MBF | 2,090.00 | —    | 2,090.00 | —    |
| 12" OC, 1" x 2" utility (.24 BF per SF)   | B1@.033 | SF  | .50      | 1.23 | 1.73     | 2.94 |
| 16" OC, 1" x 2" utility (.20 BF per SF)   | B1@.028 | SF  | .42      | 1.04 | 1.46     | 2.48 |
| 20" OC, 1" x 2" utility (.17 BF per SF)   | B1@.024 | SF  | .36      | .89  | 1.25     | 2.13 |
| 24" OC, 1" x 2" utility (.15 BF per SF)   | B1@.021 | SF  | .31      | .78  | 1.09     | 1.85 |
| 2" furring, per MBF                       | —       | MBF | 874.00   | —    | 874.00   | —    |
| 12" OC, 2" x 2" Std & Btr (.48 BF per SF) | B1@.033 | SF  | .42      | 1.23 | 1.65     | 2.81 |
| 16" OC, 2" x 2" Std & Btr (.39 BF per SF) | B1@.028 | SF  | .34      | 1.04 | 1.38     | 2.35 |
| 20" OC, 2" x 2" Std & Btr (.34 BF per SF) | B1@.024 | SF  | .30      | .89  | 1.19     | 2.02 |
| 24" OC, 2" x 2" Std & Btr (.30 BF per SF) | B1@.021 | SF  | .26      | .78  | 1.04     | 1.77 |

|   | Craft@Hrs | Unit | Material | Labor | Total    | Sell |
|---|-----------|------|----------|-------|----------|------|
| Remove 1" furring. All nails pulled or driven flush. Per linear foot of 1" furring  |           |      |          |       |          |      |
| Furring installed on masonry  | B1@.030   | LF   | —        | 1.12  | 1.12     | 1.90 |
| Furring installed on wood frame   | B1@.020   | LF   | —        | .74   | .74      | 1.26 |
| Furring installed on subfloor   | B1@.035   | LF   | —        | 1.30  | 1.30     | 2.21 |
| <b>Sleepers.</b> Std & Btr pressure treated lumber, laid on concrete, including 5% waste.   |           |      |          |       |          |      |
| 2" x 4" sleepers, per MBF   | —         | MBF  | 1,240.00 | —     | 1,240.00 | —    |
| 2" x 4" sleepers, per LF  | B1@.017   | LF   | 1.31     | .63   | 1.94     | 3.30 |
| Add for taper cuts on sleepers, per cut   | B1@.050   | Ea   | —        | 1.86  | 1.86     | 3.16 |
| <b>Backing and nailers.</b> Std & Btr, for wall finishes, "floating" backing for drywall ceilings, trim, Z-bar, appliances and fixtures, etc. Figures in parentheses show board feet per LF, including 10% waste.   |           |      |          |       |          |      |
| 1" x 4" (.37 BF per LF)   | B1@.011   | LF   | .77      | .41   | 1.18     | 2.01 |
| 1" x 6" (.55 BF per LF)   | B1@.017   | LF   | 1.23     | .63   | 1.86     | 3.16 |
| 1" x 8" (.73 BF per LF)   | B1@.022   | LF   | 1.63     | .82   | 2.45     | 4.17 |
| 2" x 4" (.73 BF per LF)   | B1@.023   | LF   | .64      | .86   | 1.50     | 2.55 |
| 2" x 6" (1.10 BF per LF)  | B1@.034   | LF   | 1.00     | 1.26  | 2.26     | 3.84 |
| 2" x 8" (1.47 BF per LF)  | B1@.045   | LF   | 1.17     | 1.67  | 2.84     | 4.83 |
| 2" x 10" (1.83 BF per LF)   | B1@.057   | LF   | 1.59     | 2.12  | 3.71     | 6.31 |
| <b>Ledger strips.</b> Std & Btr, nailed to faces of studs, beams, girders, joists, etc. See also Ribbons (Ribbands) in this section for let-in type. Figures in parentheses indicate board feet per LF, including 10% waste.  |           |      |          |       |          |      |
| 1" x 2", 3" or 4" ledger, per MBF   | —         | MBF  | 2,090.00 | —     | 2,090.00 | —    |
| 1" x 2" (.18 BF per LF)   | B1@.010   | LF   | .38      | .37   | .75      | 1.28 |
| 1" x 3" (.28 BF per LF)   | B1@.010   | LF   | .58      | .37   | .95      | 1.62 |
| 1" x 4" (.37 BF per LF)   | B1@.010   | LF   | .77      | .37   | 1.14     | 1.94 |
| 2" x 2", 3" or 4" ledger, per MBF   | —         | MBF  | 874.00   | —     | 874.00   | —    |
| 2" x 2" (.37 BF per LF)   | B1@.010   | LF   | .32      | .37   | .69      | 1.17 |
| 2" x 3" (.55 BF per LF)   | B1@.010   | LF   | .48      | .37   | .85      | 1.45 |
| 2" x 4" (.73 BF per LF)   | B1@.010   | LF   | .64      | .37   | 1.01     | 1.72 |
| <b>Ribbons</b> (Ribbands). Let-in to wall framing. Figures in parentheses indicate board feet per LF, including 10% waste.  |           |      |          |       |          |      |
| 1" x 3", 4" or 6" ribbon, per MBF   | —         | MBF  | 2,090.00 | —     | 2,090.00 | —    |
| 1" x 3", Std & Btr (.28 BF per LF)  | B1@.020   | LF   | .58      | .74   | 1.32     | 2.24 |
| 1" x 4", Std & Btr (.37 BF per LF)  | B1@.020   | LF   | .77      | .74   | 1.51     | 2.57 |
| 1" x 6", Std & Btr (.55 BF per LF)  | B1@.030   | LF   | 1.15     | 1.12  | 2.27     | 3.86 |
| 2" x 3", 4" ribbon, per MBF   | —         | MBF  | 874.00   | —     | 874.00   | —    |
| 2" x 3", Std & Btr (.55 BF per LF)  | B1@.041   | LF   | .48      | 1.52  | 2.00     | 3.40 |
| 2" x 4", Std & Btr (.73 BF per LF)  | B1@.041   | LF   | .64      | 1.52  | 2.16     | 3.67 |
| 2" x 6" ribbon, per MBF   | —         | MBF  | 906.00   | —     | 906.00   | —    |
| 2" x 6", Std & Btr (1.10 BF per LF)   | B1@.045   | LF   | 1.00     | 1.67  | 2.67     | 4.54 |
| 2" x 8" ribbon, per MBF   | —         | MBF  | 797.00   | —     | 797.00   | —    |
| 2" x 8", Std & Btr (1.47 BF per LF)   | B1@.045   | LF   | 1.17     | 1.67  | 2.84     | 4.83 |
| <b>Ceiling joists — room addition.</b> Per SF of area covered. Figures in parentheses indicate board feet per square foot of ceiling, including end joists, header joists, and 5% waste. No beams, bridging, blocking, or ledger strips included. Deduct for openings over 25 SF. For scheduling purposes, estimate that a crew of two can complete 650 SF of area per 8-hour day for 12" center-to-center framing; 800 SF for 16" OC; 950 SF for 20" OC; or 1,100 SF for 24" OC. |           |      |          |       |          |      |
| 2" x 4", Std & Btr grade  |           |      |          |       |          |      |
| 2" x 4" ceiling joists, 16" centers, per MBF  | —         | MBF  | 874.00   | —     | 874.00   | —    |
| 12" centers (.78 BF per SF)   | B1@.026   | SF   | .68      | .97   | 1.65     | 2.81 |
| 16" centers (.59 BF per SF)   | B1@.020   | SF   | .52      | .74   | 1.26     | 2.14 |
| 20" centers (.48 BF per SF)   | B1@.016   | SF   | .42      | .60   | 1.02     | 1.73 |
| 24" centers (.42 BF per SF)   | B1@.014   | SF   | .37      | .52   | .89      | 1.51 |

|   | Craft@Hrs | Unit | Material | Labor | Total    | Sell |
|---|-----------|------|----------|-------|----------|------|
| 2" x 6", Std & Btr grade                      |           |      |          |       |          |      |
| 2" x 6" ceiling joists, 16" centers, per MBF  | —         | MBF  | 906.00   | —     | 906.00   | —    |
| 12" centers (1.15 BF per SF)                  | B1@.026   | SF   | 1.04     | .97   | 2.01     | 3.42 |
| 16" centers (.88 BF per SF)                   | B1@.020   | SF   | .80      | .74   | 1.54     | 2.62 |
| 20" centers (.72 BF per SF)                   | B1@.016   | SF   | .65      | .60   | 1.25     | 2.13 |
| 24" centers (.63 BF per SF)                   | B1@.014   | SF   | .57      | .52   | 1.09     | 1.85 |
| 2" x 8", Std & Btr grade                      |           |      |          |       |          |      |
| 2" x 8" ceiling joists, 16" centers, per MBF  | —         | MBF  | 797.00   | —     | 797.00   | —    |
| 12" centers (1.53 BF per SF)                  | B1@.028   | SF   | 1.22     | 1.04  | 2.26     | 3.84 |
| 16" centers (1.17 BF per SF)                  | B1@.022   | SF   | .93      | .82   | 1.75     | 2.98 |
| 20" centers (.96 BF per SF)                   | B1@.018   | SF   | .77      | .67   | 1.44     | 2.45 |
| 24" centers (.84 BF per SF)                   | B1@.016   | SF   | .67      | .60   | 1.27     | 2.16 |
| 2" x 10", Std & Btr grade                     |           |      |          |       |          |      |
| 2" x 10" ceiling joists, 16" centers, per MBF | —         | MBF  | 869.00   | —     | 869.00   | —    |
| 12" centers (1.94 BF per SF)                  | B1@.030   | SF   | 1.69     | 1.12  | 2.81     | 4.78 |
| 16" centers (1.47 BF per SF)                  | B1@.023   | SF   | 1.28     | .86   | 2.14     | 3.64 |
| 20" centers (1.21 BF per SF)                  | B1@.019   | SF   | 1.05     | .71   | 1.76     | 2.99 |
| 24" centers (1.04 BF per SF)                  | B1@.016   | SF   | .90      | .60   | 1.50     | 2.55 |
| 2" x 12", Std & Btr grade                     |           |      |          |       |          |      |
| 2" x 12" ceiling joists, 16" centers, per MBF | —         | MBF  | 1,110.00 | —     | 1,110.00 | —    |
| 12" centers (2.30 BF per SF)                  | B1@.033   | SF   | 2.55     | 1.23  | 3.78     | 6.43 |
| 16" centers (1.76 BF per SF)                  | B1@.025   | SF   | 1.95     | .93   | 2.88     | 4.90 |
| 20" centers (1.44 BF per SF)                  | B1@.020   | SF   | 1.60     | .74   | 2.34     | 3.98 |
| 24" centers (1.26 BF per SF)                  | B1@.018   | SF   | 1.40     | .67   | 2.07     | 3.52 |

**Adding ceiling joists.** Per linear foot of new joist set in joist hangers or "doubled" by spiking to an existing joist.

Work done from the floor below. Add the cost of removing ceiling cover to expose the joists.

Jack two or three adjacent joists into position with a crossarm mounted on a hydraulic jack. Includes the cost of removing the jack.

|                            |         |    |      |       |       |       |
|----------------------------|---------|----|------|-------|-------|-------|
| Per jacking point          | B1@.700 | Ea | —    | 26.00 | 26.00 | 44.20 |
| Add 2" x 6" ceiling joist  |         |    |      |       |       |       |
| Per linear foot of joist   | B1@.042 | LF | 1.00 | 1.56  | 2.56  | 4.35  |
| Add 2" x 8" ceiling joist  |         |    |      |       |       |       |
| Per linear foot of joist   | B1@.046 | LF | 1.17 | 1.71  | 2.88  | 4.90  |
| Add 2" x 10" ceiling joist |         |    |      |       |       |       |
| Per linear foot of joist   | B1@.050 | LF | 1.59 | 1.86  | 3.45  | 5.87  |
| Add 2" x 12" ceiling joist |         |    |      |       |       |       |
| Per linear foot of joist   | B1@.052 | LF | 2.44 | 1.93  | 4.37  | 7.43  |

|  | Craft@Hrs | Unit | Material | Labor  | Total    | Sell   |
|--|-----------|------|----------|--------|----------|--------|
| <b>Changes to Roof Framing</b>   |           |      |          |        |          |        |
| <b>Rafters.</b> Flat, shed, or gable roofs, up to 5 in 12 slope (5/24 pitch), maximum 25' span. Figures in parentheses indicate board feet per square foot of actual roof surface area (not roof plan area), including rafters, ridge boards, collar beams and normal waste, but no blocking, bracing, purlins, curbs, or gable walls. |           |      |          |        |          |        |
| 2" x 4", Std & Btr   |           |      |          |        |          |        |
| 2" x 4" rafters, 16" centers, per MBF  | —         | MBF  | 874.00   | —      | 874.00   | —      |
| 12" centers (.89 BF per SF)  | B1@.021   | SF   | .78      | .78    | 1.56     | 2.65   |
| 16" centers (.71 BF per SF)  | B1@.017   | SF   | .62      | .63    | 1.25     | 2.13   |
| 24" centers (.53 BF per SF)  | B1@.013   | SF   | .46      | .48    | .94      | 1.60   |
| Remove and replace 2" x 4" rafter, per LF  | B1@.050   | LF   | .64      | 1.86   | 2.50     | 4.25   |
| 2" x 6", Std & Btr   |           |      |          |        |          |        |
| 2" x 6" rafters, 16" centers, per MBF  | —         | MBF  | 906.00   | —      | 906.00   | —      |
| 12" centers (1.29 BF per SF)   | B1@.029   | SF   | 1.17     | 1.08   | 2.25     | 3.83   |
| 16" centers (1.02 BF per SF)   | B1@.023   | SF   | .92      | .86    | 1.78     | 3.03   |
| 24" centers (.75 BF per SF)  | B1@.017   | SF   | .68      | .63    | 1.31     | 2.23   |
| Remove and replace 2" x 6" rafter, per LF  | B1@.068   | LF   | 1.00     | 2.53   | 3.53     | 6.00   |
| 2" x 8", Std & Btr   |           |      |          |        |          |        |
| 2" x 8" rafters, 16" centers, per MBF  | —         | MBF  | 797.00   | —      | 797.00   | —      |
| 12" centers (1.71 BF per SF)   | B1@.036   | SF   | 1.36     | 1.34   | 2.70     | 4.59   |
| 16" centers (1.34 BF per SF)   | B1@.028   | SF   | 1.07     | 1.04   | 2.11     | 3.59   |
| 24" centers (1.12 BF per SF)   | B1@.024   | SF   | .89      | .89    | 1.78     | 3.03   |
| Remove and replace 2" x 8" rafter, per LF  | B1@.087   | LF   | 1.17     | 3.24   | 4.41     | 7.50   |
| 2" x 10", Std & Btr  |           |      |          |        |          |        |
| 2" x 10" rafters, 16" centers, per MBF   | —         | MBF  | 869.00   | —      | 869.00   | —      |
| 12" centers (2.12 BF per SF)   | B1@.039   | SF   | 1.84     | 1.45   | 3.29     | 5.59   |
| 16" centers (1.97 BF per SF)   | B1@.036   | SF   | 1.71     | 1.34   | 3.05     | 5.19   |
| 24" centers (1.21 BF per SF)   | B1@.022   | SF   | 1.05     | .82    | 1.87     | 3.18   |
| Remove and replace 2" x 10" rafter, per LF   | B1@.098   | LF   | 1.59     | 3.64   | 5.23     | 8.89   |
| 2" x 12", Std & Btr  |           |      |          |        |          |        |
| 2" x 12" rafters, 16" centers, per MBF   | —         | MBF  | 1,110.00 | —      | 1,110.00 | —      |
| 12" centers (2.52 BF per SF)   | B1@.045   | SF   | 2.79     | 1.67   | 4.46     | 7.58   |
| 16" centers (1.97 BF per SF)   | B1@.035   | SF   | 2.18     | 1.30   | 3.48     | 5.92   |
| 24" centers (1.43 BF per SF)   | B1@.026   | SF   | 1.59     | .97    | 2.56     | 4.35   |
| Remove and replace 2" x 12" rafter, per LF   | B1@.113   | LF   | 2.44     | 4.20   | 6.64     | 11.30  |
| Add for hip roof   | B1@.007   | SF   | —        | .26    | .26      | .44    |
| Add for slope over 5 in 12   | B1@.015   | SF   | —        | .56    | .56      | .95    |
| <b>Roof frame jacking.</b> Repair sag in ridge board by jacking and installing shoring supported by bearing walls.   |           |      |          |        |          |        |
| Per support installed  | B1@7.27   | Ea   | 10.39    | 270.00 | 280.39   | 477.00 |
| <b>Trimmers and curbs.</b> At stairwells, skylights, dormers, etc. Figures in parentheses show board feet per LF, Std & Btr grade, including 10% waste.  |           |      |          |        |          |        |
| 2" x 4" (.73 BF per LF)  | B1@.018   | LF   | .64      | .67    | 1.31     | 2.23   |
| 2" x 6" (1.10 BF per LF)   | B1@.028   | LF   | 1.00     | 1.04   | 2.04     | 3.47   |
| 2" x 8" (1.47 BF per LF)   | B1@.038   | LF   | 1.17     | 1.41   | 2.58     | 4.39   |
| 2" x 10" (1.83 BF per LF)  | B1@.047   | LF   | 1.59     | 1.75   | 3.34     | 5.68   |
| 2" x 12" (2.20 BF per LF)  | B1@.057   | LF   | 2.44     | 2.12   | 4.56     | 7.75   |
| <b>Collar beams &amp; collar ties.</b> Std & Btr grade, including 10% waste.   |           |      |          |        |          |        |
| Collar beams, 2" x 6"  | B1@.013   | LF   | 1.00     | .48    | 1.48     | 2.52   |
| Collar ties, 1" x 6"   | B1@.006   | LF   | 1.23     | .22    | 1.45     | 2.47   |

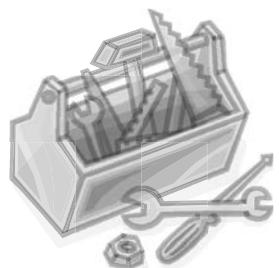
|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|--|-----------|------|----------|-------|--------|----------|
| <b>Purlins</b> (Purling). Std & Btr, installed below roof rafters. Figures in parentheses indicate board feet per LF including 5% waste.   |           |      |          |       |        |          |
| 2" x 4" (.70 BF per LF)  | B1@.012   | LF   | .61      | .45   | 1.06   | 1.80     |
| 2" x 6" (1.05 BF per LF)   | B1@.017   | LF   | .95      | .63   | 1.58   | 2.69     |
| 2" x 8" (1.40 BF per LF)   | B1@.023   | LF   | 1.12     | .86   | 1.98   | 3.37     |
| 2" x 10" (1.75 BF per LF)  | B1@.027   | LF   | 1.52     | 1.00  | 2.52   | 4.28     |
| 2" x 12" (2.10 BF per LF)  | B1@.030   | LF   | 2.33     | 1.12  | 3.45   | 5.87     |
| 4" x 6" (2.10 BF per LF)   | B1@.034   | LF   | 2.12     | 1.26  | 3.38   | 5.75     |
| 4" x 8" (2.80 BF per LF)   | B1@.045   | LF   | 2.72     | 1.67  | 4.39   | 7.46     |
| <b>Dormer studs.</b> Std & Btr, per square foot of wall area, including 10% waste.   |           |      |          |       |        |          |
| 2" x 4", (.84 BF per SF)   | B1@.033   | SF   | .73      | 1.23  | 1.96   | 3.33     |
| <b>Roof trusses.</b> 24" OC, any slope from 3 in 12 to 12 in 12, total height not to exceed 12' high from bottom chord to highest point on truss. Prices for trusses over 12' high will be up to 100% higher. Square foot (SF) costs, where shown, are per square foot of roof area to be covered. |           |      |          |       |        |          |
| Scissor truss  |           |      |          |       |        |          |
| 2" x 4" top and bottom chords  |           |      |          |       |        |          |
| Up to 38' span   | B1@.022   | SF   | 5.16     | .82   | 5.98   | 10.20    |
| 40' to 50' span  | B1@.028   | SF   | 6.44     | 1.04  | 7.48   | 12.70    |
| Fink truss W (conventional roof truss)   |           |      |          |       |        |          |
| 2" x 4" top and bottom chords  |           |      |          |       |        |          |
| Up to 38' span   | B1@.017   | SF   | 4.48     | .63   | 5.11   | 8.69     |
| 40' to 50' span  | B1@.022   | SF   | 5.41     | .82   | 6.23   | 10.60    |
| 2" x 6" top and bottom chords  |           |      |          |       |        |          |
| Up to 38' span   | B1@.020   | SF   | 5.55     | .74   | 6.29   | 10.70    |
| 40' to 50' span  | B1@.026   | SF   | 6.67     | .97   | 7.64   | 13.00    |
| Truss with gable fill at 16" OC  |           |      |          |       |        |          |
| 28' span, 5 in 12 slope  | B1@.958   | Ea   | 373.00   | 35.60 | 408.60 | 695.00   |
| 32' span, 5 in 12 slope  | B1@1.26   | Ea   | 458.00   | 46.90 | 504.90 | 858.00   |
| 40' span, 5 in 12 slope  | B1@1.73   | Ea   | 644.00   | 64.30 | 708.30 | 1,200.00 |
| <b>Roof truss repairs.</b>   |           |      |          |       |        |          |
| Repair splits in 2" x 6" diagonal or 2" x 6" vertical member by installing five prefabricated clamps per truss   | B1@.492   | Ea   | —        | 18.30 | 18.30  | 31.10    |
| Repair splits at various locations by installing splice plates per splice plate  | B1@.104   | Ea   | —        | 3.87  | 3.87   | 6.58     |
| Repair splits in bottom chord by installing two prefabricated clamps near joints, drill holes to arrest split per truss  | B1@.280   | Ea   | —        | 10.40 | 10.40  | 17.70    |
| Repair split ends in 2" x 6" bottom chord by installing splice plate and four 1/2" stitch bolts per truss  | B1@.617   | Ea   | —        | 22.90 | 22.90  | 38.90    |
| Repair vertical compression in 2" x 4" member by scabbing pieces to each side and bolting per scab repair  | B1@1.00   | Ea   | —        | 37.20 | 37.20  | 63.20    |
| <b>Fascia board.</b> Installed on roof eaves working at 8' height from ladders.  |           |      |          |       |        |          |
| Pry off nailed fascia and drop debris to the ground per linear foot of fascia  | B1@.007   | LF   | —        | .26   | .26    | .44      |
| Install 1" x 6" fascia board by nailing at roof eaves per linear foot of fascia  | B1@.044   | LF   | 2.29     | 1.64  | 3.93   | 6.68     |
| Remove and replace fascia board at roof eaves per linear foot of fascia  | B1@.051   | LF   | 2.29     | 1.90  | 4.19   | 7.12     |
| Add for heights to 20', per linear foot  | B1@.015   | LF   | —        | .56   | .56    | .95      |

|  | Craft@Hrs | Unit | Material | Labor | Total    | Sell   |
|--|-----------|------|----------|-------|----------|--------|
| <b>Roof sheathing.</b>   |           |      |          |       |          |        |
| CDX plywood sheathing, rough, power nailed, including normal waste.    |           |      |          |       |          |        |
| 1/2"   | B1@.013   | SF   | .80      | .48   | 1.28     | 2.18   |
| 1/2", 4-ply  | B1@.013   | SF   | .96      | .48   | 1.44     | 2.45   |
| 1/2", 5-ply  | B1@.013   | SF   | 1.54     | .48   | 2.02     | 3.43   |
| 5/8", 4-ply  | B1@.013   | SF   | .96      | .48   | 1.44     | 2.45   |
| 5/8", 5-ply  | B1@.013   | SF   | 1.02     | .48   | 1.50     | 2.55   |
| 3/4"   | B1@.013   | SF   | 1.15     | .48   | 1.63     | 2.77   |
| Add for hip roof   | B1@.007   | SF   | —        | .26   | .26      | .44    |
| Add for steep pitch or cut-up roof                                     | B1@.015   | SF   | —        | .56   | .56      | .95    |
| Remove existing sheathing  | B1@.017   | SF   | —        | .63   | .63      | 1.07   |
| OSB sheathing, rough, power nailed, including normal waste.            |           |      |          |       |          |        |
| 1/2"   | B1@.013   | SF   | .97      | .48   | 1.45     | 2.47   |
| 5/8"   | B1@.013   | SF   | .97      | .48   | 1.45     | 2.47   |
| 3/4"   | B1@.013   | SF   | 1.15     | .48   | 1.63     | 2.77   |
| 7/8"   | B1@.014   | SF   | 2.40     | .52   | 2.92     | 4.96   |
| 1-1/8"   | B1@.015   | SF   | 3.49     | .56   | 4.05     | 6.89   |
| Add for hip roof   | B1@.007   | SF   | —        | .26   | .26      | .44    |
| Add for steep pitch or cut-up roof                                     | B1@.015   | SF   | —        | .56   | .56      | .95    |
| Remove existing sheathing  | B1@.017   | SF   | —        | .63   | .63      | 1.07   |
| Board sheathing, 1" x 6" or 1" x 8" utility T&G laid diagonal          |           |      |          |       |          |        |
| 1" utility T&G lumber, per MBF   | —         | MBF  | 2,460.00 | —     | 2,460.00 | —      |
| (1.13 BF per SF)   | B1@.026   | SF   | 3.06     | .97   | 4.03     | 6.85   |
| Add for hip roof   | B1@.007   | SF   | —        | .26   | .26      | .44    |
| Add for steep pitch or cut-up roof                                     | B1@.015   | SF   | —        | .56   | .56      | .95    |
| Remove board sheathing   | B1@.030   | SF   | —        | 1.12  | 1.12     | 1.90   |
| Remove deteriorated boards   | B1@.034   | SF   | —        | 1.26  | 1.26     | 2.14   |
| Remove boards in salvage condition                                     | B1@.036   | SF   | —        | 1.34  | 1.34     | 2.28   |
| Remove and patch roof sheathing, rafters 24" on center, 3 in 12 pitch. |           |      |          |       |          |        |
| 1" x 8" x 12' long, per board  | B1@.400   | Ea   | 11.20    | 14.90 | 26.10    | 44.40  |
| 1" x 8", per square foot   | B1@.050   | SF   | 1.55     | 1.86  | 3.41     | 5.80   |
| 1/2", 4-ply plywood, per 4' x 8' sheet                                 | B1@.960   | Ea   | 27.90    | 35.70 | 63.60    | 108.00 |
| 1/2", 4-ply plywood, per square foot                                   | B1@.030   | SF   | .96      | 1.12  | 2.08     | 3.54   |

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# Insulation and Moisture Control

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Homes built before the early 1970s were designed in an era when gasoline was less than 30 cents a gallon, heating oil was cheap and natural gas supplies were plentiful. Few people worried about energy efficiency because there was energy to spare. Builders and homeowners didn't spend money on insulating houses because it was cheaper just to turn up the heat. But times have changed. Modern insulation standards are considerably higher.

## Ceiling Insulation

Most homes have an accessible attic with exposed ceiling framing. That makes it easy to check the depth of insulation and apply more when needed. Before about 1970, the most common attic insulation, if there was any, was reflective foil (in warmer climates) or a few inches of rock wool (in colder climates).

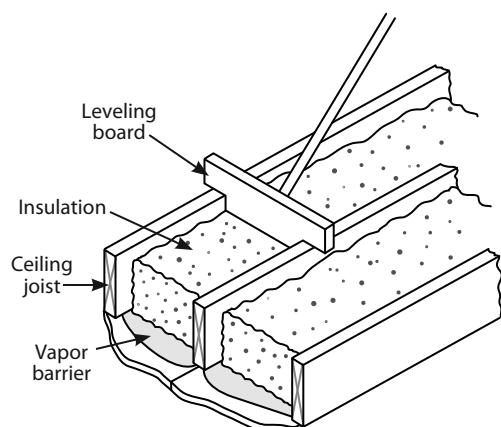
Optimum insulation still varies with location. But homes in milder climates can benefit from 6" of fiberglass above the ceiling. In colder climates, you need 12". If the home is heated by electricity or a means more expensive than gas, propane or heating oil, extra insulation usually makes good economic sense.

Batt and roll blanket insulation is made to fit between joists and studs installed either 16" or 24" on center. When you see coverage figures for insulation, those numbers include framing area. For example a roll of insulation described as "covers 80 SF" will fill a wall area measuring 8' by 10'.

If a vapor barrier is already in place, or if you're installing a separate vapor barrier, use unfaced rolls or batts. Otherwise, install Kraft-faced insulation. However, there's one exception when adding more insulation in an attic space. Even if the existing ceiling insulation doesn't have a vapor barrier, install unfaced insulation.

Loose-fill insulation is just as effective as rolls or batts and it's easy to install in an attic. Simply pour insulation between the joists and screed it off to the right thickness (Figure 5-1).

The effectiveness of insulation is measured in R-value, which is the resistance of the material to heat transfer. The higher the rating, the more insulating value. For example, 12" of fiberglass insulation usually carries an R-38 rating. Six inches of the same fiberglass will be rated at R-19.



**Figure 5-1**

Installation of loose-fill ceiling insulation

## Wall Insulation

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Any time you remove interior wall finish, check the insulation. Walls in mild climates need R-13 insulation. That's  $3\frac{1}{2}$ " of fiberglass, which fits perfectly in the cavity of a 2 x 4 stud wall. R-19 wall insulation is appropriate in severely cold climates. But that requires a 6" wall cavity and 2 x 6 studs. If you need more than R-19 from an existing 2 x 4 stud wall, 1" polyurethane sheathing can add R-6.

Adding insulation is easy when the wall cavity is open. When the cavity is closed, you can blow cellulose insulation through a 1"-diameter hole cut in siding and sheathing. Open a hole at the top of each stud space. Lower a plumb bob into the cavity to find where the fire block is installed. Then drill another hole in the same cavity below the fire block. Blow cellulose into the stud space both above and below the block. When the cavity is filled, patch entry holes with either plastic or wood plugs.

## Floor Insulation

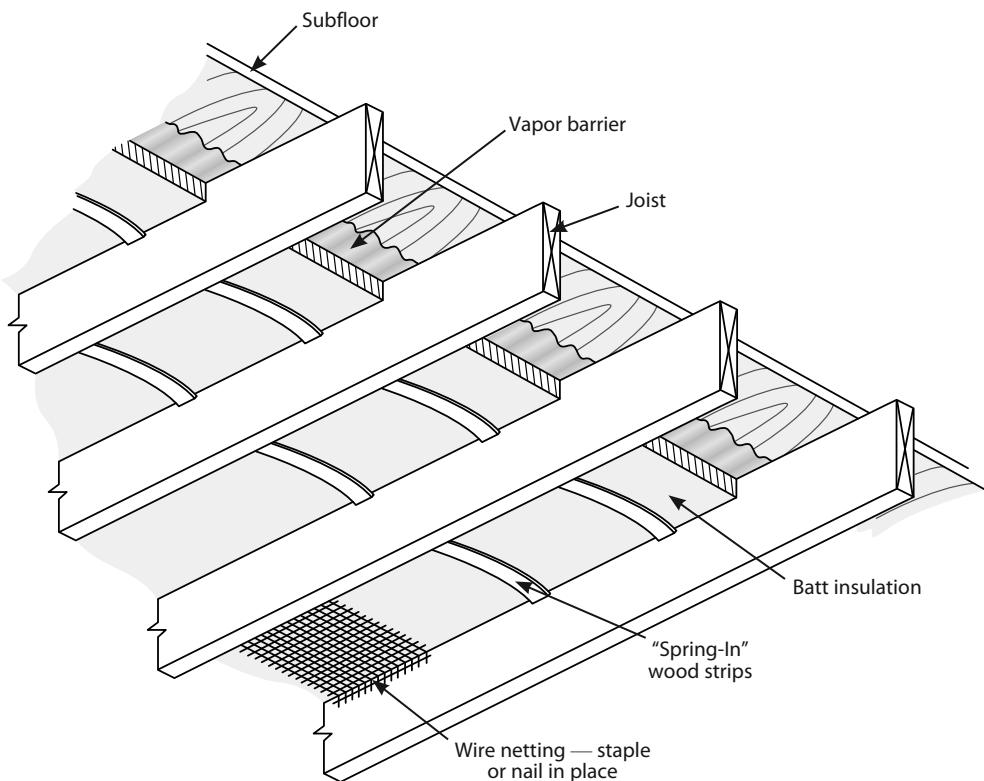
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Houses with a furnace in the basement don't need insulation between the floor joists. But homes should have floor insulation equivalent to the wall insulation if the floors are located above an unheated crawlspace or any other unheated space. Fit insulation batts between the floor joists. Hold the batts in place with wood or wire strips cut slightly longer than the joist space so they spring into place (Figure 5-2). You could also staple wire netting under the floor joists to hold either batt or blanket insulation tight against the underside of the floor sheathing. A vapor barrier has to be on the top side of insulation placed between floor joists. That presents a problem when installing insulation above a crawlspace. Insulation manufacturers now offer roll insulation with inverse tabs so insulation can be stapled between floor joists with the poly face-up against the floor sheathing.

## Board Insulation

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You can insulate brick, block and concrete walls by applying insulation board to the interior surface. The thicker the board, the higher the R-value. Polystyrene insulated sheathing board has an R-value of 3.5 per inch of thickness. Polyurethane board carries a 6.25 rating per inch of thickness. Many types of insulated sheathing can be installed over the existing siding. No tear-off is necessary, though additional edge trim will be needed around windows and doors. If the owner wants 2" of foam insulation on a basement wall, consider attaching 2" x 2" furring strips to the wall at 16" on center. Then install 2" insulation board between the strips and hang drywall or other wall cover on the furring. Most insulation boards, such as polystyrene, must be covered with drywall. They're fragile, and won't hold paint or wallpaper. Also, most insulation boards aren't fire-resistant. Fire codes require that interior wall surfaces be covered with fire-resistant material, such as drywall.



**Figure 5-2**

*Installing insulating batts in floor*

## Vapor Barrier

Good insulation cuts heating costs and adds to comfort by making the temperature in the house more uniform. But simply adding insulation to an old home can create more problems than it solves. In poorly-insulated older homes, water vapor escapes to the exterior without interference. But in a tighter home with fewer air leaks and better insulation, water vapor tends to collect in walls. There, it cools and condenses into liquid. The result can be saturated insulation and siding. Running a humidifier, cooking, bathing, and simply breathing aggravate the problem. Liquid moisture in a wall reduces the effectiveness of insulation, promotes decay and supports the growth of mold. To control moisture problems, be sure there is a vapor barrier on the (winter) warm side of walls and ceilings.

Most homes built before the mid-1930s don't have a vapor barrier in either the walls or the ceilings. If attic insulation has been upgraded since construction, you'll probably find batts or blankets with a Kraft face that resist the passage of moisture. The Kraft face should face down, against the ceiling finish. But if the ceiling insulation is loose fill, there should be a separate vapor barrier of coated paper, aluminum foil, or plastic film below the insulation.

Older homes develop thousands of tiny air leaks around doors and windows, at the sill, around electrical outlets and where interior and exterior walls have cracked.

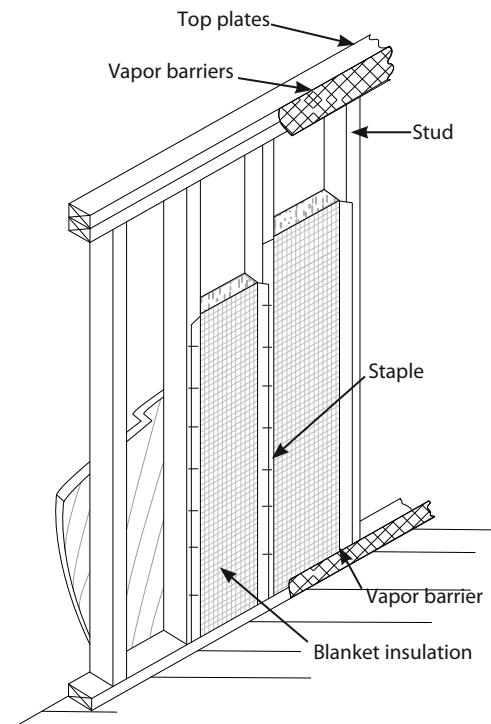
Vapor movement through any barrier is measured in perms. The lower the perm rating, the more effective the barrier. Materials with good perm ratings include polyethylene at least 2 mils thick, asphalt-impregnated and surface-coated Kraft papers, and asphalt-laminated paper.

To be truly effective, the vapor barrier should be continuous over the inside of studs and joists. That's easy in new construction. In home improvement work, applying continuous vapor barrier is practical only when interior wall cover is being replaced.

If removing the ceiling or wall finish is part of the job, staple vapor barrier directly to the studs or joists. Lay vapor barrier on a subfloor directly under the new floor finish. Be sure to lap joints at least 2" and avoid unnecessary punctures. Nails or screws driven snug against the vapor barrier don't do any harm.

## Blanket Insulation With Vapor Barrier

Most roll (or "blanket") insulation has a vapor barrier on one side that extends beyond the edges of the roll to form a stapling tab. Lap these tabs over the 2" thickness of studs and joists. (Figure 5-3). Tabs on adjacent blankets should overlap. Your drywall crew probably prefers to see these tabs stapled to the inside face of studs or joists. That makes it easier to hang drywall with a smooth, even surface. But stapling tabs inside the stud or joist cavity will also reduce the effectiveness of the vapor barrier. Moisture will seep through openings between the tabs and framing members. It's better to make the drywall finishers work a little harder and protect the studs and joists from decay, mold and termites.



**Figure 5-3**

*Installation of blanket insulation with vapor barriers on one side*

## Vapor-Resistant Coating

If walls and ceilings don't have a vapor barrier, the next best thing is a vapor-resistant interior coating such as aluminum primer. Two coats of aluminum primer covered with acrylic latex offer moderate vapor resistance, though not as much as a true membrane.

## Crawlspace Ventilation

Damp soil in a crawlspace will transfer moisture to the floor framing and even to occupied rooms above. Good ventilation helps keep the crawlspace dry. Promote good cross-ventilation by installing a vent at each corner of the foundation. Taken together, foundation vent "free circulation area" should be  $1/150^{\text{th}}$  of the crawlspace surface (10 square feet of vent for a 1,500-square-foot crawlspace). Free vent area excludes space occupied by the vent frame, screen wire and louvers. Most manufactured vents are identified by the overall dimensions and the net free area. If there's a partial basement, the crawlspace can be vented to the basement instead of the exterior.

If soil in the crawlspace is covered with a vapor barrier, foundation vent area can be as little as  $1/1,500^{\text{th}}$  of the ground area (1 square foot for a 1,500-square-foot crawlspace). It's usually much cheaper to cover the soil in a crawlspace with membrane than to add more foundation vents. Ground cover should lap at least 2" at all joints (Figure 5-4). Lay brick or stones on top of the membrane to hold it down and prevent curling.

## Attic and Roof Ventilation

Insulation laid between ceiling joists helps hold heat inside the home. But above that insulation, air should circulate freely. Excess moisture accumulation will damage insulation and other attic materials. Good air circulation is especially important in colder climates and when the roof cover is less permeable. With built-up roofing or asphalt shingles, the only way to get moisture out of an attic is with vents.

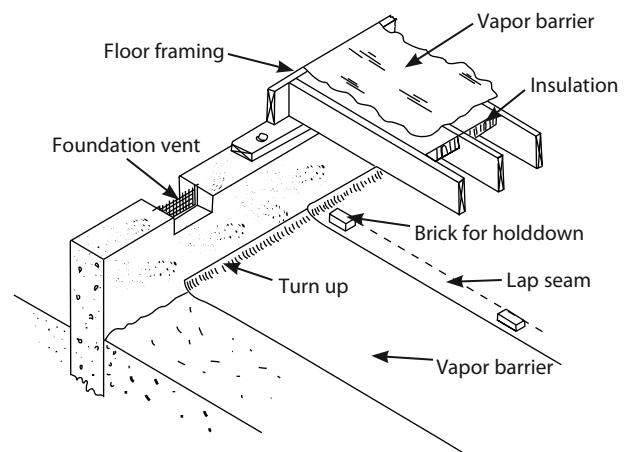
Inadequately-vented attics can reach temperatures above 140 degrees F on a sunny day. Some of the heat will work its way into the house, overburdening the air conditioning system. Properly-vented attics will stay cooler and can save up to 30 percent on cooling costs. In addition, a cooler attic will keep asphalt shingles from degrading prematurely in the heat.

Air circulation works best with soffit vents around the edge of the roof and outlet vents located high, near the ridge. Warm air rises in the attic, exits at the peak, and draws fresh air through soffit vents at the perimeter. Under those conditions, inlet vents should be  $1/900^{\text{th}}$  of attic floor area. Outlet vents should have the same area. A home with only gable vents needs more free vent area. Air circulation through gable vents depends on wind blowing the right direction. Provide one square foot of free vent area for each 300' of attic area.

Hip roofs don't have gables and flat roofs don't have peaks. That reduces your venting options. The estimating section that follows includes power ventilators that can be installed on nearly any roof.

Flat roofs with no attic require some type of ventilation above the ceiling insulation. If this space is divided by joists, each joist space should be ventilated. A continuous soffit vent strip is the best choice. Drill through all headers that impede passage of air to the opposite eave.

A post and beam roof with a roof-plank ceiling has no attic and needs no ventilation. But the roof surface requires insulation board coated with a walkable sprayed-on insulator such as urethane.



**Figure 5-4**

Vapor barrier for crawlspace (ground cover)

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Fiberglass Insulation

**Kraft-faced fiberglass roll insulation.** Stapled between studs or joists. Coverage includes framing area.

|                                  |         |    |      |     |      |      |
|----------------------------------|---------|----|------|-----|------|------|
| R-11, 15" x 70'6" x 3-1/2" thick | BC@.010 | SF | .64  | .41 | 1.05 | 1.79 |
| R-11, 23" x 70'6" x 3-1/2" thick | BC@.009 | SF | .64  | .37 | 1.01 | 1.72 |
| R-13, 15" x 32' x 3-1/2" thick   | BC@.010 | SF | .79  | .41 | 1.20 | 2.04 |
| R-19, 15" x 39' x 6-1/4" thick   | BC@.010 | SF | 1.03 | .41 | 1.44 | 2.45 |
| R-19, 23" x 39' x 6-1/4" thick   | BC@.009 | SF | 1.03 | .37 | 1.40 | 2.38 |

**Unfaced fiberglass roll insulation.** Laid between ceiling joists. Coverage includes framing area.

|   |         |    |      |     |      |      |
|---|---------|----|------|-----|------|------|
| R-6.7, 15" x 48" x 2" thick handy roll            | BC@.005 | SF | 1.55 | .21 | 1.76 | 2.99 |
| R-19, 15" x 39' x 6-1/4" thick                    | BC@.005 | SF | 1.02 | .21 | 1.23 | 2.09 |
| R-19, 23" x 39' x 6-1/4" thick                    | BC@.005 | SF | 1.02 | .21 | 1.23 | 2.09 |
| R-25, 23" x 17' x 8" thick                        | BC@.005 | SF | 1.18 | .21 | 1.39 | 2.36 |
| R-25, 15" x 18' x 8" thick                        | BC@.005 | SF | 1.18 | .21 | 1.39 | 2.36 |
| R-30, 15" x 25' x 9-1/2" thick                    | BC@.005 | SF | 1.49 | .21 | 1.70 | 2.89 |
| R-30, 23" x 25' x 9-1/2" thick                    | BC@.005 | SF | 1.49 | .21 | 1.70 | 2.89 |
| Add for rolls in floor joists above a crawl space | BC@.008 | SF | .14  | .33 | .47  | .80  |

**Kraft-faced fiberglass batt insulation.** Stapled between studs and joists. 16" widths and 24" widths are laid over ceiling joists.

|                                 |         |    |      |     |      |      |
|---------------------------------|---------|----|------|-----|------|------|
| R-11, 15" x 93" x 3" thick      | BC@.012 | SF | .76  | .49 | 1.25 | 2.13 |
| R-13, 15" x 93" x 3-1/2" thick  | BC@.012 | SF | .76  | .49 | 1.25 | 2.13 |
| R-13, 23" x 93" x 3-1/2" thick  | BC@.013 | SF | 1.04 | .53 | 1.57 | 2.67 |
| R-15, 15" x 93" x 6-1/4" thick  | BC@.009 | SF | 1.04 | .37 | 1.41 | 2.40 |
| R-19, 15" x 93" x 6-1/4" thick  | BC@.009 | SF | 1.05 | .37 | 1.42 | 2.41 |
| R-19, 23" x 93" x 6-1/4" thick  | BC@.013 | SF | 1.05 | .53 | 1.58 | 2.69 |
| R-30, 16" x 48" x 10" thick     | BC@.005 | SF | 1.55 | .21 | 1.76 | 2.99 |
| R-30, 24" x 48" x 10" thick     | BC@.005 | SF | 1.55 | .21 | 1.76 | 2.99 |
| R-38, 16" x 48" x 12-1/2" thick | BC@.007 | SF | 1.96 | .29 | 2.25 | 3.83 |
| R-38, 24" x 48" x 12-1/2" thick | BC@.005 | SF | 1.96 | .21 | 2.17 | 3.69 |

**Unfaced fiberglass batt insulation.** Fit between studs and joists. 16" and 24" widths are laid over ceiling joists.

Coverage includes framing area.

|   |         |    |      |     |      |      |
|---|---------|----|------|-----|------|------|
| R-11, 15" x 94" x 3-1/2" thick                    | BC@.007 | SF | .66  | .29 | .95  | 1.62 |
| R-11, 16" x 96" x 3-1/2" thick                    | BC@.006 | SF | .71  | .25 | .96  | 1.63 |
| R-13, 15" x 93" x 3-1/2" thick                    | BC@.007 | SF | .80  | .29 | 1.09 | 1.85 |
| R-19, 15" x 93" x 6-1/4" thick                    | BC@.007 | SF | 1.02 | .29 | 1.31 | 2.23 |
| R-19, 23" x 93" x 6-1/4" thick                    | BC@.006 | SF | 1.02 | .25 | 1.27 | 2.16 |
| R-21, 15" x 93" x 5-1/2" thick                    | BC@.007 | SF | 1.41 | .29 | 1.70 | 2.89 |
| R-21, 23" x 93" x 5-1/2" thick                    | BC@.006 | SF | 1.41 | .25 | 1.66 | 2.82 |
| R-30, 16" x 48" x 9-1/2" thick                    | BC@.005 | SF | 1.69 | .21 | 1.90 | 3.23 |
| R-30, 16" x 48" x 10-1/4" thick                   | BC@.005 | SF | 1.69 | .21 | 1.90 | 3.23 |
| R-30, 24" x 48" x 9-1/2" thick                    | BC@.005 | SF | 1.67 | .21 | 1.88 | 3.20 |
| R-30, 24" x 48" x 10-1/4" thick                   | BC@.005 | SF | 1.66 | .21 | 1.87 | 3.18 |
| R-38, 16" x 48" x 13" thick                       | BC@.007 | SF | 2.05 | .29 | 2.34 | 3.98 |
| R-38, 24" x 48" x 13" thick                       | BC@.007 | SF | 1.99 | .29 | 2.28 | 3.88 |
| Add for batts in floor joists above a crawl space | BC@.008 | SF | .12  | .33 | .45  | .77  |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Encapsulated roll fiberglass insulation.</b> Stapled between studs and joists. Coverage includes framing area.   |                  |             |                 |              |              |             |
| Fibers are coated to reduce irritation.   |                  |             |                 |              |              |             |
| R-13, 15" x 37'6" x 3-1/2" thick  | BC@.010          | SF          | .84             | .41          | 1.25         | 2.13        |
| R-13, 15" x 32' x 3-1/2" thick  | BC@.010          | SF          | 1.12            | .41          | 1.53         | 2.60        |
| R-25, 15" x 22' x 8-1/4" thick  | BC@.010          | SF          | 1.71            | .41          | 2.12         | 3.60        |
| R-25, 23" x 22' x 8-1/4" thick  | BC@.009          | SF          | 1.71            | .37          | 2.08         | 3.54        |
| <b>Encapsulated batt fiberglass insulation.</b> Fit between studs and joists. Coverage includes framing area. Fibers are coated to reduce irritation. 16" widths and 24" widths are laid over ceiling joists.                         |                  |             |                 |              |              |             |
| R-13, 15" x 93" x 3-1/2" thick  | BC@.007          | SF          | 1.61            | .29          | 1.90         | 3.23        |
| R-19, 15" x 93" x 6-1/2" thick  | BC@.007          | SF          | 2.06            | .29          | 2.35         | 4.00        |
| R-19, 23" x 8' x 6-1/2" thick   | BC@.005          | SF          | 1.79            | .21          | 2.00         | 3.40        |
| R-30, 16" x 48" x 10-1/4" thick   | BC@.005          | SF          | 1.90            | .21          | 2.11         | 3.59        |
| R-30, 24" x 48" x 10-1/4" thick   | BC@.005          | SF          | 2.61            | .21          | 2.82         | 4.79        |
| <b>Blow-in cellulose insulation.</b> One bag covers 40 square feet at 6" deep and provides an R-19 rating.  |                  |             |                 |              |              |             |
| 30 square foot bag of stabilized cellulose  | BC@.400          | Ea          | 3.72            | 16.40        | 20.12        | 34.20       |
| Blower and hose, daily rental   | —                | Ea          | 58.60           | —            | 58.60        | —           |
| Hose connector  | —                | Ea          | 8.81            | —            | 8.81         | —           |
| 2" to 1" hose reducer and nozzle  | —                | Ea          | 44.20           | —            | 44.20        | —           |
| 1" wood plugs, bag of 25  | BC@.500          | Ea          | 6.99            | 20.50        | 27.49        | 46.70       |
| 1" plastic plugs, bag of 25   | BC@.500          | Ea          | 9.29            | 20.50        | 29.79        | 50.60       |
| <b>Panel Insulation</b>   |                  |             |                 |              |              |             |
| <b>Insulation board, 4' x 8' panels.</b> Owens Corning Foamular XAE rigid extruded polystyrene foam board. Film-faced, stapled in place, including taped joints and 5% waste. 4' x 8' or 9' panels, tongue and groove or square edge. |                  |             |                 |              |              |             |
| 1/2" thick (R-3.2)  | BC@.010          | SF          | .63             | .41          | 1.04         | 1.77        |
| 3/4" thick (R-3.8)  | BC@.011          | SF          | .70             | .45          | 1.15         | 1.96        |
| 1" thick (R-5.0)  | BC@.011          | SF          | 1.05            | .45          | 1.50         | 2.55        |
| 1-1/2" thick (R-7.5)  | BC@.015          | SF          | 1.38            | .62          | 2.00         | 3.40        |
| 2" thick (R-13)   | BC@.015          | SF          | 1.54            | .62          | 2.16         | 3.67        |
| <b>Extruded polystyrene insulated sheathing.</b> Dow Blue Board, water resistant. Blue Board has a density of 1.6 pounds per cubic foot. Gray Board has a density of 1.3 pounds per cubic foot. Include 5% waste.                     |                  |             |                 |              |              |             |
| 1/2" x 4' x 8', R-3   | BC@.011          | SF          | .56             | .45          | 1.01         | 1.72        |
| 3/4" x 2' x 8', tongue & groove, R-3.8  | BC@.011          | SF          | 1.21            | .45          | 1.66         | 2.82        |
| 1" x 2' x 8', R-5.0   | BC@.011          | SF          | .76             | .45          | 1.21         | 2.06        |
| 1" x 2' x 8', tongue & groove, R-5.0  | BC@.011          | SF          | .51             | .45          | .96          | 1.63        |
| 1" x 4' x 8', R-5.0   | BC@.011          | SF          | .79             | .45          | 1.24         | 2.11        |
| 1" x 4' x 8', tongue & groove, R-5.0  | BC@.011          | SF          | .74             | .45          | 1.19         | 2.02        |
| 1-1/2" x 2' x 8', R-7.5   | BC@.015          | SF          | 1.32            | .62          | 1.94         | 3.30        |
| 1-1/2" x 2' x 8', tongue & groove, R-7.5  | BC@.015          | SF          | 1.26            | .62          | 1.88         | 3.20        |
| 1-1/2" 4' x 8', square edge, R-7.5  | BC@.015          | SF          | 1.32            | .62          | 1.94         | 3.30        |
| 2" x 2' x 8', R-10  | BC@.015          | SF          | 1.46            | .62          | 2.08         | 3.54        |
| 2" x 4' x 8', R-10  | BC@.015          | SF          | 1.37            | .62          | 1.99         | 3.38        |
| 1" x 2' x 8' gray (1.3 Lbs. per CF)   | BC@.015          | SF          | .74             | .62          | 1.36         | 2.31        |
| 1-1/2" x 2' x 8' gray board   | BC@.015          | SF          | 1.05            | .62          | 1.67         | 2.84        |
| 2" x 2' x 8' gray board   | BC@.015          | SF          | 1.35            | .62          | 1.97         | 3.35        |
| <b>Rigid foam insulated sheathing.</b> Fiberglass polymer faced two sides, Celotex Tuff-R, 4' x 8' panels, including 5% waste.  |                  |             |                 |              |              |             |
| 1/2" (R-3.2)  | BC@.010          | SF          | .42             | .41          | .83          | 1.41        |
| 3/4" (R-5.6)  | BC@.011          | SF          | .48             | .45          | .93          | 1.58        |
| 1" (R-7.2)  | BC@.011          | SF          | .79             | .45          | 1.24         | 2.11        |
| 2" (R-14.4)   | BC@.015          | SF          | 1.31            | .62          | 1.93         | 3.28        |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Extruded polystyrene insulation.</b> 4' x 8' panels, Owens Corning Formular, including 5% waste.  |           |      |          |       |        |      |
| 1/2" (R-3)   | BC@.010   | SF   | .91      | .41   | 1.32   | 2.24 |
| 1" (R-5)   | BC@.011   | SF   | .91      | .45   | 1.36   | 2.31 |
| 2" (R-10)  | BC@.015   | SF   | 1.25     | .62   | 1.87   | 3.18 |
| Add for nails, per 50-pound carton (large square heads)  |           |      |          |       |        |      |
| 2-1/2" long, for boards to 1"  | —         | LS   | 216.00   | —     | 216.00 | —    |
| 3" long, for 2" boards   | —         | LS   | 216.00   | —     | 216.00 | —    |
| <b>Polystyrene foam underlay.</b> Polyethylene covered, R-Gard. Including 5% waste.  |           |      |          |       |        |      |
| 3/8" 4' x 24' fanfold  | BC@.011   | SF   | .37      | .45   | .82    | 1.39 |
| 1/2" x 4' x 8'   | BC@.011   | SF   | .38      | .45   | .83    | 1.41 |
| 1" x 4' x 8'   | BC@.011   | SF   | .56      | .45   | 1.01   | 1.72 |
| 1-1/2" x 2' x 8'   | BC@.015   | SF   | 1.04     | .62   | 1.66   | 2.82 |
| 2" x 2' x 8'   | BC@.015   | SF   | 1.04     | .62   | 1.66   | 2.82 |
| <b>Perlite roof insulation.</b> 24" x 48" board.   |           |      |          |       |        |      |
| 3/4" thick (R-2.08)  | RR@.007   | SF   | .45      | .32   | .77    | 1.31 |
| 1" thick (R-2.78)  | RR@.007   | SF   | .59      | .32   | .91    | 1.55 |
| 1-1/2" thick (R-4.17)  | RR@.007   | SF   | .82      | .32   | 1.14   | 1.94 |
| 2" thick (R-5.26)  | RR@.007   | SF   | 1.01     | .32   | 1.33   | 2.26 |
| <b>Cant strips for insulated roof board.</b> One piece wood, tapered.  |           |      |          |       |        |      |
| 2" strip   | RR@.018   | LF   | .33      | .82   | 1.15   | 1.96 |
| 3" strip   | RR@.020   | LF   | .29      | .91   | 1.20   | 2.04 |
| 4" strip   | RR@.018   | LF   | .28      | .82   | 1.10   | 1.87 |
| <b>Sill plate gasket.</b> Fills gaps between the foundation and the plate. Also used for sealing around windows and doors.   |           |      |          |       |        |      |
| 1/4" x 50', 3-1/2" wide  | BC@.003   | LF   | .18      | .12   | .30    | .51  |
| 1/4" x 50', 5-1/2" wide  | BC@.003   | LF   | .27      | .12   | .39    | .66  |
| <b>Perimeter foundation insulation.</b> Expanded polystyrene with polyethylene skinned surface. Low moisture retention. Minimum compressive strength of 1,440 pounds per SF.                     |           |      |          |       |        |      |
| 3/4" x 4' x 8'   | BC@.011   | SF   | .48      | .45   | .93    | 1.58 |
| 1-1/2" x 2' x 4'   | BC@.015   | SF   | 1.06     | .62   | 1.68   | 2.86 |
| 2" x 2' x 4'   | BC@.015   | SF   | 1.33     | .62   | 1.95   | 3.32 |
| 2" x 4' x 8'   | BC@.015   | SF   | 1.21     | .62   | 1.83   | 3.11 |
| <b>FBX 1240 industrial board insulation.</b> Rockwool, semi-rigid, no waste included. 24" on-center framing members.   |           |      |          |       |        |      |
| 2" (R-8)   | BC@.004   | SF   | 1.20     | .16   | 1.36   | 2.31 |
| 3" (R-12)  | BC@.004   | SF   | 1.74     | .16   | 1.90   | 3.23 |
| 3-1/2" (R-14)  | BC@.004   | SF   | 2.04     | .16   | 2.20   | 3.74 |
| <b>Sound control insulation.</b> Fiberglass acoustically designed to absorb sound vibration. For use between interior walls, floors and ceilings. Quietzone™ batts. Coverage allows for framing. |           |      |          |       |        |      |
| 3-1/2", 16" on-center framing  | BC@.006   | SF   | .63      | .25   | .88    | 1.50 |
| 3-1/2", 24" on-center framing  | BC@.006   | SF   | .63      | .25   | .88    | 1.50 |
| <b>Sound insulation board.</b> 4' x 8' panels installed on walls.  |           |      |          |       |        |      |
| 1/2" Homasote  | BC@.013   | SF   | 2.69     | .53   | 3.22   | 5.47 |
| 1/2" sound deadening board   | BC@.013   | SF   | 1.14     | .53   | 1.67   | 2.84 |
| Add for installation on ceilings   | BC@.004   | SF   | —        | .16   | .16    | .27  |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---|-----------|------|----------|-------|-------|------|
| <b>Sound Attenuation Fire Batt Insulation (SAFB).</b> Rockwool, semi-rigid, no waste included, pressed between framing members. |           |      |          |       |       |      |
| 16" on-center framing members   |           |      |          |       |       |      |
| 2" (R-8)  | BC@.004   | SF   | 1.07     | .16   | 1.23  | 2.09 |
| 3" (R-12)   | BC@.004   | SF   | 1.60     | .16   | 1.76  | 2.99 |
| 4" (R-16)   | BC@.005   | SF   | 2.92     | .21   | 3.13  | 5.32 |
| 24" on-center framing members   |           |      |          |       |       |      |
| 2" (R-8)  | BC@.003   | SF   | 1.34     | .12   | 1.46  | 2.48 |
| 3" (R-12)   | BC@.003   | SF   | 2.41     | .12   | 2.53  | 4.30 |
| 4" (R-16)   | BC@.004   | SF   | 2.91     | .16   | 3.07  | 5.22 |

## Loose Insulation

### Vermiculite insulation.

Poured over ceilings.

|                                      |         |    |       |     |       |      |
|--------------------------------------|---------|----|-------|-----|-------|------|
| Vermiculite, 25 lb sack (2 CF)       | —       | Ea | 22.60 | —   | 22.60 | —    |
| At 3" depth (120 sacks per 1,000 SF) | BL@.007 | SF | 2.72  | .23 | 2.95  | 5.02 |
| At 4" depth (144 sacks per 1,000 SF) | BL@.007 | SF | 3.26  | .23 | 3.49  | 5.93 |

### Masonry fill insulation.

Poured in concrete block cores.

|                                     |         |    |      |     |      |      |
|-------------------------------------|---------|----|------|-----|------|------|
| Using 2 CF bags of perlite, per bag | —       | Ea | 9.25 | —   | 9.25 | —    |
| 4" wall, 8.1 SF per CF              | B9@.006 | SF | 1.14 | .22 | 1.36 | 2.31 |
| 6" wall, 5.4 SF per CF              | B9@.006 | SF | 1.71 | .22 | 1.93 | 3.28 |
| 8" wall, 3.6 SF per CF              | B9@.006 | SF | 2.57 | .22 | 2.79 | 4.74 |

**Natural fiber building insulation.** EPA registered anti-microbial agent that offers protection from mold, mildew, fungi and pests. Made from all natural cotton fibers. Friction fit between framing 16" or 24" on center. Based on Ultra Touch.

|                 |         |    |      |     |      |      |
|-----------------|---------|----|------|-----|------|------|
| 16" x 48", R-8  | BC@.005 | SF | .64  | .21 | .85  | 1.45 |
| 15" x 93", R-13 | BC@.006 | SF | .76  | .25 | 1.01 | 1.72 |
| 24" x 94", R-13 | BC@.006 | SF | .79  | .25 | 1.04 | 1.77 |
| 15" x 93", R-19 | BC@.006 | SF | 1.02 | .25 | 1.27 | 2.16 |

## Vapor Barrier

### Polyethylene film.

Clear or black. Includes 5% for waste and 10% for laps.

|                             |         |    |     |     |     |     |
|-----------------------------|---------|----|-----|-----|-----|-----|
| 4 mil (.004" thick)         |         |    |     |     |     |     |
| 50 LF rolls, 3' to 20' wide | BL@.003 | SF | .10 | .10 | .20 | .34 |
| 6 mil (.006" thick)         |         |    |     |     |     |     |
| 50 LF rolls, 3' to 40' wide | BL@.003 | SF | .12 | .10 | .22 | .37 |

### Vapor barrier paper.

Including 12% for overlap and waste.

|  |         |    |     |     |     |     |
|--|---------|----|-----|-----|-----|-----|
| 15 lb. asphalt felt, 432 SF roll, 36" x 144'                               | BC@.003 | SF | .10 | .12 | .22 | .37 |
| 30 lb. asphalt felt, 216 SF roll, 36" x 72'                                | BC@.003 | SF | .21 | .12 | .33 | .56 |
| SuperJumbo Tex black building paper, asphalt saturated, (162 SF roll)      | BC@.003 | SF | .19 | .12 | .31 | .53 |
| Red rosin sized sheathing paper (duplex sheathing) 36" wide, (500 SF roll) | BC@.003 | SF | .03 | .12 | .15 | .26 |
| Double Kraft Aquabar, Class A, 36" wide, 30-50-30, (1,000 SF roll)         | BC@.003 | SF | .07 | .12 | .19 | .32 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| Double Kraft Aquabar, class B, 36" wide, 30-30-30,<br>(500 SF roll)  | BC@.003   | SF   | .09      | .12   | .21   | .36    |
| Moiststop Ultra-6, fiberglass reinforcing and asphaltic adhesive between<br>2 layers of Kraft,<br>240" x 150' roll (1,080 SF roll)   | BC@.003   | SF   | .20      | .12   | .32   | .54    |
| Pyro-Kure 600, 2 layers of heavy Kraft with fire-retardant adhesive<br>edge reinforced with fiberglass,<br>32" x 405' roll (1,080 SF roll)   | BC@.003   | SF   | .30      | .12   | .42   | .71    |
| Foil Barrier 718, fiberglass-reinforced aluminum foil and<br>adhesive between 2 layers of Kraft,<br>52" x 231' roll (1,000 SF roll)  | BC@.004   | SF   | .53      | .16   | .69   | 1.17   |
| Seekure, fiberglass reinforcing strands and non-staining adhesive<br>between 2 layers of Kraft,<br>48" x 300' roll, (1,200 SF roll)  | BC@.003   | SF   | .14      | .12   | .26   | .44    |
| Moistop, fiberglass-reinforced Kraft between 2 layers of polyethylene,<br>8' x 250' roll (2,000 SF roll)   | BC@.003   | SF   | .20      | .12   | .32   | .54    |
| <b>Ice and water shield.</b> Self-adhesive rubberized asphalt and poly. Vycor.<br>225 SF roll  | BC@.006   | SF   | 1.33     | .25   | 1.58  | 2.69   |
| <b>Roof flashing paper.</b> Seals around skylights, dormers, vents, valleys and eaves. Rubberized, fiberglass reinforced,<br>self-adhesive. GAF StormGuard.  |           |      |          |       |       |        |
| Roll covers 225 SF   | RR@.006   | SF   | .76      | .27   | 1.03  | 1.75   |
| <b>Weatherproof roof underlay.</b> For use under shingles. Granular surface<br>Roll covers 225 SF  | RR@.006   | SF   | .74      | .27   | 1.01  | 1.72   |
| <b>Tyvek™ House Wrap.</b> Air infiltration barrier. High-density polyethylene fiber sheet.<br>3' x 165' rolls or 9' x 100' rolls   | BC@.003   | SF   | .17      | .12   | .29   | .49    |
| House Wrap tape, 2" x 165'   | BC@.005   | LF   | .09      | .21   | .30   | .51    |
| <b>Vents and Louvers</b>   |           |      |          |       |       |        |
| <b>Rafter Bay Vent Channel.</b> Keeps attic insulation away from soffit vents to promote good air circulation. Extruded<br>polystyrene. 48" x 1-1/4".  |           |      |          |       |       |        |
| Rafters 16" on center,<br>14" wide, 15" net-free vent area   | BC@.220   | Ea   | 2.40     | 9.03  | 11.43 | 19.40  |
| Rafters 24" on center,<br>22" wide, 26" net-free vent area   | BC@.220   | Ea   | 3.21     | 9.03  | 12.24 | 20.80  |
| <b>Replacement automatic foundation vent.</b> Fits 8" x 16" concrete block opening. Aluminum mesh on front and<br>molded plastic screen on back. Opens at 72 degrees F and closes at 38 degrees F. 1" frame each side. |           |      |          |       |       |        |
| Automatic open and close   | SW@.255   | Ea   | 34.60    | 11.90 | 46.50 | 79.10  |
| <b>Foundation vent with manual damper.</b> Sheet metal.  |           |      |          |       |       |        |
| 4" x 16"   | SW@.255   | Ea   | 8.66     | 11.90 | 20.56 | 35.00  |
| 6" x 16"   | SW@.255   | Ea   | 9.49     | 11.90 | 21.39 | 36.40  |
| 8" x 16"   | SW@.255   | Ea   | 10.00    | 11.90 | 21.90 | 37.20  |
| <b>Foundation access door.</b> Replacement cost only.  |           |      |          |       |       |        |
| 24" x 24"  | BC@.363   | Ea   | 37.70    | 14.90 | 52.60 | 89.40  |
| 32" x 24"  | BC@.363   | Ea   | 44.80    | 14.90 | 59.70 | 101.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Foundation screen vent.</b>   |           |      |          |       |        |        |
| 14" x 6"   | BC@.255   | Ea   | 4.23     | 10.50 | 14.73  | 25.00  |
| 16" x 4"   | BC@.255   | Ea   | 3.60     | 10.50 | 14.10  | 24.00  |
| 16" x 6"   | BC@.255   | Ea   | 3.90     | 10.50 | 14.40  | 24.50  |
| 16" x 8"   | BC@.255   | Ea   | 4.41     | 10.50 | 14.91  | 25.30  |
| <b>Under eave vent.</b> Decomesh vent strips. 26 square inches free air per linear foot. 3/32" diameter perforations. 0.016-gauge aluminum.  |           |      |          |       |        |        |
| 4-1/2" x 8', white   | BC@.040   | LF   | 11.80    | 1.64  | 13.44  | 22.80  |
| 4-1/2" x 8', brown   | BC@.040   | LF   | 11.80    | 1.64  | 13.44  | 22.80  |
| 6" x 8', white   | BC@.040   | LF   | 15.80    | 1.64  | 17.44  | 29.60  |
| <b>Continuous louvered soffit vent.</b> Reversible for flush or recessed mounting.   |           |      |          |       |        |        |
| 2-5/8" x 8', mill finish aluminum  | BC@.360   | Ea   | 4.48     | 14.80 | 19.28  | 32.80  |
| 2-5/8" x 8', white finish aluminum   | BC@.360   | Ea   | 4.80     | 14.80 | 19.60  | 33.30  |
| <b>Louvered soffit vent.</b> Finned louvers with galvanized steel frame and wire mesh. Replacement cost only. For new installations, add the cost of cutting a hole in an existing soffit. |           |      |          |       |        |        |
| 14" x 4"   | BC@.220   | Ea   | 4.26     | 9.03  | 13.29  | 22.60  |
| 16" x 7"   | BC@.220   | Ea   | 4.27     | 9.03  | 13.30  | 22.60  |
| 14" x 6"   | BC@.220   | Ea   | 4.26     | 9.03  | 13.29  | 22.60  |
| 14" x 8"   | BC@.220   | Ea   | 6.49     | 9.03  | 15.52  | 26.40  |
| 22" x 3"   | BC@.220   | Ea   | 4.99     | 9.03  | 14.02  | 23.80  |
| <b>Plastic gable louver vent.</b> With double baffle and screen. Replacement cost only. For new installations, add the cost of cutting a hole in an existing gable.                        |           |      |          |       |        |        |
| Half round, 14" x 22", white   | BC@.500   | Ea   | 62.50    | 20.50 | 83.00  | 141.00 |
| Half round, 22" x 34", paintable   | BC@.500   | Ea   | 100.00   | 20.50 | 120.50 | 205.00 |
| Half round, 22" x 34", white   | BC@.500   | Ea   | 74.70    | 20.50 | 95.20  | 162.00 |
| Octagon, 18", #01 white  | BC@.500   | Ea   | 61.90    | 20.50 | 82.40  | 140.00 |
| Octagon, 22", paintable  | BC@.500   | Ea   | 72.70    | 20.50 | 93.20  | 158.00 |
| Octagon, 22", white  | BC@.500   | Ea   | 106.00   | 20.50 | 126.50 | 215.00 |
| Rectangular, 12" x 18", ivory  | BC@.500   | Ea   | 53.20    | 20.50 | 73.70  | 125.00 |
| Rectangular, 12" x 18", paintable  | BC@.500   | Ea   | 53.20    | 20.50 | 73.70  | 125.00 |
| Rectangular, 18" x 24", paintable  | BC@.500   | Ea   | 57.90    | 20.50 | 78.40  | 133.00 |
| Rectangular, 12" x 18", white  | BC@.500   | Ea   | 59.70    | 20.50 | 80.20  | 136.00 |
| Rectangular, 18" x 24", white  | BC@.500   | Ea   | 60.70    | 20.50 | 81.20  | 138.00 |
| Replace-A-Vent, 12" x 18", white   | BC@.500   | Ea   | 65.30    | 20.50 | 85.80  | 146.00 |
| Round, 22", paintable  | BC@.500   | Ea   | 89.90    | 20.50 | 110.40 | 188.00 |
| Round, 22", white  | BC@.500   | Ea   | 93.40    | 20.50 | 113.90 | 194.00 |
| Square, 12" x 12", white   | BC@.500   | Ea   | 44.90    | 20.50 | 65.40  | 111.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Metal gable louver vent.** Replacement cost only. For new installations, add the cost of cutting a hole in an existing gable.

|                       |         |    |       |       |       |        |
|-----------------------|---------|----|-------|-------|-------|--------|
| 12" x 12", brown      | BC@.500 | Ea | 28.40 | 20.50 | 48.90 | 83.10  |
| 12" x 12", galvanized | BC@.500 | Ea | 26.10 | 20.50 | 46.60 | 79.20  |
| 12" x 12", white      | BC@.500 | Ea | 28.40 | 20.50 | 48.90 | 83.10  |
| 12" x 18", brown      | BC@.500 | Ea | 23.60 | 20.50 | 44.10 | 75.00  |
| 12" x 18", galvanized | BC@.500 | Ea | 31.90 | 20.50 | 52.40 | 89.10  |
| 12" x 18", white      | BC@.500 | Ea | 34.80 | 20.50 | 55.30 | 94.00  |
| 14" x 12", white      | BC@.500 | Ea | 33.50 | 20.50 | 54.00 | 91.80  |
| 14" x 12", brown      | BC@.500 | Ea | 39.30 | 20.50 | 59.80 | 102.00 |
| 14" x 18", galvanized | BC@.500 | Ea | 39.80 | 20.50 | 60.30 | 103.00 |
| 14" x 18", white      | BC@.500 | Ea | 39.20 | 20.50 | 59.70 | 101.00 |
| 14" x 24", brown      | BC@.500 | Ea | 45.20 | 20.50 | 65.70 | 112.00 |
| 14" x 24", galvanized | BC@.500 | Ea | 38.80 | 20.50 | 59.30 | 101.00 |
| 14" x 24", white      | BC@.500 | Ea | 44.10 | 20.50 | 64.60 | 110.00 |

**Redwood gable vent.** Replacement cost only. For new installations, add the cost of cutting a hole in an existing gable.

|                     |         |    |        |       |        |        |
|---------------------|---------|----|--------|-------|--------|--------|
| 14" x 18" rectangle | BC@.500 | Ea | 89.20  | 20.50 | 109.70 | 186.00 |
| 14" x 24" rectangle | BC@.500 | Ea | 108.00 | 20.50 | 128.50 | 218.00 |
| 18" x 24" rectangle | BC@.500 | Ea | 126.00 | 20.50 | 146.50 | 249.00 |
| 24" octagon         | BC@.500 | Ea | 167.00 | 20.50 | 187.50 | 319.00 |
| 24" full round      | BC@.500 | Ea | 209.00 | 20.50 | 229.50 | 390.00 |

**Cedar louver vent.** Replacement cost only.

|                      |         |    |        |       |        |        |
|----------------------|---------|----|--------|-------|--------|--------|
| Arch top, 16" x 24"  | BC@.500 | Ea | 104.00 | 20.50 | 124.50 | 212.00 |
| Octagon, 18"         | BC@.500 | Ea | 113.00 | 20.50 | 133.50 | 227.00 |
| Round, 18"           | BC@.500 | Ea | 108.00 | 20.50 | 128.50 | 218.00 |
| Rectangle, 16" x 24" | BC@.500 | Ea | 96.80  | 20.50 | 117.30 | 199.00 |

**Dormer louver vent.** With galvanized wire mesh to keep birds out. Replacement cost only.

|                       |         |    |       |       |       |        |
|-----------------------|---------|----|-------|-------|-------|--------|
| 19" x 3", low profile | BC@.500 | Ea | 50.30 | 20.50 | 70.80 | 120.00 |
|-----------------------|---------|----|-------|-------|-------|--------|

**Galvanized under-eave vent.**

|          |         |    |      |       |       |       |
|----------|---------|----|------|-------|-------|-------|
| 14" x 5" | BC@.400 | Ea | 5.00 | 16.40 | 21.40 | 36.40 |
| 14" x 6" | BC@.400 | Ea | 8.76 | 16.40 | 25.16 | 42.80 |
| 22" x 3" | BC@.400 | Ea | 7.01 | 16.40 | 23.41 | 39.80 |
| 22" x 6" | BC@.400 | Ea | 8.56 | 16.40 | 24.96 | 42.40 |
| 22" x 7" | BC@.400 | Ea | 8.56 | 16.40 | 24.96 | 42.40 |

**Aluminum ridge vent.**

|                                |         |    |       |       |       |        |
|--------------------------------|---------|----|-------|-------|-------|--------|
| 10' long, black                | BC@.850 | Ea | 22.80 | 34.90 | 57.70 | 98.10  |
| 10' long, brown                | BC@.850 | Ea | 26.10 | 34.90 | 61.00 | 104.00 |
| 10' long, white                | BC@.850 | Ea | 24.50 | 34.90 | 59.40 | 101.00 |
| Joint strap                    | BC@.010 | Ea | 1.38  | .41   | 1.79  | 3.04   |
| End connector plug             | BC@.010 | Ea | 3.25  | .41   | 3.66  | 6.22   |
| 4' long, hinged for steep roof | BC@.355 | Ea | 16.60 | 14.60 | 31.20 | 53.00  |

**Ridge vent coil.**

|                      |         |    |        |        |        |        |
|----------------------|---------|----|--------|--------|--------|--------|
| 10.5" wide, 20' coil | BC@1.00 | Ea | 61.20  | 41.10  | 102.30 | 174.00 |
| 10.5" wide, 50' coil | BC@2.50 | Ea | 102.00 | 103.00 | 205.00 | 349.00 |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Slant-back aluminum roof louver.</b> 60-square-inch net-free venting area.         |                  |             |                 |              |              |             |
| 18" x 20', black  | BC@1.00          | Ea          | 16.80           | 41.10        | 57.90        | 98.40       |
| 18" x 20', brown  | BC@1.00          | Ea          | 18.20           | 41.10        | 59.30        | 101.00      |
| 18" x 20', mill   | BC@1.00          | Ea          | 15.40           | 41.10        | 56.50        | 96.10       |
| 18" x 20', shingle match weathered wood   | BC@1.00          | Ea          | 19.50           | 41.10        | 60.60        | 103.00      |
| <b>Aluminum wall louver vent.</b>   |                  |             |                 |              |              |             |
| 12" x 12"   | BC@.450          | Ea          | 12.40           | 18.50        | 30.90        | 52.50       |
| 12" x 18"   | BC@.450          | Ea          | 15.50           | 18.50        | 34.00        | 57.80       |
| 14" x 24"   | BC@.450          | Ea          | 24.00           | 18.50        | 42.50        | 72.30       |
| 18" x 24"   | BC@.450          | Ea          | 28.90           | 18.50        | 47.40        | 80.60       |
| <b>Galvanized wall louver vent.</b>   |                  |             |                 |              |              |             |
| 12" x 12"   | BC@.450          | Ea          | 11.80           | 18.50        | 30.30        | 51.50       |
| 12" x 18"   | BC@.450          | Ea          | 14.80           | 18.50        | 33.30        | 56.60       |
| 14" x 24"   | BC@.450          | Ea          | 19.40           | 18.50        | 37.90        | 64.40       |
| <b>Plastic wall louver vent.</b>  |                  |             |                 |              |              |             |
| 8" x 8"   | BC@.450          | Ea          | 8.08            | 18.50        | 26.58        | 45.20       |
| 12" x 12"   | BC@.450          | Ea          | 9.39            | 18.50        | 27.89        | 47.40       |
| 12" x 18"   | BC@.450          | Ea          | 12.50           | 18.50        | 31.00        | 52.70       |
| 18" x 24"   | BC@.450          | Ea          | 22.30           | 18.50        | 40.80        | 69.40       |
| <b>Aluminum midget louver.</b> For venting eaves and soffits.                         |                  |             |                 |              |              |             |
| 2", vent area 1-3/16"   | BC@.440          | Ea          | 2.55            | 18.10        | 20.65        | 35.10       |
| 3", vent area 1-3/4"  | BC@.440          | Ea          | 3.25            | 18.10        | 21.35        | 36.30       |
| 4", vent area 3-1/2"  | BC@.440          | Ea          | 5.00            | 18.10        | 23.10        | 39.30       |
| <b>Combination attic vent.</b>  |                  |             |                 |              |              |             |
| 12" x 12", brown  | BC@.450          | Ea          | 15.30           | 18.50        | 33.80        | 57.50       |
| 12" x 12", galvanized   | BC@.450          | Ea          | 12.10           | 18.50        | 30.60        | 52.00       |
| 12" x 12", white  | BC@.450          | Ea          | 15.30           | 18.50        | 33.80        | 57.50       |
| 12" x 18", brown  | BC@.450          | Ea          | 17.00           | 18.50        | 35.50        | 60.40       |
| 12" x 18", white  | BC@.450          | Ea          | 17.00           | 18.50        | 35.50        | 60.40       |
| 14" x 24", brown  | BC@.450          | Ea          | 19.20           | 18.50        | 37.70        | 64.10       |
| 14" x 24", galvanized   | BC@.450          | Ea          | 17.00           | 18.50        | 35.50        | 60.40       |
| 14" x 24", white  | BC@.450          | Ea          | 18.80           | 18.50        | 37.30        | 63.40       |
| <b>Ventilators</b>  |                  |             |                 |              |              |             |
| <b>Roof turbine vent with base.</b>   |                  |             |                 |              |              |             |
| 12", galvanized   | SW@1.00          | Ea          | 39.20           | 46.50        | 85.70        | 146.00      |
| 12", weathered wood   | SW@1.00          | Ea          | 106.00          | 46.50        | 152.50       | 259.00      |
| 12", white aluminum   | SW@1.00          | Ea          | 114.00          | 46.50        | 160.50       | 273.00      |
| Add for steep pitch base  | SW@.440          | Ea          | 44.00           | 20.50        | 64.50        | 110.00      |
| Add for weather cap   | —                | Ea          | 29.50           | —            | 29.50        | —           |
| <b>Belt drive attic exhaust fan.</b> 1/3 HP, with aluminum shutter and plenum boards. |                  |             |                 |              |              |             |
| 30" diameter  | SW@3.00          | Ea          | 390.00          | 140.00       | 530.00       | 901.00      |
| 36" diameter  | SW@3.00          | Ea          | 387.00          | 140.00       | 527.00       | 896.00      |
| 12-hour timer switch  | BE@.950          | Ea          | 49.30           | 42.60        | 91.90        | 156.00      |

|                                     | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|-------------------------------------|-----------|------|----------|-------|--------|--------|
| <b>Power attic gable vent.</b>      |           |      |          |       |        |        |
| 1,280 CFM                           | SW@1.65   | Ea   | 89.60    | 76.80 | 166.40 | 283.00 |
| 1,540 CFM                           | SW@1.65   | Ea   | 115.00   | 76.80 | 191.80 | 326.00 |
| 1,600 CFM                           | SW@1.65   | Ea   | 131.00   | 76.80 | 207.80 | 353.00 |
| Shutter for gable vent              | SW@.450   | Ea   | 51.80    | 20.90 | 72.70  | 124.00 |
| Humidistat control                  | BE@.550   | Ea   | 35.60    | 24.70 | 60.30  | 103.00 |
| Thermostat control                  | BE@.550   | Ea   | 37.10    | 24.70 | 61.80  | 105.00 |
| <b>Roof-mount power ventilator.</b> |           |      |          |       |        |        |
| 1,170 CFM                           | SW@1.65   | Ea   | 105.00   | 76.80 | 181.80 | 309.00 |
| 1,320 CFM                           | SW@1.65   | Ea   | 126.00   | 76.80 | 202.80 | 345.00 |
| 1,500 CFM                           | SW@1.65   | Ea   | 144.00   | 76.80 | 220.80 | 375.00 |

**Storm flood damage repair and prevention.** Assumes compliance with recommendations of The International Hurricane Protection Association and Institute for Inspection, Cleaning and Restoration.

**Mold Retarder.** For concrete and drywall surfaces. FEMA and IICRC certified. Seal coats are applied over a concrete slab or an external sidewall. Vapor retarder is installed between the soil and a building wall. Biocidal coating can be applied on any interior surface.

|  |         |    |     |     |     |     |
|--|---------|----|-----|-----|-----|-----|
| Survey wall and floor for patchable cracks | B6@.001 | SF | —   | .04 | .04 | .07 |
| Dry affected areas and patch cracks        | B6@.005 | SF | .05 | .18 | .23 | .39 |
| Quikrete 1 clear epoxy coating             | PP@.008 | SF | .17 | .30 | .47 | .80 |
| VaporBlock ASTM E-1745 retarder sheets     | PP@.005 | SF | .36 | .19 | .55 | .94 |
| Join retarder sheets with IC PRO tape      | B6@.005 | SF | .19 | .18 | .37 | .63 |
| Brush on Recuma 20 biocidal coating        | B6@.008 | SF | .07 | .29 | .36 | .61 |

**Dry rot remediation.** Fungicidal agent is ShellGard RTU or equal. Add the cost of insurance inspection, if required.

|   |         |    |     |     |     |      |
|---|---------|----|-----|-----|-----|------|
| Expose and dry water-soaked structural lumber | B1@.010 | SF | —   | .37 | .37 | .63  |
| Apply ShellGard RTU fungicide                 | PP@.008 | SF | .64 | .30 | .94 | 1.60 |
| Clean away dead mold                          | B1@.005 | SF | —   | .19 | .19 | .32  |

**Basement HVAC restoration.** Required repairs will usually include installation of a waterproof custom metal 18-inch-high coffer dam around the base of all floor-standing HVAC components. Required repairs may also include replacement of wet insulation, installation of a new boiler burner head and electric controls and installation of a larger flow-rate floor drain. Complies with Factory Mutual requirements.

|  |         |    |        |        |        |          |
|--|---------|----|--------|--------|--------|----------|
| Survey of HVAC damage                              | PM@2.00 | Ea | —      | 96.00  | 96.00  | 163.00   |
| Report on repairs required to meet insurance specs | PM@16.0 | Ea | —      | 768.00 | 768.00 | 1,310.00 |
| Waterproof coffer dam (typical)                    | PM@2.00 | Ea | 339.00 | 96.00  | 435.00 | 740.00   |
| Conduct carrier-witnessed startup                  | PM@4.00 | Ea | —      | 192.00 | 192.00 | 326.00   |

**Brace plate installation.** Secure the structure to the foundation by adding steel straps between the concrete foundation and the bottom plate. Typical costs for a 1,600 to 2,400 SF single-family residence. Add the cost of insurance inspection and compliance documentation, if required.

|  |         |    |        |        |        |          |
|--|---------|----|--------|--------|--------|----------|
| Locate joints in bottom plates                 | B1@4.00 | Ea | —      | 149.00 | 149.00 | 253.00   |
| Mark and expose joining points                 | B1@4.00 | Ea | —      | 149.00 | 149.00 | 253.00   |
| Attach brace plates with masonry screws        | B1@8.00 | Ea | 304.00 | 298.00 | 602.00 | 1,020.00 |
| Patch, tape, finish and prime holes in drywall | B1@8.00 | Ea | 64.10  | 298.00 | 362.10 | 616.00   |

**Corrosion coatings.** Required for copper and aluminum pipe exposed to salt water. Coating is aerosol-applied industrial grade ZeroRust phenolic alkyd paint. Add the cost of surface protection, insurance inspection and compliance documentation, if required. Consider pipe 4" or smaller to have one square foot of surface for each linear foot.

|                                      |         |    |     |     |     |      |
|--------------------------------------|---------|----|-----|-----|-----|------|
| Inspect and clean copper or aluminum | PP@.005 | LF | —   | .19 | .19 | .32  |
| Apply anti-corrosion coating         | PP@.008 | LF | .30 | .30 | .60 | 1.02 |

# Siding and Trim

# 6



Most older homes have wood siding, often referred to as *clapboard*. The term is dated now. But the functional equivalent is still around as *bevel*, *bungalow* or *lap* siding. All consist of tapered boards installed horizontally. The top edge is thinner than the bottom edge so moisture falling down the wall is diverted away from the joint between boards, keeping the wall interior dry. At least that was the theory. Figure 6-1 shows bevel (or clapboard) siding installed over lumber sheathing.

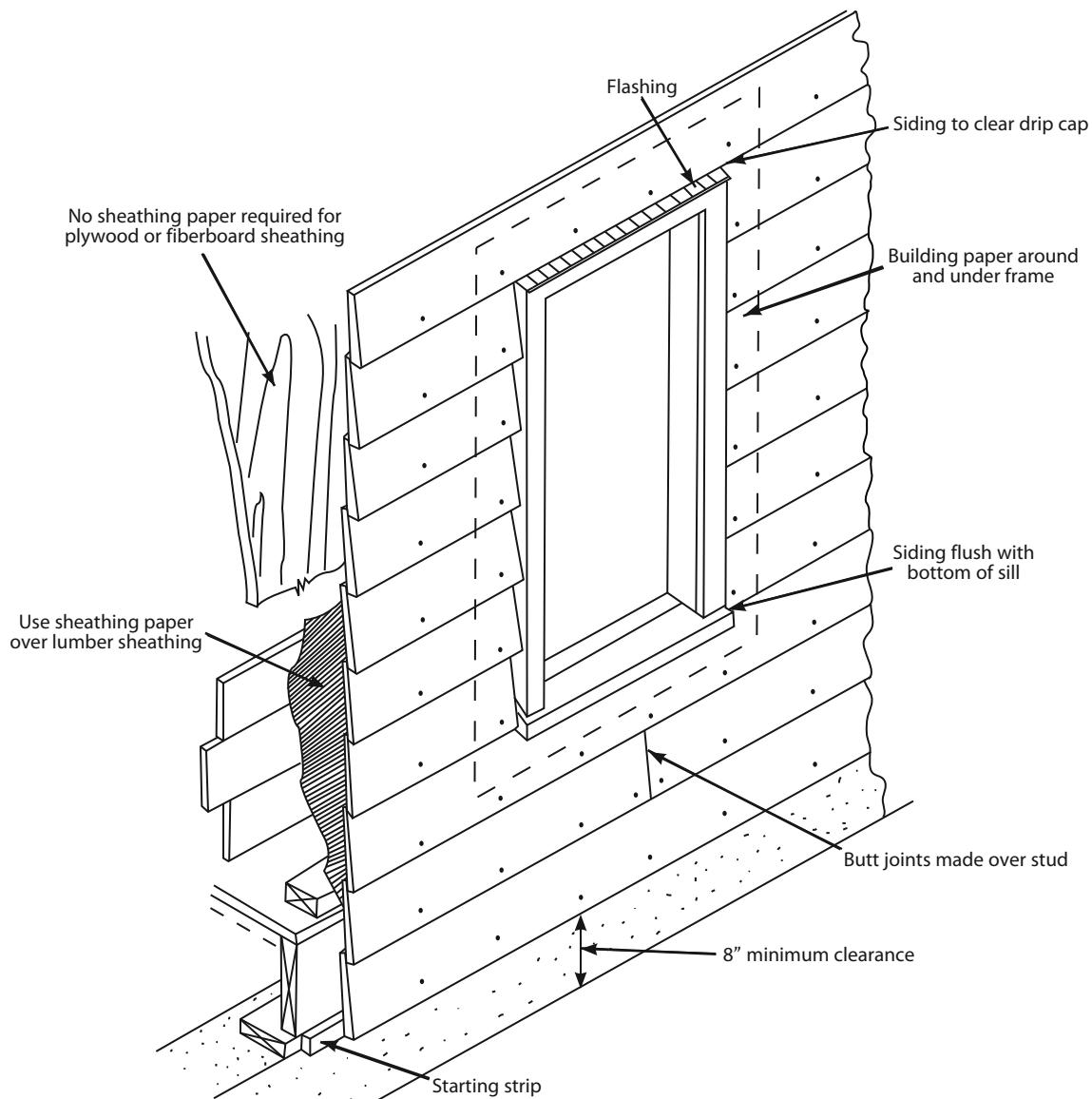
Unlike vinyl and aluminum siding or stucco, board siding needs to be painted about every ten years. But heavily deteriorated board siding, usually as a result of prolonged exposure to moisture, may not be worth painting. Look for signs of water coming from either the inside or outside of the building. Exterior moisture damage is probably caused by lack of a roof overhang or by siding in contact with damp concrete or soil. Damage from moisture originating inside the home is probably caused by an inadequate vapor barrier.

Check siding for decay where two boards are butted together end to end, at corners, and around window and door openings. Look for gaps between horizontal siding boards by sighting along the wall.

## Repair or Replace?

Fill gaps and cracks in the siding with stainable latex wood filler, and re-nail warped boards. Simple repairs like these can go a long way towards extending the life of board siding. When board siding is seriously damaged or decayed, it's fairly easy to replace a few boards. Slip a pry bar into the bevel and carefully pry up to loosen the nails. When the nails are loose, slip the damaged board down and off the wall. Then cut a replacement strip, leaving a  $1/16$ " gap at each end. If your local lumberyard doesn't stock exactly the pattern you need, a few minutes work with a tabletop router will yield boards indistinguishable from what's being replaced. Repaint, and your repair will be invisible.

Aluminum siding and mineral siding don't decay like wood siding. That's an advantage. However, both aluminum and mineral siding can be damaged fairly easily by impact, such as from an errant baseball. Vinyl siding has nearly replaced aluminum siding in many areas. Finding an aluminum replacement section may be a problem — and matching mineral siding may be even more difficult. If only a small section of aluminum siding is damaged, cut it out and patch with sheet aluminum set in construction adhesive. Then repaint. GAF offers a fiber-cement look- alike product sold under the name *WeatherSide* that you may be able to use to match

**Figure 6-1**

Application of bevel siding to coincide with window sill and drip cap

mineral siding. In a pinch, scavenge a few pieces from an inconspicuous location on the same building to make your repair. Then repair the inconspicuous area with a non-matching material. Both aluminum and mineral siding can be painted.

Incidentally, mineral siding was formerly sold as *asbestos-cement* siding. Some asbestos materials are known to pose a health risk and require special handling by qualified experts. But the asbestos in most cement-asbestos siding is non-friable. That means asbestos fibers aren't normally released into the air. If you're in doubt, have the siding checked for friable content. To find a testing laboratory, search for *asbestos testing* on the Internet. If the friable content is about 1 percent, removing

the siding presents little or no danger. If friable asbestos content is high, removal is a task for the experts. Even better, leave asbestos siding undisturbed or cover it with another type of siding. Asbestos siding left alone presents no danger, though the owner may have to make disclosure to any prospective buyer.

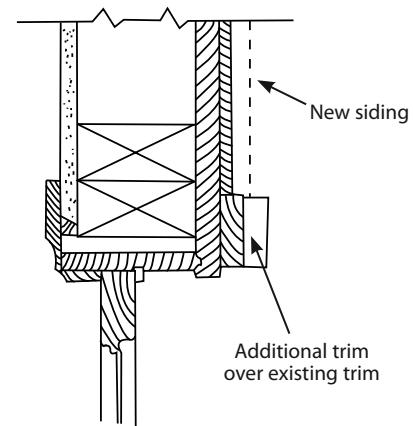
## New Siding Over Old?

If the building has only one layer of siding, and if that siding is sound (no decay problem), consider applying new siding over the old. This offers several advantages. First, you avoid the cost of demolition and disposal. Second, the extra layer of wall cover adds at least some insulation value. And third, installing siding over siding isn't much more effort than installing siding over sheathing.

In some cases, removing the old siding is the best choice. If wood siding has decayed to the point where it won't hold a nail, you could try using longer nails to attach it right into the sheathing, but it's probably a candidate for tear-off. Mineral siding fractures into pieces when nailed. It's easier to remove mineral siding than to try to nail through it. Also, if the home already has two layers of siding, it's probably best to do a tear-off.

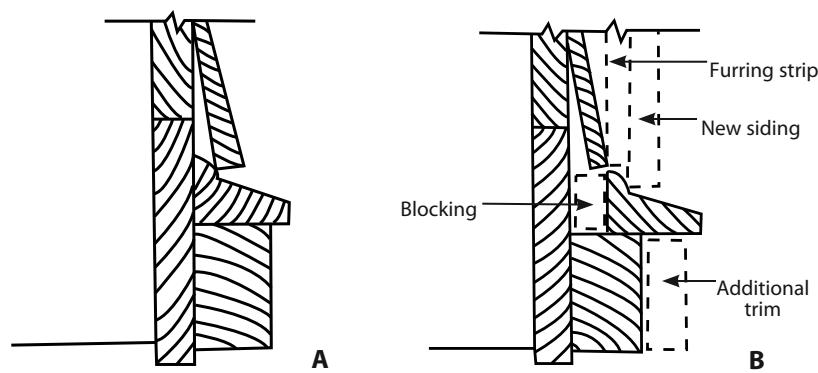
Trim around windows and doors needs special attention when applying new siding over old. Extra trim is needed to compensate for the added wall thickness. Window sills aren't a problem. Generally, sills extend well beyond the existing siding in older homes. Look back at Figure 6-1. But if the window casing is nearly flush with existing siding, some type of extension molding will be needed. Build up the casing with an extra thickness of trim, as shown in Figure 6-2. You'll probably need a wider drip cap at the top of the window. If the drip cap is in good condition and can be removed in one piece, extend the cap by fitting a block where the cap was. Then re-nail the cap over the block. Compare Figure 6-3 A (before) and Figure 6-3 B (after). Building out trim on windows and doors is usually easier when vertical siding is applied over horizontal siding.

Rather than build up the depth of window casing, you could add a wider trim piece at the edge of existing trim. See Figure 6-4. A wider drip cap will also be required. Extend exterior door trim in the same way.



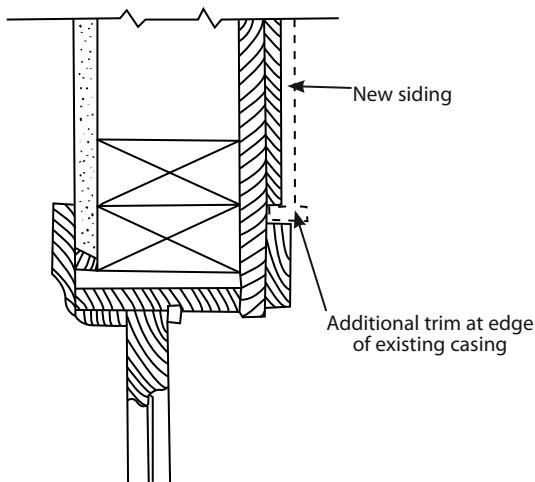
**Figure 6-2**

*Top view of window casing extended by adding trim over existing trim*



**Figure 6-3**

*Change in drip cap with new siding: A, existing drip cap and trim; B, drip cap blocked out to extend beyond new siding and added trim*

**Figure 6-4**

Top view of window casing extended for new siding by adding trim at the edge of existing casing

## Vinyl Siding

Vinyl siding is by far the most popular siding in use today. It's relatively inexpensive, and comes in a wide variety of styles and colors. Vinyl siding is maintenance-free and resistant to most damage. It's also easy to install. With a little care, your first installation will look great. You can install vinyl siding directly over horizontal board siding if the wood surface is firm and flat. Or, even better, install fanfold polystyrene insulating board over the wood siding first. That provides extra insulation and assures a smooth, even surface over which to install the vinyl siding. Remove and replace any deteriorated boards. Re-nail loose boards. If the existing siding is irregular, install furring strips so the new siding is supported by a flush surface. Then re-caulk around doors and windows and renew the window flashing, if needed.

Follow the manufacturer's installation instructions. But note that all vinyl siding expands and contracts with heat and cold, as much as  $1/2"$  over the length of a 12'6" panel. If nails or screws are driven tight against the nailing slot, the panel will buckle noticeably in warm weather. Use aluminum, galvanized steel or other corrosion-resistant nails or screws and leave  $1/32"$  (the thickness of a dime) clearance between the head and the vinyl. Drive fasteners through the center of the nailing slot in the hem so horizontal siding can slide  $1/2"$  left and right after installation. Drive a fastener every 16" on horizontal panels, every 12" on vertical panels and every 8" to 10" on accessories such as J-channel and corner posts.

Adjacent vinyl panels lock together to form a snug joint. Where panel ends meet, overlap the ends by about 1". Avoid end overlap near doors or windows where regular use is likely to put stress on the joint.

All vinyl siding manufacturers offer trim pieces designed for use with their siding materials. These include starter strip, drip cap, J-channel, molding, corner posts and soffits. Anything projecting from the wall, such as a doorbell, a faucet or a porch light, should be surrounded by a vinyl *mounting block*. The block forms a collar that surrounds the siding penetration. Setting a mounting block is much easier and neater than cutting a hole in a full-length vinyl siding panel. Mounting blocks also offer better protection from the elements.

Vinyl siding can be installed over stucco. But first install 1" x 3" furring secured to the studs. Then install the siding, driving either ring-shank nails or screws into the furring. Nails or screws driven into the stucco alone will not secure the siding.

The trickiest part of any vinyl siding job is dealing with existing windows and doors. Most new windows are designed with vinyl siding in mind. They're contoured so that vinyl siding will trim out neatly around them. Older existing windows, however, are a serious problem. If you just trim around the window frame, you'll leave exposed wood, which will need to be painted. Most siding installers will cover the existing window frames with aluminum, which needs to be custom-bent on site using an aluminum brake. This is very time consuming. Also,

the new siding will stand out further from the house than the existing siding, causing the windows to be slightly recessed. This alters the look of the house, which the homeowner may not like. In that case, you'll need to build out the window frames to restore the original depth.

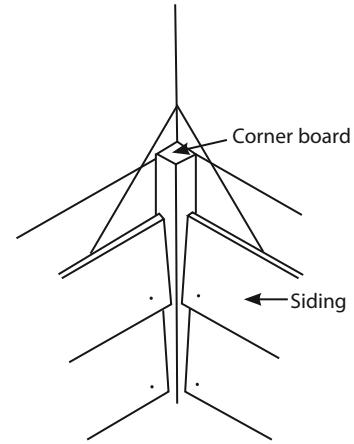
If the homeowner is considering having new windows installed in his house, this would be an excellent time to do it. New windows will eliminate all these problems. You might want to offer the homeowner a package deal on new windows to go along with the new vinyl siding. It will save them money, and save you a lot of time and aggravation.

## Horizontal Wood Siding

Horizontal wood siding patterns include bevel, Dolly Varden, drop, and channel siding. Common widths are 4", 6", 8", 10" and even 12". Smooth-finish wood siding can be stained or painted. Rough-sawn wood siding is usually stained.

Horizontal siding has to be applied over a smooth surface. If you decide to leave the existing siding in place, either cover it with OSB (oriented strand board panels) or nail furring strips over each stud. Nail siding at each stud with corrosion-resistant nails. Use 6d nails for siding less than 1/2" thick and 8d nails for thicker siding. Try to avoid nailing through the brittle top edge of siding boards. Bevel siding joints should overlap no less than 1". Be sure the butt joints of horizontal siding boards fall over a stud. If possible, adjust the lap so butt edges coincide with the bottom of the sill and the top of the drip cap at window frames. Refer back to Figure 6-1. Finish interior corners by butting the siding against a corner board at least 1 1/8" square. See Figure 6-5. Exterior corners can be mitered, butted against corner boards at least 1 1/8" square and 1 1/2" wide (Figure 6-6), or covered with metal corners.

Pre-finished hardboard plank siding is sold in widths from 6" to 16" and in lengths to 16'. Matching trim, corners and connectors are available. Nail hardboard plank siding at each vertical joint, the same as bevel siding.



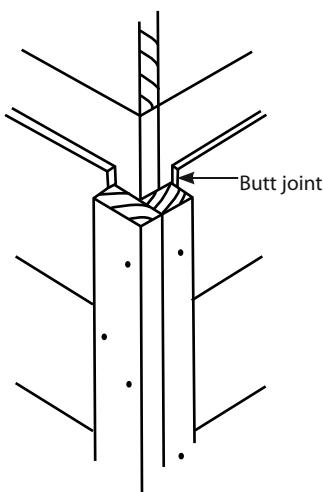
**Figure 6-5**

Corner board for application of horizontal siding at interior corner

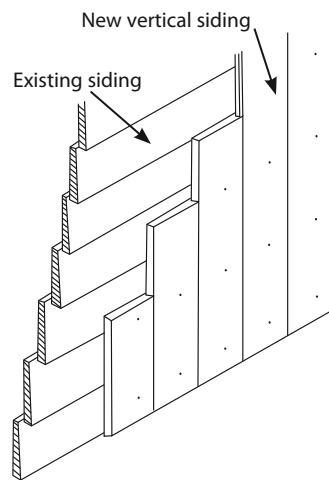
## Vertical Wood Siding

Vertical board siding applied over horizontal board siding makes a good combination. Probably the most popular vertical pattern is matched (tongue and groove) boards. Nail through the existing siding and into the sheathing. If you tear off the existing siding, you may need nailing strips. Sheathing that's 1/2" or 3/8" thick doesn't have enough nail-holding power. When the existing sheathing is thinner than 5/8", apply 1" x 4" nailing strips horizontally across the wall, spaced 16" to 24" apart vertically. Then nail the vertical siding to the strips. Blind-nail through the siding tongue

Wood siding can also be installed diagonally. Add 15 percent to the labor estimate and allow 5 percent more waste of materials.

**Figure 6-6**

Corner boards for application of horizontal siding at exterior corner

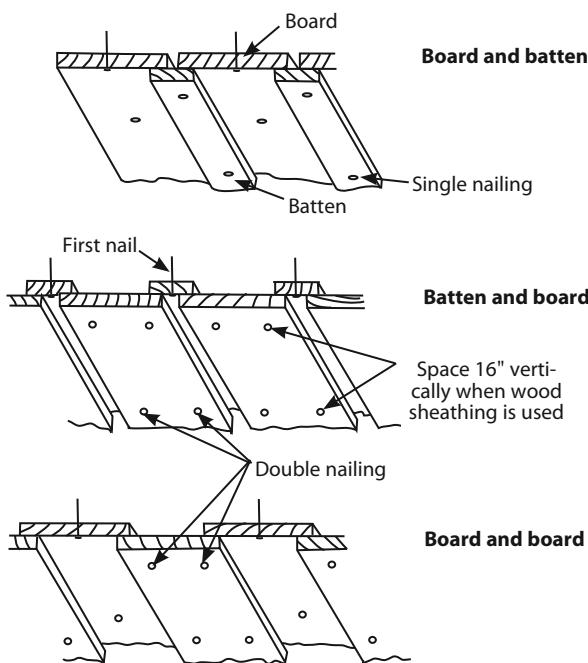
**Figure 6-7**

Application of vertical siding

at each strip with galvanized 7d finishing nails. When boards are nominal 6" or wider, also face-nail the middle of each board with an 8d galvanized nail. See Figure 6-7.

Board and batten (*board 'n bat*) is another popular choice for vertical siding. Again, apply horizontal nailing strips if sheathing is less than  $5/8$ " thick. Nail each

board at the top and bottom with a galvanized 8d nail. See Figure 6-8. Wider boards need two nails at the top and bottom, spaced 1" each side of the center line. Close spacing prevents splitting as the boards shrink. Cover the  $1/2$ " gap between boards with the batten, secured with 12d finishing nails. Be careful to miss the underboard when nailing batts. Use only corrosion-resistant nails. Figure 6-8 shows two variations of board and batt siding.

**Figure 6-8**

Application of vertical wood siding

## Panel Siding

If existing siding is uneven, panel siding (plywood, hardboard or particleboard) is the best choice. Panel siding tends to smooth out any unevenness in the existing surface. And panel siding is probably the easiest to install. It can be applied over nearly any surface.

If you use plywood, it's best to select a plywood siding product that's specifically made for use as siding. Hardboard used for siding must be tempered. Most panel siding products are sold in both 4' x 8' and 4' x 9' sheets. Rough-textured plywood (such as Texture 1-11) soaks up

water-repellent preservative stain better than smooth-finish plywood. Smooth plywood can be stained, but the finish isn't as durable as saw-texture plywood. Fiber-overlaid plywood (usually called MDO, for medium-density overlay) is particularly good if you plan to paint the surface. The resin-treated fiber overlay presents a very smooth surface that both bonds securely to paint and minimizes expansion and contraction due to moisture changes.

Panel siding with vertical grooves 4" or 8" on center adds visual appeal. Or, get a similar effect by nailing 1" x 2" vertical battens over each panel joint and stud.

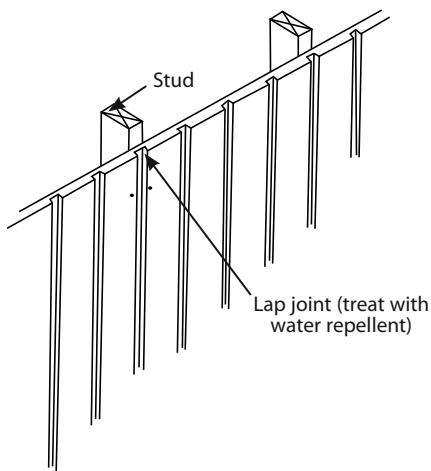
## Plywood Siding

In new construction, plywood siding can be installed directly over the studs without any sheathing. If there is no sheathing, the plywood should be at least  $\frac{3}{8}$ " thick for 16" stud spacing and  $\frac{1}{2}$ " thick for 24" stud spacing. Grooved plywood is normally  $\frac{5}{8}$ " thick with  $\frac{1}{4}$ " deep grooves.

Nail plywood siding every 7" to 8" around the perimeter of the panel and at each intermediate stud. Use galvanized or other rust-resistant nails. When installing panel siding over existing siding, use nails long enough to penetrate  $\frac{3}{4}$ " into the surface below.

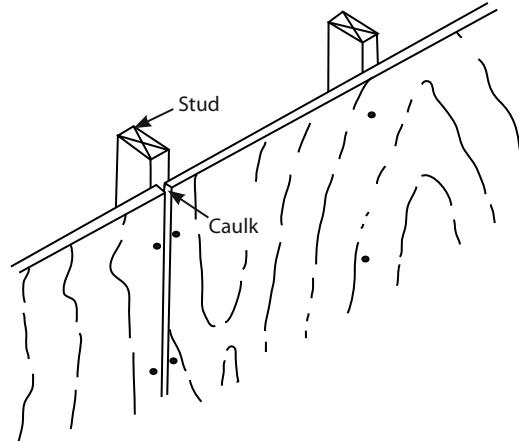
Some plywood siding has shiplap joints. Treat the joint edges with a water-repellent preservative and then nail the siding on both sides of the joint. See Figure 6-9A. With shiplap joints, no caulking is needed. When hanging square-edge panels, you'll need to caulk the joints with sealant, as shown in Figure 6-9B. Again, nail the panels on both sides of the joint. If you install battens over panel joints and at intermediate studs, nail the battens with 8d galvanized nails spaced 12" apart. Use longer nails if you have to penetrate through existing siding to the sheathing below.

You'll pay a premium for pre-finished plywood siding, but the finish lasts longer and requires little or no maintenance. When installing pre-finished panel siding, use nails and connectors recommended by the manufacturer.



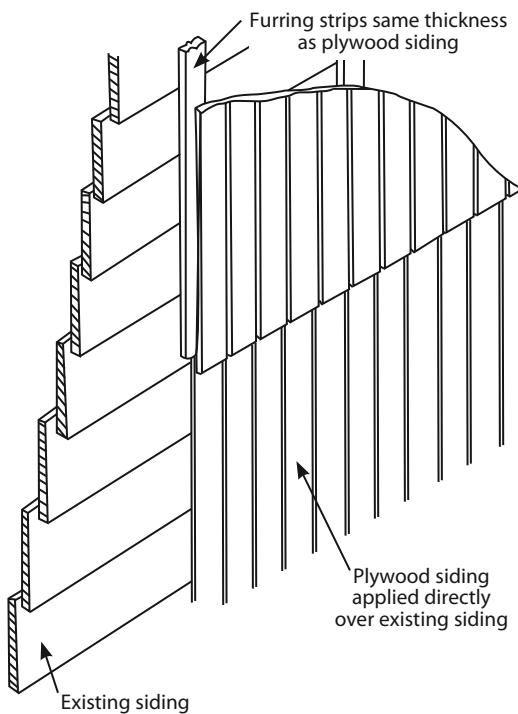
**Figure 6-9A**

Joint of plywood panel siding: shiplap joint



**Figure 6-9B**

Joint of plywood panel siding: square-edge joint



**Figure 6-10**  
*Application of plywood siding at gable end*

Gable ends present a problem because panels aren't long enough to extend the full wall height. Horizontal butt joints in panels are an invitation to water damage, even when covered with trim. Be sure the joints are as snug as possible. Alternatively, you can lap siding panels over the top of panels below — although this may detract from the overall appearance. See Figure 6-10. Install furring strips on the gable that are the same thickness as the new siding below. Nail a furring strip over the existing siding or sheathing at each stud. Then install siding on the strips the way you'd apply siding directly to studs.

## Hardboard Siding

Hardboard panel siding is available in lengths up to 16'. It's usually  $\frac{1}{4}$ " thick, but may be thicker when grooved. Hardboard is usually factory primed. Apply a finish coat after installation. Hang hardboard siding the same way you install plywood siding.

Finish corners with corner boards, the same as for horizontal board siding. Use  $1\frac{1}{8}$ " x  $1\frac{1}{8}$ " corner boards at inside corners and  $1\frac{1}{8}$ " x  $1\frac{1}{2}$ " or  $2\frac{1}{2}$ " boards at outside corners. Apply caulking where siding butts against corner boards, window or door casings, and trim boards at gable ends.

## Shingle and Shake Siding

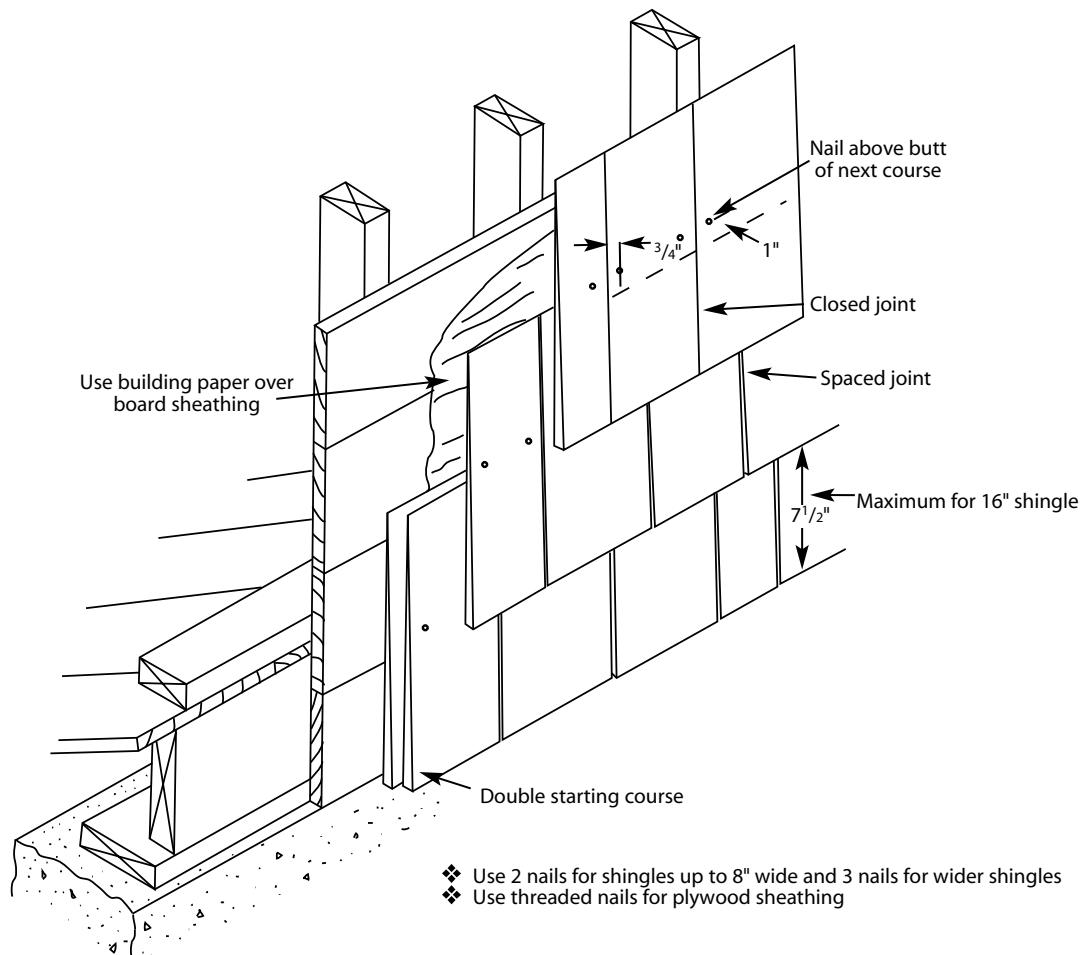
It's not always easy to spot shingle siding that's reached the end of its useful life, especially if it's been painted. Sometimes rotted shingles appear fine visually, but will crumble if you touch them. Look closely for broken, warped, and upturned shingles.

It's common to find houses in which some areas of shingles are decayed, but the rest are fine. This is because exposure to the weather varies from one part of the house to the other. Areas that are more exposed, or are kept damp by overhanging trees, will tend to decay first. Removing damaged shingles can be tricky. Prying them up tends to damage the shingle directly above the bad one. You may find yourself replacing a vertical strip of shingles that extends substantially past the bad shingles.

Repairs made to individual shingles, or small sections of shingles, will be obvious for several years. Old shingles are bleached nearly gray by sun and weather. New shingles have the rich tone of freshly-cut cedar. It would be nicer to re-side the entire house so that all the shingles match, but budgets usually don't allow for this.

| <b>Estimating Furring</b> |                                  |
|---------------------------|----------------------------------|
| Shingle Exposure          | Linear Feet per 100 SF of Siding |
| 4" exposure               | 300 feet                         |
| $4\frac{1}{2}$ " exposure | 270 feet                         |
| 5" exposure               | 240 feet                         |
| $5\frac{1}{2}$ " exposure | 220 feet                         |
| 6" exposure               | 200 feet                         |
| $6\frac{1}{2}$ " exposure | 180 feet                         |
| 7" exposure               | 171 feet                         |
| 8" exposure               | 150 feet                         |

**Figure 6-11**  
*Linear feet of furring per 100 square feet of shingle siding*

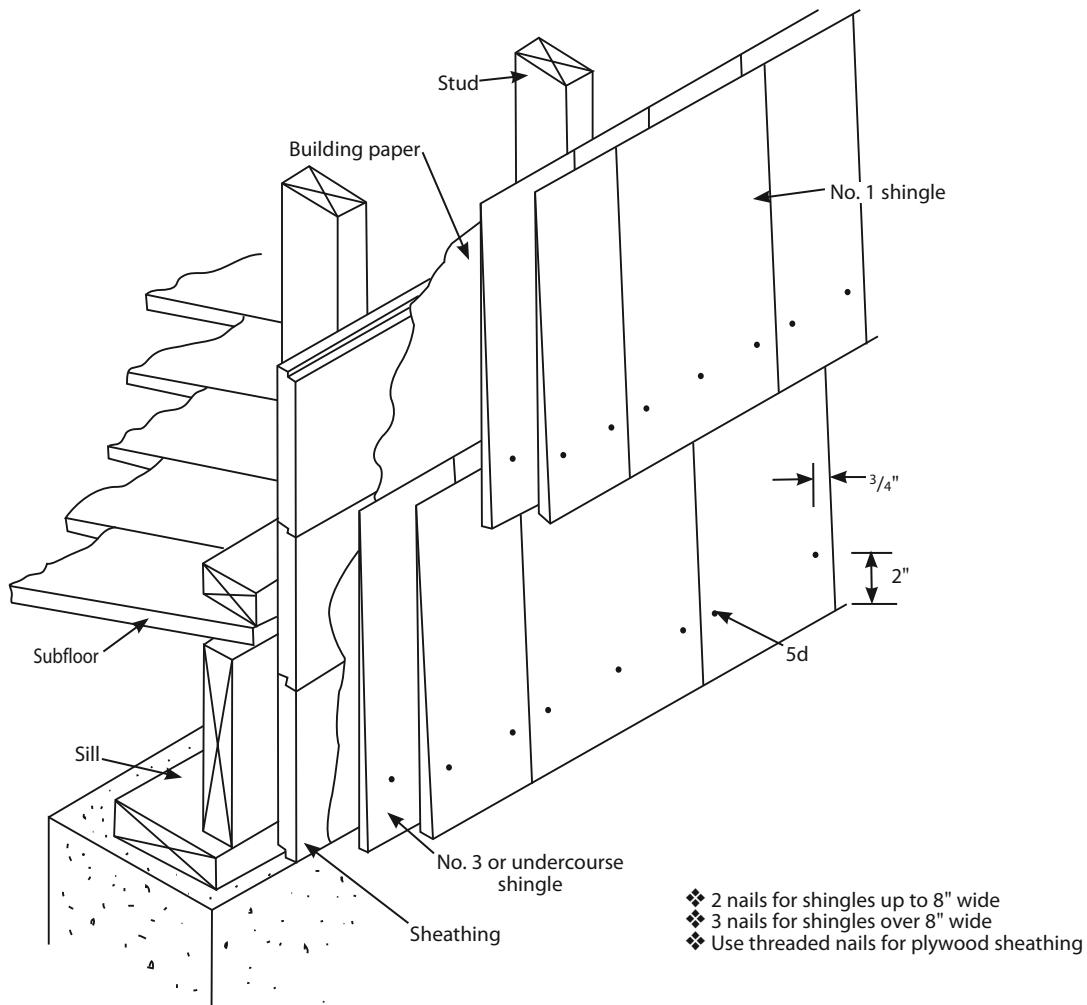


**Figure 6-12**  
*Single-course application of shingle siding*

Siding shingles can be applied over either wood or plywood sheathing or over existing board siding. When installed over sheathing, apply 15-pound asphalt felt between the sheathing and the shingles. If the surface is irregular, apply horizontal furring strips of 1" x 3" lumber or 1" x 4" lumber. Spacing has to match the exposed shingle length. Use Figure 6-11 to estimate the furring required for various exposures per 100 square feet of shingle siding. Leave a gap of  $\frac{1}{8}$ " to  $\frac{1}{4}$ " between shingles to allow for expansion during wet weather.

Single-course shingles are applied like bevel siding. Each top course laps over the course below with all joints staggered. See Figure 6-12. Use second-grade shingles (rather than first or third grade) because only one-half or less of the butt portion is exposed.

Compare the double-course shingles in Figure 6-13. The first grade (No. 1) shingles cover the undercourse (third grade) shingles. The butt ends of top course shingles should project  $\frac{1}{4}$ " to  $\frac{1}{2}$ " beyond the butt ends of undercourse shingles.

**Figure 6-13**

*Double-course application of shingle siding*

With double coursing, shingle exposure of the top course can be greater. Figure 6-14 shows recommended exposure distances for shingles.

Whether single-course or double-course, all joints should be staggered. Vertical joints of the upper shingle should be at least  $1\frac{1}{2}$ " from any joint in the lower shingle.

Use rust-resistant, anti-stain nails when installing shingles. Two nails are enough on shingles up to 8" wide. Use three nails on shingles over 8" wide. For single-coursing, 3d or 4d shingle nails are best. Nails with small flat heads are best for double-coursing because the nail heads are exposed. Use 5d nails for the top course and 3d or 4d nails on the lower course. When plywood sheathing is less than  $\frac{3}{4}$ " thick, use threaded nails for increased holding power. Keep nails at least  $\frac{3}{4}$ " from the shingle edge. When single-coursing, keep nails 1" above the horizontal butt line of the next higher course. See Figure 6-12. When double-coursing, nails should be 2" above the bottom butt.

| <b>Maximum Exposure for Shingles</b> |               |                                  |                                    |                                    |
|--------------------------------------|---------------|----------------------------------|------------------------------------|------------------------------------|
| <b>Material</b>                      | <b>Length</b> | <b>Single Coursing</b>           | <b>Double Coursing No. 1 grade</b> | <b>Double Coursing No. 2 grade</b> |
| <b>Shingles</b>                      | 16"           | 7 <sup>1</sup> / <sub>2</sub> "  | 12"                                | 10"                                |
|                                      | 18"           | 8 <sup>1</sup> / <sub>2</sub> "  | 14"                                | 11"                                |
|                                      | 24"           | 11 <sup>1</sup> / <sub>2</sub> " | 16"                                | 14"                                |
| <b>Shakes (handsplit and resawn)</b> | 18"           | 8 <sup>1</sup> / <sub>2</sub> "  | 14"                                | —                                  |
|                                      | 24"           | 11 <sup>1</sup> / <sub>2</sub> " | 20"                                | —                                  |
|                                      | 32"           | 15"                              | —                                  | —                                  |

**Figure 6-14***Exposure distances for wood shingles and shakes on sidewalls*

## Masonry Veneer

Brick or stone veneer siding won't wear out. But mortar can crumble and settling will cause cracks. In either case, apply new mortar to keep moisture out of the wall and to improve the overall appearance. Scratch out all loose mortar. Brush the joint to remove dust and loose particles. Then dampen the surface and apply mortar to fill the joint. Tamp mortar into the joint for a tight bond. Use pre-mixed joint compound and a jointing tool to keep the joint depths uniform. When repointing red brick, any mortar left on the face of individual brick will cause a permanent stain. Washing or brushing the brick after repointing tends to erode the joint you've just patched. Consider masking the face of brick when making joint repairs, especially when the brick is going to be left its natural color rather than painted. Let the mortar dry. Then pull off the masking tape. Finally, consider coating the entire surface with transparent waterproofing seal.

Stained or discolored masonry can be cleaned with a water blaster or by brushing with diluted (22 percent) muriatic acid. Common household bleach will remove green mold from masonry.

## Stucco Repair

Hairline cracks in stucco are normal as the stucco dries and ages. Simply recoat the surface with masonry paint. Wider cracks, especially cracks that run diagonally, are usually the result of the structure settling. To repair any crack too wide for paint, scribe out  $1/4$ " of stucco along the crack. A screwdriver makes a good scribing tool. Then fill the scribed line with stucco patch or caulk and recoat with masonry paint.

Occasionally, cracks will be the result of defects in the stucco itself. For example, a grid of horizontal and vertical cracks may indicate that the lath is working loose from the studs. A spider web of cracks indicates that the scratch or brown coat is too thin or dried too fast. Under those circumstances, there may be no alternative to removing and replacing the affected section.

When stucco is exposed to water for long periods, the color coat flakes off and turns to powder. Remove the source of the moisture. Then wire-brush the surface and apply a new color coat.

## Estimating Procedure for Siding

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When measuring quantities for siding jobs, it's good practice to ignore wall openings (such as windows and doors). Window and door openings result in only a modest saving of materials, but do increase the installation cost. Each wall corner will also increase the labor costs. The figures in this chapter assume a typical job consisting of six corners and 2,500 square feet of siding. Allow one additional installation hour for each corner over six. The accessories needed for most siding jobs are a substantial part of the costs: J-channel, starting strip, L-channel, undersill trim, corners, nails, and colored caulk to match the siding. These figures also assume that you'll be working with vinyl siding-ready windows, or that you'll simply be trimming around existing doors and windows. If it will be necessary to cover windows with aluminum trim bent on-site, add figures from the section Aluminum siding trim in this chapter.

On soffits, assume that 30 percent of the soffit will be vented. Trim on fascia and soffit jobs can include utility trim, starter, cove molding, divider for miter cuts, frieze molding, reversible frieze, overhanging drip edge, brick trim, matching nails and matching caulk.

The figures that follow assume that the work is done on the exterior of a one- or two-story dwelling. Work at higher levels requires scaffolding. Add the cost of scaffold or lifting equipment and about 1/2 hour of extra time per 100 square feet of siding installed.

## Masonry Fireplaces and Chimneys

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Cracks in a masonry chimney will usually be the result of someone attaching an antenna or holiday decorations at the roof level. Cracks can also be the result of settlement of the fireplace foundation. A well-built chimney has a terra-cotta flue lining which keeps the chimney air-tight, even when the masonry exterior develops cracks. If the chimney does not have a fireproof lining, cracks can be a fire hazard. Chip out and replace any fractured brick. Seal all deep cracks and regROUT (tuck point) the masonry joints. The combustion chamber (firebox) in a fireplace will be lined with firebrick. With age and frequent use, firebrick can spall and flake, leaving the common brick backing exposed to excessive heat. Chip out and reset any deteriorated firebrick. House framing should neither support nor be supported by the chimney. The fireplace and chimney should be supported on a separate foundation. If the fireplace has developed stress fractures due to settling of either the foundation or the house, demolition may be the only practical alternative.

Prefabricated metal fireplaces are a good choice for home improvement because they can be set on a wood-frame floor without a separate foundation and without any masonry.

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Siding and Soffit Repairs</b>  |           |      |          |       |       |       |
| <b>Repair of board siding.</b> Using hand tools and working from a ladder.  |           |      |          |       |       |       |
| Cut out 3" x 3" or smaller damaged area with a chisel,<br>fill with stainable latex wood filler, sand smooth,<br>per area cut and filled  | BC@.133   | Ea   | —        | 5.46  | 5.46  | 9.28  |
| Stainable latex wood filler, 16 oz. tub   | —         | Ea   | 9.73     | —     | 9.73  | —     |
| Re-nail split or warped siding board,<br>per board repaired   | BC@.067   | Ea   | 2.92     | 2.75  | 5.67  | 9.64  |
| Pry out 8' length of siding, cut replacement<br>siding board to fit, nail new siding board in place,<br>per board replaced  | BC@.416   | Ea   | 30.20    | 17.10 | 47.30 | 80.40 |
| Remove and replace 8' vertical siding board or batt,<br>per board or batt   | BC@.350   | Ea   | 30.20    | 14.40 | 44.60 | 75.80 |
| Replace 1" x 2" x 8' siding corner board  | BC@.400   | Ea   | 4.92     | 16.40 | 21.32 | 36.20 |
| Touch-up painting to match  | PT@.333   | Ea   | 6.12     | 14.00 | 20.12 | 34.20 |
| <b>Repair of vinyl or aluminum siding.</b> Using hand tools and working from a ladder.  |           |      |          |       |       |       |
| Cut out damaged panel with a siding removal tool,<br>loosen the panel above, remove damaged panel nails,<br>insert replacement panel, per panel                                       | BC@1.15   | Ea   | 11.20    | 47.20 | 58.40 | 99.30 |
| Siding removal tool   | —         | Ea   | 6.65     | —     | 6.65  | —     |
| Scab patch vinyl or aluminum siding, trim away damaged<br>material, cut patch from scrap, set patch in<br>construction adhesive, per patch  | BC@.300   | Ea   | 1.01     | 12.30 | 13.31 | 22.60 |
| Remove and replace aluminum corner cap,<br>ply off or trim off damaged cap, set new cap in panel<br>adhesive, per corner cap  | BC@.167   | Ea   | 1.62     | 6.86  | 8.48  | 14.40 |
| Touch-up painting to match  | PT@.333   | Ea   | 5.88     | 14.00 | 19.88 | 33.80 |
| <b>Remove and replace a siding shake or shingle.</b> Using hand tools and working from a ladder. Per section of 2-3<br>shingles removed and replaced.                                 |           |      |          |       |       |       |
| Single course. Chip out damaged shingle, hacksaw old nails,<br>trim a new shingle and place 1/2" below<br>correct alignment, nail at top of course,<br>tap shingle into alignment     | BC@.416   | Ea   | 9.64     | 17.10 | 26.74 | 45.50 |
| Double course. Chip out damaged shingle in two courses,<br>pull old nails, cut undercourse and top course<br>shingles to fit, place and nail both courses,<br>per set of two shingles | BC@.500   | Ea   | 19.30    | 20.50 | 39.80 | 67.70 |
| Shingle removal tool 24"  | —         | Ea   | 53.40    | —     | 53.40 | —     |
| Touch-up stain to match   | PT@.333   | Ea   | 5.88     | 14.00 | 19.88 | 33.80 |
| <b>Stucco repair.</b> Using hand tools and working from a ladder.   |           |      |          |       |       |       |
| Fill crack by scribing out the crack to 1/4" depth, fill crack with<br>elastomeric caulk, per linear foot filled  | CF@.033   | Ea   | —        | 1.30  | 1.30  | 2.21  |
| Elastomeric patch and caulk, 10 oz. tube  | —         | Ea   | 6.82     | —     | 6.82  | —     |
| Patch hole in exterior stucco. Chip and wire brush loose<br>stucco, moisten surface, apply stucco patch with a<br>trowel, per 4" x 4" patch   | CF@.250   | Ea   | .74      | 9.82  | 10.56 | 18.00 |
| Premixed stucco patch, quart  | —         | Ea   | 8.96     | —     | 8.96  | —     |
| Touch-up painting to match  | PT@.333   | Ea   | 5.88     | 14.00 | 19.88 | 33.80 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Siding tear off.** Remove the old siding, break debris into convenient size and pile on site. Using hand tools. Includes the cost of driving or pulling out nails to prepare the surface for installation of new siding. Add the cost of caulking and flashing, if needed. No salvage value assumed.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| Aluminum siding, horizontal             | BL@.027 | SF | — | .90  | .90  | 1.53 |
| Aluminum siding, vertical               | BL@.031 | SF | — | 1.03 | 1.03 | 1.75 |
| Asphalt siding, panel or roll           | BL@.021 | SF | — | .70  | .70  | 1.19 |
| Mineral siding                          | BL@.027 | SF | — | .90  | .90  | 1.53 |
| Plywood siding                          | BL@.017 | SF | — | .57  | .57  | .97  |
| Plywood siding with battens             | BL@.019 | SF | — | .63  | .63  | 1.07 |
| Stucco on metal lath                    | BL@.035 | SF | — | 1.17 | 1.17 | 1.99 |
| Stucco on wood lath                     | BL@.040 | SF | — | 1.33 | 1.33 | 2.26 |
| Vinyl siding, horizontal                | BL@.021 | SF | — | .70  | .70  | 1.19 |
| Vinyl siding, vertical                  | BL@.024 | SF | — | .80  | .80  | 1.36 |
| Wood siding, horizontal                 | BL@.030 | SF | — | 1.00 | 1.00 | 1.70 |
| Wood siding, vertical                   | BL@.033 | SF | — | 1.10 | 1.10 | 1.87 |
| Wood shingles or shakes, single course  | BL@.021 | SF | — | .70  | .70  | 1.19 |
| Wood shingles or shakes, double course  | BL@.026 | SF | — | .87  | .87  | 1.48 |
| Add for work above 9' high              | BL@.008 | SF | — | .27  | .27  | .46  |
| Remove 1" wood furring, per linear foot | BL@.020 | LF | — | .67  | .67  | 1.14 |

**Soffit tear off.** Remove board, panel, vinyl or aluminum soffit and trim and pile debris on site. Using hand tools and working from a ladder at 8' to 10' height. Includes the cost of driving or pulling out nails to prepare the surface for installation of a new soffit. No salvage value assumed. Per linear foot of soffit.

|                                 |         |    |   |     |     |      |
|---------------------------------|---------|----|---|-----|-----|------|
| To 12" wide soffit              | BL@.016 | SF | — | .53 | .53 | .90  |
| Over 12" wide soffit            | BL@.020 | SF | — | .67 | .67 | 1.14 |
| Add for heights over 10' to 20' | BL@.008 | SF | — | .27 | .27 | .46  |

**Remove and replace for siding work.** Remove in salvage condition using hand tools. Then replace when siding work is complete.

|  |         |      |   |        |        |        |
|--|---------|------|---|--------|--------|--------|
| Awning or hood over door or window     | BC@1.75 | Ea   | — | 71.90  | 71.90  | 122.00 |
| Patio canopy, per square foot          | BC@.088 | SF   | — | 3.61   | 3.61   | 6.14   |
| Fixed shutters, per pair               | BC@1.00 | Pair | — | 41.10  | 41.10  | 69.90  |
| Operable shutters, per pair            | BC@1.50 | Pair | — | 61.60  | 61.60  | 105.00 |
| Storm windows, each                    | BC@.625 | Ea   | — | 25.70  | 25.70  | 43.70  |
| Storm doors, each                      | BC@2.50 | Ea   | — | 103.00 | 103.00 | 175.00 |
| Gutters or downspouts, per linear foot | BC@.080 | LF   | — | 3.28   | 3.28   | 5.58   |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Vinyl Siding</b>   |           |      |          |        |        |        |
| <b>Vinyl lap siding.</b> Solid vinyl double traditional lap profile. When calculating quantities, do not deduct for openings (such as doors and windows) less than 6' wide. Labor and material needed for accessories will be a large part of the total cost. Accessories include J-channel, starting strip, L-channel, undersill trim, corners, nails, and colored caulking to match the siding. Each corner adds about an hour of work to the job. These figures assume six walls are being covered. Add the cost of soffit, fascia and extra trim needed over doors and windows. These figures assume 5% waste of materials. Per 100 square feet (Square). |           |      |          |        |        |        |
| White/Colors, .044" x 8" exposure x 12'6"   | B1@3.34   | Sq   | 134.00   | 124.00 | 258.00 | 439.00 |
| White/Colors, .042" x 8" exposure x 12'6"   | B1@3.34   | Sq   | 134.00   | 124.00 | 258.00 | 439.00 |
| White/Colors, .042" x 9" exposure x 12'1"   | B1@3.34   | Sq   | 134.00   | 124.00 | 258.00 | 439.00 |
| White/Colors, .040" x 8" exposure x 12'6"   | B1@3.34   | Sq   | 103.00   | 124.00 | 227.00 | 386.00 |
| White/Colors, .040" x 9" exposure x 12'1"   | B1@3.34   | Sq   | 102.00   | 124.00 | 226.00 | 384.00 |
| Darker and texture, .040" x 8" exposure x 12'   | B1@3.34   | Sq   | 133.00   | 124.00 | 257.00 | 437.00 |
| Durabuilt 440 Series Double 4" Traditional Lap  | B1@3.34   | Sq   | 415.00   | 124.00 | 539.00 | 916.00 |
| Durabuilt 440 Series Double 5" Dutch Lap  | B1@3.34   | Sq   | 415.00   | 124.00 | 539.00 | 916.00 |
| Durabuilt 410 Series Double 4" Traditional Lap  | B1@3.34   | Sq   | 373.00   | 124.00 | 497.00 | 845.00 |
| Durabuilt 410 Series Double 5" Traditional Lap  | B1@3.34   | Sq   | 373.00   | 124.00 | 497.00 | 845.00 |
| Starter strip, 5" wide  | B1@.025   | LF   | .52      | .93    | 1.45   | 2.47   |
| J-channel trim at wall openings, 3/4"   | B1@.033   | LF   | .55      | 1.23   | 1.78   | 3.03   |
| Outside corner post, 3/4" x 3/4"  | B1@.033   | LF   | 2.32     | 1.23   | 3.55   | 6.04   |
| Inside corner post, 3/4" x 3/4"   | B1@.033   | LF   | 1.89     | 1.23   | 3.12   | 5.30   |
| Under sill trim, 1-1/2"   | B1@.038   | LF   | .62      | 1.41   | 2.03   | 3.45   |
| Casing and utility trim   | B1@.038   | LF   | .61      | 1.41   | 2.02   | 3.43   |
| Vinyl siding 1-3/4" nails, per 1 pound bag  | —         | Lb   | 21.20    | —      | 21.20  | —      |
| Add for R-3 insulated vinyl siding  | B1@.350   | Sq   | 70.80    | 13.00  | 83.80  | 142.00 |
| <b>Siding fixture mounting block.</b> For mounting accessories such as electrical outlets and hose bibs on wood, aluminum, vinyl, stucco, shake, or brick siding. Snap-on finishing ring. No caulking or J-channel required.  |           |      |          |        |        |        |
| 1-1/4" diameter fixture cutout.   |           |      |          |        |        |        |
| Recessed, 6-1/4" x 4-3/4"   | B1@.350   | Ea   | 15.60    | 13.00  | 28.60  | 48.60  |
| Surface mount, 6-3/4" x 6-3/4"  | B1@.350   | Ea   | 16.00    | 13.00  | 29.00  | 49.30  |
| Jumbo, 12" x 8"   | B1@.500   | Ea   | 12.30    | 18.60  | 30.90  | 52.50  |
| <b>Thermoplastic resin siding.</b> Nailite™ 9/10" thick panels installed over sheathing. Add for trim board, corners, starter strips, J-channels and mortar fill. Based on five nails per piece. Includes 10% waste.  |           |      |          |        |        |        |
| Hand-split shake, 41-3/8" x 18-3/4"   | B1@.043   | SF   | 3.94     | 1.60   | 5.54   | 9.42   |
| Hand-laid brick, 44-1/4" x 18-5/8"  | B1@.043   | SF   | 4.21     | 1.60   | 5.81   | 9.88   |
| Hand-cut stone, 44-1/4" x 18-5/8"   | B1@.043   | SF   | 4.21     | 1.60   | 5.81   | 9.88   |
| Rough sawn cedar, 59-1/4" x 15"   | B1@.043   | SF   | 4.37     | 1.60   | 5.97   | 10.10  |
| Perfection plus cedar, 36-1/8" x 15"  | B1@.043   | SF   | 4.37     | 1.60   | 5.97   | 10.10  |
| Ledge trim  |           |      |          |        |        |        |
| Brick ledge trim  | B1@.033   | LF   | 9.09     | 1.23   | 10.32  | 17.50  |
| Stone ledge trim  | B1@.033   | LF   | 9.09     | 1.23   | 10.32  | 17.50  |
| Corners   |           |      |          |        |        |        |
| Hand-split shake, 4" x 18"  | B1@.030   | Ea   | 17.30    | 1.12   | 18.42  | 31.30  |
| Rough sawn cedar, 3" x 26"  | B1@.030   | Ea   | 18.30    | 1.12   | 19.42  | 33.00  |
| Hand-laid brick, 4" x 18"   | B1@.030   | Ea   | 18.30    | 1.12   | 19.42  | 33.00  |
| Hand-cut stone, 4" x 18"  | B1@.030   | Ea   | 18.30    | 1.12   | 19.42  | 33.00  |
| Perfection plus cedar, 3" x 13"   | B1@.030   | Ea   | 15.20    | 1.12   | 16.32  | 27.70  |
| Starter strips  |           |      |          |        |        |        |
| 12' universal   | B1@.025   | LF   | .94      | .93    | 1.87   | 3.18   |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| J-channels  |           |      |          |       |       |       |
| Hand-split shake, 3/4" opening  | B1@.025   | LF   | 1.37     | .93   | 2.30  | 3.91  |
| Hand-split shake, 1-1/4" flexible opening   | B1@.027   | LF   | 2.76     | 1.00  | 3.76  | 6.39  |
| Rough sawn cedar, 3/4" opening  | B1@.025   | LF   | 1.03     | .93   | 1.96  | 3.33  |
| Rough sawn cedar, 1-1/4" flexible opening   | B1@.027   | LF   | 2.76     | 1.00  | 3.76  | 6.39  |
| Hand-laid brick, 3/4" opening   | B1@.025   | LF   | 1.03     | .93   | 1.96  | 3.33  |
| Hand-cut stone, 3/4" opening  | B1@.025   | LF   | 1.03     | .93   | 1.96  | 3.33  |
| Perfection plus cedar, 3/4" opening   | B1@.025   | LF   | 1.03     | .93   | 1.96  | 3.33  |
| Thermoplastic siding accessories  |           |      |          |       |       |       |
| Mortar fill, 12 tubes, 200 LF per carton  | —         | Ea   | 61.60    | —     | 61.60 | —     |
| Touch up paint, 6 oz. aerosol can   | —         | Ea   | 7.16     | —     | 7.16  | —     |
| <b>Vinyl fascia.</b> Installed on rafter tails with small tools, working from a ladder. Per linear foot, including 5% waste.  |           |      |          |       |       |       |
| 8" wide x 12' long panels   | B1@.025   | LF   | 1.96     | .93   | 2.89  | 4.91  |
| <b>Vinyl soffit.</b> Panel conceals the under side of roof overhang. Per linear foot including 5% waste.  |           |      |          |       |       |       |
| Soffit, 12" x 12"   | B1@.040   | LF   | 1.74     | 1.49  | 3.23  | 5.49  |
| J-channel support, 1/2" x 12'   | B1@.033   | LF   | .90      | 1.23  | 2.13  | 3.62  |
| F-channel support, 1/2" x 12'   | B1@.033   | LF   | 1.06     | 1.23  | 2.29  | 3.89  |
| H-bar double channel support, 1/2" x 12'  | B1@.025   | LF   | 1.06     | .93   | 1.99  | 3.38  |
| <b>Wood Board Siding</b>  |           |      |          |       |       |       |
| <b>Pine bevel siding.</b> 1/2" thick by 6" wide. Each linear foot of 6" wide bevel siding covers .38 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.   |           |      |          |       |       |       |
| 8' lengths  | B1@.038   | SF   | 1.70     | 1.41  | 3.11  | 5.29  |
| 12' lengths   | B1@.036   | SF   | 1.68     | 1.34  | 3.02  | 5.13  |
| 16' lengths   | B1@.033   | SF   | 1.71     | 1.23  | 2.94  | 5.00  |
| <b>Western red cedar bevel siding.</b> A Grade and better, 3/4" thick by 8" wide. Each linear foot of 8" wide bevel siding covers .53 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.        |           |      |          |       |       |       |
| 8' lengths  | B1@.038   | SF   | 7.51     | 1.41  | 8.92  | 15.20 |
| 12' lengths   | B1@.036   | SF   | 7.28     | 1.34  | 8.62  | 14.70 |
| 16' lengths   | B1@.033   | SF   | 7.46     | 1.23  | 8.69  | 14.80 |
| <b>Clear cedar 1/2" bevel siding.</b> Vertical grain, 1/2" thick by 6" wide, kiln dried. Each linear foot of 6" wide bevel siding covers .38 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting. |           |      |          |       |       |       |
| 8' lengths  | B1@.038   | SF   | 7.63     | 1.41  | 9.04  | 15.40 |
| 12' lengths   | B1@.036   | SF   | 7.70     | 1.34  | 9.04  | 15.40 |
| 16' lengths   | B1@.033   | SF   | 7.78     | 1.23  | 9.01  | 15.30 |
| <b>Cedar 3/4" bevel siding.</b> 3/4" thick by 8" wide. Each linear foot of 8" wide bevel siding covers .54 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.                                   |           |      |          |       |       |       |
| 8' lengths  | B1@.036   | SF   | 3.97     | 1.34  | 5.31  | 9.03  |
| 12' lengths   | B1@.034   | SF   | 3.93     | 1.26  | 5.19  | 8.82  |
| 16' lengths   | B1@.031   | SF   | 4.00     | 1.15  | 5.15  | 8.76  |
| <b>Primed pine V rustic siding.</b> 1" thick by 6" wide. Each linear foot of 6" wide channel siding covers .38 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.                               |           |      |          |       |       |       |
| 16' lengths   | B1@.034   | SF   | 3.84     | 1.26  | 5.10  | 8.67  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Tongue and groove cedar siding.</b> 1" thick by 6" wide. Kiln dried, Select Grade. Each linear foot of 6" wide tongue and groove siding covers .43 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting. |           |      |          |       |       |       |
| 8' lengths   | B1@.036   | SF   | 6.32     | 1.34  | 7.66  | 13.00 |
| 10' lengths  | B1@.035   | SF   | 5.22     | 1.30  | 6.52  | 11.10 |
| 12' lengths  | B1@.034   | SF   | 5.65     | 1.26  | 6.91  | 11.70 |
| <b>Redwood 5/8" shiplap siding.</b> B Grade. 5/8" thick by 5-3/8" wide. Each linear foot of 5 3/8" wide shiplap siding covers .38 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.                     |           |      |          |       |       |       |
| 8' lengths   | B1@.038   | SF   | 6.90     | 1.41  | 8.31  | 14.10 |
| 10' lengths  | B1@.037   | SF   | 6.89     | 1.38  | 8.27  | 14.10 |
| 12' lengths  | B1@.036   | SF   | 6.87     | 1.34  | 8.21  | 14.00 |
| <b>Southern yellow pine 6" pattern 105 siding.</b> 1" thick by 6" wide. Select Grade except as noted. Each linear foot of 6" wide siding covers .38 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.   |           |      |          |       |       |       |
| 8' lengths   | B1@.038   | SF   | 5.79     | 1.41  | 7.20  | 12.20 |
| 10' lengths  | B1@.037   | SF   | 5.88     | 1.38  | 7.26  | 12.30 |
| 12' lengths, No. 2   | B1@.036   | SF   | 3.31     | 1.34  | 4.65  | 7.91  |
| 12' lengths  | B1@.036   | SF   | 5.83     | 1.34  | 7.17  | 12.20 |
| <b>Southern yellow pine 8" pattern 105 siding.</b> 1" thick by 8" wide. Select Grade except as noted. Each linear foot of 8" wide siding covers .54 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.   |           |      |          |       |       |       |
| 8' lengths   | B1@.036   | SF   | 5.37     | 1.34  | 6.71  | 11.40 |
| 10' lengths  | B1@.034   | SF   | 5.18     | 1.26  | 6.44  | 10.90 |
| 12' lengths, No. 2   | B1@.031   | SF   | 2.65     | 1.15  | 3.80  | 6.46  |
| 12' lengths  | B1@.031   | SF   | 5.16     | 1.15  | 6.31  | 10.70 |
| <b>Southern yellow pine 6" pattern 116 siding.</b> 1" thick by 6" wide. Select Grade except as noted. Each linear foot of 6" wide siding covers .38 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.   |           |      |          |       |       |       |
| 8' lengths   | B1@.038   | SF   | 5.85     | 1.41  | 7.26  | 12.30 |
| 10' lengths  | B1@.037   | SF   | 5.83     | 1.38  | 7.21  | 12.30 |
| 12' lengths  | B1@.036   | SF   | 5.90     | 1.34  | 7.24  | 12.30 |
| <b>Southern yellow pine 6" pattern 117 siding.</b> 1" thick by 6" wide. Select Grade except as noted. Each linear foot of 6" wide siding covers .38 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.   |           |      |          |       |       |       |
| 8' lengths   | B1@.038   | SF   | 5.74     | 1.41  | 7.15  | 12.20 |
| 10' lengths  | B1@.037   | SF   | 5.89     | 1.38  | 7.27  | 12.40 |
| 12' lengths  | B1@.036   | SF   | 5.76     | 1.34  | 7.10  | 12.10 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Southern yellow pine 8" pattern 131 siding.** 1" thick by 8" wide. Select Grade except as noted. Each linear foot of 8" wide siding covers .54 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.

|             |         |    |      |      |      |       |
|-------------|---------|----|------|------|------|-------|
| 8' lengths  | B1@.036 | SF | 5.22 | 1.34 | 6.56 | 11.20 |
| 10' lengths | B1@.034 | SF | 5.21 | 1.26 | 6.47 | 11.00 |
| 12' lengths | B1@.031 | SF | 5.20 | 1.15 | 6.35 | 10.80 |

**Southern yellow pine 8" pattern 122 siding.** 1" thick by 8" wide. V-joint. Select Grade except as noted. Each linear foot of 8" wide siding covers .54 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.

|             |         |    |      |      |      |       |
|-------------|---------|----|------|------|------|-------|
| 8' lengths  | B1@.036 | SF | 5.16 | 1.34 | 6.50 | 11.10 |
| 10' lengths | B1@.034 | SF | 5.13 | 1.26 | 6.39 | 10.90 |

**Southern yellow pine 6" pattern 122 siding.** 1" thick by 6" wide. Select Grade except as noted. Each linear foot of 6" wide siding covers .38 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.

|             |         |    |      |      |      |      |
|-------------|---------|----|------|------|------|------|
| 8' lengths  | B1@.038 | SF | 4.05 | 1.41 | 5.46 | 9.28 |
| 10' lengths | B1@.037 | SF | 4.04 | 1.38 | 5.42 | 9.21 |
| 12' lengths | B1@.036 | SF | 4.02 | 1.34 | 5.36 | 9.11 |

**Southern yellow pine 8" shiplap siding.** 1" thick by 8" wide. No. 2 Grade. Each linear foot of 8" wide siding covers .54 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.

|             |         |    |      |      |      |      |
|-------------|---------|----|------|------|------|------|
| 8' lengths  | B1@.036 | SF | 2.45 | 1.34 | 3.79 | 6.44 |
| 10' lengths | B1@.034 | SF | 2.21 | 1.26 | 3.47 | 5.90 |
| 12' lengths | B1@.031 | SF | 2.44 | 1.15 | 3.59 | 6.10 |

**Rustic 8" pine siding.** 1" thick by 8" wide. V-grooved. Each linear foot of 8" wide siding covers .54 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.

|             |         |    |      |      |      |      |
|-------------|---------|----|------|------|------|------|
| 16' lengths | B1@.031 | SF | 3.84 | 1.15 | 4.99 | 8.48 |
| 20' lengths | B1@.031 | SF | 3.92 | 1.15 | 5.07 | 8.62 |

**Log cabin siding.** 1-1/2" thick. Each linear foot of 6" wide siding covers .41 square feet of wall. Each linear foot of 8" wide siding covers .55 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.

|                     |         |    |      |      |      |       |
|---------------------|---------|----|------|------|------|-------|
| 6" x 12', T&G latia | B1@.036 | SF | 5.61 | 1.34 | 6.95 | 11.80 |
| 8" x 12'            | B1@.031 | SF | 6.08 | 1.15 | 7.23 | 12.30 |
| 8" x 16'            | B1@.030 | SF | 6.06 | 1.12 | 7.18 | 12.20 |

**Log lap spruce siding.** 1-1/2" thick. Each linear foot of 6" wide siding covers .41 square feet of wall. Each linear foot of 8" wide siding covers .55 square feet of wall. Each linear foot of 10" wide siding covers .72 square feet of wall. Do not deduct for wall openings less than 10 square feet. Add 5% for typical waste and end cutting.

|           |         |    |      |      |       |       |
|-----------|---------|----|------|------|-------|-------|
| 8" width  | B1@.031 | SF | 8.85 | 1.15 | 10.00 | 17.00 |
| 10" width | B1@.030 | SF | 7.17 | 1.12 | 8.29  | 14.10 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| <b>Texture 1-11 plywood siding.</b> Per square foot including 5% waste. Exterior Grade 4' x 8' panels.   |           |      |          |       |       |      |
| 3/8" southern yellow pine,<br>grooved 4" OC  | B1@.022   | SF   | 1.22     | .82   | 2.04  | 3.47 |
| 3/8" plain fir   | B1@.022   | SF   | 1.49     | .82   | 2.31  | 3.93 |
| 3/8" ACQ treated   | B1@.022   | SF   | 1.51     | .82   | 2.33  | 3.96 |
| 5/8" borate treated  | B1@.022   | SF   | 2.13     | .82   | 2.95  | 5.02 |
| 5/8" fir, grooved 8" OC  | B1@.022   | SF   | 2.76     | .82   | 3.58  | 6.09 |
| 5/8" x 4' x 8' southern yellow pine,<br>grooved 8" OC  | B1@.022   | SF   | 1.53     | .82   | 2.35  | 4.00 |
| 5/8" ACQ treated southern,<br>grooved 8" OC  | B1@.022   | SF   | 2.75     | .82   | 3.57  | 6.07 |
| 5/8" borate treated,<br>grooved 4" OC  | B1@.022   | SF   | 2.78     | .82   | 3.60  | 6.12 |
| Add for 4' x 9' panels   | —         | SF   | .14      | —     | .14   | —    |
| <b>Plywood panel siding.</b> Per square foot including 5% waste. Exterior Grade 4' x 8' panels.  |           |      |          |       |       |      |
| 3/8" plain<br>southern yellow pine   | B1@.022   | SF   | .68      | .82   | 1.50  | 2.55 |
| 5/8" southern yellow pine,<br>reverse board and batt 12" OC  | B1@.022   | SF   | .93      | .82   | 1.75  | 2.98 |
| 5/8" ACQ treated<br>southern yellow pine, grooved 12 OC  | B1@.022   | SF   | 2.64     | .82   | 3.46  | 5.88 |
| <b>OSB panel siding.</b> Oriented strand board ("Waferboard"). Compressed wood strands bonded by phenolic resin.   |           |      |          |       |       |      |
| Per square foot including 5% waste. Exterior Grade 4' x 8' panels.   |           |      |          |       |       |      |
| 3/8" Smart Panel II  | B1@.022   | SF   | 1.45     | .82   | 2.27  | 3.86 |
| 7/16" textured and grooved 8" OC   | B1@.022   | SF   | 1.93     | .82   | 2.75  | 4.68 |
| 5/8" borate treated,<br>grooved 8" OC  | B1@.022   | SF   | 2.23     | .82   | 3.05  | 5.19 |
| Add for 4' x 9' panels   | —         | SF   | .14      | —     | .14   | —    |
| <b>OSB plank lap siding.</b> Oriented strand board ("Waferboard"). Compressed wood strands bonded by phenolic resin. Per square foot including 8% waste. Textured. |           |      |          |       |       |      |
| 7/16" x 6" x 16'   | B1@.043   | SF   | 2.28     | 1.60  | 3.88  | 6.60 |
| 7/16" x 8" x 16'   | B1@.040   | SF   | 1.87     | 1.49  | 3.36  | 5.71 |
| <b>Hardboard Panel</b>   |           |      |          |       |       |      |
| <b>Hardboard panel siding.</b> Cost per square foot including 5% waste. 4' x 8' panels.  |           |      |          |       |       |      |
| 7/16" plain panel  | B1@.022   | SF   | 1.54     | .82   | 2.36  | 4.01 |
| 7/16" grooved 8" OC  | B1@.022   | SF   | 1.68     | .82   | 2.50  | 4.25 |
| 7/16" Sturdi-Panel, grooved 8" OC  | B1@.022   | SF   | 1.12     | .82   | 1.94  | 3.30 |
| 7/16" textured board and batt<br>12" OC  | B1@.022   | SF   | 1.39     | .82   | 2.21  | 3.76 |
| 7/16" cedar, grooved 8" OC   | B1@.022   | SF   | 1.33     | .82   | 2.15  | 3.66 |
| 7/16" cedar, plain, textured   | B1@.022   | SF   | 1.57     | .82   | 2.39  | 4.06 |
| 15/32" Duratemp, grooved 8" OC   | B1@.022   | SF   | 1.86     | .82   | 2.68  | 4.56 |
| 1/8" hardboard face, plywood back  | B1@.022   | SF   | .27      | —     | .27   | —    |
| Add for 4' x 9' panels   | —         | SF   | .27      | —     | .27   | —    |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Hardboard lap siding.** Primed plank siding. With 8% waste. 6" x 16' covers 5.6 square feet, 8" x 16' covers 7.4 square feet, 16" x 16' covers 14.8 square feet.

|   |         |    |      |      |      |      |
|---|---------|----|------|------|------|------|
| 7/16" x 6" x 16', smooth lap            | B1@.033 | SF | 1.54 | 1.23 | 2.77 | 4.71 |
| 7/16" x 6" x 16', textured cedar        | B1@.033 | SF | 2.14 | 1.23 | 3.37 | 5.73 |
| 7/16" x 8" x 16', textured cedar        | B1@.031 | SF | 1.63 | 1.15 | 2.78 | 4.73 |
| 7/16" x 8" x 16', smooth                | B1@.031 | SF | 2.42 | 1.15 | 3.57 | 6.07 |
| 1/2" x 8" x 16', self-aligning          | B1@.031 | SF | 2.44 | 1.15 | 3.59 | 6.10 |
| 1/2" x 8" x 16', old mill sure lock     | B1@.031 | SF | 2.78 | 1.15 | 3.93 | 6.68 |
| 1/2" x 16" x 16', cottage beveled 5" OC | B1@.030 | SF | 2.63 | 1.12 | 3.75 | 6.38 |
| 7/16" x 8", textured joint cover        | —       | Ea | .86  | —    | .86  | —    |
| 4/4" x 4" x 16' reversible trim         | —       | LF | .91  | —    | .91  | —    |
| 4/4" x 6" x 16' reversible trim         | —       | LF | .91  | —    | .91  | —    |
| 4/5" x 4" x 16' reversible trim         | —       | LF | 1.37 | —    | 1.37 | —    |
| 4/5" x 6" x 16' reversible trim         | —       | LF | 1.76 | —    | 1.76 | —    |

## Fiber Cement Siding

**Fiber cement lap siding, Hardiplank®.** 6-1/4" width requires 20 planks per 100 square feet of wall. 7-1/4" width requires 17 planks per 100 square feet of wall. 8-1/4" width requires 15 planks per 100 square feet of wall. 9-1/4" width requires 13 planks per 100 square feet of wall. 12" width requires 10 planks per 100 square feet of wall. Cost per square foot including 5% waste

|                                  |         |    |      |      |      |      |
|----------------------------------|---------|----|------|------|------|------|
| 6-1/4" x 12', cedarmill          | B1@.058 | SF | 1.83 | 2.16 | 3.99 | 6.78 |
| 7-1/4" x 12', cedarmill          | B1@.052 | SF | 2.48 | 1.93 | 4.41 | 7.50 |
| 8-1/4" x 12', colonial roughsawn | B1@.048 | SF | 2.18 | 1.79 | 3.97 | 6.75 |
| 8-1/4" x 12', cedarmill          | B1@.048 | SF | 1.81 | 1.79 | 3.60 | 6.12 |
| 8-1/4" x 12', beaded cedarmill   | B1@.048 | SF | 2.35 | 1.79 | 4.14 | 7.04 |
| 8-1/4" x 12', beaded             | B1@.048 | SF | 2.00 | 1.79 | 3.79 | 6.44 |
| 8-1/4" x 12', smooth             | B1@.048 | SF | 2.28 | 1.79 | 4.07 | 6.92 |
| 9-1/4" x 12', cedarmill          | B1@.046 | SF | 2.51 | 1.71 | 4.22 | 7.17 |
| 12" x 12', cedarmill             | B1@.042 | SF | 2.03 | 1.56 | 3.59 | 6.10 |

**Fiber cement panel siding, Hardipanel®.** 5/16" thick. Cost per square foot including 5% waste.

|                                   |         |    |      |      |      |      |
|-----------------------------------|---------|----|------|------|------|------|
| 4' x 8', Sierra, grooved 8" OC    | B1@.042 | SF | 1.81 | 1.56 | 3.37 | 5.73 |
| 4' x 8', Stucco                   | B1@.042 | SF | 1.21 | 1.56 | 2.77 | 4.71 |
| 4' x 8', cedarmill, grooved 8" OC | B1@.042 | SF | 1.17 | 1.56 | 2.73 | 4.64 |
| 4' x 9', Sierra, grooved 8" OC    | B1@.042 | SF | 1.40 | 1.56 | 2.96 | 5.03 |

**Trim for fiber cement siding, Hardipanel®.** Per linear foot including 10% waste.

|                              |         |    |      |      |      |      |
|------------------------------|---------|----|------|------|------|------|
| 5/4" x 4" x 10', smooth      | B1@.035 | LF | 1.41 | 1.30 | 2.71 | 4.61 |
| 5/4" x 8" x 10', smooth      | B1@.035 | LF | 4.33 | 1.30 | 5.63 | 9.57 |
| 5/4" x 12" x 12', smooth XLD | B1@.035 | LF | 4.51 | 1.30 | 5.81 | 9.88 |
| 5/4" x 6" x 12', smooth XLD  | B1@.035 | LF | 2.47 | 1.30 | 3.77 | 6.41 |

**Fiber cement soffit, Hardisoffit®.** 1/4" thick. Per square foot including 10% waste. Vented.

|                      |         |    |      |      |      |      |
|----------------------|---------|----|------|------|------|------|
| 2' x 8', smooth      | B1@.040 | SF | 2.32 | 1.49 | 3.81 | 6.48 |
| 4' x 8', cedarmill   | B1@.040 | SF | 1.44 | 1.49 | 2.93 | 4.98 |
| 4' x 8', smooth      | B1@.040 | SF | 1.49 | 1.49 | 2.98 | 5.07 |
| 12" x 8", vented     | B1@.044 | SF | 1.86 | 1.64 | 3.50 | 5.95 |
| 12" x 12', cedarmill | B1@.044 | SF | 3.13 | 1.64 | 4.77 | 8.11 |
| 16" x 12', cedarmill | B1@.044 | SF | 1.71 | 1.64 | 3.35 | 5.70 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Fiber-cement siding shingle.** 18 pieces 12" x 24" cover 33.3 square feet at 11" exposure. Three cartons cover 100 square feet. Price per square foot.

|   |         |    |      |      |      |      |
|---|---------|----|------|------|------|------|
| WeatherSide siding shingles             | B1@.030 | SF | 3.18 | 1.12 | 4.30 | 7.31 |
| Add for siding nails                    | —       | SF | .24  | —    | .24  | —    |
| Add for backer strips at vertical seems | —       | SF | .12  | —    | .12  | —    |
| Add for 12" aluminum corner piece       | —       | Ea | 8.05 | —    | 8.05 | —    |

## Shingle Siding

**Cedar sidewall shingle panels.** Shakertown. Clear all-heart, KD. Applied over building paper to solid or spaced nailable sheathing. For use on walls or mansard roofs with minimum 20 in 12 pitch. Use rust resistant, 7d nails for penetration of studs at least 1/2".

|  |         |    |       |      |       |       |
|--|---------|----|-------|------|-------|-------|
| 1 course shingle panels, 8' long, 7" exposure    | B1@.033 | SF | 18.10 | 1.23 | 19.33 | 32.90 |
| 2 course shingle panels, 8' long, 7" exposure    | B1@.031 | SF | 19.80 | 1.15 | 20.95 | 35.60 |
| 3 course shingle panels, 8' long, 7" exposure    | B1@.028 | SF | 29.70 | 1.04 | 30.74 | 52.30 |
| Designer shingles, 7-1/2" exposure               | B1@.040 | SF | 21.00 | 1.49 | 22.49 | 38.20 |
| Striated sidewall shake, 18" with natural groove | B1@.030 | SF | 10.70 | 1.12 | 11.82 | 20.10 |
| 1 or 2 course corner unit, 7" exposure           | B1@.030 | LF | 24.20 | 1.12 | 25.32 | 43.00 |
| 3 course corner unit, 7" exposure                | B1@.030 | LF | 29.00 | 1.12 | 30.12 | 51.20 |

**Shingle siding.** Cedar rebutted sidewall shingles, Western red cedar.

|   |         |    |       |      |       |       |
|---|---------|----|-------|------|-------|-------|
| No. 1 western red cedar rebutted and rejoined shingles. Carton covers 25 square feet at 7" exposure   | B1@.035 | SF | 13.90 | 1.30 | 15.20 | 25.80 |
| Red cedar Perfects 5x green, 16" long, 7-1/2" exposure, 5 shingles are 2" thick (5/2), 3 bundles cover 100 square feet (one square) including waste. Costs include fasteners. |         |    |       |      |       |       |
| #1  | B1@.039 | SF | 12.00 | 1.45 | 13.45 | 22.90 |
| #2 red label  | B1@.039 | SF | 9.99  | 1.45 | 11.44 | 19.40 |
| #3  | B1@.039 | SF | 8.57  | 1.45 | 10.02 | 17.00 |
| Panelized shingles, Shakertown, KD, regraded shingle on plywood backing, no waste. 8' long x 7" wide single course  |         |    |       |      |       |       |
| Colonial 1  | B1@.028 | SF | 11.30 | 1.04 | 12.34 | 21.00 |
| Cascade   | B1@.028 | SF | 10.90 | 1.04 | 11.94 | 20.30 |
| 8' long x 14" wide, single course   |         |    |       |      |       |       |
| Colonial 1  | B1@.028 | SF | 11.30 | 1.04 | 12.34 | 21.00 |
| 8' long x 14" wide, double course   |         |    |       |      |       |       |
| Colonial 2  | B1@.028 | SF | 12.30 | 1.04 | 13.34 | 22.70 |
| Cascade Classic   | B1@.028 | SF | 10.90 | 1.04 | 11.94 | 20.30 |
| Decorative shingles, 18" long x 5" wide, Shakertown, fancy cuts, 9 hand-shaped patterns.  |         |    |       |      |       |       |
| 7-1/2" exposure   | B1@.030 | SF | 13.20 | 1.12 | 14.32 | 24.30 |
| Deduct for 10" exposure   | —       | SF | -1.43 | —    | -1.43 | —     |

## Aluminum Siding and Soffit

Aluminum corrugated 4-V x 2-1/2", plain or embossed finish. Includes 15% waste.

|                                       |         |    |      |      |      |      |
|---------------------------------------|---------|----|------|------|------|------|
| 17 gauge, 26" x 6' to 24'             | B1@.034 | SF | 3.59 | 1.26 | 4.85 | 8.25 |
| 19 gauge, 26" x 6' to 24'             | B1@.034 | SF | 3.59 | 1.26 | 4.85 | 8.25 |
| Rubber filler strip, 3/4" x 7/8" x 6' | —       | LF | .48  | —    | .48  | —    |

Flashing for corrugated aluminum siding, embossed.

|                         |         |    |      |      |      |       |
|-------------------------|---------|----|------|------|------|-------|
| End wall, 10" x 52"     | B1@.048 | Ea | 6.41 | 1.79 | 8.20 | 13.90 |
| Side wall, 7-1/2" x 10' | B1@.015 | LF | 2.76 | .56  | 3.32 | 5.64  |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| Aluminum smooth 24 gauge, horizontal patterns, non-insulated.   |           |      |          |        |        |        |
| 8" or double 4" widths, acrylic finish  | B1@.028   | SF   | 2.55     | 1.04   | 3.59   | 6.10   |
| 12" widths, bonded vinyl finish   | B1@.028   | SF   | 2.59     | 1.04   | 3.63   | 6.17   |
| Add for foam backing  | —         | SF   | .47      | —      | .47    | —      |
| Starter strip   | B1@.030   | LF   | .62      | 1.12   | 1.74   | 2.96   |
| Inside and outside corners  | B1@.033   | LF   | 1.85     | 1.23   | 3.08   | 5.24   |
| Casing and trim   | B1@.033   | LF   | .62      | 1.23   | 1.85   | 3.15   |
| Drip cap  | B1@.044   | LF   | .63      | 1.64   | 2.27   | 3.86   |
| Aluminum siding trim, fabrication and installation labor only.  |           |      |          |        |        |        |
| Cover frieze board, part of a siding job  | B1@.055   | LF   | —        | 2.05   | 2.05   | 3.49   |
| Cover frieze board only   | B1@.061   | LF   | —        | 2.27   | 2.27   | 3.86   |
| Cover gable trim  | B1@.075   | LF   | —        | 2.79   | 2.79   | 4.74   |
| Cover fascia board  | B1@.061   | LF   | —        | 2.27   | 2.27   | 3.86   |
| Cover porch ceiling, part of siding job   | B1@.058   | SF   | —        | 2.16   | 2.16   | 3.67   |
| Cover porch ceiling only  | B1@.082   | SF   | —        | 3.05   | 3.05   | 5.19   |
| Cover porch post and framework  | B1@.073   | SF   | —        | 2.71   | 2.71   | 4.61   |
| Cover window trim, masonry wall   | B1@.610   | Ea   | —        | 22.70  | 22.70  | 38.60  |
| Cover window trim, frame wall   | B1@.720   | Ea   | —        | 26.80  | 26.80  | 45.60  |
| Cover door trim   | B1@1.00   | Ea   | —        | 37.20  | 37.20  | 63.20  |
| Cover trim on one car garage, service door  | B1@3.25   | Ea   | —        | 121.00 | 121.00 | 206.00 |
| Cover trim on two car garage, service door  | B1@5.00   | Ea   | —        | 186.00 | 186.00 | 316.00 |
| <b>Aluminum fascia.</b> Installed on rafter tails with small tools, working from a ladder. Per linear foot, including 5% waste. |           |      |          |        |        |        |
| 4" x 12'  | B1@.025   | LF   | 1.46     | .93    | 2.39   | 4.06   |
| 6" x 12'  | B1@.025   | LF   | 1.77     | .93    | 2.70   | 4.59   |
| 8" x 12'  | B1@.025   | LF   | 2.07     | .93    | 3.00   | 5.10   |
| 12" x 12'   | B1@.025   | LF   | 2.39     | .93    | 3.32   | 5.64   |
| Frieze molding, 1-1/2" x 12"  | B1@.030   | LF   | .95      | 1.12   | 2.07   | 3.52   |
| Inside fascia, 12" corner   | B1@.333   | Ea   | 2.19     | 12.40  | 14.59  | 24.80  |
| Outside fascia, 12" corner  | B1@.333   | Ea   | 2.28     | 12.40  | 14.68  | 25.00  |
| <b>Aluminum soffit.</b> Installed on rafter tails with small tools, working from a ladder. Per linear foot, including 5% waste. |           |      |          |        |        |        |
| 12" x 12' non-vented  | B1@.031   | LF   | 1.96     | 1.15   | 3.11   | 5.29   |
| 12" x 12' perforated  | B1@.031   | LF   | 1.89     | 1.15   | 3.04   | 5.17   |
| 12' miter divider   | B1@.042   | LF   | 1.58     | 1.56   | 3.14   | 5.34   |
| J-channel support   | B1@.033   | LF   | .84      | 1.23   | 2.07   | 3.52   |
| Aluminum nails, 1-1/4",<br>1/4 pound, 250 nails   | —         | Ea   | 8.85     | —      | 8.85   | —      |
| <b>Stucco and Masonry Siding</b>  |           |      |          |        |        |        |
| <b>Portland cement stucco.</b> Including paperback lath, 3/8" scratch coat, 3/8" brown coat and 1/8" color coat.                |           |      |          |        |        |        |
| Per square yard covered.  |           |      |          |        |        |        |
| Stucco on walls   |           |      |          |        |        |        |
| Natural gray, sand float finish   | PR@.567   | SY   | 10.80    | 23.40  | 34.20  | 58.10  |
| Natural gray, trowel finish   | PR@.640   | SY   | 10.80    | 26.40  | 37.20  | 63.20  |
| White cement, sand float finish   | PR@.675   | SY   | 14.30    | 27.80  | 42.10  | 71.60  |
| White cement, trowel finish   | PR@.735   | SY   | 14.30    | 27.80  | 42.10  | 71.60  |
| Stucco on soffits,  |           |      |          |        |        |        |
| Natural gray, sand float finish   | PR@.678   | SY   | 10.80    | 27.90  | 38.70  | 65.80  |
| Natural gray, trowel finish   | PR@.829   | SY   | 10.80    | 34.20  | 45.00  | 76.50  |
| White cement, sand float finish   | PR@.878   | SY   | 10.80    | 34.20  | 45.00  | 76.50  |
| White cement, trowel finish   | PR@1.17   | SY   | 14.30    | 48.20  | 62.50  | 106.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Cleaning and pointing masonry.** These costs assume the masonry surface is in fair to good condition, with no unusual damage. Add the cost of protecting adjacent surfaces such as trim or the base of the wall, and the cost of scaffolding, if required. Labor required to presoak or saturate the area cleaned is included in the labor cost. Work more than 12' above floor level will increase costs.

Brushing (hand cleaning) masonry, includes the cost of detergent or chemical solution.

|                                    |         |    |     |     |     |      |
|------------------------------------|---------|----|-----|-----|-----|------|
| Light cleanup (100 SF per manhour) | B9@.010 | SF | .04 | .36 | .40 | .68  |
| Medium scrub (75 SF per manhour)   | B9@.013 | SF | .06 | .47 | .53 | .90  |
| Heavy (50 SF per manhour)          | B9@.020 | SF | .08 | .73 | .81 | 1.38 |

Water blasting masonry, using rented 400 to 700 PSI power washer with 3 to 8 gallon per minute flow rate, includes blaster rental at \$50 per day.

|                                  |         |    |   |     |     |     |
|----------------------------------|---------|----|---|-----|-----|-----|
| Smooth face (250 SF per manhour) | B9@.004 | SF | — | .15 | .15 | .26 |
| Rough face (200 SF per manhour)  | B9@.005 | SF | — | .18 | .18 | .31 |

Sandblasting masonry, using 150 PSI compressor (with accessories and sand) at \$150.00 per day.

|                                 |         |    |     |     |      |      |
|---------------------------------|---------|----|-----|-----|------|------|
| Smooth face (50 SF per manhour) | B9@.020 | SF | .53 | .73 | 1.26 | 2.14 |
| Rough face (40 SF per manhour)  | B9@.025 | SF | .61 | .91 | 1.52 | 2.58 |

Steam cleaning masonry, using rented steam cleaning rig (with accessories) at \$55.00 per day.

|                                   |         |    |       |      |     |      |
|-----------------------------------|---------|----|-------|------|-----|------|
| Smooth face (75 SF per manhour)   | B9@.013 | SF | .08   | .47  | .55 | .94  |
| Rough face (55 SF per manhour)    | B9@.018 | SF | .10   | .66  | .76 | 1.29 |
| Add for masking adjacent surfaces | —       | %  | —     | 5.0  | —   | —    |
| Add for difficult stain removal   | —       | %  | 50.00 | 50.0 | —   | —    |
| Add for working from scaffold     | —       | %  | —     | 20.0 | —   | —    |

Repointing brick, cut out joint, mask (blend-in), and regROUT (tuck pointing).

|                   |         |    |     |      |      |      |
|-------------------|---------|----|-----|------|------|------|
| 30 SF per manhour | B9@.033 | SF | .09 | 1.20 | 1.29 | 2.19 |
|-------------------|---------|----|-----|------|------|------|

**Masonry cleaning.** Costs to clean masonry surfaces using commercial cleaning agents, add for pressure washing and scaffolding equipment.

|   |         |    |     |      |      |      |
|---|---------|----|-----|------|------|------|
| Typical cleaning of surfaces,<br>granite, sandstone, terra cotta, brick | BL@.015 | SF | .34 | .50  | .84  | 1.43 |
| Cleaning surfaces of heavily carbonated<br>limestone or cast stone      | BL@.045 | SF | .45 | 1.50 | 1.95 | 3.32 |
| Typical wash with acid and rinse  | BL@.004 | SF | .52 | .13  | .65  | 1.11 |

## Masonry Fireplaces

**Masonry fireplace demolition.** Includes breaking a concrete block or brick fireplace and chimney into manageable pieces using a pneumatic chipper and piling on site. No fireplace foundation included. Add the cost of debris disposal.

|   |         |    |   |        |        |        |
|---|---------|----|---|--------|--------|--------|
| Demolish interior fireplace and chimney,<br>to 12' high               | BL@8.00 | Ea | — | 266.00 | 266.00 | 452.00 |
| Demolish fireplace and exterior chimney,<br>to 12' high               | BL@10.7 | Ea | — | 356.00 | 356.00 | 605.00 |
| Demolish chimney over 12' high, per linear foot<br>of height over 12' | BL@.700 | Ea | — | 23.30  | 23.30  | 39.60  |

**Masonry fireplace repairs.** Chip out using a pneumatic chipper.

|  |         |    |      |       |       |       |
|--|---------|----|------|-------|-------|-------|
| Remove firebrick in a firebox wall   | B9@.388 | SF | —    | 14.10 | 14.10 | 24.00 |
| Remove firebrick in a firebox floor  | B9@.204 | SF | —    | 7.44  | 7.44  | 12.60 |
| Replace firebrick firebox wall or floor  | B9@.186 | SF | 7.21 | 6.78  | 13.99 | 23.80 |
| Remove and replace nonadjacent fireplace or chimney brick,<br>per brick removed and replaced | B9@.360 | Ea | 1.66 | 13.10 | 14.76 | 25.10 |
| Remove and replace brick in 4" fireplace or chimney wall,<br>per square foot of wall         | B9@.675 | SF | 5.93 | 24.60 | 30.53 | 51.90 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Masonry fireplaces.** Fire box lined with refractory firebrick, backed with common brick and enclosed in a common brick wall. Includes fireplace throat and smoke chamber. Overall height of the fireplace and throat is 5'. Chimney (flue) is made from common brick and a flue liner. Including lintels, damper and 12" thick reinforced concrete foundation.

|   |         |    |          |          |          |          |
|---|---------|----|----------|----------|----------|----------|
| 30" wide x 29" high x 16" deep fire box     | B9@39.7 | LS | 783.00   | 1,450.00 | 2,233.00 | 3,800.00 |
| 36" wide x 29" high x 16" deep fire box     | B9@43.5 | LS | 826.00   | 1,590.00 | 2,416.00 | 4,110.00 |
| 42" wide x 32" high x 16" deep fire box     | B9@48.3 | LS | 913.00   | 1,760.00 | 2,673.00 | 4,540.00 |
| 48" wide x 32" high x 18" deep fire box     | B9@52.8 | LS | 1,000.00 | 1,920.00 | 2,920.00 | 4,960.00 |
| 12" x 12" chimney to 12' high               | B9@9.50 | LS | 464.00   | 346.00   | 810.00   | 1,380.00 |
| Add for higher chimney, per LF              | B9@1.30 | LF | 63.30    | 47.40    | 110.70   | 188.00   |
| Add for 8" x 10" ash cleanout door          | B9@.500 | SF | 25.60    | 18.20    | 43.80    | 74.50    |
| Add for combustion air inlet kit            | B9@.750 | SF | 38.50    | 27.30    | 65.80    | 112.00   |
| Add for common brick veneer interior face   | B9@.451 | SF | 5.79     | 16.40    | 22.19    | 37.70    |
| Add for rubble or cobble stone veneer face  | B9@.480 | SF | 15.80    | 17.50    | 33.30    | 56.60    |
| Add for limestone veneer face or hearth     | B9@.451 | SF | 29.90    | 16.40    | 46.30    | 78.70    |
| Add for 1-1/4" marble face or hearth        | B9@.451 | SF | 45.00    | 16.40    | 61.40    | 104.00   |
| Add for modern design 11" x 77" pine mantel | B1@3.81 | Ea | 887.00   | 142.00   | 1,029.00 | 1,750.00 |
| Add for gas valve, log lighter and key      | PM@.750 | Ea | 104.00   | 36.00    | 140.00   | 238.00   |

**Prefabricated fireplaces.** Zero clearance factory-built fireplaces, including metal fireplace body, refractory interior and fuel grate. UL listed.

Radiant heating, open front only, with fuel grate

|          |         |    |        |        |          |          |
|----------|---------|----|--------|--------|----------|----------|
| 38" wide | B9@5.00 | Ea | 710.00 | 182.00 | 892.00   | 1,520.00 |
| 43" wide | B9@5.00 | Ea | 868.00 | 182.00 | 1,050.00 | 1,790.00 |

Radiant heating, open front and one end

|          |         |    |          |        |          |          |
|----------|---------|----|----------|--------|----------|----------|
| 38" wide | B9@5.00 | Ea | 1,080.00 | 182.00 | 1,262.00 | 2,150.00 |
|----------|---------|----|----------|--------|----------|----------|

Radiant heating, three sides open, with brass and glass doors and refractory floor

|                      |         |    |          |        |          |          |
|----------------------|---------|----|----------|--------|----------|----------|
| 36" wide (long side) | B9@6.00 | Ea | 1,720.00 | 219.00 | 1,939.00 | 3,300.00 |
|----------------------|---------|----|----------|--------|----------|----------|

Radiant heating, air circulating, open front only, recessed screen panels

|                 |         |    |          |        |          |          |
|-----------------|---------|----|----------|--------|----------|----------|
| 38" screen size | B9@5.50 | Ea | 974.00   | 200.00 | 1,174.00 | 2,000.00 |
| 43" screen size | B9@5.50 | Ea | 1,130.00 | 200.00 | 1,330.00 | 2,260.00 |

Radiant heating simulated masonry fireplace

|          |         |    |          |        |          |          |
|----------|---------|----|----------|--------|----------|----------|
| 45" wide | B9@5.00 | Ea | 1,650.00 | 182.00 | 1,832.00 | 3,110.00 |
|----------|---------|----|----------|--------|----------|----------|

Convection-type heat circulating prefabricated fireplace, open front

|                 |         |    |        |        |          |          |
|-----------------|---------|----|--------|--------|----------|----------|
| 38" screen size | B9@5.50 | Ea | 809.00 | 200.00 | 1,009.00 | 1,720.00 |
| 43" screen size | B9@5.50 | Ea | 878.00 | 200.00 | 1,078.00 | 1,830.00 |

Forced air heat circulating prefabricated fireplace, open front

|                 |         |    |          |        |          |          |
|-----------------|---------|----|----------|--------|----------|----------|
| 35" screen size | B9@5.50 | Ea | 715.00   | 200.00 | 915.00   | 1,560.00 |
| 45" screen size | B9@5.50 | Ea | 1,080.00 | 200.00 | 1,280.00 | 2,180.00 |

Radiant, see-through with brass and glass doors, designer model

|                 |         |    |          |        |          |          |
|-----------------|---------|----|----------|--------|----------|----------|
| 38" screen size | B9@6.50 | Ea | 1,720.00 | 237.00 | 1,957.00 | 3,330.00 |
| Header plate,   |         |    |          |        |          |          |

|  |         |    |       |      |        |        |
|--|---------|----|-------|------|--------|--------|
| Connects venting system to gas fireplace | B9@.167 | Ea | 99.30 | 6.09 | 105.39 | 179.00 |
|--|---------|----|-------|------|--------|--------|

Fireplace flue (chimney), double wall, typical cost for straight vertical installation

|                     |         |    |       |      |       |       |
|---------------------|---------|----|-------|------|-------|-------|
| 8" inside diameter  | B9@.167 | LF | 30.00 | 6.09 | 36.09 | 61.40 |
| 10" inside diameter | B9@.167 | LF | 42.60 | 6.09 | 48.69 | 82.80 |

Add for flue spacers, for passing through ceiling

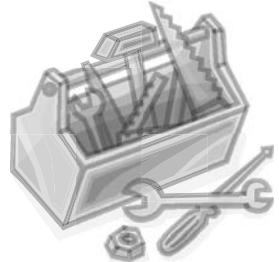
|                             |         |    |        |      |        |        |
|-----------------------------|---------|----|--------|------|--------|--------|
| 1" or 2" clearance          | B9@.167 | Ea | 17.80  | 6.09 | 23.89  | 40.60  |
| Add for typical flue offset | B9@.250 | Ea | 112.00 | 9.11 | 121.11 | 206.00 |

Add for flashing and storm collar, one required per roof penetration

|                            |         |    |        |        |        |        |
|----------------------------|---------|----|--------|--------|--------|--------|
| Flat to 6/12 pitch roofs   | B9@3.25 | Ea | 71.00  | 118.00 | 189.00 | 321.00 |
| 6/12 to 12/12 pitch roofs  | B9@3.25 | Ea | 103.00 | 118.00 | 221.00 | 376.00 |
| Add for spark arrestor top | B9@.500 | Ea | 145.00 | 18.20  | 163.20 | 277.00 |

# Roofing and Flashing

7



**D**amage from a leaky roof is usually obvious. However, the precise source of the leak won't always be clear. The hole in the roof is seldom directly above the drip stains on the ceiling. Water can get through the roof surface and run along the top of the sheathing until it finds a panel edge. Then it may run along a rafter or the underside of the panel for a foot or so before dropping down to the attic, where it puddles on the vapor barrier. The puddle expands downhill, finds a seam, and then begins saturating the drywall or plaster below. The distance between the hole in the roof and the wet spot on the ceiling can be several feet or more.

So where do you start patching? If the attic crawlspace is readily accessible, start your search in the attic. Look for recent water stains. Once you have that information, you can go up on the roof and look for:

- ❖ *Missing shingles.* Leaks are nearly certain when roof components get blown away.
- ❖ *Physical damage.* Foot traffic can break seals and dislodge shingles. Damage from birds or insects. Crows, woodpeckers and wasps can pierce soft roof surfaces. Check for a tree branch that could be hitting the roof's surface during a high wind.
- ❖ *Deteriorated caulking.* Caulked joints harden with age and then fracture along the joint with movement.
- ❖ *Debris.* Anything resting on a roof can collect water and speed deterioration. Debris tends to accumulate on the high side of the roof next to penetrations such as a chimney or skylight.
- ❖ *Shiners.* Shiners are nails not covered by the shingle course above. If left exposed for many years, the nails can rust out, leaving a hole in the roof.
- ❖ *Broken mortar.* Any gap or opening in a chimney or parapet wall offers an opening to the attic.
- ❖ *Obstructed gutters.* Be sure rain runoff gear is working properly. Water accumulating in a gutter can back up over the top of the fascia, run along the soffit, and then down the wall interior.
- ❖ *Open roll roofing seams.* Even if you see bitumen or adhesive sticking out under a lap, the seam may be wicking moisture to the interior. Try running a putty knife or pocketknife blade under the lap. If the blade slides into the lap more than an inch, assume the seam needs to be resealed.

- ❖ *Roof blisters.* Blistering (air pockets trapped between the layers of roofing material) is a failure of the bond. Punctured blisters are an obvious source of leaks.
- ❖ *Splits in the membrane.* Walk the area with your feet close together, taking many small steps. Twist your feet as you walk. If a split is developing, you'll see the roof membrane separate between your feet.
- ❖ *Obstructed roof drains.* Drains are made to carry water one way. When backed up, the roof will leak.
- ❖ *Deteriorated expansion joints.* Seams on expansion joints may have to be replaced more often than the roof itself.
- ❖ *A leak when it isn't raining.* Condensate from roof-mounted coolers should be piped to a legal drain, not discharged on the roof.
- ❖ *Hundred year flood.* It's probably OK to ignore leaks first noticed after the heaviest rain of the century or when rain is driven by unusually heavy wind. Neither you nor the present owner may be around the next time that happens.

## Flashing Leaks

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If the roof surface appears sound, look for problems with the flashing. The term flashing is used to describe two types of roofing material. One is metal flashing, which is used at roof joints, such as in the valley of a hip roof where one surface meets another, or the metal counterflashing that extends down a parapet wall and over the roof surface below. The other type is non-metallic flashing. It's usually made from asphalt-coated materials, and adds an extra layer of protection under the roof cover, especially along the eave line. In cold climates, roll-roof flashing helps prevent damage from ice dams, as shown in Figure 7-1. Ice dams form when melting snow runs down the roof and re-freezes at the cornice. The ice forms a barrier, causing water to back up under the shingles. A layer of 45-pound smooth-surface roll roofing (flashing) won't prevent the dam from forming, but it will minimize the chance of water entering the attic and the wall below. Be sure this flashing extends 36" inside the warm wall. If two strips are needed, seal the joint and end joints with mastic. Many building departments require self-adhesive type roll roofing on eaves and gables.

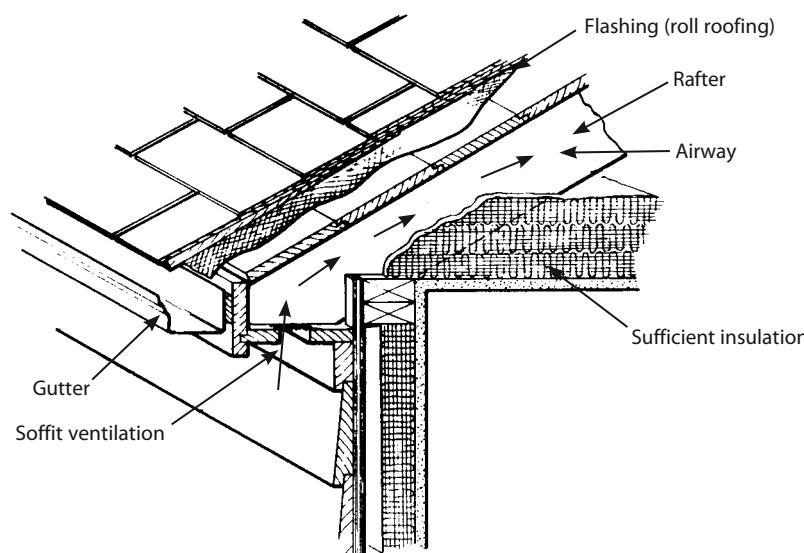
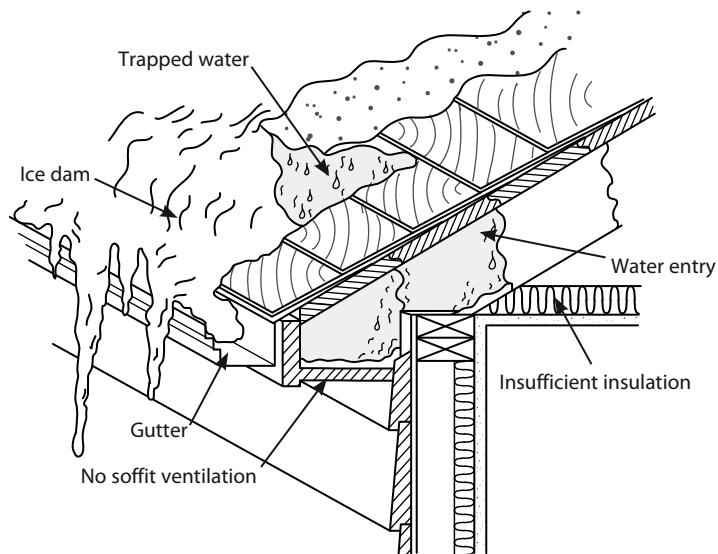
Metal counterflashing is lapped over the top of bituminous base flashing to keep water above the roof surface. The most common metal counterflashing problems are:

- ❖ Corrosion and deterioration of the metal.
- ❖ Open joints between pieces of metal flashing.
- ❖ Separation of counterflashing from vertical surfaces.

- ❖ Air gaps between the counterflashing and base flashing. Counter-flashing that ends too high above the base flashing.

Common problems with non-metallic base flashing include:

- ❖ Flashing that's too thin, such as 15-pound roofing felt used where 45-pound is needed.
- ❖ Flashing that's not wide enough, such as an 18" strip of felt used where 36" felt is needed.



**Figure 7-1**

*Flashing and ventilation to prevent damage from ice dams.*

- ❖ Lack of a 45-degree cant strip where a roof joins the wall, leaving the flashing unsupported at the base of the wall.
- ❖ Poorly sealed seams and end laps.
- ❖ Poorly fastened base flashing at walls or curbs.
- ❖ Decay of the sheathing below.

Both metallic and non-metallic flashing can be used on the roof surface (*base*) with most types of roof cover. Built-up roofing is an exception. As the surface heats and cools during the day, metal flashing expands and contracts much more than roll roofing. The result will be ripples, tearing and, eventually, separation of the built-up roofing at the edges of the metal flashing. Use roll-roofing materials as flashing under a built-up roof.

Attaching an antenna, satellite dish, flagpole, sign or bracing directly to the roof membrane is asking for trouble. Leaks are almost certain. The best repair is to remove the attachment. However, if it must be mounted on top of the roof, mount it using a raised curb-type support. Then install flashing to keep the roof watertight.

All penetrations in the roof surface need flashing. Plumbing stacks and small vents should be flashed with a roof jack or flange placed directly on the last ply of roofing material and stripped in with felt and mastic or felt and bitumen. Prefabricated vinyl or plastic seals for plumbing stacks are effective, and are available in a wide variety of styles and sizes. Larger penetrations should be made through a roof-mounted curb built from 2 x 6 or larger framing lumber. Bituminous base flashing should run up the curb, and metal counterflashing should run down the curb from above.

Leaks around a roof penetration are usually caused by:

- ❖ Open or broken seams in a metal curb due to expansion and contraction.
- ❖ Standing water behind a penetration.
- ❖ Sagging or separating base flashing.
- ❖ Missing or deteriorated counterflashing.
- ❖ Splitting or separation of felt stripping over the edge of metal flanges.
- ❖ Improper priming and stripping of metal surfaces.
- ❖ Fasteners working loose around the flashing.
- ❖ Movement between stack vents or pipes and flashing.

## Can't Find the Leak? If All Else Fails . . .

If you're truly stumped about the source of a leak, or have been called back several times to make unsuccessful repairs of the same leak, try this: Take a garden hose up on the roof and direct a steady stream of water at every source likely to leak. When the leak is active again, trace the path of the leak from the building interior to the roof surface. Be sure to brief the owner before you test for leaks — and get the owner's help in reporting an active leak.

## Roof Repairs

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Damaged or missing shingles will need to be replaced. In other cases, once you've found the source of a leak, use trowel-grade wet patch plastic roofing cement to make repairs. First, wire brush or scrape away everything that's loose, including gravel, granules, membrane, dirt, dust and debris. Then trowel on plastic roofing cement so the patch extends at least 6" beyond the edge of the repair. Press the roofing cement firmly into the membrane. Then test the patch by laying the trowel flat on the cement surface. Plastic cement shouldn't lift off when you pull the trowel away; if it does, work the cement deeper into the membrane. Next, cut fiberglass-reinforcing fabric to fit the patch. Press the fabric into the first layer of plastic roofing cement. Fiberglass reinforces the plastic cement and extends the useful life of the repair. Over the embedded fabric, trowel on another layer of plastic roofing cement. Be sure to cover all the exposed fabric. Finally, dust the patch with mineral granules that match the existing surface. Granules make the patch more durable by adding sun and weather protection.

On a smooth-surface roof, such as built-up asphalt, EPDM or PVC thermoplastic, make emergency repairs with roof tape membrane. Start by cleaning the damaged surface with alcohol or a household cleaning solution such as window cleaner. Then wipe the surface with a clean cloth saturated with splice cleaner or white gas. (Use rubber gloves to protect your skin.) Apply roof tape to the damaged roofing material. Be sure to press the tape firmly over the entire surface. If you can't locate a source for roof tape, follow the procedure described here, but apply a smooth coat of butyl or polyurethane caulk.

Most flashing can be patched with plastic roofing cement, but on a new roof the useful life of the repair will usually be less than for the roof surface. Make more permanent flashing repairs by stripping off old flashing down to the roof surface. Then build up new flashing in layers of felt and adhesive. You can make flashing around scuppers and drains watertight with fresh caulk.

After high winds, on homes with a flat, gravel-covered roof, it's common to find roof gravel scattered, leaving some areas bare and unprotected. Before redistributing the gravel, inspect the membrane for open seams, punctures, and tears from flying debris. If you find a leak that's the result of a failed expansion joint or deteriorated caulk, remove and replace the defective material.

## Life Expectancy of Roofing Materials

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The life expectancy of roofing materials will vary considerably with the type and how well the roof is maintained. Common 3-tab asphalt shingles last about 20 years. Under favorable conditions, a wood shingle roof will last 30 years. A 3-ply built-up roof should last 15 years, and you can expect 20 years from a 4-ply or 5-ply built-up roof. Some architectural-grade laminated shingles are rated at 45 years. A silicone roof should last 50 years if physical damage is repaired. A well-maintained slate or tile roof can last 150 years.

Premature roof failure is usually caused by fungus, high winds, roof deck deterioration or failure of the flashing. In some climates, portions of a roof can develop fungus that discolors and eventually deteriorates the shingles. After a high wind (over 50 miles per hour), it's common to see shingles blown off. Replacing a shingle takes only minutes, but that's seldom the extent of the damage. High winds create a vacuum above portions of the roof, lifting and flexing the surface like the wings of an airplane. Such movement of the roof deck will cause seals to break and fasteners to work loose. It's this unseen damage you have to watch out for — it may not be apparent until the next rain.

When a roof is approaching the end of its useful life, you'll see obvious signs of weathering. Asphalt shingles lose granules, curl on the edges and get brittle. Wood shingles break, warp, curl and blow off in high winds. A good wood shingle roof forms a perfect mosaic. A worn wood shingle roof looks ragged. Excessively worn roofing loses the ability to shed water, making it a candidate for replacement — even if it hasn't yet begun to leak.

## **Choosing a New Roof Material**

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The roof is a major design element of most homes. If the roof cover has to be replaced, be sure to select material that fits the character of the building. You don't want to put Spanish tile on a Tudor house.

A paramount consideration in choosing a new roof covering is the weight of the material. You can't replace lighter roofing materials (such as wood shingles) with heavier roofing materials (such as concrete tile or slate) unless the owner is prepared to reinforce the roof to support the additional load. Select materials that are similar in weight to what you're replacing.

Wood shingles and composition shingles are still the most popular roofing materials for pitched roofs. Many communities now prohibit wood shingles unless treated with fire-retardant. Both wood and composition shingles can be applied directly over some types of roofing without doing a tear-off. But there are limits. First, ask your customer if the house has been previously reroofed. When in doubt, you'll need to get up on a ladder and peel back a corner of the existing shingles to see what's under them. Be sure you understand your local building department's requirements regarding layering and tear-offs.

Here are some other tips to help you decide whether or not you can avoid a tear-off. You can't install fiberglass strip shingles over hexagon, Dutch lap or T-lock shingles. However, you can install laminated fiberglass strip shingles over asphalt shingles without cutouts and over wood shingles, assuming the old surface is smooth or can be made smooth. T-lock asphalt shingles can't be installed over hexagonal, Dutch lap or wood shingles, or on a roof with 2 in 12 or 3 in 12 pitch. But T-locks can be installed over 3-tab shingles and shingles without cutouts. Slate, tile, wood shakes and cement fiber roofing must always be removed before reroofing.

Before signing a contract for reroofing over an old roof, consider:

- ❖ *Building codes.* Some building codes prohibit installing a new roof over old. Others allow either two or three layers of roofing. A few allow a one-layer tear-off — remove and replace just the top layer of a two- or three-layer roof. If in doubt, place a call to your local building department.
- ❖ *Bad decking.* Walk the deck. If you see sags between the rafters or trusses, or if the deck feels weak under foot, the sheathing may be deteriorating or damaged. You may find that only a small section of the deck needs to be replaced. This is often caused by a long-term leak. If possible, go into the attic space and inspect the deck from underneath. This may show you the extent of the problem. Do a tear-off and plan on repairing the deck. The deck under a wood shingle roof may use skip sheathing: 1" x 2" to 6" boards laid with a 1" to 3" gap between boards. Skip sheathing is fine for wood shakes and shingles, but asphalt shingles need a solid board or plywood deck.
- ❖ *Ice dams.* A full tear-off is best if there's a history of damage from ice dams.
- ❖ *Incompatible shingles.* Installing heavyweight architectural shingles over lightweight 3-tabs is nearly always successful. A lightweight shingle installed over a heavyweight shingle may leave obvious bumps and ridges.
- ❖ *Poor condition.* If the existing roof is in really bad shape, with curled tabs and crooked rows, a tear-off is in order.
- ❖ *Shorter life span.* Most roofing professionals agree that the life expectancy of a new roof is reduced by 10 to 20 percent when it's installed as an overlay on an old roof.

When installing new shingles over old wood or asphalt shingles, manufacturers may recommend removing a 6" wide strip of the old shingles along eaves and gables. Then nail down a nominal 1" x 6" board where the shingles were cut away. If the old shingles were asphalt 3-tabs, use thinner boards. Remove the old covering from ridges and hips and place a strip of lumber over each valley to separate old metal flashing from new.

## Wood Shingles

If you decide on wood shingles as the new roofing material, use Number 1 Grade shingles. Number 1 shingles are all heartwood, all edge grain and tapered. Western red cedar shingles and redwood shingles offer the best decay resistance and shrink very little as they age. Wood shingle widths vary. Narrower shingles are classified as either Number 2 or Number 3. Figure 7-2 shows common shingle sizes and recommended exposures.

| Maximum Exposure for Wood Shingles |  |                                 |                                 |
|------------------------------------|--|---------------------------------|---------------------------------|
| Length                             | Thickness (green)                          | Slope* less than 4 in 12        | Slope 4 in 12 or over           |
| 16"                                | 5 butts in 2"                              | 3 <sup>3</sup> / <sub>4</sub> " | 5"                              |
| 18"                                | 5 butts in 2 <sup>1</sup> / <sub>4</sub> " | 4 <sup>1</sup> / <sub>4</sub> " | 5 <sup>1</sup> / <sub>2</sub> " |
| 24"                                | 4 butts in 2"                              | 5 <sup>3</sup> / <sub>4</sub> " | 7 <sup>1</sup> / <sub>2</sub> " |

\*Minimum slope for main roofs — 4 in 12. Minimum slopes for porch roofs — 3 in 12.

**Figure 7-2**

Recommended exposure for wood shingles

Follow the standards illustrated in Figure 7-3 when you apply wood shingles:

1. Extend the shingles 1<sup>1</sup>/<sub>2</sub>" to 2" beyond the eave line and about 3<sup>1</sup>/<sub>4</sub>" beyond the rake (*gable*) edge.
2. Nail each shingle with two rust-resistant nails spaced about 3<sup>1</sup>/<sub>4</sub>" from the edge and 1<sup>1</sup>/<sub>2</sub>" above the butt line of the next course. Use 3d nails for 16" and 18" shingles and 4d nails for 24" shingles. If you're applying new shingles over old wood shingles, you'll need longer nails to penetrate through the old roofing and into the sheathing. Use ring-shank (threaded) nails on plywood roof sheathing that's less than 1<sup>1</sup>/<sub>2</sub>" thick.
3. Allow a 1<sup>1</sup>/<sub>8</sub>" to 1<sup>1</sup>/<sub>4</sub>" expansion space between shingles. Stagger the joints in succeeding courses so the joint in one course isn't in line with either of the two courses above.
4. Shingle away from valleys, using the widest shingles in the valleys. The valley should be 4" wide at the top and increase in width at the rate of 1<sup>1</sup>/<sub>8</sub>" per foot from the top to the bottom. Valley flashing with a standing seam (W valley) works best. Don't nail shingles through the metal. Valley flashing should be a minimum of 24" wide for roof slopes under 4 in 12; 18" wide for roof slopes of 4 in 12 to 7 in 12; and 12" wide for roof slopes of 7 in 12 and over.
5. Place metal edging along the gable end to direct water away from the end walls.

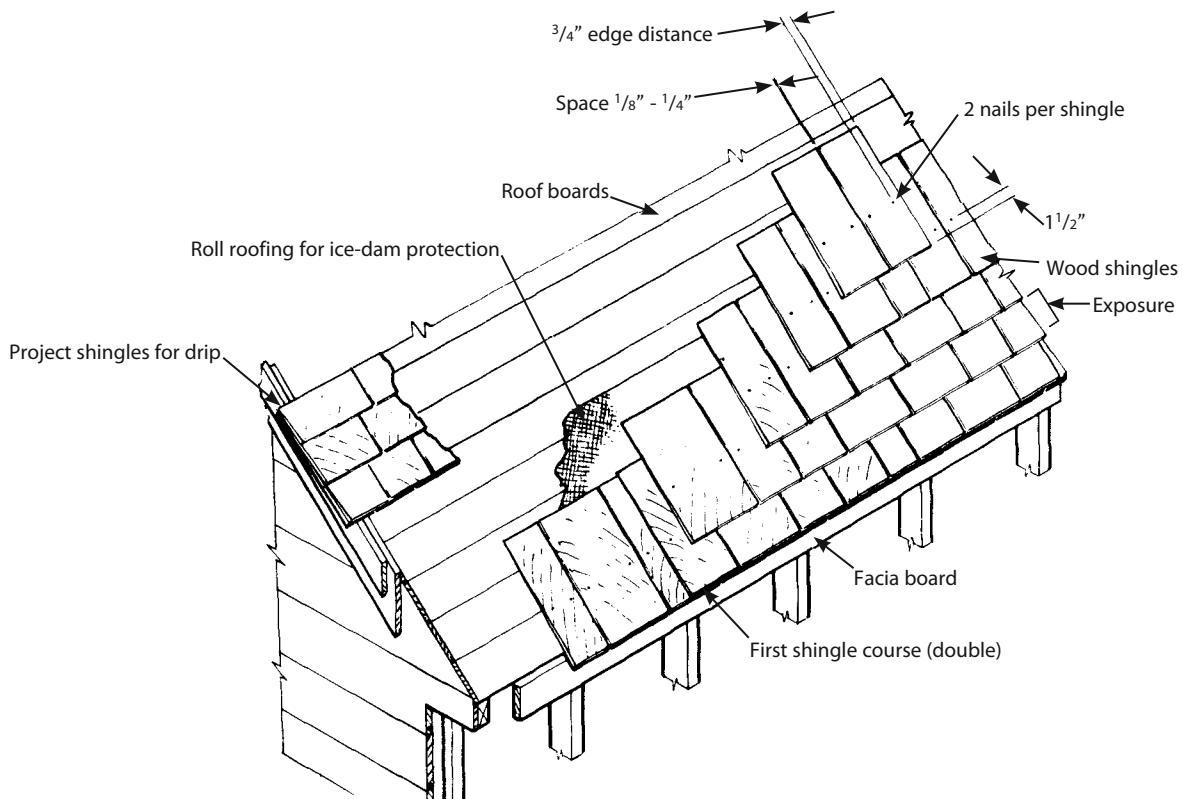
You can use the same instructions for applying wood shakes, except you'll need longer nails because shakes are thicker. Shakes are also longer and the exposure distances can be greater: 8" for 18" shakes, 10" for 24" shakes, and 13" for 32" shakes. For a rustic appearance, lay the butts unevenly.

Install an 18"-wide strip of 30-pound asphalt felt between each course to protect against wind-driven snow. The lower edge of the shake felt should be above the butt end by twice the exposure distance. If the exposure distance is less than one-third the total length, most shingle roofers don't bother with shake felt.

## Asphalt-Fiberglass (Composition) Shingles

Asphalt shingles are made from a fiberglass mat saturated with asphalt. Fiberglass adds strength and durability, and asphalt adds moisture protection. But asphalt doesn't bind very well with fiberglass, so mineral fibers are added to the fiberglass before coating. The result is a "composition" shingle that is both durable and effective.

The most common type of asphalt shingle is the square-butt strip shingle. It measures 12" by 36", has three tabs, and is usually laid with 5" exposed to the weather. Top-quality laminated asphalt shingles weigh as much as 450 pounds per



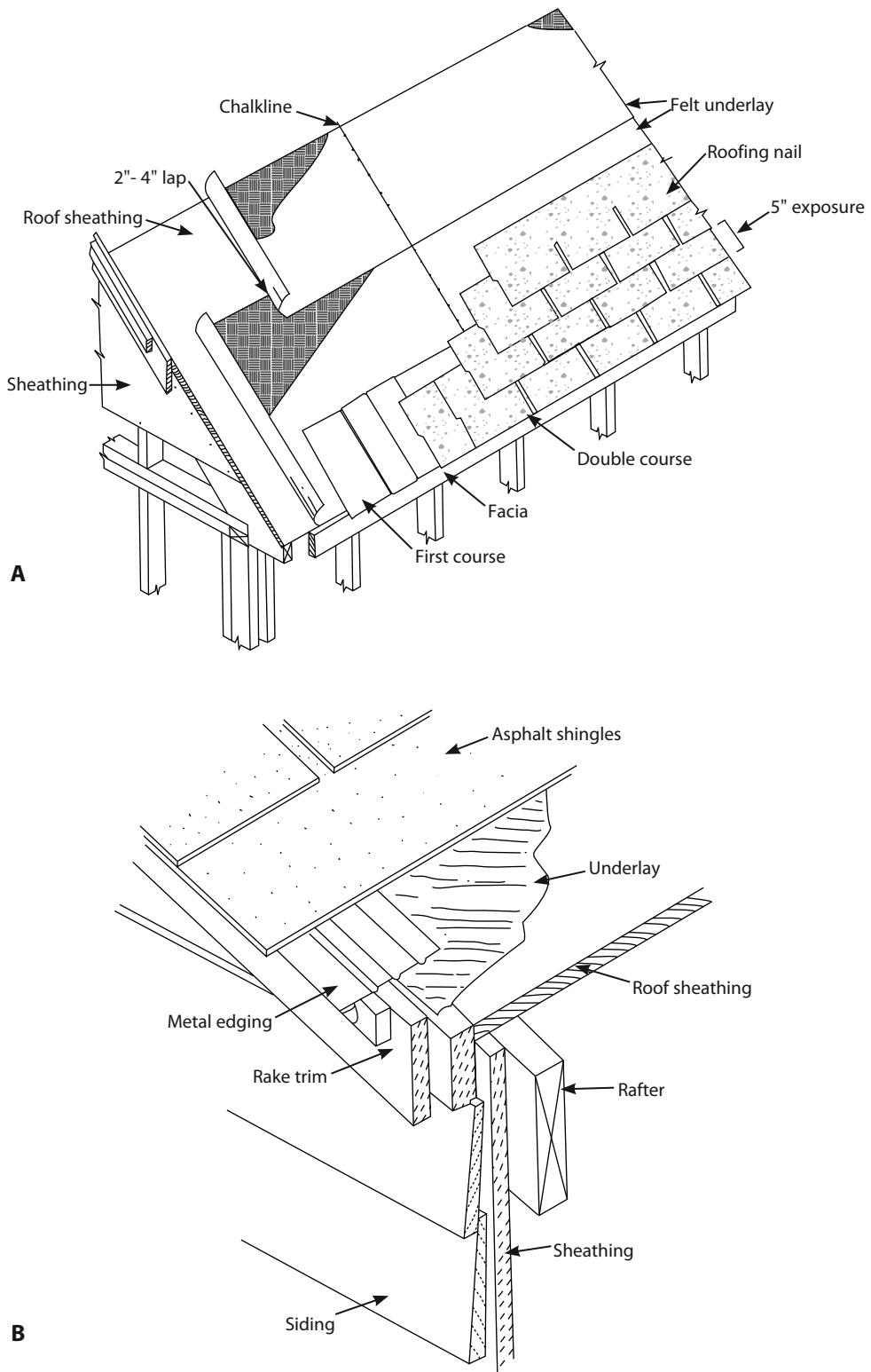
**Figure 7-3**

*Application of wood-shingle roofing over boards*

100 square feet (a square) and can be expected to last up to 45 years. Heavyweight laminated asphalt shingles are sold in four bundles to the square. Regular weight asphalt shingles are sold in three bundles to the square. Store the bundles flat so the strips don't curl when they're installed. Avoid storing them in the sun, which will activate the self-sealing tabs, causing the top shingles in each bundle to stick together.

Install 15-pound saturated felt before laying asphalt shingles on a roof with a 4 in 12 to 7 in 12 pitch. Start by laying the felt at the roof eave and lap each successive course by several inches. Stagger the felt courses to separate joints. Apply a double layer of 15-pound felt on a roof with less than a 4 in 12 pitch. Doubling the felt will take more time because it's harder to keep wrinkles out.

Begin application with metal edging along the eave line. Cut the exposure tabs off the first course of asphalt shingles and lay them along the roof edge. See Figure 7-4 A. Then apply another course on top of the first, extending the shingle exposure  $1/2"$  over the metal edging at the rake to prevent water from backing up under the shingles (Figure 7-4 B). Apply the next course with the recommended exposure. Snap horizontal chalklines on the felt to help keep shingles in straight lines. Follow the manufacturer's recommendation on nailing. When a nail penetrates a crack or knothole, remove the nail, seal the hole, and drive another nail into sound wood. Any nail that doesn't hit sound wood will gradually work out and cause a hump in the shingle above. Use seal-tab or T-lock shingles in high wind areas.

**Figure 7-4**

Application of asphalt-shingle roofing over plywood: **A**, with strip shingles; **B**, metal edging at gable end.

## Built-Up Roofing

A built-up roof that isn't worth repairing must be stripped off before new roofing is installed. Once the deck is clean, pound all exposed nails flush (or pull them and re-nail). Make repairs to the deck and flashing as needed.

The base sheet for a built-up roof can be either resin-coated or asphalt-coated organic felt or fiberglass. On a wood deck, nail the base sheet to the deck. Use a Type I or Type II venting base sheet on a concrete deck.

The felt layers are applied on top of the base sheet. Type I (15-pound) and Type II (30-pound) asphalt-saturated organic felts are the most common. Asphalt-impregnated fiberglass felts are Types III, IV and V. Type III fiberglass felt is lower quality than Type IV. Coal tar-saturated felts are popular in some areas. Polyester felts are stronger than fiberglass felts, and fiberglass felts are stronger than organic felts.

Lay each 100 square feet of felt in 25 to 30 pounds of hot asphalt, 20 to 25 pounds of coal tar, or 2 to 4 gallons of cold-applied roofing adhesive (lap cement). If the last layer is a mineral surface cap sheet, use the same quantity of asphalt, coal tar or adhesive. For a topping of gravel or slag, flood each 100 square feet of surface with 60 pounds of hot asphalt, 70 pounds of coal tar or 3 gallons of emulsion. Then install 400 to 500 pounds of gravel or 300 to 400 pounds of slag per 100 square feet of roof surface. If gravel or slag is set in emulsion, apply an aluminum reflective coating to protect against UV damage.

## Modified Bitumen Roofing (APP and SBS)

In the 1970s, chemists in Europe discovered that asphalt took on rubber-like properties when combined with certain additives. These additives include APP (atactic polypropylene) and SBS (styrene butadiene styrene). Adding about 30 percent APP to asphalt creates a product that can be stretched up to 50 percent without breaking. SBS modified roofing was developed by French and German chemists. They found that asphalt took on the character of rubber when 10 to 15 percent SBS was added. SBS-modified asphalt will stretch up to six times its original length without breaking. Unlike APP, SBS-modified asphalt returns to its original size when released. This elasticity makes asphalt roofing more durable. The roof surface can shift or expand and contract without breaking.

APP roofing uses a polyester mat that matches the pliability of APP-modified asphalt better than a woven glass mat. You apply APP membranes using a torch. The back of the sheet has extra asphalt that bonds to the surface below when heated. That's convenient on smaller jobs with limited working area, because you need very little equipment.

You can use many mat materials with SBS, including fiberglass and polyester. Fiberglass SBS mats weigh from 1.0 to 2.5 pounds per 100 square feet. Polyester SBS mats weigh from 3.5 to 5.0 pounds per 100 square feet. You can apply SBS membranes with hot asphalt, a torch, or cold adhesive.

Modified bitumen membrane roofing comes in 100-square-foot rolls. Use one, two, or three plies to create a finished roof. Or combine modified bitumen membrane with fiberglass felt to form a hybrid roof system.

The minimum roof slope should be not less than  $\frac{1}{4}$ " of rise per 12" of horizontal run. The surface can be finished with mineral granules or an aggregate, such as gravel or slag.

## **How to Measure Roof Area**

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Flat roofs are easy to measure. Just divide the area into rectangles, calculate the area of each, and add up the total. You can probably do that from the ground. Sloping roofs are a little more complex. The steeper the slope, the more the roof area differs from the horizontal (plane) area. To calculate the roof surface accurately, you have to multiply the rafter lengths by the width of each pitch. However, if the roof pitch is no more than 5 in 12, a simple rule of thumb will yield nearly the same result in a fraction of the time: Multiply the length and width of the building, including eaves and overhang. Divide by 100 to find the number of roofing "squares." Then add 10 percent for a gable roof, 15 percent for a hip roof and 20 percent for a roof with dormers.

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Roof Repairs

**Tear-off roofing.** Includes removing the existing surface and throwing debris into a bin below a one-story or two-story building. Also includes pulling or driving all protruding nails but no repairs to the roof deck, flashing or rafters. Add the cost of hauling away debris and dump or recycling fees. Roofing tear-off will take longer when the pitch is steeper than 6 in 12.

|  |         |    |   |        |        |        |
|--|---------|----|---|--------|--------|--------|
| Asphalt or fiberglass shingles, single layer | BL@1.00 | Sq | — | 33.30  | 33.30  | 56.60  |
| Asphalt or fiberglass shingles, double layer | BL@1.45 | Sq | — | 48.30  | 48.30  | 82.10  |
| Wood shingles or shakes                      | BL@1.50 | Sq | — | 50.00  | 50.00  | 85.00  |
| Slate shingles                               | BL@1.79 | Sq | — | 59.60  | 59.60  | 101.00 |
| Clay or concrete tile                        | BL@1.65 | Sq | — | 55.00  | 55.00  | 93.50  |
| Remove gravel stop or flashing, per LF       | BL@.070 | LF | — | 2.33   | 2.33   | 3.96   |
| Remove chimney flashing, per chimney         | BL@1.50 | Ea | — | 50.00  | 50.00  | 85.00  |
| Roof insulation board                        | BL@.650 | Sq | — | 21.70  | 21.70  | 36.90  |
| Gypsum plank                                 | BL@3.16 | Sq | — | 105.00 | 105.00 | 179.00 |
| Metal decking                                | BL@3.52 | Sq | — | 117.00 | 117.00 | 199.00 |
| Remove vent flashing, per vent               | BL@.400 | Sq | — | 13.30  | 13.30  | 22.60  |
| Remove and reset skylight to 10 SF           | BL@2.20 | Ea | — | 73.30  | 73.30  | 125.00 |

**Tear-off built-up roofing.** Includes removing the existing surface and throwing debris into a bin below a one-story or two-story building. Add the cost of hauling away debris and dump or recycling fees.

|   |         |    |   |       |       |        |
|---|---------|----|---|-------|-------|--------|
| Roofing on wood deck                    | BL@1.08 | Sq | — | 36.00 | 36.00 | 61.20  |
| Roofing and insulation on wood deck     | BL@1.73 | Sq | — | 57.60 | 57.60 | 97.90  |
| Roofing on concrete deck                | BL@1.31 | Sq | — | 43.60 | 43.60 | 74.10  |
| Roofing and insulation on concrete deck | BL@1.96 | Sq | — | 65.30 | 65.30 | 111.00 |

**Repair roof deck — remove and replace.** Includes removing the existing surface, throwing debris into a bin below a one-story or two-story building, pulling or driving all protruding nails but no repairs to flashing or rafters. Add the cost of hauling away debris and dump or recycling fees. Per square foot removed and replaced.

|  |         |    |      |      |      |      |
|--|---------|----|------|------|------|------|
| 2" x 6" T&G boards                       | B1@.032 | SF | 2.19 | 1.19 | 3.38 | 5.75 |
| 2" x 10" T&G boards                      | B1@.029 | SF | 2.22 | 1.08 | 3.30 | 5.61 |
| 1" x 6" square edge boards               | B1@.029 | SF | 2.94 | 1.08 | 4.02 | 6.83 |
| 1" x 8" square edge boards               | B1@.027 | SF | 3.22 | 1.00 | 4.22 | 7.17 |
| 1" x 12" square edge boards              | B1@.026 | SF | 3.01 | .97  | 3.98 | 6.77 |
| Plywood 4' x 8' sheets or partial sheets | B1@.025 | SF | .92  | .93  | 1.85 | 3.15 |

## Repair roof flashing — remove and replace.

|                                     |         |     |       |       |       |        |
|-------------------------------------|---------|-----|-------|-------|-------|--------|
| Roof drain or vent                  | R1@.918 | Ea  | 36.30 | 36.20 | 72.50 | 123.00 |
| Flashing felt and counterflashing   | R1@.160 | LF  | 5.19  | 6.31  | 11.50 | 19.60  |
| Pitch pocket, set of two            | R1@.400 | Set | 38.80 | 15.80 | 54.60 | 92.800 |
| 1-ply membrane at headwall          | R1@.053 | LF  | .67   | 2.09  | 2.76  | 4.69   |
| 2-ply membrane at headwall          | R1@.076 | LF  | 1.30  | 3.00  | 4.30  | 7.31   |
| 1-ply felt and flashing at headwall | R1@.129 | LF  | 1.49  | 5.09  | 6.58  | 11.20  |
| 2-ply felt and flashing at headwall | R1@.152 | LF  | 1.91  | 6.00  | 7.91  | 13.40  |

**Repair roof waterproofing.** Install membrane on smooth and clean vertical concrete or masonry surface, such as a parapet wall. Per square foot.

|                       |         |    |      |      |      |       |
|-----------------------|---------|----|------|------|------|-------|
| 1-ply                 | R1@.025 | SF | 1.39 | .99  | 2.38 | 4.05  |
| 2-ply                 | R1@.041 | SF | 2.44 | 1.62 | 4.06 | 6.90  |
| 3-ply                 | R1@.056 | SF | 4.09 | 2.21 | 6.30 | 10.70 |
| Vertical joint, 2-ply | R1@.046 | LF | .77  | 1.81 | 2.58 | 4.39  |

**Non-fibered roof and foundation coat.** Moisture barrier on exterior concrete and masonry surfaces or heavy-duty roof primer.

|                        |         |    |     |     |     |     |
|------------------------|---------|----|-----|-----|-----|-----|
| 1.5 gallons per square | R1@.006 | SF | .22 | .24 | .46 | .78 |
|------------------------|---------|----|-----|-----|-----|-----|

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Remove and replace roof waterproofing.** Chip away damaged membrane on a vertical surface, such as a parapet wall. Clean with wire brush. Replace with new waterproof membrane. Per square foot.

|       |         |    |      |      |      |      |
|-------|---------|----|------|------|------|------|
| 1-ply | R1@.042 | SF | .88  | 1.66 | 2.54 | 4.32 |
| 2-ply | R1@.058 | SF | 1.77 | 2.29 | 4.06 | 6.90 |
| 3-ply | R1@.074 | SF | 2.65 | 2.92 | 5.57 | 9.47 |

**Waterproof roof vent.** Per vent. Based on vents averaging 24" diameter.

|                                     |         |    |      |        |        |        |
|-------------------------------------|---------|----|------|--------|--------|--------|
| 2-ply, using hot asphalt            | R1@.797 | Ea | 3.38 | 31.40  | 34.78  | 59.10  |
| 4-ply, using hot asphalt            | R1@1.59 | Ea | 4.58 | 62.70  | 67.28  | 114.00 |
| 2-ply, using plastic roofing cement | R1@1.28 | Ea | 5.71 | 50.50  | 56.21  | 95.60  |
| 4-ply, using plastic roofing cement | R1@2.54 | Ea | 5.95 | 100.00 | 105.95 | 180.00 |

**Repair roof vent waterproofing.** Chip away damaged membrane around a roof vent. Clean with a wire brush.

Replace with new waterproof membrane. Per vent. Based on vents averaging 24" diameter.

|                                     |         |    |      |        |        |        |
|-------------------------------------|---------|----|------|--------|--------|--------|
| 2-ply, using hot asphalt            | R1@1.56 | Ea | 3.38 | 61.50  | 64.88  | 110.00 |
| 4-ply, using hot asphalt            | R1@2.35 | Ea | 4.58 | 92.70  | 97.28  | 165.00 |
| 1-ply, using plastic roofing cement | R1@.764 | Ea | 3.38 | 30.10  | 33.48  | 56.90  |
| 2-ply, using plastic roofing cement | R1@2.04 | Ea | 5.71 | 80.50  | 86.21  | 147.00 |
| 4-ply, using plastic roofing cement | R1@3.31 | Ea | 7.99 | 131.00 | 138.99 | 236.00 |

**Waterproof masonry wall.** Waterproof masonry such as a parapet wall. Membrane set in asphaltic waterproofing.

Per square foot of concrete or concrete block wall.

|                      |         |    |      |      |      |      |
|----------------------|---------|----|------|------|------|------|
| 1-ply, vertical wall | R1@.034 | SF | .94  | 1.34 | 2.28 | 3.88 |
| 2-ply, vertical wall | R1@.041 | SF | 1.72 | 1.62 | 3.34 | 5.68 |
| 3-ply, vertical wall | R1@.056 | SF | 2.91 | 2.21 | 5.12 | 8.70 |

**Remove and replace asphalt shingles.**

|  |         |    |       |       |       |        |
|--|---------|----|-------|-------|-------|--------|
| 5 square foot patch (3 shingles)                 | R1@.171 | Ea | 9.32  | 6.75  | 16.07 | 27.30  |
| 12 square foot patch (10 shingles)               | R1@.367 | Ea | 22.20 | 14.50 | 36.70 | 62.40  |
| 31 square foot patch (25 shingles)               | R1@.804 | Ea | 58.00 | 31.70 | 89.70 | 152.00 |
| Re-seal shingle with roofing cement, per shingle | R1@.033 | Ea | .84   | 1.30  | 2.14  | 3.64   |

## Composition Shingles

**Architectural grade laminated shingles.** Three bundles per square (100 square feet). Class A fire rating. 70 MPH wind resistance.

|                                    |         |    |        |       |        |        |
|------------------------------------|---------|----|--------|-------|--------|--------|
| Oakridge, 30 year                  | R1@1.83 | Sq | 142.00 | 72.20 | 214.20 | 364.00 |
| Oakridge, 30 year, algae-resistant | R1@1.83 | Sq | 151.00 | 72.20 | 223.20 | 379.00 |
| Oakridge, 50 year, algae-resistant | R1@1.83 | Sq | 166.00 | 72.20 | 238.20 | 405.00 |

**Hip and ridge shingles with sealant.** Per linear foot of hip or ridge.

|                             |         |    |      |      |      |       |
|-----------------------------|---------|----|------|------|------|-------|
| High ridge                  | R1@.028 | LF | 5.19 | 1.10 | 6.29 | 10.70 |
| High ridge, algae-resistant | R1@.028 | LF | 5.29 | 1.10 | 6.39 | 10.90 |
| High style                  | R1@.028 | LF | 5.74 | 1.10 | 6.84 | 11.60 |

**3-tab asphalt fiberglass shingles.** Three bundles per square (100 square feet). Class A fire rating. 60 MPH wind resistance.

|                                   |         |    |        |       |        |        |
|-----------------------------------|---------|----|--------|-------|--------|--------|
| Supreme, 25 year                  | R1@1.83 | Sq | 156.00 | 72.20 | 228.20 | 388.00 |
| Supreme, 25 year, algae-resistant | R1@1.83 | Sq | 135.00 | 72.20 | 207.20 | 352.00 |
| Classic, 20 year                  | R1@1.83 | Sq | 145.00 | 72.20 | 217.20 | 369.00 |
| Classic, 20 year, algae-resistant | R1@1.83 | Sq | 119.00 | 72.20 | 191.20 | 325.00 |

**Glaslock® interlocking shingles, Owens Corning.** Three bundles per square (100 square feet). Class A fire rating. 60 MPH wind resistance.

|                |         |    |        |       |        |        |
|----------------|---------|----|--------|-------|--------|--------|
| 25 year rating | R1@1.83 | Sq | 168.00 | 72.20 | 240.20 | 408.00 |
|----------------|---------|----|--------|-------|--------|--------|

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Architectural grade laminated shingles, Timberline® Ultra®, GAF.</b> Class A fire rating. 110 MPH wind resistance. Four bundles per square (100 square feet).  |           |      |          |        |        |        |
| Ultra, lifetime warranty white  | R1@1.83   | Sq   | 253.00   | 72.20  | 325.20 | 553.00 |
| Select, 40 year   | R1@1.83   | Sq   | 188.00   | 72.20  | 260.20 | 442.00 |
| Select, 40 year, algae-resistant  | R1@1.83   | Sq   | 272.00   | 72.20  | 344.20 | 585.00 |
| Select, 30 year   | R1@1.83   | Sq   | 156.00   | 72.20  | 228.20 | 388.00 |
| Select, 30 year, blend, fungus-resist.  | R1@1.83   | Sq   | 230.00   | 72.20  | 302.20 | 514.00 |
| <b>Hip and ridge shingles, GAF.</b> Per linear foot of hip or ridge.  |           |      |          |        |        |        |
| High Ridge®   | R1@.028   | LF   | 5.60     | 1.10   | 6.70   | 11.40  |
| High Ridge® algae-resistant   | R1@.028   | LF   | 7.17     | 1.10   | 8.27   | 14.10  |
| <b>3-tab fiberglass asphalt shingles, GAF.</b> Class A fire rating. 60 MPH wind warranty. Three bundles cover 100 square feet at 5" exposure. Per square (100 square feet).   |           |      |          |        |        |        |
| Royal Sovereign®, 25 year   | R1@1.83   | Sq   | 142.00   | 72.20  | 214.20 | 364.00 |
| Royal Sovereign®, 25 year, algae-resistant  | R1@1.83   | Sq   | 114.00   | 72.20  | 186.20 | 317.00 |
| Sentinel®, 20 year  | R1@1.83   | Sq   | 109.00   | 72.20  | 181.20 | 308.00 |
| Sentinel®, 20 year, fungus- and algae-resistant   | R1@1.83   | Sq   | 155.00   | 72.20  | 227.20 | 386.00 |
| <b>Shingle starter strip.</b> Peel 'N Stick SBS membrane. Rubberized to seal around nails and resist wind lift. Per roll.   |           |      |          |        |        |        |
| 7" x 33'  | R1@.460   | Ea   | 30.60    | 18.10  | 48.70  | 82.80  |
| <b>Asphalt roofing starter strip.</b>   |           |      |          |        |        |        |
| 9" x 36'  | R1@.500   | Ea   | 32.00    | 19.70  | 51.70  | 87.90  |
| <b>Built-up Roofing</b>   |           |      |          |        |        |        |
| <b>Patch built-up roofing — concrete deck.</b> Includes removing a section of the existing built-up roof on a concrete deck and replacing with built-up roofing. Per square (100 square feet) patched.  |           |      |          |        |        |        |
| 3-ply roof and gravel   | R1@2.94   | Sq   | 135.00   | 116.00 | 251.00 | 427.00 |
| 4-ply roof and gravel   | R1@3.11   | Sq   | 156.00   | 123.00 | 279.00 | 474.00 |
| 5-ply roof and gravel   | R1@3.28   | Sq   | 243.00   | 129.00 | 372.00 | 632.00 |
| <b>Patch built-up roofing and insulation — concrete deck.</b> Includes removing a section of the existing built-up roofing and insulation on a concrete deck and replacing with built-up roofing and 1" polystyrene insulation board. Per square (100 square feet) patched. |           |      |          |        |        |        |
| 3-ply roof, gravel and insulation   | R1@3.18   | Sq   | 251.00   | 125.00 | 376.00 | 639.00 |
| 4-ply roof, gravel and insulation   | R1@3.35   | Sq   | 276.00   | 132.00 | 408.00 | 694.00 |
| 5-ply roof, gravel and insulation   | R1@3.52   | Sq   | 347.00   | 139.00 | 486.00 | 826.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Patch built-up roofing — wood deck.** Includes removing a section of the existing built-up roof on a wood deck and replacing with built-up roofing. Per square (100 square feet) patched.

|                          |         |    |        |        |        |        |
|--------------------------|---------|----|--------|--------|--------|--------|
| 2-ply roof and cap sheet | R1@2.66 | Sq | 155.00 | 105.00 | 260.00 | 442.00 |
| 3-ply roof and cap sheet | R1@2.84 | Sq | 166.00 | 112.00 | 278.00 | 473.00 |
| 4-ply roof and cap sheet | R1@3.01 | Sq | 190.00 | 119.00 | 309.00 | 525.00 |

**Patch built-up roofing and insulation — wood deck.** Includes removing a section of the existing built-up roofing and insulation on a wood deck and replacing with built-up roofing and 1" roof insulation board. Per square (100 square feet) patched.

|                                      |         |    |        |        |        |        |
|--------------------------------------|---------|----|--------|--------|--------|--------|
| 2-ply roof, cap sheet and insulation | R1@2.91 | Sq | 237.00 | 115.00 | 352.00 | 598.00 |
| 3-ply roof, cap sheet and insulation | R1@3.08 | Sq | 249.00 | 122.00 | 371.00 | 631.00 |
| 4-ply roof, cap sheet and insulation | R1@3.25 | Sq | 262.00 | 128.00 | 390.00 | 663.00 |

**Built-up roofing.** Installed over existing suitable substrate. Add the cost of equipment rental (the kettle) and consumable supplies (mops, brooms, gloves). Typical cost for equipment and consumable supplies is \$15 per square applied.

Type 1: 2-ply felt and 1-ply 90-lb. cap sheet, including 2 plies of hot mop asphalt.

|                                     |         |    |        |       |        |        |
|-------------------------------------|---------|----|--------|-------|--------|--------|
| Base sheet, nailed down, per 100 SF | R1@.250 | Sq | 9.53   | 9.86  | 19.39  | 33.00  |
| Hot mop asphalt, 30 lbs. per 100 SF | R1@.350 | Sq | 18.60  | 13.80 | 32.40  | 55.10  |
| Asphalt felt, 15 lbs. per 100 SF    | R1@.100 | Sq | 9.53   | 3.95  | 9.53   | 3.95   |
| Hot mop asphalt, 30 lbs. per 100 SF | R1@.350 | Sq | 18.60  | 13.80 | 32.40  | 55.10  |
| Mineral surface, 90 lbs. per 100 SF | R1@.200 | Sq | 66.80  | 7.89  | 74.69  | 127.00 |
| Type 1, total per 100 SF            | R1@1.25 | Sq | 123.06 | 49.30 | 172.36 | 293.10 |

Type 2: 3-ply asphalt, 1-ply 30 pound felt, 2 plies 15 pound felt, 3 coats hot mop asphalt and gravel.

|                                     |         |    |        |       |        |        |
|-------------------------------------|---------|----|--------|-------|--------|--------|
| Asphalt felt, 30 lbs., nailed down  | R1@.300 | Sq | 20.40  | 11.80 | 32.20  | 54.70  |
| Hot mop asphalt, 30 lbs. per 100 SF | R1@.350 | Sq | 18.60  | 13.80 | 32.40  | 55.10  |
| Asphalt felt, 15 lbs. per 100 SF    | R1@.100 | Sq | 9.53   | 3.95  | 13.48  | 22.90  |
| Hot mop asphalt, 30 lbs. per 100 SF | R1@.350 | Sq | 18.60  | 13.80 | 32.40  | 55.10  |
| Asphalt felt, 15 lbs. per 100 SF    | R1@.100 | Sq | 9.53   | 3.95  | 13.48  | 22.90  |
| Hot mop asphalt, 60 lbs. per 100 SF | R1@.350 | Sq | 37.20  | 13.80 | 51.00  | 86.70  |
| Gravel, 400 lbs. per 100 SF         | R1@.600 | Sq | 45.80  | 23.70 | 69.50  | 118.00 |
| Type 2, total per 100 SF            | R1@2.15 | Sq | 159.66 | 84.80 | 244.46 | 415.40 |

Type 3: 4-ply asphalt, 4 plies 15 pound felt including 4 coats hot mop and gravel.

|                                     |         |    |        |        |        |        |
|-------------------------------------|---------|----|--------|--------|--------|--------|
| Base sheet, nailed down, per 100 SF | R1@.250 | Sq | 9.53   | 9.86   | 19.39  | 33.00  |
| Hot mop asphalt, 30 lbs. per 100 SF | R1@.350 | Sq | 18.60  | 13.80  | 32.40  | 55.10  |
| Asphalt felt, 15 lbs. per 100 SF    | R1@.100 | Sq | 9.53   | 3.95   | 13.48  | 22.90  |
| Hot mop asphalt, 30 lbs. per 100 SF | R1@.350 | Sq | 18.60  | 13.80  | 32.40  | 55.10  |
| Asphalt felt, 15 lbs. per 100 SF    | R1@.100 | Sq | 9.53   | 3.95   | 13.48  | 22.90  |
| Hot mop asphalt, 30 lbs. per 100 SF | R1@.350 | Sq | 18.60  | 13.80  | 32.40  | 55.10  |
| Asphalt felt, 15 lbs. per 100 SF    | R1@.100 | Sq | 9.53   | 3.95   | 13.48  | 22.90  |
| Hot mop asphalt, 60 lbs. per 100 SF | R1@.350 | Sq | 37.20  | 13.80  | 51.00  | 86.70  |
| Gravel, 400 lbs. per 100 SF         | R1@.600 | Sq | 45.80  | 23.70  | 69.50  | 118.00 |
| Type 3, total per 100 square feet   | R1@2.55 | Sq | 176.92 | 100.61 | 277.53 | 471.70 |

**Roofing asphalt.** 100 pound keg.

|   |         |     |       |       |       |       |
|---|---------|-----|-------|-------|-------|-------|
| Type III, to 3 in 12 roof, 195-205 degree | —       | Keg | 56.40 | —     | 56.40 | —     |
| Type III, at 30 pounds per 100 SF         | R1@.350 | Sq  | 16.90 | 13.80 | 30.70 | 52.20 |
| Type IV, to 6 in 12 roof, 210-225 degree  | —       | Keg | 56.40 | —     | 56.40 | —     |
| Type IV, at 30 pounds per 100 SF          | R1@.350 | Sq  | 16.90 | 13.80 | 30.70 | 52.20 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|---|-----------|------|----------|-------|-------|--------|
| <b>Mineral surface roll roofing.</b> Roll covers one square (100 square feet).  |           |      |          |       |       |        |
| 90 pound, fiberglass mat reinforced   | R1@.200   | Sq   | 38.30    | 7.89  | 46.19 | 78.50  |
| GAF Mineral Guard   | R1@.200   | Sq   | 57.80    | 7.89  | 65.69 | 112.00 |
| SBS-modified bitumen, Flintlastic   | R1@.200   | Sq   | 89.30    | 7.89  | 97.19 | 165.00 |
| Add for mopping in asphalt  | R1@.350   | Sq   | 18.60    | 13.80 | 32.40 | 55.10  |
| Add for adhesive application  | R1@.350   | Sq   | 19.30    | 13.80 | 33.10 | 56.30  |
| <b>Roofing membrane.</b> Asphalt saturated. Per square. 15-pound roll covers 400 square feet. 30-pound roll covers 200 square feet. Nailed down.  |           |      |          |       |       |        |
| 15-pound, Type I  | R1@.140   | Sq   | 9.49     | 5.52  | 15.01 | 25.50  |
| 15-pound, ASTM D226   | R1@.140   | Sq   | 9.49     | 5.52  | 15.01 | 25.50  |
| 30-pound, Type II   | R1@.150   | Sq   | 20.30    | 5.92  | 26.22 | 44.60  |
| 30-pound, ASTM D226   | R1@.150   | Sq   | 20.30    | 5.92  | 26.22 | 44.60  |
| Add for mopping in asphalt  | R1@.350   | Sq   | 18.60    | 13.80 | 32.40 | 55.10  |
| Add for adhesive application  | R1@.350   | Sq   | 15.70    | 13.80 | 29.50 | 50.20  |
| <b>Fiberglass Type IV roll roofing.</b> 432-square-foot roll. ASTM D-2178. Fiberglass mat coated with asphalt and surfaced with a liquid parting agent that prevents rolls from sticking.   |           |      |          |       |       |        |
| Per 100 square feet   | R1@.140   | Sq   | 25.70    | 5.52  | 31.22 | 53.10  |
| Add for mopping in asphalt  | R1@.350   | Sq   | 18.60    | 13.80 | 32.40 | 55.10  |
| Add for adhesive application  | R1@.350   | Sq   | 13.70    | 13.80 | 27.50 | 46.80  |
| <b>Fiberglass base sheet.</b> ASTM D-4601. 300-square-foot roll. Nailed down.   |           |      |          |       |       |        |
| Per 100 square feet   | R1@.300   | Sq   | 20.40    | 11.80 | 32.20 | 54.70  |
| <b>Modified bitumen adhesive.</b> Rubberized. Use to adhere SBS modified bitumen membranes and rolled roofing. Blind nailing cement. Brush grade.   |           |      |          |       |       |        |
| 2 gallons per 100 square feet   | R1@.350   | Sq   | 36.20    | 13.80 | 50.00 | 85.00  |
| <b>Cold process and lap cement.</b> Bonds plies of built-up roofing and gravel.   |           |      |          |       |       |        |
| 2 gallons per 100 square feet   | R1@.350   | Sq   | 21.30    | 13.80 | 35.10 | 59.70  |
| <b>Modified bitumen cold process adhesive.</b> For placing shingles and cementing asphalt-coated roofing sheets together. Use for bonding felts, smooth and granule-surfaced roll roofing. Quick-setting, waterproof adhesive with strong bonding action.                         |           |      |          |       |       |        |
| 2 gallons per 100 square feet   | R1@.350   | Sq   | 25.90    | 13.80 | 39.70 | 67.50  |
| <b>Non-fibered asphalt emulsion.</b> For metal and smooth-surface built-up roofs. Type III, Class I.  |           |      |          |       |       |        |
| 3 gallons cover 100 square feet   | R1@.350   | Sq   | 29.00    | 13.80 | 42.80 | 72.80  |
| <b>Cold-Ap® built-up roofing cement, Henry.</b> Bonds layers of conventional built-up roofing or SBS base and cap sheets. Replaces hot asphalt in built-up roofing. For embedding polyester fabric, gravel and granules. Not recommended for saturated felt. ASTM D3019 Type III. |           |      |          |       |       |        |
| 2 gallons per 100 square feet   | R1@.350   | Sq   | 35.10    | 13.80 | 48.90 | 83.10  |
| <b>PBA™ Permanent Bond Adhesive, Henry.</b> Cold-process waterproofing roofing adhesive. ASTM D3019 Type III.   |           |      |          |       |       |        |
| 2 gallons per 100 square feet   | R1@.350   | Sq   | 25.90    | 13.80 | 39.70 | 67.50  |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>GAFGLAS torch and mop system built-up roofing, GAF.</b> Low-slope roofing. Cap sheet made of asphalt-coated glass fiber mat. Cap sheet surfaced with mineral granules. Use as a surfacing ply in the application of hot-applied built-up roofs, and as a top ply in base flashing construction. Glass base resists moisture, and granule surface provides an ultraviolet protective surface. One 33.5' x 39.6" roll covers 1 square (100 square feet). One roll of felt covers 5 squares (500 square feet). Cost per 100 square feet. |           |      |          |       |        |        |
| Cap sheet, white,<br>33.5' x 39.6" roll  | RR@.550   | Sq   | 55.00    | 25.10 | 80.10  | 136.00 |
| Torch application, granular, black,<br>33.5' x 39.6" roll  | RR@.350   | Sq   | 129.00   | 16.00 | 145.00 | 247.00 |
| Torch application, granular, white,<br>33.5' x 39.6" roll  | RR@.350   | Sq   | 120.00   | 16.00 | 136.00 | 231.00 |
| Torch application, smooth, white,<br>33.5' x 39.6" roll  | RR@.350   | Sq   | 120.00   | 16.00 | 136.00 | 231.00 |
| Mop SBS polyester mat, granular, black,<br>100 square foot roll  | RR@.350   | Sq   | 116.00   | 16.00 | 132.00 | 224.00 |
| Mop SBS polyester mat, granular, white,<br>100 square foot roll  | RR@.350   | Sq   | 116.00   | 16.00 | 132.00 | 224.00 |
| #75 glass mat base sheet,<br>300 square foot roll  | RR@.500   | Sq   | 21.60    | 22.80 | 44.40  | 75.50  |
| <b>3-ply SBS field adhesive, GAF.</b> Low-slope roofing. GAF Torch and Mop System.   |           |      |          |       |        |        |
| 5 gallons  | —         | Ea   | 99.00    | —     | 99.00  | —      |
| <b>GAFGLAS Type IV glass felt, GAF.</b> Glass fiber mat coated with asphalt. Use as a ply felt or base sheet in built-up roof or as a flashing membrane. Class A, B, or C roofs. 39.4" x 161.8' roll covers 500 square feet.   |           |      |          |       |        |        |
| Per 100 square feet  | R1@.350   | Ea   | 11.40    | 13.80 | 25.20  | 42.80  |
| <b>Rubberoid Mop SBS granular white roll roofing.</b> Non-woven polyester mat coated with SBS polymer-modified asphalt. For new roofing, reroofing, flashing, and built-up roofing. Roll size, 1 square (100 square feet).   |           |      |          |       |        |        |
| Granular, white, 0.160" thick  | R1@.350   | Sq   | 83.30    | 13.80 | 97.10  | 165.00 |
| <b>Building paper.</b> Moisture barrier installed on a vertical or horizontal surface over sheathing. Per 100 square feet (square).  |           |      |          |       |        |        |
| 1-ply, black, 40" x 97' roll   | —         | Sq   | 7.86     | —     | 7.86   | —      |
| 2-ply, 162 SF roll   | —         | Sq   | 13.00    | —     | 13.00  | —      |
| 2-ply Jumbo Tex, 162 SF roll   | —         | Sq   | 19.40    | —     | 19.40  | —      |
| Rosin paper, 500 SF roll   | —         | Sq   | 3.32     | —     | 3.32   | —      |
| <b>Roof Patching</b>   |           |      |          |       |        |        |
| <b>Self-adhesive roof flashing.</b> Self-adhesive ice and water shield. For use as flashing around valleys, vents, chimneys and skylights. Adhesive allows for one-time repositioning but aggressive bond over time. Per 100 square feet (square).   |           |      |          |       |        |        |
| GAF StormGuard   | R1@.500   | Sq   | 119.00   | 19.70 | 138.70 | 236.00 |
| GAF leak barrier   | R1@.500   | Sq   | 80.70    | 19.70 | 100.40 | 171.00 |
| Owens Corning Weatherlock®   | R1@.500   | Sq   | 90.20    | 19.70 | 109.90 | 187.00 |
| Tarco ice and water armor  | R1@.500   | Sq   | 49.70    | 19.70 | 69.40  | 118.00 |
| Grace ice and water shield   | R1@.500   | Sq   | 165.00   | 19.70 | 184.70 | 314.00 |
| <b>Remove roof flashing.</b> Chip off damaged waterproofing on a wood or concrete surface and clean with a wire brush.   |           |      |          |       |        |        |
| Per linear foot of joint   | R1@.030   | LF   | —        | 1.18  | 1.18   | 2.01   |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Peel &amp; Patch™ waterproofing.</b> Aluminum foil, polymer film and rubberized asphalt with self-sticking back. For metal roof repair, gutter patch, valley patch, flashing and waterproofing.                                |           |      |          |       |       |       |
| 4" x 10'  | —         | Ea   | 16.50    | —     | 16.50 | —     |
| 6" x 10'  | —         | Ea   | 23.20    | —     | 23.20 | —     |
| <b>Leak Stopper™ rubberized roof patch, Gardner.</b> Stops roof leaks on wet or dry surfaces. Fiber-reinforced. Trowel grade. One gallon covers 12 square feet at 1/8" thick.   |           |      |          |       |       |       |
| 10.1 ounces   | —         | Ea   | 6.06     | —     | 6.06  | —     |
| 3.6 Quart   | —         | Ea   | 25.70    | —     | 25.70 | —     |
| <b>SEBS (styrene-ethylene-butylene-styrene) asphalt.</b> Seals openings around chimneys, vents, pipes, air conditioning equipment, skylights, drains, flashings, and sheet metal. One gallon covers 12 square feet at 1/8" thick. |           |      |          |       |       |       |
| All-weather, per gallon   | —         | Ea   | 16.00    | —     | 16.00 | —     |
| Reflective, per gallon  | —         | Ea   | 21.90    | —     | 21.90 | —     |
| <b>Quick Roof, Cofair Products.</b> Self-adhesive, reinforced, aluminum surface for flashing repairs on flat and metal roofs.   |           |      |          |       |       |       |
| 4" x 25' roll   | —         | Ea   | 32.30    | —     | 32.30 | —     |
| 6" x 33.5' roll   | —         | Ea   | 65.50    | —     | 65.50 | —     |
| <b>Flashing cement.</b> For repairing chimneys, shingle cracks, skylights, pipe penetrations and gutters  |           |      |          |       |       |       |
| 1 gallon  | —         | Ea   | 14.30    | —     | 14.30 | —     |
| 3 gallons   | —         | Ea   | 36.90    | —     | 36.90 | —     |
| 5 gallons   | —         | Ea   | 67.60    | —     | 67.60 | —     |
| Rubberized, 3 gallons   | —         | Ea   | 77.40    | —     | 77.40 | —     |
| <b>Patch roof or flashing.</b> Apply roofing cement and reinforce with embedded fiberglass mat. Per linear foot of patch.   |           |      |          |       |       |       |
| One-ply cement and fiberglass   | R1@.098   | LF   | 2.09     | 3.87  | 5.96  | 10.10 |
| Two-ply cement and fiberglass   | R1@.121   | LF   | 3.49     | 4.77  | 8.26  | 14.00 |
| <b>Rubber wet patch roof cement.</b> For sealing leaks on wet or dry surfaces. One gallon covers 12 square feet at 1/8" thick.  |           |      |          |       |       |       |
| 10.1 ounces   | —         | Ea   | 7.28     | —     | 7.28  | —     |
| .9 gallon   | —         | Ea   | 27.10    | —     | 27.10 | —     |
| 3.3 gallons   | —         | Ea   | 65.30    | —     | 65.30 | —     |
| <b>Wet Patch® roof cement, Henry.</b> Seals around chimneys, vents, skylights, and flashings.   |           |      |          |       |       |       |
| 10.3 ounce cartridge  | —         | Ea   | 4.82     | —     | 4.82  | —     |
| .9 gallon   | —         | Ea   | 21.50    | —     | 21.50 | —     |
| 3.3 gallons   | —         | Ea   | 65.30    | —     | 65.30 | —     |
| 5 gallons   | —         | Ea   | 81.30    | —     | 81.30 | —     |
| <b>Wet-Stick asphalt plastic roof cement, DeWitts.</b> Adheres to wood, felt, plastics, glass, concrete, and all metals. One gallon covers 15 to 20 square feet when applied 1/8" thick.  |           |      |          |       |       |       |
| 10.1 ounces   | —         | Ea   | 3.36     | —     | 3.36  | —     |
| 1 quart   | —         | Ea   | 5.84     | —     | 5.84  | —     |
| .9 gallon   | —         | Ea   | 17.10    | —     | 17.10 | —     |
| 4.75 gallons  | —         | Ea   | 48.90    | —     | 48.90 | —     |
| <b>Kool Patch™ white acrylic patching cement, Kool Seal.</b> Stops leaks on damp or dry surfaces. Blends in on existing white roofs.  |           |      |          |       |       |       |
| 11 ounce cartridge  | —         | Ea   | 5.27     | —     | 5.27  | —     |
| 1 gallon  | —         | Ea   | 26.80    | —     | 26.80 | —     |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Fiberglass reinforcing membrane.</b> Fabric membrane for repairing cracks, holes, seams, and joints with reinforcing roof cements and coatings.     |           |      |          |       |       |       |
| Black, 6" wide, 50' long   | —         | Ea   | 9.08     | —     | 9.08  | —     |
| Black, 6" wide, 150' long  | —         | Ea   | 16.30    | —     | 16.30 | —     |
| <b>Polyester stress-block fabric, Gardner.</b> Asphalt-saturated. Repairs cracks, holes, seams, and joints with reinforcing roof cements and coatings. |           |      |          |       |       |       |
| Black, 6" wide, 25' long   | —         | Ea   | 10.80    | —     | 10.80 | —     |
| <b>Yellow resin coated glass fabric, Henry.</b> Woven, open-mesh fiberglass. 20 x 10 thread count. ASTM D1668.   |           |      |          |       |       |       |
| 4" wide, 150' long   | —         | Ea   | 22.10    | —     | 22.10 | —     |
| 6" wide, 25' long  | —         | Ea   | 11.00    | —     | 11.00 | —     |
| <b>Asphalt saturated cotton roof patch.</b> Cotton fabric membrane for patching roof seams and holes.  |           |      |          |       |       |       |
| 4" wide, 300' long   | —         | Ea   | 19.70    | —     | 19.70 | —     |
| 6" wide, 150' long   | —         | Ea   | 25.50    | —     | 25.50 | —     |
| <b>Elastotape, Henry.</b> Non-woven polyester mat for use as mastic reinforcement. Lightweight, heat set, 100% spunbonded.                             |           |      |          |       |       |       |
| 4" wide, 150' long   | —         | Ea   | 18.00    | —     | 18.00 | —     |
| <b>Roofing granules.</b>   |           |      |          |       |       |       |
| Colors, 60 pound pail  | —         | Ea   | 40.50    | —     | 40.50 | —     |
| White, 100 pound bag   | —         | Ea   | 49.70    | —     | 49.70 | —     |
| <b>Siliconizer crack filler.</b> Seals cracks and stops leaks in concrete, metal, asphalt, brick and polyurethane surfaces.                            |           |      |          |       |       |       |
| 10.1 ounce tube  | —         | Ea   | 4.92     | —     | 4.92  | —     |
| 1 quart  | —         | Ea   | 12.50    | —     | 12.50 | —     |
| 1 gallon   | —         | Ea   | 25.00    | —     | 25.00 | —     |
| <b>Elastocaulk®, Henry.</b> White elastomeric acrylic roof patch. Apply by brush or trowel.  |           |      |          |       |       |       |
| 11 ounce tube  | —         | Ea   | 5.27     | —     | 5.27  | —     |
| 1 gallon   | —         | Ea   | 36.00    | —     | 36.00 | —     |
| <b>Elastomastic, Henry.</b> SEBS-modified sealant for roof areas subject to movement. Seals metal to metal joints. Also used to fill pitch pockets.    |           |      |          |       |       |       |
| 11 ounce tube  | —         | Ea   | 10.80    | —     | 10.80 | —     |
| .9 gallon  | —         | Ea   | 43.20    | —     | 43.20 | —     |
| <b>Roof caulk, Karnak.</b> Seals shingle tabs, flashing and joints at chimneys, skylights, pipe penetrations and gutters.                              |           |      |          |       |       |       |
| Flashing cement, 10 ounces   | —         | Ea   | 3.61     | —     | 3.61  | —     |
| Wet or dry roof caulk, 10 ounces   | —         | Ea   | 4.21     | —     | 4.21  | —     |
| Rubberized wet/dry caulk, 10 ounces  | —         | Ea   | 5.66     | —     | 5.66  | —     |
| <b>PondPatch™, Henry.</b> Fills roof ponds. Trowel on over or under roof membrane. For use on built-up, SBS or APP surfaces.                           |           |      |          |       |       |       |
| 23 Lb pail covers 12 SF at 3/4" thick  | R1@.085   | SF   | 13.40    | 3.35  | 16.75 | 28.50 |
| <b>Roof repair tools.</b>  |           |      |          |       |       |       |
| Roof mop, cotton   | —         | Ea   | 18.00    | —     | 18.00 | —     |
| Roof cement trowel, 9"   | —         | Ea   | 3.91     | —     | 3.91  | —     |
| Roof shingle remover   | —         | Ea   | 53.40    | —     | 53.40 | —     |
| Poly roofing broom with scraper  | —         | Ea   | 38.00    | —     | 38.00 | —     |

|   | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|---|-----------|------|----------|--------|----------|----------|
| <b>Fibered roof coating.</b> Moisture barrier for use over metal, composition and built-up roofs. Seals worn roof surfaces.   |           |      |          |        |          |          |
| On built-up roof, 50 SF per gallon  | R1@.600   | Sq   | 43.00    | 23.70  | 66.70    | 113.00   |
| On metal roof, 80 SF per gallon   | R1@.600   | Sq   | 25.80    | 23.70  | 49.50    | 84.20    |
| <b>SolarFlex® white acrylic roof coating, Henry.</b> Non-fibered elastomeric. Two gallons per 100 square feet using two coats.  |           |      |          |        |          |          |
| White, two coats  | R1@1.00   | Sq   | 37.00    | 39.50  | 76.50    | 130.00   |
| Tan, two coats  | R1@1.00   | Sq   | 37.00    | 39.50  | 76.50    | 130.00   |
| <b>Fibered aluminum roof coating.</b> For metal, smooth or mineral-surfaced built-up, composition, SBS and APP roofs. 2 gallons cover 100 square feet   |           |      |          |        |          |          |
| 2 gallons cover 100 square feet   | R1@.600   | Sq   | 42.10    | 23.70  | 65.80    | 112.00   |
| <b>Snow Roof.</b> White liquid roof coating for built-up, modified bitumen, composition, spray urethane foam, metal, asphalt, fiberglass, and polystyrene foam roofing.   |           |      |          |        |          |          |
| 2 gallons cover 100 square feet   | R1@.600   | Sq   | 93.20    | 23.70  | 116.90   | 199.00   |
| <b>100% silicone roof coating.</b> Henry Tropi-cool. For re-coating most roof materials: asphalt, polyurethane foam, metal, concrete, mobile homes, flashing and drains.  |           |      |          |        |          |          |
| 65 square feet per gallon   | R1@.600   | Sq   | 99.20    | 23.70  | 122.90   | 209.00   |
| <b>Roof-Tec Ultra siliconized elastomeric roof coat.</b> White. Not for use on flat roofs.  |           |      |          |        |          |          |
| 80 SF per gallon  | R1@.600   | Sq   | 35.20    | 23.70  | 58.90    | 100.00   |
| <b>Cant strip.</b> 3" x 3" x 3-5/8" x 4' long.  |           |      |          |        |          |          |
| Per 4' piece  | R1@.080   | Ea   | 3.28     | 3.16   | 6.44     | 10.90    |
| 30-piece bundle, 120 linear feet  | R1@2.40   | Ea   | 59.40    | 94.70  | 154.10   | 262.00   |
| <b>Wood Shingle Roofing</b>   |           |      |          |        |          |          |
| <b>Patch wood shingle roof.</b> Remove wood shingles by chipping out with a chisel. Trim new shingles to fit. Nail down and tap shingle into alignment.   |           |      |          |        |          |          |
| 3 shingle patch (1 square foot)   | R1@.256   | Ea   | 8.97     | 10.10  | 19.07    | 32.40    |
| 12 shingle patch (4 square feet)  | R1@.551   | Ea   | 36.60    | 21.70  | 58.30    | 99.10    |
| 30 shingle patch (10 square feet)   | R1@1.20   | Ea   | 103.00   | 47.30  | 150.30   | 256.00   |
| <b>Wood shakes and shingles.</b> Red cedar. No pressure treating. Labor includes flashing and assumes a gable or hip roof to 5 in 12. Add 6% to the labor costs for a cut-up roof. Add 17% to the labor cost for a steeper roof or more complex hip roof. Add 25% to the labor cost when shakes or shingles are laid with staggered butts or in an irregular pattern such as thatch, serrated weave or ocean. |           |      |          |        |          |          |
| Taper split No. 1 medium cedar shakes, 4 bundles cover 100 square feet (1 square) at 10" exposure,  |           |      |          |        |          |          |
| No. 1 medium shakes   | R1@3.52   | Sq   | 982.00   | 139.00 | 1,121.00 | 1,910.00 |
| Add for pressure treated shakes   | —         | %    | 30.0     | —      | —        | —        |
| Deduct in the Pacific Northwest   | —         | %    | -20.0    | —      | —        | —        |
| Shake felt, 30 lb. (180 SF roll)  | R1@.500   | Sq   | 21.00    | 19.70  | 40.70    | 69.20    |
| Hip and ridge shakes, medium, 20 per bundle, covers 16.7 LF at 10" and 20 LF at 12" exposure,   |           |      |          |        |          |          |
| Per bundle  | R1@1.00   | Ea   | 205.00   | 39.50  | 244.50   | 416.00   |
| Sawn shakes, sawn 1 side, Class C fire retardant,   |           |      |          |        |          |          |
| 1/2" to 3/4" x 24" (4 bundle/sq at 10" exp.)  | R1@3.52   | Sq   | 1,020.00 | 139.00 | 1,159.00 | 1,970.00 |
| 3/4" to 5/4" x 24" (5 bundle/sq at 10" exp.)  | R1@4.16   | Sq   | 1,410.00 | 164.00 | 1,574.00 | 2,680.00 |

|  | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|--|-----------|------|----------|--------|----------|----------|
| <b>Cedar roofing shingles, No. 1 Grade.</b>  |           |      |          |        |          |          |
| Four bundles of Perfection Grade 18" shingles cover 100 square feet (1 square) at 5-1/2" exposure. Five Perfections are 2-1/4" thick. Four bundles of 5x Perfect Grade shingles cover 100 square feet (1 square) at 5" exposure. Five Perfects are 2" thick. |           |      |          |        |          |          |
| Perfections  | R1@3.52   | Sq   | 883.00   | 139.00 | 1,022.00 | 1,740.00 |
| Perfects   | R1@3.52   | Sq   | 764.00   | 139.00 | 903.00   | 1,540.00 |
| No. 2 Perfections  | R1@3.52   | Sq   | 764.00   | 139.00 | 903.00   | 1,540.00 |
| Add for pitch over 6 in 12   | —         | %    | —        | 40.0   | —        | —        |
| No. 2 cedar ridge shingles, medium, bundle covers 16 linear feet, Per bundle   | R1@1.00   | Ea   | 78.10    | 39.50  | 117.60   | 200.00   |
| Fire-treated cedar shingles, 18", 5-1/2" exposure, 5 shingles are 2-1/4" thick (5/2-1/4),  |           |      |          |        |          |          |
| No. 1 (houses)   | R1@3.52   | Sq   | 1,200.00 | 139.00 | 1,339.00 | 2,280.00 |
| No. 2, red label (houses or garages)   | R1@2.00   | Sq   | 999.00   | 78.90  | 1,077.90 | 1,830.00 |
| No. 3 (garages)  | R1@2.00   | Sq   | 857.00   | 78.90  | 935.90   | 1,590.00 |
| Eastern white cedar shingles, smooth butt edge, four bundles cover 100 square feet (1 square) at 5" exposure,  |           |      |          |        |          |          |
| White extras   | R1@2.00   | Sq   | 661.00   | 78.90  | 739.90   | 1,260.00 |
| White clears   | R1@2.00   | Sq   | 527.00   | 78.90  | 605.90   | 1,030.00 |
| White No. 2 clears   | R1@2.00   | Sq   | 357.00   | 78.90  | 435.90   | 741.00   |
| Cedar shim shingles, tapered Western red cedar, Builder's 12-pack, per pack  | —         | Ea   | 5.10     | —      | 5.10     | —        |

## Sheet Metal Roofing

### Roofing sheets.

Metal sheet roofing, utility gauge.

|   |         |    |      |      |      |      |
|---|---------|----|------|------|------|------|
| 26" wide, 5-V crimp (includes 15% coverage loss),<br>6' to 12' lengths      | R1@.027 | SF | 2.74 | 1.07 | 3.81 | 6.48 |
| 26" wide, corrugated (includes 15% coverage loss),<br>6' to 12' lengths     | R1@.027 | SF | 1.56 | 1.07 | 2.63 | 4.47 |
| 27-1/2" wide, corrugated (includes 20% coverage loss),<br>6' to 12' lengths | R1@.027 | SF | 1.52 | 1.07 | 2.59 | 4.40 |
| Ridge roll, plain,<br>10" wide  | R1@.030 | LF | 3.88 | 1.18 | 5.06 | 8.60 |
| Ridge cap, formed, plain, 12",<br>12" x 10' roll                            | R1@.061 | LF | 1.84 | 2.41 | 4.25 | 7.23 |
| Sidewall flashing, plain,<br>3" x 4" x 10'                                  | R1@.035 | LF | 1.43 | 1.38 | 2.81 | 4.78 |
| 5-V crimp closure strips,<br>24" long                                       | R1@.035 | Ea | 2.17 | 1.38 | 3.55 | 6.04 |
| Endwall flashing, 2-1/2" corrugated,<br>10" x 28"                           | R1@.035 | LF | 2.67 | 1.38 | 4.05 | 6.89 |
| Wood filler strip, corrugated,<br>7/8" x 7/8" x 6'                          | R1@.035 | LF | .85  | 1.38 | 2.23 | 3.79 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Slate and Tile Roofing

**Roofing slate.** Local delivery included. Costs will be higher where slate is not mined. Add freight cost at 800 to 1,000 pounds per 100 square feet. Includes 20" long random width slate, 3/16" thick, 7-1/2" exposure. Meets Standard SS-S-451.

|  |         |    |          |        |          |          |
|--|---------|----|----------|--------|----------|----------|
| Semi-weathering green and gray             | R1@11.3 | Sq | 561.00   | 446.00 | 1,007.00 | 1,710.00 |
| Vermont black and gray black               | R1@11.3 | Sq | 668.00   | 446.00 | 1,114.00 | 1,890.00 |
| China black or gray                        | R1@11.3 | Sq | 757.00   | 446.00 | 1,203.00 | 2,050.00 |
| Unfading and variegated purple             | R1@11.3 | Sq | 757.00   | 446.00 | 1,203.00 | 2,050.00 |
| Unfading mottled green and purple          | R1@11.3 | Sq | 757.00   | 446.00 | 757.00   | 446.00   |
| Unfading green                             | R1@11.3 | Sq | 620.00   | 446.00 | 1,066.00 | 1,810.00 |
| Red slate                                  | R1@13.6 | Sq | 1,940.00 | 537.00 | 2,477.00 | 4,210.00 |
| Add for other specified widths and lengths | —       | %  | 20.0     | —      | —        | —        |

**Fiber-cement slate roofing.** Eternit™, Stonit™, or Thrutone™, various colors. Non-asbestos formulation. Laid over 1/2" sheathing. Includes 30-pound felt and one copper storm anchor per slate. Add for sheathing, flashing, hip, ridge and valley units.

23-5/8" x 11-7/8", English (420 lb, 30 year)

|  |         |    |        |        |        |          |
|--|---------|----|--------|--------|--------|----------|
| 2" head lap (113 pieces per Sq)        | R1@5.50 | Sq | 678.00 | 217.00 | 895.00 | 1,520.00 |
| 3" head lap (119 pieces per Sq)        | R1@5.75 | Sq | 711.00 | 227.00 | 938.00 | 1,590.00 |
| 4" head lap (124 pieces per Sq)        | R1@6.00 | Sq | 736.00 | 237.00 | 973.00 | 1,650.00 |
| Add for hip and ridge units, in mastic | R1@0.10 | LF | 13.80  | 3.95   | 17.75  | 30.20    |

15-3/4" x 10-5/8", Continental (420 lb, 30 year)

|  |         |    |        |        |          |          |
|--|---------|----|--------|--------|----------|----------|
| 2" head lap (197 pieces per Sq)        | R1@6.50 | Sq | 699.00 | 256.00 | 955.00   | 1,620.00 |
| 3" head lap (214 pieces per Sq)        | R1@6.75 | Sq | 762.00 | 266.00 | 1,028.00 | 1,750.00 |
| 4" head lap (231 pieces per Sq)        | R1@7.00 | Sq | 825.00 | 276.00 | 1,101.00 | 1,870.00 |
| Add for hip and ridge units, in mastic | R1@0.10 | LF | 12.70  | 3.95   | 16.65    | 28.30    |
| Copper storm anchors, box of 1,000     | —       | Ea | .05    | —      | .05      | —        |
| Stainless steel slate hooks            | —       | Ea | .53    | —      | .53      | —        |
| Add for extra felt under 5 in 12 pitch | R1@0.20 | Sq | 9.53   | 7.89   | 17.42    | 29.60    |

**Roofing tile, clay.** Material costs include felt and flashing. No freight or waste included. Normal waste is 5%.

Roofing tiles are very heavy and may have to be transported long distances to the job site. Many roofing supply dealers don't stock the tile and quote prices F.O.B. at the factory. Cost of delivery to the job site can be a very substantial item.

Spanish tile, S-shaped, 88 pieces per square, 800 pounds per square at 11" centers and 15" exposure.

|                           |         |    |        |        |        |        |
|---------------------------|---------|----|--------|--------|--------|--------|
| Red clay tile             | R1@4.50 | Sq | 359.00 | 178.00 | 537.00 | 913.00 |
| Add for coloring          | —       | Sq | 16.70  | —      | 16.70  | —      |
| Red hip and ridge units   | R1@.047 | LF | 1.27   | 1.85   | 3.12   | 5.30   |
| Color hip and ridge units | R1@.047 | LF | 1.79   | 1.85   | 3.64   | 6.19   |
| Red rake units            | R1@.047 | LF | 2.40   | 1.85   | 4.25   | 7.23   |
| Color rake units          | R1@.047 | LF | 2.65   | 1.85   | 4.50   | 7.65   |

Red clay mission tile, 2-piece, 86 pans and 86 tops per square, 7-1/2" x 18" x 8-1/2" tiles at 11" centers and 15" exposure.

|                                      |         |    |        |        |        |          |
|--------------------------------------|---------|----|--------|--------|--------|----------|
| Red clay tile                        | R1@5.84 | Sq | 418.00 | 230.00 | 648.00 | 1,100.00 |
| Add for coloring (costs vary widely) | —       | Sq | 63.50  | —      | 63.50  | —        |
| Red hip and ridge units              | R1@.047 | LF | 1.32   | 1.85   | 3.17   | 5.39     |
| Color hip and ridge units            | R1@.047 | LF | 1.79   | 1.85   | 3.64   | 6.19     |
| Red rake units                       | R1@.047 | LF | 2.40   | 1.85   | 4.25   | 7.23     |
| Color rake units                     | R1@.047 | LF | 2.65   | 1.85   | 4.50   | 7.65     |

|  | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|--|-----------|------|----------|--------|--------|--------|
| <b>Concrete roof tile.</b> Material includes felt, nails, and flashing. Approximately 90 pieces per square. Monier Lifetile. |           |      |          |        |        |        |
| Shake, slurry color  | R1@4.25   | Sq   | 204.00   | 168.00 | 372.00 | 632.00 |
| Slate, thru color  | R1@4.25   | Sq   | 249.00   | 168.00 | 417.00 | 709.00 |
| Espana, slurry coated  | R1@4.25   | Sq   | 249.00   | 168.00 | 417.00 | 709.00 |
| Monier 2000  | R1@4.25   | Sq   | 264.00   | 168.00 | 432.00 | 734.00 |
| Vignette   | R1@4.25   | Sq   | 232.00   | 168.00 | 400.00 | 680.00 |
| Collage  | R1@4.25   | Sq   | 232.00   | 168.00 | 400.00 | 680.00 |
| Tapestry   | R1@4.25   | Sq   | 254.00   | 168.00 | 422.00 | 717.00 |
| Split shake  | R1@4.25   | Sq   | 280.00   | 168.00 | 448.00 | 762.00 |
| Trim tile  |           |      |          |        |        |        |
| Mansard V-ridge or rake, slurry coated   | —         | Ea   | 3.26     | —      | 3.26   | —      |
| Mansard, ridge or rake, thru color   | —         | Ea   | 3.40     | —      | 3.40   | —      |
| Hipstarters, slurry coated   | —         | Ea   | 28.00    | —      | 28.00  | —      |
| Hipstarters, thru color  | —         | Ea   | 35.70    | —      | 35.70  | —      |
| Accessories  |           |      |          |        |        |        |
| Eave closure or birdstop   | R1@.030   | LF   | 1.94     | 1.18   | 3.12   | 5.30   |
| Hurricane or wind clips  | R1@.030   | Ea   | .70      | 1.18   | 1.88   | 3.20   |
| Underlayment or felt   | R1@.050   | Sq   | 20.30    | 1.97   | 20.30  | 1.97   |
| Metal flashing and nails   | R1@.306   | Sq   | 14.60    | 12.10  | 26.70  | 45.40  |
| Pre-formed plastic flashing  |           |      |          |        |        |        |
| Hip (13" long)   | R1@.020   | Ea   | 48.90    | .79    | 49.69  | 84.50  |
| Ridge (39" long)   | R1@.030   | Ea   | 50.10    | 1.18   | 51.28  | 87.20  |
| Anti-ponding foam  | R1@.030   | LF   | .43      | 1.18   | 1.61   | 2.74   |
| Batten extenders   | R1@.030   | Ea   | 1.69     | 1.18   | 2.87   | 4.88   |
| Roof loading   |           |      |          |        |        |        |
| Add to load tile and accessories on roof   | R1@.822   | Sq   | —        | 32.40  | 32.40  | 55.10  |

## Elastomeric Decking and Roofing

**Roof walking deck.** Includes cleaning of the existing wood, masonry or coated deck, filling fractures, masking adjacent surfaces, primer at .3 gallons per 100 SF, Deckgard elastomeric polyurethane texture coat at 1 gallon per 100 square feet, polyurethane top coat at 1 gallon per 100 square feet. Per 100 square feet (square). Includes the cost of spray equipment.

|                     |         |    |       |        |        |        |
|---------------------|---------|----|-------|--------|--------|--------|
| Based on 800 SF job | R1@5.00 | Sq | 89.20 | 197.00 | 286.20 | 487.00 |
|---------------------|---------|----|-------|--------|--------|--------|

**Urethane spray foam roof.** Applied over an existing low-slope urethane roof. Includes cleaning roof with a broom and air blast, caulking fractures with polyurethane, masking adjacent surfaces, emulsion primer at 2 gallons per 100 SF, 3.0-pound density urethane foam, 20 mil elastomeric acrylic top coat covered with 40 pounds of mineral granules per square. Per 100 square feet (square). Includes the cost of spray equipment.

|                       |         |    |        |        |        |        |
|-----------------------|---------|----|--------|--------|--------|--------|
| Based on 2,500 SF job | R1@2.80 | Sq | 165.00 | 110.00 | 275.00 | 468.00 |
|-----------------------|---------|----|--------|--------|--------|--------|

## Fiberglass Roofing

**Fiberglass panels.** Nailed or screwed onto wood frame.

Corrugated, 8', 10', 12' panels, 2-1/2" corrugations, standard colors. Costs include 10% for waste,

|   |         |    |      |     |      |      |
|---|---------|----|------|-----|------|------|
| Polycarbonate, 26"-wide panels  | BC@.012 | SF | 1.77 | .49 | 2.26 | 3.84 |
| Fiberglass, 26"-wide panels   | BC@.012 | SF | 4.30 | .49 | 4.79 | 8.14 |
| PVC, 26"-wide panels  | BC@.012 | SF | 1.28 | .49 | 1.77 | 3.01 |
| Flat panels, clear, green or white,   |         |    |      |     |      |      |
| .06" flat sheets, 4' x 8', 10', 12'   | BC@.012 | SF | 4.94 | .49 | 5.43 | 9.23 |
| .03" rolls, 24", 36", 48" x 50'   | BC@.012 | SF | 4.67 | .49 | 5.16 | 8.77 |
| .037" rolls, 24", 36", 48" x 50'  | BC@.012 | SF | 4.45 | .49 | 4.94 | 8.40 |
| Nails, ring shank with rubber washer, 1-3/4" (labor included with panels),<br>100 per box (covers 130 SF) | —       | SF | .07  | —   | .07  | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| Self-tapping screws, 1-1/4", rust-proof (labor included with panels),<br>100 per box (covers 130 SF) | —         | SF   | .06      | —     | .06   | —    |
| Horizontal closure strips, corrugated (labor included with panels),<br>Redwood, 2-1/2" x 1-1/2"      | —         | LF   | .76      | —     | .76   | —    |
| Poly-foam, 1" x 1"   | —         | LF   | .67      | —     | .67   | —    |
| Rubber, 1" x 1"  | —         | LF   | .88      | —     | .88   | —    |
| Vertical crown molding,<br>Redwood, 1-1/2" x 1" or poly-foam, 1" x 1"                                | —         | LF   | .63      | —     | .63   | —    |
| Rubber, 1" x 1"  | —         | LF   | 1.62     | —     | 1.62  | —    |

## Silicone Roofing

**Silicone roof coating.** Applied over an existing asphalt, urethane, metal or concrete roof. Including power wash of the existing surface, caulk fractures, mask adjacent surfaces, primer and roller or spray application of 100% silicone roof coat at 1.5 gallons per 100 SF. 15-year warranty.

Based on 2,500 SF job

R1@2.80 Sq 97.80 110.00 207.80 353.00

## Roof Flashing

**Aluminum roll flashing.** Installs under shingles, along roof valley. Provides a waterproof valley at intersecting roof sections. 0.010" economy gauge. Mill finish.

|                    |         |    |       |       |        |        |
|--------------------|---------|----|-------|-------|--------|--------|
| 6" wide, 10' long  | RR@.200 | Ea | 10.70 | 9.12  | 19.82  | 33.70  |
| 6" wide, 50' long  | RR@1.00 | Ea | 30.70 | 45.60 | 76.30  | 130.00 |
| 8" wide, 10' long  | RR@.200 | Ea | 11.70 | 9.12  | 20.82  | 35.40  |
| 8" wide, 50' long  | RR@1.00 | Ea | 30.60 | 45.60 | 76.20  | 130.00 |
| 10" wide, 10' long | RR@.200 | Ea | 10.20 | 9.12  | 19.32  | 32.80  |
| 10" wide, 50' long | RR@1.00 | Ea | 39.00 | 45.60 | 84.60  | 144.00 |
| 14" wide, 10' long | RR@.200 | Ea | 14.60 | 9.12  | 23.72  | 40.30  |
| 14" wide, 50' long | RR@1.00 | Ea | 56.60 | 45.60 | 102.20 | 174.00 |
| 20" wide, 10' long | RR@.200 | Ea | 21.30 | 9.12  | 30.42  | 51.70  |
| 20" wide, 50' long | RR@1.00 | Ea | 75.80 | 45.60 | 121.40 | 206.00 |

**Aluminum roll valley flashing.** Use for valley, hip and ridge flashing.

|                    |         |    |       |       |       |        |
|--------------------|---------|----|-------|-------|-------|--------|
| 6" wide, 25' long  | RR@.500 | Ea | 18.50 | 22.80 | 41.30 | 70.20  |
| 8" wide, 25' long  | RR@.500 | Ea | 21.50 | 22.80 | 44.30 | 75.30  |
| 10" wide, 10' long | RR@.200 | Ea | 19.50 | 9.12  | 28.62 | 48.70  |
| 10" wide, 25' long | RR@.500 | Ea | 28.10 | 22.80 | 50.90 | 86.50  |
| 14" wide, 10' long | RR@.200 | Ea | 19.30 | 9.12  | 28.42 | 48.30  |
| 14" wide, 25' long | RR@.500 | Ea | 34.80 | 22.80 | 57.60 | 97.90  |
| 20" wide, 25' long | RR@.500 | Ea | 49.80 | 22.80 | 72.60 | 123.00 |

**Aluminum window drip cap.** Commercial gauge 0.0175". Metal edge cap over door and window frames.

|                          |         |    |      |       |       |       |
|--------------------------|---------|----|------|-------|-------|-------|
| 1-1/4" x 10' long, white | BC@.400 | Ea | 5.62 | 16.40 | 22.02 | 37.40 |
| 1-5/8" x 10' long, white | BC@.350 | Ea | 4.47 | 14.40 | 18.87 | 32.10 |

## Aluminum drip edge.

|                              |         |    |      |      |       |       |
|------------------------------|---------|----|------|------|-------|-------|
| 2-3/4" x 1-3/4" x 10', brown | RR@.200 | Ea | 6.76 | 9.12 | 15.88 | 27.00 |
| 2-3/4" x 1-3/4" x 10', white | RR@.200 | Ea | 6.90 | 9.12 | 16.02 | 27.20 |

## Copper roll flashing.

|                |         |    |       |       |        |        |
|----------------|---------|----|-------|-------|--------|--------|
| 8" x 20' roll  | RR@1.00 | Ea | 53.20 | 45.60 | 98.80  | 168.00 |
| 12" x 20' roll | RR@1.25 | Ea | 77.50 | 57.00 | 134.50 | 229.00 |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Copper step flashing.</b>  |                  |             |                 |              |              |             |
| 5" x 7"   | RR@.040          | Ea          | 6.58            | 1.82         | 8.40         | 14.30       |
| <b>Copper formed flashing.</b>  |                  |             |                 |              |              |             |
| 1-1/2" x 2" x 10', roof edge  | RR@.350          | Ea          | 110.00          | 16.00        | 126.00       | 214.00      |
| 2" x 2" x 10', roof edge  | RR@.350          | Ea          | 117.00          | 16.00        | 133.00       | 226.00      |
| 4" x 6" x 10', roof-to-wall   | RR@.250          | Ea          | 293.00          | 11.40        | 304.40       | 517.00      |
| 5" x 7", shingle  | —                | Ea          | 11.90           | —            | 11.90        | —           |
| 8" x 12", shingle   | —                | Ea          | 34.50           | —            | 34.50        | —           |
| <b>Galvanized roll flashing.</b> Ridge and valley flashing. 26 gauge.                                       |                  |             |                 |              |              |             |
| 6" wide, 10' long   | RR@.200          | Ea          | 11.00           | 9.12         | 20.12        | 34.20       |
| 6" wide, 50' long   | RR@1.00          | Ea          | 46.40           | 45.60        | 92.00        | 156.00      |
| 8" wide, 50' long   | RR@1.00          | Ea          | 43.30           | 45.60        | 88.90        | 151.00      |
| 10" wide, 10' long  | RR@.200          | Ea          | 16.10           | 9.12         | 25.22        | 42.90       |
| 10" wide, 50' long  | RR@1.00          | Ea          | 48.00           | 45.60        | 93.60        | 159.00      |
| 14" wide, 50' long  | RR@1.25          | Ea          | 77.50           | 57.00        | 134.50       | 229.00      |
| 20" wide, 10' long  | RR@.250          | Ea          | 32.20           | 11.40        | 43.60        | 74.10       |
| 20" wide, 50' long  | RR@1.40          | Ea          | 109.00          | 63.80        | 172.80       | 294.00      |
| <b>Galvanized angle flashing.</b> 10' lengths. 26 gauge.  |                  |             |                 |              |              |             |
| 3" x 5", 90-degree  | RR@.200          | Ea          | 13.20           | 9.12         | 22.32        | 37.90       |
| 4" x 4"   | RR@.200          | Ea          | 13.20           | 9.12         | 22.32        | 37.90       |
| 4" x 4", hemmed   | RR@.200          | Ea          | 13.70           | 9.12         | 22.82        | 38.80       |
| 4" x 5"   | RR@.200          | Ea          | 16.60           | 9.12         | 25.72        | 43.70       |
| 4" x 5" x 1/2", turnback flashing   | RR@.200          | Ea          | 15.70           | 9.12         | 24.82        | 42.20       |
| 6" x 6"   | RR@.200          | Ea          | 31.70           | 9.12         | 40.82        | 69.40       |
| 7-1/2", apron   | RR@.200          | Ea          | 14.60           | 9.12         | 23.72        | 40.30       |
| <b>Galvanized drip edge.</b> Used along roof edge to direct water away from the fascia or into rain gutter. |                  |             |                 |              |              |             |
| 1-1/4" x 1-1/4" x 10', white  | RR@.200          | Ea          | 8.50            | 9.12         | 17.62        | 30.00       |
| 2" x 2" x 10'   | RR@.200          | Ea          | 4.59            | 9.12         | 13.71        | 23.30       |
| 2-1/8" x 2" x 10', white  | RR@.200          | Ea          | 7.55            | 9.12         | 16.67        | 28.30       |
| 2-1/2" x 1" x 10', white  | RR@.200          | Ea          | 6.76            | 9.12         | 15.88        | 27.00       |
| 3" x 1" x 10', heavy duty   | RR@.200          | Ea          | 8.10            | 9.12         | 17.22        | 29.30       |
| 10' long, vented  | RR@.200          | Ea          | 26.40           | 9.12         | 35.52        | 60.40       |
| <b>Gravel stop.</b> Raised 26-gauge metal bead nailed around the roof perimeter to keep gravel on the roof. |                  |             |                 |              |              |             |
| 2" x 4" x 1/2" x 10', bonderized  | RR@.300          | Ea          | 14.80           | 13.70        | 28.50        | 48.50       |
| 2" x 4" x 1/2" x 10', galvanized  | RR@.330          | Ea          | 8.87            | 15.00        | 23.87        | 40.60       |
| 3-1/2" x 3-1/2" x 10', galvanized   | RR@.300          | Ea          | 13.60           | 13.70        | 27.30        | 46.40       |
| 3" x 4" x 1/4" x 10', galvanized  | RR@.330          | Ea          | 17.20           | 15.00        | 32.20        | 54.70       |
| 4" x 4" x 1/2" x 10', bonderized  | RR@.330          | Ea          | 21.60           | 15.00        | 36.60        | 62.20       |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>L-flashing.</b> Galvanized 28 gauge, except as noted.  |           |      |          |        |        |        |
| 1" x 1-1/2" x 10', galvanized   | RR@.200   | Ea   | 7.11     | 9.12   | 16.23  | 27.60  |
| 1" x 2" x 10', galvanized   | RR@.200   | Ea   | 7.11     | 9.12   | 16.23  | 27.60  |
| 1-1/2" x 1-1/2", galvanized   | RR@.200   | Ea   | 7.11     | 9.12   | 16.23  | 27.60  |
| 2" x 2" x 10', dark brown   | RR@.240   | Ea   | 11.00    | 10.90  | 21.90  | 37.20  |
| 2" x 2" x 10', galvanized   | RR@.240   | Ea   | 9.72     | 10.90  | 20.62  | 35.10  |
| 2" x 3" x 10', dark brown   | RR@.240   | Ea   | 13.20    | 10.90  | 24.10  | 41.00  |
| 2" x 3" x 10', galvanized   | RR@.240   | Ea   | 13.20    | 10.90  | 24.10  | 41.00  |
| 3" x 3" x 10', bonderized   | RR@.250   | Ea   | 15.70    | 11.40  | 27.10  | 46.10  |
| 3" x 3" x 10', galvanized   | RR@.250   | Ea   | 14.70    | 11.40  | 26.10  | 44.40  |
| 4" x 4" x 10', galvanized   | RR@.250   | Ea   | 18.30    | 11.40  | 29.70  | 50.50  |
| 4" x 6" x 10', white  | RR@.270   | Ea   | 46.80    | 12.30  | 59.10  | 100.00 |
| <b>Pipe flashing.</b> Hard base.  |           |      |          |        |        |        |
| 3" to 1"  | RR@.046   | Ea   | 7.76     | 2.10   | 9.86   | 16.80  |
| 3" to 4"  | RR@.046   | Ea   | 8.96     | 2.10   | 11.06  | 18.80  |
| <b>Lead flashing roll.</b>  |           |      |          |        |        |        |
| 8" x 30'  | RR@.750   | Ea   | 159.00   | 34.20  | 193.20 | 328.00 |
| 10" x 24'   | RR@.672   | Ea   | 159.00   | 30.60  | 189.60 | 322.00 |
| 12" x 20'   | RR@.600   | Ea   | 159.00   | 27.40  | 186.40 | 317.00 |
| <b>Galvanized roll valley flashing.</b> Laid in the valley of a hip roof.                       |           |      |          |        |        |        |
| 7" x 10', galvanized  | RR@.200   | Ea   | 9.42     | 8.38   | 17.80  | 30.30  |
| 7" x 25', galvanized  | RR@.500   | Ea   | 20.30    | 20.90  | 47.20  | 80.20  |
| 7" x 50', galvanized  | RR@1.00   | Ea   | 50.00    | 45.60  | 95.60  | 163.00 |
| 8" x 10', brown   | RR@.220   | Ea   | 12.20    | 10.00  | 22.20  | 37.70  |
| 8" x 10', white   | RR@.220   | Ea   | 18.40    | 10.00  | 28.40  | 48.30  |
| 10" x 10', galvanized   | RR@.250   | Ea   | 16.10    | 11.40  | 27.50  | 46.80  |
| 10" x 25', galvanized   | RR@.625   | Ea   | 44.80    | 28.50  | 73.30  | 125.00 |
| 10" x 50', galvanized   | RR@1.25   | Ea   | 40.70    | 57.00  | 97.70  | 166.00 |
| 12" x 12', galvanized   | RR@2.50   | Ea   | 27.70    | 114.00 | 141.70 | 241.00 |
| 12" x 25', galvanized   | RR@.500   | Ea   | 54.80    | 22.80  | 77.60  | 132.00 |
| 14" x 10', galvanized   | RR@.270   | Ea   | 20.10    | 12.30  | 32.40  | 55.10  |
| 14" x 25', galvanized   | RR@.675   | Ea   | 56.30    | 30.80  | 87.10  | 148.00 |
| 20" x 10', galvanized   | RR@.300   | Ea   | 27.70    | 13.70  | 41.40  | 70.40  |
| 20" x 12', galvanized   | RR@.500   | Ea   | 33.30    | 22.80  | 56.10  | 95.40  |
| 20" x 25', green  | RR@.625   | Ea   | 107.00   | 28.50  | 135.50 | 230.00 |
| 20" x 25', galvanized   | RR@.600   | Ea   | 80.70    | 27.40  | 108.10 | 184.00 |
| 20" x 25', red  | RR@.625   | Ea   | 91.30    | 28.50  | 119.80 | 204.00 |
| <b>Galvanized roof apron flashing.</b> Slips under shingles to extend drip beyond fascia board. |           |      |          |        |        |        |
| 10' long, brown   | RR@.400   | Ea   | 7.11     | 18.20  | 25.31  | 43.00  |
| 10' long, white   | RR@.400   | Ea   | 7.11     | 18.20  | 25.31  | 43.00  |
| <b>Galvanized roof edge flashing.</b> Installs under shingles along roof edge to retard decay.  |           |      |          |        |        |        |
| 1-1/2" x 1-1/2" x 10'   | RR@.250   | Ea   | 7.11     | 11.40  | 18.51  | 31.50  |
| 1-1/2" x 1-1/2" x 10', dark brown   | RR@.250   | Ea   | 7.44     | 11.40  | 18.84  | 32.00  |
| 2" x 2" x 10', white  | RR@.250   | Ea   | 9.15     | 11.40  | 20.55  | 34.90  |
| 2" x 3" x 10', bonderized   | RR@.250   | Ea   | 11.70    | 11.40  | 23.10  | 39.30  |
| 2" x 3" x 10'   | RR@.250   | Ea   | 10.10    | 11.40  | 21.50  | 36.60  |
| 2" x 8" x 10'   | RR@.350   | Ea   | 25.50    | 16.00  | 41.50  | 70.60  |
| 6" x 6" x 10'   | RR@.350   | Ea   | 25.20    | 16.00  | 41.20  | 70.00  |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Galvanized roof-to-wall flashing.</b>  |           |      |          |       |        |        |
| 2" x 3" x 10'   | RR@.250   | Ea   | 10.20    | 11.40 | 21.60  | 36.70  |
| 2" x 3" x 10'   | RR@.250   | Ea   | 10.60    | 11.40 | 22.00  | 37.40  |
| 2" x 4" x 10'   | RR@.250   | Ea   | 12.80    | 11.40 | 24.20  | 41.10  |
| 2" x 6" x 10', bonderized   | RR@.250   | Ea   | 23.30    | 11.40 | 34.70  | 59.00  |
| 2" x 6" x 10'   | RR@.250   | Ea   | 18.10    | 11.40 | 29.50  | 50.20  |
| 3" x 5" x 10', dark brown   | RR@.250   | Ea   | 17.80    | 11.40 | 29.20  | 49.60  |
| 3" x 5" x 10'   | RR@.250   | Ea   | 17.60    | 11.40 | 29.00  | 49.30  |
| 4" x 5" x 10'   | RR@.250   | Ea   | 18.60    | 11.40 | 30.00  | 51.00  |
| 4" x 6" x 10'   | RR@.250   | Ea   | 18.30    | 11.40 | 29.70  | 50.50  |
| <b>Galvanized step flashing.</b> Sheet metal formed into two leafs meeting at a right angle. Placed so each step overlaps the step below. Used to waterproof the meeting point of two surfaces, such as joint between chimney and roof surface. |           |      |          |       |        |        |
| 3" x 4" x 7"  | RR@.150   | Ea   | 1.13     | 6.84  | 7.97   | 13.50  |
| 4" x 4" x 8"  | RR@.150   | Ea   | 1.47     | 6.84  | 8.31   | 14.10  |
| 4" x 4" x 8"  | RR@.150   | Ea   | .63      | 6.84  | 7.47   | 12.70  |
| 4" x 4" x 12"   | RR@.150   | Ea   | 1.83     | 6.84  | 8.67   | 14.70  |
| 4" x 6" x 14"   | RR@.150   | Ea   | 3.23     | 6.84  | 10.07  | 17.10  |
| <b>Tin repair shingles.</b> Galvanized.   |           |      |          |       |        |        |
| 5" x 7"   | —         | Ea   | .86      | —     | 0.86   | —      |
| 8" x 12"  | —         | Ea   | 2.02     | —     | 2.02   | —      |
| 8" x 12", dark brown  | —         | Ea   | 2.10     | —     | 2.10   | —      |
| <b>Flashing shingles.</b>   |           |      |          |       |        |        |
| 5" x 8", dark brown   | —         | Ea   | .98      | —     | 0.98   | —      |
| 5" x 8", galvanized   | —         | Ea   | .84      | —     | 0.84   | —      |
| 6" x 8", gray   | —         | Ea   | .99      | —     | 0.99   | —      |
| <b>W-valley flashing.</b> 10' lengths. 28 gauge. Sheet metal formed into a flattened W-shape and laid into a roof valley. Channels water flow better than a smooth valley. Roof finish is applied over the valley from both sides.              |           |      |          |       |        |        |
| 18", brown  | RR@.250   | Ea   | 40.60    | 11.40 | 52.00  | 88.40  |
| 18", copper   | RR@.250   | Ea   | 327.00   | 11.40 | 338.40 | 575.00 |
| 18", galvanized   | RR@.250   | Ea   | 37.60    | 11.40 | 49.00  | 83.30  |
| 18", white  | RR@.250   | Ea   | 71.30    | 11.40 | 82.70  | 141.00 |
| 24", dark brown   | RR@.250   | Ea   | 58.50    | 11.40 | 69.90  | 119.00 |
| 24", galvanized   | RR@.250   | Ea   | 55.70    | 11.40 | 67.10  | 114.00 |
| <b>Counterflashing.</b>   |           |      |          |       |        |        |
| 6" x 10', galvanized  | RR@.500   | Ea   | 19.30    | 22.80 | 42.10  | 71.60  |
| 6" x 10', grey  | RR@.500   | Ea   | 14.30    | 22.80 | 37.10  | 63.10  |
| <b>Galvanized dormer vent.</b> Wire mesh screen keeps out birds and large insects. 28 gauge galvanized steel.   |           |      |          |       |        |        |
| 18" x 18", low profile  | RR@.871   | Ea   | 83.10    | 39.70 | 122.80 | 209.00 |
| 19" x 3", low profile   | RR@.871   | Ea   | 72.60    | 39.70 | 112.30 | 191.00 |
| <b>Ridge vent.</b> For attic and rafter-bay ventilation.  |           |      |          |       |        |        |
| 1-1/4" x 11" x 10'  | R1@.500   | Ea   | 26.90    | 19.70 | 46.60  | 79.20  |
| <b>VentSure™ Ridge Vent, Owens Corning.</b>   |           |      |          |       |        |        |
| Rigid roll  | R1@.028   | LF   | 21.20    | 1.10  | 22.30  | 37.90  |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|---|-----------|------|----------|-------|-------|--------|
| <b>Cobra® Rigid Vent II ridge vent, GAF.</b> Polyester composite.<br>4' long, .75" thick  | R1@.255   | Ea   | 11.20    | 10.10 | 21.30 | 36.20  |
| <b>Shingle-over ridge vent.</b> Narrow opening keeps out insects and debris.<br>4' vent   | R1@.255   | Ea   | 19.90    | 10.10 | 30.00 | 51.00  |
| Vent end plug   | R1@.025   | Ea   | 9.12     | 0.99  | 10.11 | 17.20  |
| <b>Galvanized roof jack.</b>  |           |      |          |       |       |        |
| 4" pipe, 4 in 12 pitch  | RR@.311   | Ea   | 23.60    | 14.20 | 37.80 | 64.30  |
| 6" pipe, 4 in 12 pitch  | RR@.311   | Ea   | 29.50    | 14.20 | 43.70 | 74.30  |
| 8" pipe, 4 in 12 pitch  | RR@.311   | Ea   | 47.90    | 14.20 | 62.10 | 106.00 |
| <b>Aluminum base roof jack.</b>   |           |      |          |       |       |        |
| 1" to 3" pipe   | RR@.311   | Ea   | 11.20    | 14.20 | 25.40 | 43.20  |
| 3" to 4" pipe   | RR@.311   | Ea   | 10.70    | 14.20 | 24.90 | 42.30  |
| <b>3-N-1 rubber gasket roof jack.</b> Roof pitch to 12 in 12.   |           |      |          |       |       |        |
| 1" to 3" pipe   | RR@.311   | Ea   | 11.10    | 14.20 | 25.30 | 43.00  |
| 3" to 4" pipe   | RR@.311   | Ea   | 13.70    | 14.20 | 27.90 | 47.40  |
| <b>All rubber roof jack.</b>  |           |      |          |       |       |        |
| 1-1/4" to 4" pipe   | R1@.311   | Ea   | 35.20    | 12.30 | 47.50 | 80.80  |
| <b>Roof jack lead flashing.</b>   |           |      |          |       |       |        |
| 1-1/2" pipe   | RR@.271   | Ea   | 30.50    | 12.40 | 42.90 | 72.90  |
| 2" pipe   | RR@.271   | Ea   | 30.80    | 12.40 | 43.20 | 73.40  |
| 4" pipe   | RR@.271   | Ea   | 38.20    | 12.40 | 50.60 | 86.00  |
| <b>Tile roof pipe flashing.</b> For plumbing, electrical, and heating lines exiting a Spanish tile roof with pitch from 5 in 12 to 12 in 12. Aluminum base. |           |      |          |       |       |        |
| 1-1/2" pipe   | RR@.311   | Ea   | 15.50    | 14.20 | 29.70 | 50.50  |
| 2" pipe   | RR@.311   | Ea   | 16.80    | 14.20 | 31.00 | 52.70  |
| 3" pipe   | RR@.311   | Ea   | 22.40    | 14.20 | 36.60 | 62.20  |
| 4" pipe   | RR@.311   | Ea   | 21.30    | 14.20 | 35.50 | 60.40  |
| <b>Square roof vent.</b> Duct outlet for kitchen or bathroom exhaust fan. 50-square-inch net free vent area.  |           |      |          |       |       |        |
| Aluminum  | RR@.440   | Ea   | 12.60    | 20.10 | 32.70 | 55.60  |
| Plastic   | RR@.440   | Ea   | 12.70    | 20.10 | 32.80 | 55.80  |
| <b>Square slant back aluminum roof vent.</b> 60-square-inch free vent area. 18" x 20" flashing.   |           |      |          |       |       |        |
| Aluminum  | RR@.440   | Ea   | 18.20    | 20.10 | 38.30 | 65.10  |
| Plastic, low profile  | RR@.440   | Ea   | 14.60    | 20.10 | 34.70 | 59.00  |
| <b>T-top roof exhaust vent.</b> For bath, dryer, kitchen or other exhaust ducts terminating through the roof.   |           |      |          |       |       |        |
| 4", bonderized  | RR@.440   | Ea   | 16.70    | 20.10 | 36.80 | 62.60  |
| 4", galvanized  | RR@.440   | Ea   | 17.80    | 20.10 | 37.90 | 64.40  |
| 7", bonderized  | RR@.440   | Ea   | 21.70    | 20.10 | 41.80 | 71.10  |
| 7", galvanized  | RR@.440   | Ea   | 25.50    | 20.10 | 45.60 | 77.50  |
| 4", T-top sub-base flashing   | RR@.100   | Ea   | 10.40    | 4.56  | 14.96 | 25.40  |
| 7", T-top sub-base flashing   | RR@.100   | Ea   | 18.40    | 4.56  | 22.96 | 39.00  |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Chimney cap.</b>   |                  |             |                 |              |              |             |
| 9" x 9"   | RR@.440          | Ea          | 47.00           | 20.10        | 67.10        | 114.00      |
| 9" x 13"  | RR@.440          | Ea          | 45.30           | 20.10        | 65.40        | 111.00      |
| 8" x 8" to 13" x 13", adjustable  | RR@.440          | Ea          | 42.60           | 20.10        | 62.70        | 107.00      |
| 13" x 13"   | RR@.440          | Ea          | 43.60           | 20.10        | 63.70        | 108.00      |
| 13" x 18"   | RR@.440          | Ea          | 47.90           | 20.10        | 68.00        | 116.00      |
| 13" x 13", stainless steel  | RR@.440          | Ea          | 81.30           | 20.10        | 101.40       | 172.00      |
| <b>Roof turbine vent with base.</b> Externally braced. Stainless steel ball bearings. |                  |             |                 |              |              |             |
| 12", galvanized base  | RR@.694          | Ea          | 130.00          | 31.60        | 161.60       | 275.00      |
| 12", wood base  | RR@.694          | Ea          | 131.00          | 31.60        | 162.60       | 276.00      |
| 12", combination aluminum base  | RR@.694          | Ea          | 186.00          | 31.60        | 217.60       | 370.00      |
| <b>Rain Handling Gear</b>   |                  |             |                 |              |              |             |
| <b>Gutters and downspouts.</b>  |                  |             |                 |              |              |             |
| Galvanized steel, 4" box type,  |                  |             |                 |              |              |             |
| Gutter, 5", 10' lengths, .015"  | B1@.070          | LF          | 1.26            | 2.60         | 3.86         | 6.56        |
| Inside or outside corner  | B1@.091          | Ea          | 13.90           | 3.38         | 17.28        | 29.40       |
| Fascia support brackets   | —                | Ea          | 4.11            | —            | 4.11         | —           |
| Spike and ferrule support, 7"   | —                | Ea          | 1.45            | —            | 1.45         | —           |
| Add per 2" x 3" galvanized downspout, with drop outlet, 3 ells and straps,            |                  |             |                 |              |              |             |
| 10' downspout   | B1@.540          | Ea          | 68.20           | 20.10        | —            | 88.30       |
| 150.00  |                  |             |                 |              |              |             |
| Aluminum rain gutter, 5" box type, primed,  |                  |             |                 |              |              |             |
| Gutter, 5", 16' lengths   | B1@.070          | LF          | 3.05            | 2.60         | 5.65         | 9.61        |
| Inside or outside corner  | B1@.091          | Ea          | 9.64            | 3.38         | 13.02        | 22.10       |
| Fascia support brackets   | —                | Ea          | 3.13            | —            | 3.13         | —           |
| Spike and ferrule support, 7"   | —                | Ea          | 1.45            | —            | 1.45         | —           |
| Section joint kit   | —                | Ea          | 5.03            | —            | 5.03         | —           |
| Add per 2" x 3" aluminum downspout, with drop outlet, strainer, 3 ells and straps,    |                  |             |                 |              |              |             |
| 10' downspout   | B1@.540          | Ea          | 65.30           | 20.10        | 85.40        | 145.00      |
| 20' downspout, with connector   | B1@.810          | Ea          | 83.30           | 30.10        | 113.40       | 193.00      |
| Vinyl rain gutter, white PVC, (Plastmo Vinyl), half round gutter, (10' lengths),      |                  |             |                 |              |              |             |
| Gutter, 4"  | B1@.054          | LF          | .79             | 2.01         | 2.80         | 4.76        |
| Add for fittings (connectors, hangers, etc)   | —                | LF          | 2.38            | —            | 2.38         | —           |
| Add for inside or outside corner  | B1@.091          | Ea          | 9.65            | 3.38         | 13.03        | 22.20       |
| Add for bonding kit (covers 150 LF)   | —                | Ea          | 10.70           | —            | 10.70        | —           |
| Add for 5" gutter   | —                | %           | 15.0            | —            | —            | —           |
| Downspouts, 3" round  | B1@.022          | LF          | 1.70            | .82          | 2.52         | 4.28        |
| Add for 3 ells and 2 clamps, per downspout  | —                | Ea          | 57.20           | —            | 57.20        | —           |

# Windows

# 8

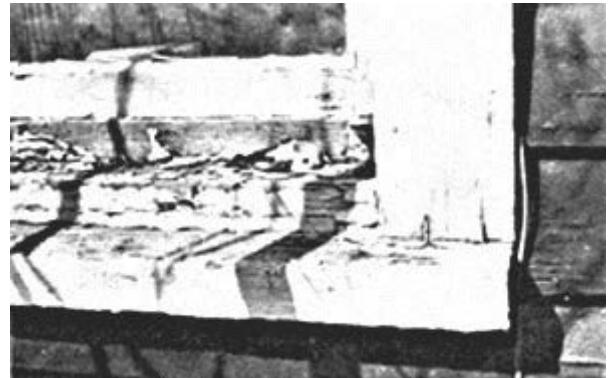


Windows can be an important (and expensive) part of any home improvement project. Loose-fitting, single-glazed windows are a major source of heat loss and gain. Wood windows in older homes often look similar to the eyesore in Figure 8-1. If your first instinct is to replace the window, keep reading. That may not be the best choice. This chapter explains why.

About one quarter of the heating and cooling load in a well-insulated home is the result of heat transfer through windows. Old window frames and sashes tend to be very porous, admitting streams of outside air during both heating and cooling seasons; modern windows have superior weatherstripping and are much tighter. In fact, modern windows are so tight that a home can develop condensation problems and a musty odor after leaky, old windows are replaced. Modern windows have insulated frames and dual glazing with about  $1/2$ " of dead air space between the panes. In better-quality insulated windows, this dead space is filled with argon gas, which transfers even less heat than dead air. Low-emissivity (Low-E) glass has two invisible layers of microscopically-thin silver sandwiched between anti-reflective layers of metal oxide. Low-E glass admits sunlight but blocks radiant heat from escaping during the winter. During the cooling season, Low-E glass reflects back to the exterior as much as 25 percent of unwanted solar heat. Low-E coatings also block more than 80 percent of the ultraviolet light that tends to fade fabrics. Glass edges in better-quality insulated windows are sealed with "warm edge" spacers that transfer even less heat around the glass perimeter.

Modern windows have clear advantages over windows installed in homes before about 1970. But these advantages come at a price, especially if windows have to be custom-made to fit the opening. Before recommending replacement, take a few minutes to examine the existing windows.

Check the tightness of fit. A window sash that rattles in the frame probably leaks cold air in the winter, hot air in the summer and water during heavy rain. Check the operation of the window. Old double-hung and single-hung wood windows seldom operate smoothly. You may find many that are painted shut. Years of re-painting has sealed and immobilized the sash in the frame. That may reduce leaking but it also eliminates venting as an option. Old casement and awning windows tend to warp at



**Figure 8-1**

*Signs of excessive water damage are evident in the paint peeling off this window sill and sash and broken caulking around the window*

the top and bottom. Dark stains on the sash and sill are usually caused by condensation running down the glass. If you see condensation stains, check for softening of the molding and sill.

Brown or black discoloration near joints is a sign of decay. Untreated wood windows are particularly vulnerable to insect attack, either by termites, powder post beetles or carpenter ants. Termites usually leave sand-like pellets outside the wood they're destroying. Powder post beetles make the wood look as though it was hit by birdshot. Carpenter ants deposit neat piles of coarse sawdust where they're nesting. Fumigation by a professional exterminator is usually required to eliminate termites. Use spray insecticide to eliminate carpenter ants and powder post beetles.

Although aluminum windows don't decay, they're still candidates for replacement. Aluminum is highly conductive to heat and cold. Aluminum windows can get so cold in winter that frost will form inside of them, wasting heat while creating unpleasant drafts and moisture problems. Modern windows offer better insulating value against heat, cold, UV radiation and noise. They protect better against forced entry, and better resist both wind and rain. And if that's not enough, modern windows are easier to keep clean. Many tilt inward so both sides can be cleaned from the interior. Perhaps you're old enough to remember your mother or grandmother sitting on the window sills of the upstairs bedrooms, facing in, with her legs dangling inside the room, cleaning the outside of the windows. It wasn't a good idea then, and it's not a good idea now.

## Windows and the Building Code

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Most states and counties have energy codes that set energy-efficiency standards for both new construction and alteration work. To get a building permit for a significant home improvement project, you may have to submit energy calculations that demonstrate energy code compliance. State, city and county standards vary. But the U.S. Department of Energy offers free computer software to help you meet requirements of most model energy codes. The DOE website is <http://www.energycodes.gov>. Naturally, the size and orientation of windows affect energy use. Too many large windows in the wrong places increase both the heating and cooling load beyond what energy codes allow.

Building codes require that sleeping rooms below the fourth floor have at least one operable window or door approved for an emergency exit (egress). If your building department requires upgrading the home to modern egress standards, you'll have to install at least one egress window (or door) in each bedroom. An egress window measures at least 20" wide by at least 24" high and has a clear opening of at least 5.7 square feet. The sill can't be more than 44" above the floor.

Many building codes also require that certain windows have tempered glass. These include windows within 18" of the floor, windows on a stairway landing and windows used as a sidelight beside an entry door. Tempered glass fractures into pebble-like shards less likely to cause injury.

## Storm Windows

In colder climates, storm windows (*storms*) reduce the heating load and prevent damage from condensation on window interiors. Storms also protect the windows from extreme weather. The damaged window in Figure 8-2 wasn't protected by a storm window. The sash joints are weak and need to be reinforced; the glazing putty has to be replaced; the swollen, rough wood has to be sanded smooth so the window will open and close without sticking; and the window needs paint. Most of this work could have been avoided if a storm window had been installed during winter months.

When evaluating windows, note whether the house has removable storms and screens. Most homes built in cold climates between 1920 and 1980 have (or had) storm windows. Newer homes usually have insulated, double-pane glazing that offers weather protection similar to storm windows.

Galvanized self-storing storm-and-screen windows were introduced in the 1940s. Aluminum storms and screens became popular in the 1950s. Older aluminum storms will be oxidized and pitted and rubber glazing strips will be deteriorated. If you elect to replace windows, storms may not be needed. If you plan to repair windows, storms will be required in colder climates. It's usually better to replace, rather than repair, deteriorated storms, especially for standard size windows. Most storm windows have a 2" skirt that can be trimmed off to make minor adjustments in width and height. Storms can be custom fabricated for odd-size windows at moderate cost. For a little extra money, consider high-performance storms with Low-E glass.



**Figure 8-2**

Weather-damaged window

## Repair of Existing Wood Windows

Repair is easy when the only problem with a wood window is minor decay. A coat of water-repellent preservative on the exterior will stop further deterioration. This is a three-step process:

1. Use a heat gun or paint stripper to remove the existing paint.
2. Brush on preservative.
3. Repaint the window.

Paint can't be used over some types of wood preservative, so be sure to select a paintable preservative.

Next, consider aesthetics. This is especially important on older or historic homes. If you install modern windows, the house will have a new look. Is that new look going to be in harmony with the exterior trim? With the siding? With the roofing? With other windows in the house? If just a few windows need replacing, can you replace just those few without creating an eyesore? In such cases, repairing a window may be a much better choice than replacement, both in the money saved and in the preservation of a consistent style for the home.

Reproducing the leaded glass windows in Figure 8-3 would cost thousands of dollars today. Instead, repair fine-quality windows like these. Replacing the windows in Figure 8-4 with modern vinyl windows would be a mistake. The vinyl windows would stick out like sore thumbs.

Weigh the repair work needed against the cost of a replacement window. Nearly all old windows need new glazing putty. Cracked panes have to be replaced. Corners may need reinforcement. And you'll probably have to scrape off layers of paint so the window opens and closes properly. These are relatively minor repairs. More extensive decay may require that the window be rebuilt rather than repaired.



**Figure 8-3**

*Fancy Victorian windows should be saved*



**Figure 8-4**

*These windows are historically accurate*

## Replacing Glazing Putty

Glazing putty lasts 40 to 50 years when protected by a storm window. Without protection from severe weather, glazing putty cracks in 5 to 10 years. Sections of putty fall out, leaving glass loose in the window frame. If a window pane is cracked and needs to be replaced, you'll have to remove the old putty to get the broken glass out.

When re-glazing, select putty that's smooth, creamy, and easy to work with. Avoid glazing putty that's hard to spread. You can apply glazing putty with a putty knife, but it's better to use a glazing tool that both applies new putty and removes old. Most of the old putty will come out easily. If some refuses to budge, use the glazing tool to cut under the old putty, removing a little sliver of wood, putty and all.

Allow about 15 minutes to remove and replace putty for one pane of glass, whether large or small. So figure four hours to renew putty for a pair of windows like the ones in Figure 8-5. If a pane is broken, take the sash out of the frame. Lay the window down flat on a newspaper. Then break the old glass out onto the newspaper. When you're done, just fold up the newspaper, broken glass and all, and throw it away. This keeps the jobsite free of broken glass. Measure carefully for replacement glass, including the  $1/4$ " of glass area under the glazing putty.

## Sash Repair

Joints tend to work loose and decay as windows age. Use wood glue and an angle brace to reinforce a weak corner. Figure 8-6 shows this type of repair on the weather-damaged window in Figure 8-2. When the window is painted, the braces won't be noticeable.

If a single- or double-hung wood window doesn't operate smoothly, try applying paste or paraffin wax to parts of the stop, jamb, and parting strip that come in contact during operation. If that doesn't solve the problem, abrasion marks on the sash will usually reveal where the sash is binding. Move nailed stops (Figure 8-7) away from the sash slightly. If stops are fastened with screws, remove the stop and sand or plane it lightly on the face in contact with the sash. But be careful not to plane away too much of the stop. Opening up too much space creates a path for air infiltration. If the sash is binding against the jamb, remove the sash and then plane the vertical edges slightly.

If the sash rattles in the frame, glue a thin strip of wood veneer to one side of the sash. Keep veneer strips narrow enough so they're hidden by the stops.

The most common cause of window jamming is paint buildup. This is particularly true of the top sash, which is opened less than the bottom sash. Remove paint buildup with a heat gun. Start by removing the interior stop. Then lift out both top and bottom sash. Use a heat gun and a scraper to remove paint from the casing. Remove paint from the sash as well. Buildup may be jamming the sash against the stop. Be careful to keep the heat gun away from glass. Hot air from the gun can crack cold glass.

Fit the windows back into the frame and check operation. If the sash is still tight, a little sanding should solve the problem.

Once the window is working properly, it's OK to repaint the casing and sash. A single coat of paint won't do any harm. This entire job usually takes about two hours per window, including touch-up painting.



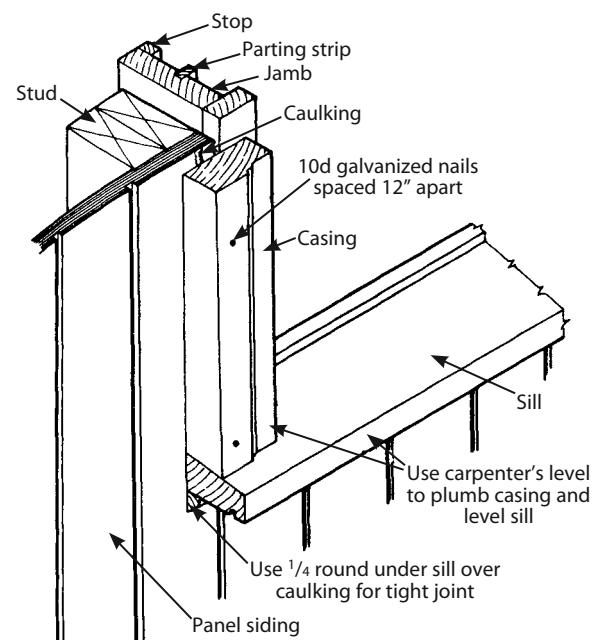
**Figure 8-6**

Steel angle brace used to reinforce sash



**Figure 8-5**

Multi-paned windows



**Figure 8-7**

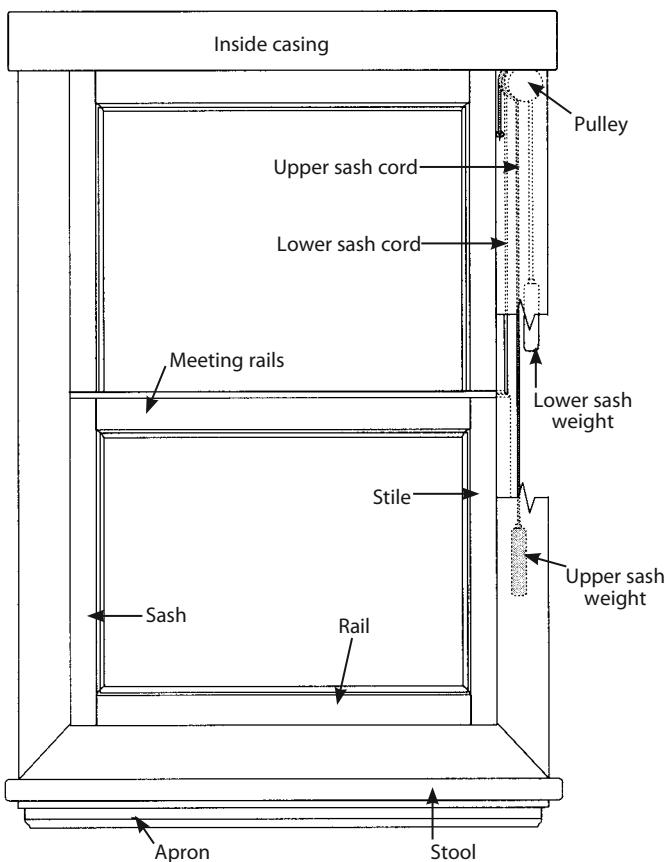
Installation of double-hung window frame

## Counterweighted Windows

Quality wood windows built before about 1930 had sash balances inside the wall, usually two weights, one on each side of the window. See Figure 8-8. The weights and the window were perfectly balanced so the window would stay put when opened to any height. Most likely, at least one pulley and rope failed many years ago. Now, the only way to keep the window open is with a stick supporting the sash. Even worse, the balance mechanism may still be working on just one side. That immobilizes the sash at nearly any height.

If sash balances have failed on an otherwise sound window, consider installing a new spring balance or replacing the broken sash cord. Installing a spring balance only requires removing the parting strip and stops. Follow the spring balance manufacturer's installation instructions. Then replace the stops.

Replacing broken balance ropes is simple, but not easy. The weights are difficult to get at. Working from inside the house, remove the inside stop. Back out screws or carefully pry out the small nails anchoring the stop. Once loose, lift the sash and swivel it out of the window frame. With luck, you'll only need to remove the stop on one side of the window.



**Figure 8-8**  
Weight assembly in counterweighted windows

If you see a little access cover under the inside stop on each side of the window, remove the cover to expose the channel where sash weights are supposed to operate. If you don't see an access cover, pry off the outer casing boards on each side of the window. Be careful not to crack the casing. Casing is usually attached with 4" trim-head nails. If these have rusted, they can be very hard to get loose. Don't put too much pressure on one spot. You'll either break the trim board or knock a hole in the wall. Work all around the board until you get it loose.

When the trim board is off, you won't see any weights. But have faith, the weights are in there. The window was installed before the furring strips and plaster went on. The outer casing boards were put on top of that. The weights are under the furring strips.

You'll need to cut through the plaster and furring strips at the bottom of the window frame. Don't worry, the hole won't show once you put the trim board back on. Cut carefully to avoid breaking any big chunks of plaster loose.

You may not see the weight at first. It's recessed a little below the bottom edge of the window frame. That's to give it someplace to go

when the window is all the way up. If you stick your fingers into the hole, you'll feel the top of the sash weight. It's usually a rough cast-iron cylinder with a loop on top for attaching the sash cord.

Now you need to replace the sash cord. You can use cotton clothesline, because it looks just like the cord that was there originally. Feed an end over the pulley until it appears in the hole. Tie the end to the loop on top of the weight.

If you look at the outside edge of the sash frame on each side, you'll see keyhole-shaped cutouts where the cord is supposed to go. Cut new cord to the proper length and tie a knot in the end. The knot goes in the round-hole part of the keyhole-shaped cutout. The long thin part of the cutout acts as a guide for the rest of the rope. Once you fit the sash back in the frame, the cord will be held in place by pressure.

Before you put the window back together, check and see that it operates properly. If the repair has been done correctly, the window will slide smoothly and stay put when released in any position. If the window doesn't slide easily, do a little cleaning or sanding.

Replacing a set of four sash cords requires about two hours per window, assuming you don't break any trim boards or knock chunks out of the plaster. But those two hours will save several hundred dollars that a new custom-made insulated vinyl window would cost. Since counterweighted windows were made from high-quality materials like oak, a vinyl window might not look right in this location anyway. And a new window probably won't cut heating or cooling cost by more than a dollar or so a month. When in doubt, repair the existing window and buy new storms.

## Adding or Moving a Window

Adding or moving a window will usually require both structural changes (studs and headers) and changes to the interior finish (wallboard, painting and trim). If the home improvement budget is modest, money should be spent elsewhere. But a strategically-placed window can add both livability and resale value to an older home. Figures 8-9 and 8-10 are before and after shots of a window re-sizing job. To take good advantage of a beautiful view, both openings were enlarged considerably. This job required about 12 hours per window. Chapter 3 includes estimates for cutting new wall openings for windows and doors.

Here are some rules to observe when adding, moving or re-sizing a window:

- ❖ Glass area should be equivalent to about 10 percent of floor area.
- ❖ Locate windows to promote good cross-ventilation.
- ❖ Group windows to eliminate undesirable contrasts in brightness.
- ❖ Window venting area should be about half of the window area.
- ❖ Provide screens for all sashes that open for ventilation.



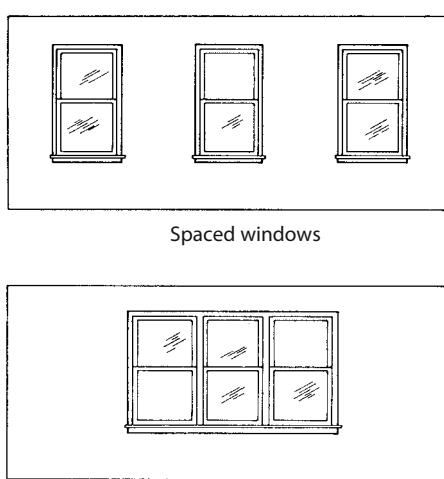
**Figure 8-9**  
*Original windows*



**Figure 8-10**  
*New larger windows take advantage of view*

- ❖ Sill height can be lower in rooms used mostly for seating (living room).
- ❖ Sill heights can be higher in rooms used mostly for standing (kitchen).

Avoid small windows spaced evenly across a wall. Scattered windows cut up the wall space, making it unusable for larger pieces of furniture, such as a bookcase. It's better to cluster windows into one or two areas and leave other wall space undisturbed. See Figure 8-11. If you have a choice, put windows in south-facing walls, especially in colder climates. Winter sun is lower on the horizon, projecting sunlight deeper into the room through south-facing windows. Summer sun is higher in the sky and will be shaded even by a small overhang on the south side. In very warm climates, favor windows in north walls to avoid heat gain. Avoid west-facing windows to limit solar heating during the hottest part of the day. Even a large overhang is ineffective against a setting sun.



**Figure 8-11**  
*Window spacing*

If you decide to close up a window opening, install vertical framing members spaced to match stud spacing below the window. Keeping the stud spacing consistent simplifies the nailing of both interior and exterior wall cover. Toenail new framing to the old window header and to the sill, using three 8d or 10d nails at each joint. Install sheathing of the same thickness as the existing sheathing. Then add insulation and apply a vapor barrier on the inside face of the framing. Make sure the new vapor barrier laps over the vapor bar-

rier in the remainder of the wall. Finally, apply interior and exterior wall covering to match the existing wall cover.

## Replacement Windows

Figure 8-12 shows a double-casement window too decayed for repair. The replacement window (Figure 8-13) preserves the appearance of the old window but adds modern comfort and convenience.

Windows made for new construction have a nailing flange that laps over the exterior of the rough opening. For replacement purposes, that requires removal of the siding or stucco around the window perimeter and either a lot of patching or some very wide casing. Replacement windows fit into the existing jamb and have only a slightly wider casing to hide what's left of the old window. Be sure to specify the type of window you're replacing, either brick mold frame, wood frame or metal frame.

No special tools or equipment are needed to install a replacement window. But the window has to fit the opening exactly. If you're lucky, a stock size replacement window will fit. The tables that follow in this chapter list stock sizes for both replacement windows and new construction windows. If a stock size doesn't fit the opening, consider adding blocks and cripples so the opening fits a standard size replacement window. Of course, you'll need wider casing to cover the extra framing width at the head and jamb. If re-framing the window opening isn't practical, order a replacement window custom-made to size.



**Figure 8-12**

*This rotted window had to be replaced*



**Figure 8-13**

*New thermopane window retains the look of the original*

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell     |
|---|-----------|------|----------|--------|--------|----------|
| <b>Window Repairs</b>   |           |      |          |        |        |          |
| <b>Close up window opening, wood frame wall.</b> Remove and dispose of window and frame, install studs, sheathing, insulation, hang drywall interior (not taped or finished), install exterior wall finish and job clean-up. Near (not perfect) match of exterior wall finish. Per opening.   |           |      |          |        |        |          |
| Stucco, wood, or vinyl siding exterior  | B1@6.85   | Ea   | 211.00   | 255.00 | 466.00 | 792.00   |
| Brick veneer toothed into existing brick  | B9@9.50   | Ea   | 471.00   | 346.00 | 817.00 | 1,390.00 |
| <b>Close up window opening, masonry wall.</b> Remove and dispose of window and frame, install brick or block backup, tooth face brick into the existing brick, install insulation, hang drywall interior (not taped or finished) and job clean-up. Near (not perfect) match of materials. Per opening.  |           |      |          |        |        |          |
| Brick or brick and block  | B9@12.0   | Ea   | 546.00   | 437.00 | 983.00 | 1,670.00 |
| <b>Change window opening size, wood frame wall.</b> Including cripples, shims and blocks as needed. Add the cost of patching the interior and exterior wall surfaces.   |           |      |          |        |        |          |
| Opening to 20 square feet, per opening  | B1@1.53   | Ea   | 37.00    | 56.90  | 93.90  | 160.00   |
| Opening over 20 square feet, per SF   | B1@.077   | SF   | 2.14     | 2.86   | 5.00   | 8.50     |
| <b>Change window opening size, masonry wall.</b> Includes masonry patching and toothing of brick as needed.   |           |      |          |        |        |          |
| Opening to 20 square feet, per opening  | B6@1.95   | Ea   | 47.60    | 70.80  | 118.40 | 201.00   |
| Opening over 20 square feet, per SF   | B6@.098   | SF   | 6.51     | 3.56   | 10.07  | 17.10    |
| Add for new cut stone sill, if needed   | B6@.080   | LF   | 8.46     | 2.90   | 11.36  | 19.30    |
| Add for new steel lintel, if needed   | B6@.250   | Ea   | 14.10    | 9.07   | 23.17  | 39.40    |
| <b>Cut window opening and install new window.</b> Cut window opening in an exterior frame wall, frame a new window opening, install new window (cost of window not included) and patch interior and exterior surfaces. Based on wall with 1" x 6" drop siding, diagonal 1" x 12" sheathing, 2" x 4" studs 16" on center, and drywall interior. Assumes a double 2" x 6" header for a 3' opening, double 2" x 8" header for a 5' opening, double 2" x 10" header for a 6' opening or a double 2" x 12" header for an 8' opening. |           |      |          |        |        |          |
| Window to 10 square feet  | BC@9.50   | Ea   | 44.30    | 390.00 | 434.30 | 738.00   |
| Add per square foot for window over 10 SF   | B1@.950   | SF   | 3.98     | 35.30  | 39.28  | 66.80    |
| Add per linear foot of 4" wide vinyl sill   | BC@.050   | LF   | 9.75     | 2.05   | 11.80  | 20.10    |
| <b>Remove and replace wood window.</b> Pry off trim. Remove stops and sash. Loosen siding to expose jamb. Cut or pull nails securing window to wall framing. Lift out window. Level and install same-size jamb. Re-install trim. Add the cost of patching and finishing interior and exterior walls.  |           |      |          |        |        |          |
| Window to 10 square feet  | BC@3.12   | Ea   | —        | 128.00 | 128.00 | 218.00   |
| Add per square foot for window over 10 SF   | B1@.310   | SF   | —        | 11.50  | 11.50  | 19.60    |
| <b>Remove, repair and replace window sash.</b> Wood double-hung window. Remove stops and sash. Plane and sand sash. Apply paraffin. Re-install sash and stops.  |           |      |          |        |        |          |
| Per window sash   | BC@.400   | Ea   | —        | 16.40  | 16.40  | 27.90    |
| <b>Break paint seal to free window sash.</b> Using a hammer, wood block and putty knife blade. Add the cost of touch-up painting, if required.  |           |      |          |        |        |          |
| Per sash  | BC@.200   | Ea   | —        | 8.21   | 8.21   | 14.00    |
| <b>Remove and replace sash cord.</b> Wood double-hung window. Remove window stop, sash and weight pocket covers. Remove weights and cords. Replace and attach new cords. Replace window sash and stop.  |           |      |          |        |        |          |
| Per sash (2 cords)  | BC@1.00   | Ea   | 2.10     | 41.10  | 43.20  | 73.40    |
| <b>Remove exterior window trim.</b> Working from a ladder.  |           |      |          |        |        |          |
| 12' trim length   | BC@.220   | Ea   | —        | 9.03   | 9.03   | 15.40    |

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Caulk window exterior.</b> Caulk up to 12 linear feet of window perimeter with 5 ounces of paintable silicone sealant.  |                  |             |                 |              |              |             |
| Per window to 12 linear feet   | BC@.104          | Ea          | 4.00            | 4.27         | 8.27         | 14.10       |
| Add for each additional LF   | BC@.009          | LF          | .32             | .34          | .66          | 1.12        |
| <b>Remove and replace window caulk.</b> Working from a ladder. Chip out old caulk around window perimeter and replace with 12 linear feet of paintable silicone sealant. |                  |             |                 |              |              |             |
| Per window to 12 linear feet   | BC@.178          | Ea          | 4.00            | 7.31         | 11.31        | 19.20       |
| Add for each additional LF   | BC@.015          | LF          | .34             | .62          | .96          | 1.63        |

## Vinyl Windows

**Custom-made vinyl replacement windows.** Typical costs. Prices vary with window specifications and distance from the point of manufacture. Allow two weeks to a month for delivery. Insulating glass. Base cost per unit plus additional cost per square foot of opening size. Add the cost of Low-E glazing, grilles and screens below.

|  |         |    |        |       |        |          |
|--|---------|----|--------|-------|--------|----------|
| Fixed (picture) vinyl window, base cost    | BC@1.00 | Ea | 573.00 | 41.10 | 614.10 | 1,040.00 |
| Add per square foot of opening             | B1@.050 | SF | 15.60  | 1.86  | 17.46  | 29.70    |
| Double-hung vinyl window, base cost        | BC@1.00 | Ea | 656.00 | 41.10 | 697.10 | 1,190.00 |
| Add per square foot of opening             | B1@.050 | SF | 15.60  | 1.86  | 17.46  | 29.70    |
| Two-lite sliding vinyl window, base cost   | BC@1.00 | Ea | 658.00 | 41.10 | 699.10 | 1,190.00 |
| Add per square foot of opening             | B1@.050 | SF | 15.60  | 1.86  | 17.46  | 29.70    |
| Three-lite sliding vinyl window, base cost | BC@1.00 | Ea | 712.00 | 41.10 | 753.10 | 1,280.00 |
| Add per square foot of opening             | B1@.050 | SF | 15.60  | 1.86  | 17.46  | 29.70    |
| Add for Low-E glazing, per SF of opening   | —       | SF | 4.58   | —     | 4.58   | —        |
| Add for colonial grille, per SF of opening | —       | SF | 4.25   | —     | 4.25   | —        |
| Add for screen, per screen                 | —       | Ea | 30.50  | —     | 30.50  | —        |

**Vinyl double-hung stock replacement windows, 7/8" insulating Low-E glass.** Fusion-welded white vinyl frame. By nominal (opening) size, width by height. Actual size is 1/2" less in both width and height. Tilt sash. With screen. Obscure glass and colonial grilles are available on some stock sizes. Labor includes removing the old stops and sash and setting new J-trim as needed.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 36" | BC@1.00 | Ea | 242.00 | 41.10 | 283.10 | 481.00 |
| 24" x 38" | BC@1.00 | Ea | 242.00 | 41.10 | 283.10 | 481.00 |
| 24" x 46" | BC@1.00 | Ea | 284.00 | 41.10 | 325.10 | 553.00 |
| 24" x 54" | BC@1.00 | Ea | 292.00 | 41.10 | 333.10 | 566.00 |
| 28" x 37" | BC@1.00 | Ea | 270.00 | 41.10 | 311.10 | 529.00 |
| 28" x 38" | BC@1.00 | Ea | 273.00 | 41.10 | 314.10 | 534.00 |
| 28" x 46" | BC@1.00 | Ea | 212.00 | 41.10 | 253.10 | 430.00 |
| 28" x 53" | BC@1.00 | Ea | 237.00 | 41.10 | 278.10 | 473.00 |
| 28" x 54" | B1@1.50 | Ea | 255.00 | 55.80 | 310.80 | 528.00 |
| 28" x 58" | B1@1.50 | Ea | 256.00 | 55.80 | 311.80 | 530.00 |
| 28" x 62" | B1@1.50 | Ea | 250.00 | 55.80 | 305.80 | 520.00 |
| 30" x 38" | B1@1.50 | Ea | 246.00 | 55.80 | 301.80 | 513.00 |
| 30" x 54" | B1@1.50 | Ea | 248.00 | 55.80 | 303.80 | 516.00 |
| 30" x 58" | B1@1.50 | Ea | 262.00 | 55.80 | 317.80 | 540.00 |
| 30" x 62" | B1@1.50 | Ea | 262.00 | 55.80 | 317.80 | 540.00 |
| 30" x 66" | B1@1.50 | Ea | 262.00 | 55.80 | 317.80 | 540.00 |
| 31" x 53" | B1@1.50 | Ea | 245.00 | 55.80 | 300.80 | 511.00 |
| 31" x 54" | B1@1.50 | Ea | 256.00 | 55.80 | 311.80 | 530.00 |
| 31" x 57" | B1@1.50 | Ea | 256.00 | 55.80 | 311.80 | 530.00 |
| 31" x 58" | B1@1.50 | Ea | 256.00 | 55.80 | 311.80 | 530.00 |
| 31" x 61" | B1@1.50 | Ea | 256.00 | 55.80 | 311.80 | 530.00 |
| 32" x 38" | B1@1.50 | Ea | 231.00 | 55.80 | 286.80 | 488.00 |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| 32" x 46"                                 | B1@1.50          | Ea          | 234.00          | 55.80        | 289.80       | 493.00      |
| 32" x 50"                                 | B1@1.50          | Ea          | 234.00          | 55.80        | 289.80       | 493.00      |
| 32" x 54"                                 | B1@1.50          | Ea          | 256.00          | 55.80        | 311.80       | 530.00      |
| 32" x 58"                                 | B1@1.50          | Ea          | 246.00          | 55.80        | 301.80       | 513.00      |
| 32" x 61"                                 | B1@1.50          | Ea          | 246.00          | 55.80        | 301.80       | 513.00      |
| 32" x 62"                                 | B1@1.50          | Ea          | 254.00          | 55.80        | 309.80       | 527.00      |
| 32" x 66"                                 | B1@1.50          | Ea          | 268.00          | 55.80        | 323.80       | 550.00      |
| 32" x 70"                                 | B1@1.50          | Ea          | 306.00          | 55.80        | 361.80       | 615.00      |
| 34" x 38"                                 | B1@1.50          | Ea          | 190.00          | 55.80        | 245.80       | 418.00      |
| 34" x 46"                                 | B1@1.50          | Ea          | 234.00          | 55.80        | 289.80       | 493.00      |
| 34" x 54"                                 | B1@1.50          | Ea          | 234.00          | 55.80        | 289.80       | 493.00      |
| 34" x 62"                                 | B1@1.50          | Ea          | 218.00          | 55.80        | 273.80       | 465.00      |
| 36" x 38"                                 | B1@1.50          | Ea          | 262.00          | 55.80        | 317.80       | 540.00      |
| 36" x 46"                                 | B1@1.50          | Ea          | 253.00          | 55.80        | 308.80       | 525.00      |
| 36" x 50"                                 | B1@1.50          | Ea          | 268.00          | 55.80        | 323.80       | 550.00      |
| 36" x 54"                                 | B1@1.50          | Ea          | 268.00          | 55.80        | 323.80       | 550.00      |
| Add for colonial grille between the lites | —                | %           | 15.0            | —            | —            | —           |

**Vinyl single-hung stock replacement windows, insulating glass.** Tilt-in sash. Front flange frame for installation in masonry block openings. Lower sash opens. Upper sash is fixed. Includes half screen. By opening size, width by height. Grille pattern shows lites in upper and lower sash, such as 6/6. Labor includes removing the old stops and sash and setting new J-trim as needed.

|                               |         |    |        |       |        |        |
|-------------------------------|---------|----|--------|-------|--------|--------|
| 35-7/8" x 24-7/8"             | B1@1.00 | Ea | 136.00 | 37.20 | 173.20 | 294.00 |
| 35-7/8" x 37-1/4"             | B1@1.00 | Ea | 194.00 | 37.20 | 231.20 | 393.00 |
| 35-7/8" x 49-1/2"             | B1@1.00 | Ea | 214.00 | 37.20 | 251.20 | 427.00 |
| 35-7/8" x 61-7/8"             | B1@1.50 | Ea | 231.00 | 55.80 | 286.80 | 488.00 |
| 52" x 37-1/4"                 | B1@1.50 | Ea | 223.00 | 55.80 | 278.80 | 474.00 |
| 52" x 49-1/2"                 | B1@1.50 | Ea | 251.00 | 55.80 | 306.80 | 522.00 |
| 35-7/8" x 37-1/4", 6/6 grille | B1@1.50 | Ea | 222.00 | 55.80 | 277.80 | 472.00 |
| 35-7/8" x 49-1/2", 6/6 grille | B1@1.50 | Ea | 239.00 | 55.80 | 294.80 | 501.00 |
| 35-7/8" x 61-7/8", 6/6 grille | B1@1.50 | Ea | 254.00 | 55.80 | 309.80 | 527.00 |
| 52" x 37-1/4", 8/8 grille     | B1@1.50 | Ea | 247.00 | 55.80 | 302.80 | 515.00 |
| 52" x 49-1/2", 8/8 grille     | B1@1.50 | Ea | 276.00 | 55.80 | 331.80 | 564.00 |

**Vinyl casement bay windows, 7/8" insulating glass.** Fixed center lite and two casement flankers. White vinyl. Factory assembled. By nominal (opening) size, width by height. Actual size is 1/2" less in both width and height. Includes two screens. Low-E glass is available on some stock sizes.

|           |         |    |          |        |          |          |
|-----------|---------|----|----------|--------|----------|----------|
| 69" x 50" | B1@4.00 | Ea | 1,980.00 | 149.00 | 2,129.00 | 3,620.00 |
| 74" x 50" | B1@4.00 | Ea | 2,080.00 | 149.00 | 2,229.00 | 3,790.00 |
| 93" x 50" | B1@4.50 | Ea | 2,170.00 | 167.00 | 2,337.00 | 3,970.00 |
| 98" x 50" | B1@4.50 | Ea | 2,210.00 | 167.00 | 2,377.00 | 4,040.00 |

**Vinyl garden windows, 7/8" insulating glass.** Single front awning vent. White vinyl construction with wood frame. Tempered glass shelf. 5/4" vinyl laminated head and seat board. With hardware and screen. By nominal (opening) size, width by height. Replacement window. Labor includes removing the old stops and sash and setting new J-trim as needed.

|                        |         |    |          |        |          |          |
|------------------------|---------|----|----------|--------|----------|----------|
| 36" x 36"              | B1@2.75 | Ea | 1,470.00 | 102.00 | 1,572.00 | 2,670.00 |
| 36" x 36", Low-E glass | B1@2.75 | Ea | 1,770.00 | 102.00 | 1,872.00 | 3,180.00 |
| 36" x 48"              | B1@2.75 | Ea | 1,560.00 | 102.00 | 1,662.00 | 2,830.00 |
| 36" x 48", Low-E glass | B1@2.75 | Ea | 1,870.00 | 102.00 | 1,972.00 | 3,350.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Half-circle fixed vinyl windows.** Installed in an opening that's already framed to the correct size. Dual glazed, white frame. Low-E insulating glass. Stock units for new construction. Dimensions are width by height.

|           |         |    |          |        |          |          |
|-----------|---------|----|----------|--------|----------|----------|
| 20" x 10" | B1@2.75 | Ea | 917.00   | 102.00 | 1,019.00 | 1,730.00 |
| 30" x 16" | B1@2.75 | Ea | 917.00   | 102.00 | 1,019.00 | 1,730.00 |
| 40" x 20" | B1@2.75 | Ea | 1,210.00 | 102.00 | 1,312.00 | 2,230.00 |
| 50" x 26" | B1@2.75 | Ea | 1,450.00 | 102.00 | 1,552.00 | 2,640.00 |
| 60" x 30" | B1@2.75 | Ea | 1,640.00 | 102.00 | 1,742.00 | 2,960.00 |
| 80" x 40" | B1@2.75 | Ea | 2,390.00 | 102.00 | 2,492.00 | 4,240.00 |

**Vinyl jalousie windows.** Installed in an opening that's already framed to the correct size. Positive locking handle for security. By opening size, width by height.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 24" x 35-1/2", clear         | BC@1.00 | Ea | 413.00 | 41.10 | 454.10 | 772.00 |
| 24" x 35-1/2", obscure glass | BC@1.00 | Ea | 471.00 | 41.10 | 512.10 | 871.00 |
| 30" x 35-1/2", clear         | BC@1.00 | Ea | 438.00 | 41.10 | 479.10 | 814.00 |
| 30" x 35-1/2", obscure glass | BC@1.00 | Ea | 499.00 | 41.10 | 540.10 | 918.00 |
| 36" x 35-1/2", clear         | BC@1.00 | Ea | 453.00 | 41.10 | 494.10 | 840.00 |
| 36" x 35-1/2", obscure glass | BC@1.00 | Ea | 535.00 | 41.10 | 576.10 | 979.00 |

**Hopper vinyl windows.** White. Installed in an opening that's already framed to the correct size. Does not include finish or trim work. Low-E insulating glass. Argon filled. Frame depth 3-5/16". With screen. Stock units for new construction. By opening size, width by height.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 32" x 15" | B1@.500 | Ea | 139.00 | 18.60 | 157.60 | 268.00 |
| 32" x 17" | B1@.500 | Ea | 147.00 | 18.60 | 165.60 | 282.00 |
| 32" x 19" | B1@.500 | Ea | 153.00 | 18.60 | 171.60 | 292.00 |
| 32" x 23" | B1@.500 | Ea | 160.00 | 18.60 | 178.60 | 304.00 |

## Vinyl-Clad Wood Windows

**Vinyl-clad double-hung Low-E insulated glass wood windows.** Prefinished pine interior. White vinyl exterior. Tilt sash. For new construction. By nominal (opening) size, width by height. Actual width is 1-5/8" more. Actual height is 3-1/4" more. Includes factory-applied extension jamb for 4-9/16" wall. Add the cost of screens and colonial grilles.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| 24" x 36"                                       | B1@.500 | Ea | 237.00 | 18.60 | 255.60 | 435.00 |
| 28" x 48"                                       | B1@.500 | Ea | 288.00 | 18.60 | 306.60 | 521.00 |
| 28" x 36"                                       | B1@.500 | Ea | 246.00 | 18.60 | 264.60 | 450.00 |
| 28" x 42"                                       | B1@.500 | Ea | 268.00 | 18.60 | 286.60 | 487.00 |
| 32" x 48"                                       | B1@.750 | Ea | 305.00 | 27.90 | 332.90 | 566.00 |
| 32" x 57"                                       | B1@.750 | Ea | 338.00 | 27.90 | 365.90 | 622.00 |
| 32" x 36"                                       | B1@.750 | Ea | 260.00 | 27.90 | 287.90 | 489.00 |
| 36" x 42"                                       | B1@.750 | Ea | 300.00 | 27.90 | 327.90 | 557.00 |
| 36" x 48"                                       | B1@.750 | Ea | 320.00 | 27.90 | 347.90 | 591.00 |
| 36" x 54"                                       | B1@.750 | Ea | 342.00 | 27.90 | 369.90 | 629.00 |
| 36" x 57"                                       | B1@.750 | Ea | 216.00 | 27.90 | 243.90 | 415.00 |
| Deduct for non Low-E glazing, per SF of opening | —       | SF | -1.90  | —     | -1.90  | —      |

## Vinyl Replacement Windows

Vinyl replacement windows, white vinyl frame, insulated low-E glass. Argon filled. For existing construction. Set in an existing frame. Including on site measure, custom fabrication, delivery, breakout and disposal of the existing glass.

By frame size, width x height. With screen.

|  |         |    |          |        |          |          |
|--|---------|----|----------|--------|----------|----------|
| 2'0" x 2'0" (fixed)                          | BC@0.75 | Ea | 244.00   | 30.80  | 274.80   | 467.00   |
| 3'0" x 2'0" (fixed)                          | BC@0.85 | Ea | 264.00   | 34.90  | 298.90   | 508.00   |
| 3'9" x 2'0" (fixed)                          | BC@0.90 | Ea | 291.00   | 37.00  | 328.00   | 558.00   |
| 5'0" x 4'0" (two lites, half venting)        | BC@2.00 | Ea | 431.00   | 82.10  | 513.10   | 872.00   |
| 6'0" x 3'6" (two lites, half venting)        | BC@2.00 | Ea | 441.00   | 82.10  | 523.10   | 889.00   |
| 6'0" x 4'0" (two lites, half venting)        | BC@2.00 | Ea | 470.00   | 82.10  | 552.10   | 939.00   |
| 6'0" x 4'0" (four lites, 22" x 22" venting)  | BC@2.00 | Ea | 718.00   | 82.10  | 800.10   | 1,360.00 |
| 6'0" x 5'0" (two lites, half venting)        | BC@2.25 | Ea | 536.00   | 92.40  | 628.40   | 1,070.00 |
| 10'0" x 6'8" door (three lites, one sliding) | BC@8.00 | Ea | 2,830.00 | 328.00 | 3,158.00 | 5,370.00 |
| Add for color vinyl frame                    | —       | %  | 10.0     | —      | —        | —        |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Screens for vinyl-clad wood windows.</b> White. By window nominal size |                  |             |                 |              |              |             |
| 2'0" x 3'0"   | B1@.050          | Ea          | 35.90           | 1.86         | 37.76        | 64.20       |
| 2'0" x 3'6"   | B1@.050          | Ea          | 41.00           | 1.86         | 42.86        | 72.90       |
| 2'4" x 3'0"   | B1@.050          | Ea          | 38.00           | 1.86         | 39.86        | 67.80       |
| 2'4" x 3'6"   | B1@.050          | Ea          | 40.80           | 1.86         | 42.66        | 72.50       |
| 2'4" x 4'0"   | B1@.050          | Ea          | 44.40           | 1.86         | 46.26        | 78.60       |
| 2'4" x 4'6"   | B1@.050          | Ea          | 56.10           | 1.86         | 57.96        | 98.50       |
| 2'4" x 4'9"   | B1@.050          | Ea          | 56.10           | 1.86         | 57.96        | 98.50       |
| 2'8" x 3'0"   | B1@.050          | Ea          | 41.00           | 1.86         | 42.86        | 72.90       |
| 2'8" x 3'6"   | B1@.050          | Ea          | 43.80           | 1.86         | 45.66        | 77.60       |
| 2'8" x 4'0"   | B1@.050          | Ea          | 44.70           | 1.86         | 46.56        | 79.20       |
| 2'8" x 4'6"   | B1@.050          | Ea          | 56.20           | 1.86         | 58.06        | 98.70       |
| 2'8" x 4'9"   | B1@.050          | Ea          | 56.20           | 1.86         | 58.06        | 98.70       |
| 3'0" x 3'0"   | B1@.050          | Ea          | 47.00           | 1.86         | 48.86        | 83.10       |
| 3'0" x 3'6"   | B1@.050          | Ea          | 48.00           | 1.86         | 49.86        | 84.80       |
| 3'0" x 4'0"   | B1@.050          | Ea          | 48.10           | 1.86         | 49.96        | 84.90       |
| 3'0" x 4'6"   | B1@.050          | Ea          | 60.50           | 1.86         | 62.36        | 106.00      |
| 3'0" x 4'9"   | B1@.050          | Ea          | 53.90           | 1.86         | 55.76        | 94.80       |
| 3'0" x 5'6"   | B1@.050          | Ea          | 64.20           | 1.86         | 66.06        | 112.00      |

**Vinyl-clad wood awning windows, insulating glass.** Prefinished pine interior. White vinyl exterior. For new construction. Add the cost of screens. By nominal (opening) size, width by height.

|             |         |    |        |       |        |        |
|-------------|---------|----|--------|-------|--------|--------|
| 2'1" x 2'0" | B1@.500 | Ea | 269.00 | 18.60 | 287.60 | 489.00 |
| 3'1" x 2'0" | B1@.500 | Ea | 322.00 | 18.60 | 340.60 | 579.00 |
| 4'1" x 2'0" | B1@.500 | Ea | 353.00 | 18.60 | 371.60 | 632.00 |

**Vinyl-clad wood casement windows, insulating glass.** Prefinished pine interior. White or tan vinyl exterior. Tilt sash. For new construction. By nominal (opening) size, width by height. Add the cost of screens and hardware. Hinge operation as viewed from exterior.

|                                   |         |    |        |       |        |          |
|-----------------------------------|---------|----|--------|-------|--------|----------|
| 2'1" x 3'0", right hinge          | B1@.500 | Ea | 326.00 | 18.60 | 344.60 | 586.00   |
| 2'1" x 3'0", left hinge           | B1@.500 | Ea | 326.00 | 18.60 | 344.60 | 586.00   |
| 2'1" x 3'6", right hinge          | B1@.500 | Ea | 377.00 | 18.60 | 395.60 | 673.00   |
| 2'1" x 3'6", left hinge           | B1@.500 | Ea | 377.00 | 18.60 | 395.60 | 673.00   |
| 2'1" x 4'0", right hinge          | B1@.750 | Ea | 416.00 | 27.90 | 443.90 | 755.00   |
| 2'1" x 4'0", left hinge           | B1@.750 | Ea | 416.00 | 27.90 | 443.90 | 755.00   |
| 2'1" x 5'0", right hinge          | B1@.750 | Ea | 428.00 | 27.90 | 455.90 | 775.00   |
| 2'1" x 5'0", left hinge           | B1@.750 | Ea | 428.00 | 27.90 | 455.90 | 775.00   |
| 4'1" x 3'0", left and right hinge | B1@.750 | Ea | 469.00 | 27.90 | 496.90 | 845.00   |
| 4'1" x 3'5", left and right hinge | B1@.750 | Ea | 651.00 | 27.90 | 678.90 | 1,150.00 |
| 4'1" x 4'0", left and right hinge | B1@.750 | Ea | 718.00 | 27.90 | 745.90 | 1,270.00 |
| Add for casement hardware         | —       | Ea | 19.00  | —     | 19.00  | —        |

## Aluminum Windows

**Aluminum single-hung vertical sliding white windows, insulating glass.** White frame. Tilt-in removable sash. Dual sash weatherstripping. Includes screen. By nominal (opening) size, width by height. Nailing flange for new construction.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 2' x 3'   | B1@.500 | Ea | 91.00  | 18.60 | 109.60 | 186.00 |
| 2' x 5'   | B1@1.00 | Ea | 129.00 | 37.20 | 166.20 | 283.00 |
| 2'8" x 5' | B1@1.00 | Ea | 140.00 | 37.20 | 177.20 | 301.00 |
| 3' x 3'   | B1@1.00 | Ea | 113.00 | 37.20 | 150.20 | 255.00 |
| 3' x 4'   | B1@1.00 | Ea | 132.00 | 37.20 | 169.20 | 288.00 |
| 3' x 5'   | B1@1.25 | Ea | 151.00 | 46.50 | 197.50 | 336.00 |
| 3' x 6'   | B1@1.25 | Ea | 171.00 | 46.50 | 217.50 | 370.00 |
| 4' x 3'   | B1@1.00 | Ea | 148.00 | 37.20 | 185.20 | 315.00 |

|                                     | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|-------------------------------------|------------------|-------------|-----------------|--------------|--------------|-------------|
| 4' x 4'                             | B1@1.50          | Ea          | 185.00          | 55.80        | 240.80       | 409.00      |
| 5' x 3'                             | B1@1.50          | Ea          | 176.00          | 55.80        | 231.80       | 394.00      |
| 5' x 4'                             | B3@2.00          | Ea          | 242.00          | 71.80        | 313.80       | 533.00      |
| 6' x 4'                             | B3@2.00          | Ea          | 247.00          | 71.80        | 318.80       | 542.00      |
| 8' x 4'                             | B3@2.00          | Ea          | 319.00          | 71.80        | 390.80       | 664.00      |
| Add for obscure glass in 2' windows | —                | Ea          | 4.54            | —            | 4.54         | —           |

**Aluminum single-hung vertical sliding bronze windows, insulating glass.** Bronze frame. Better quality removable sash. Dual sash weatherstripping. Includes screen. By nominal (opening) size, width by height. Includes a window grid between the panes. Nailing flange for new construction.

|               |         |    |        |       |        |        |
|---------------|---------|----|--------|-------|--------|--------|
| 2' x 3'       | B1@.500 | Ea | 136.00 | 18.60 | 154.60 | 263.00 |
| 2' 8" x 3"    | B1@.500 | Ea | 151.00 | 18.60 | 169.60 | 288.00 |
| 2' 8" x 4' 4" | B1@1.00 | Ea | 190.00 | 37.20 | 227.20 | 386.00 |
| 2' 8" x 5'    | B1@1.00 | Ea | 208.00 | 37.20 | 245.20 | 417.00 |
| 3' x 3'       | B1@1.00 | Ea | 164.00 | 37.20 | 201.20 | 342.00 |
| 3' x 4'       | B1@1.00 | Ea | 192.00 | 37.20 | 229.20 | 390.00 |
| 3' x 4' 4"    | B1@1.00 | Ea | 200.00 | 37.20 | 237.20 | 403.00 |
| 3' x 5'       | B1@1.25 | Ea | 218.00 | 46.50 | 264.50 | 450.00 |
| 3' x 6'       | B1@1.25 | Ea | 245.00 | 46.50 | 291.50 | 496.00 |

**Aluminum single-hung vertical sliding windows, single glazed.** Mill finish. Includes screen. By nominal (opening) size, width by height. Clear glass except as noted. Nailing flange for new construction.

|                        |         |    |        |       |        |        |
|------------------------|---------|----|--------|-------|--------|--------|
| 2' x 1'                | B1@.500 | Ea | 38.60  | 18.60 | 57.20  | 97.20  |
| 2' x 1', obscure glass | B1@.500 | Ea | 44.50  | 18.60 | 63.10  | 107.00 |
| 2' x 2'                | B1@.500 | Ea | 53.00  | 18.60 | 71.60  | 122.00 |
| 2' x 2', obscure glass | B1@.500 | Ea | 54.50  | 18.60 | 73.10  | 124.00 |
| 2' x 3', obscure glass | B1@.500 | Ea | 86.10  | 18.60 | 104.70 | 178.00 |
| 3' x 2'                | B1@.500 | Ea | 64.80  | 18.60 | 83.40  | 142.00 |
| 3' x 3'                | B1@1.00 | Ea | 82.70  | 37.20 | 119.90 | 204.00 |
| 4' x 3'                | B1@1.00 | Ea | 93.00  | 37.20 | 130.20 | 221.00 |
| 5' x 3'                | B1@1.50 | Ea | 102.00 | 55.80 | 157.80 | 268.00 |
| 6' x 3'                | B3@1.50 | Ea | 132.00 | 53.80 | 185.80 | 316.00 |

**Aluminum horizontal sliding windows, single glazed.** Right sash is operable when viewed from the exterior. With screen. 7/8" nailing fin setback for 3-coat stucco or wood siding. By nominal (opening) size, width by height. For new construction. Obscure glass is usually available in smaller (1' and 2') windows at no additional cost.

|                                 |         |    |        |       |        |        |
|---------------------------------|---------|----|--------|-------|--------|--------|
| 2' x 2', mill finish            | B1@.500 | Ea | 49.10  | 18.60 | 67.70  | 115.00 |
| 2' x 2', bronze or white finish | B1@.500 | Ea | 67.60  | 18.60 | 86.20  | 147.00 |
| 3' x 1', mill finish            | B1@.750 | Ea | 59.70  | 27.90 | 87.60  | 149.00 |
| 3' x 2', mill finish            | B1@.750 | Ea | 59.70  | 27.90 | 87.60  | 149.00 |
| 3' x 3', mill finish            | B1@1.00 | Ea | 71.80  | 37.20 | 109.00 | 185.00 |
| 3' x 3', bronze or white finish | B1@1.00 | Ea | 106.00 | 37.20 | 143.20 | 243.00 |
| 3' x 4', mill finish            | B1@1.00 | Ea | 90.90  | 37.20 | 128.10 | 218.00 |
| 3' x 4', bronze or white finish | B1@1.00 | Ea | 127.00 | 37.20 | 164.20 | 279.00 |
| 4' x 3', mill finish            | B1@1.00 | Ea | 78.80  | 37.20 | 116.00 | 197.00 |
| 4' x 3', bronze or white finish | B1@1.00 | Ea | 132.00 | 37.20 | 169.20 | 288.00 |
| 4' x 4', mill finish            | B1@1.50 | Ea | 105.00 | 55.80 | 160.80 | 273.00 |
| 4' x 4', bronze or white finish | B1@1.50 | Ea | 150.00 | 55.80 | 205.80 | 350.00 |
| 5' x 3', mill finish            | B3@1.50 | Ea | 114.00 | 53.80 | 167.80 | 285.00 |
| 5' x 4', mill finish            | B3@1.50 | Ea | 118.00 | 53.80 | 171.80 | 292.00 |
| 5' x 4', bronze or white finish | B3@1.50 | Ea | 152.00 | 53.80 | 205.80 | 350.00 |
| 6' x 3', mill finish            | B3@1.50 | Ea | 105.00 | 53.80 | 158.80 | 270.00 |
| 6' x 4', mill finish            | B3@1.50 | Ea | 129.00 | 53.80 | 182.80 | 311.00 |
| 6' x 4', bronze or white finish | B3@1.50 | Ea | 155.00 | 53.80 | 208.80 | 355.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Aluminum horizontal sliding windows, insulated glass.** Right sash is operable when viewed from the exterior.

With screen. Nailing fin for new construction. By nominal (opening) size, width by height. Obscure glass is usually available in smaller (1' and 2') windows at no additional cost. White or bronze finish.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| 2' x 2'                                 | B1@.500 | Ea | 171.00 | 18.60 | 189.60 | 322.00 |
| 3' x 1'                                 | B1@.750 | Ea | 173.00 | 27.90 | 200.90 | 342.00 |
| 3' x 2'                                 | B1@.750 | Ea | 211.00 | 27.90 | 238.90 | 406.00 |
| 3' x 3'                                 | B1@1.00 | Ea | 226.00 | 37.20 | 263.20 | 447.00 |
| 3' x 4'                                 | B1@1.00 | Ea | 203.00 | 37.20 | 203.00 | 37.20  |
| 4' x 3'                                 | B1@1.00 | Ea | 242.00 | 37.20 | 279.20 | 475.00 |
| 4' x 4'                                 | B1@1.50 | Ea | 305.00 | 55.80 | 360.80 | 613.00 |
| Add for colonial grid between the lites | —       | %  | 15.0   | —     | —      | —      |
| Add for Low-E glass                     | —       | %  | 15.0   | —     | —      | —      |

**Aluminum awning windows, insulated glass.** With hardware and screen. Natural mill finish. For new construction.

Nominal (opening) sizes, width by height.

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| 19" x 26", two lites high                | BC@.500 | Ea | 157.00 | 20.50 | 177.50 | 302.00 |
| 19" x 38-1/2", three lites high          | BC@.750 | Ea | 189.00 | 30.80 | 219.80 | 374.00 |
| 19" x 50-1/2", four lites high           | BC@.750 | Ea | 228.00 | 30.80 | 258.80 | 440.00 |
| 19" x 63", five lites high               | BC@1.00 | Ea | 266.00 | 41.10 | 307.10 | 522.00 |
| 26" x 26", two lites high                | BC@.750 | Ea | 190.00 | 30.80 | 220.80 | 375.00 |
| 26" x 38-1/2", three lites high          | BC@.750 | Ea | 229.00 | 30.80 | 259.80 | 442.00 |
| 26" x 50-1/2", four lites high           | BC@1.00 | Ea | 293.00 | 41.10 | 334.10 | 568.00 |
| 26" x 63", five lites high               | BC@1.00 | Ea | 341.00 | 41.10 | 382.10 | 650.00 |
| 37" x 26", two lites high                | BC@.750 | Ea | 228.00 | 30.80 | 258.80 | 440.00 |
| 37" x 38-1/2", three lites high          | BC@1.00 | Ea | 261.00 | 41.10 | 302.10 | 514.00 |
| 37" x 50-1/2", four lites high           | BC@1.00 | Ea | 300.00 | 41.10 | 341.10 | 580.00 |
| 37" x 63", five lites high               | BC@1.00 | Ea | 407.00 | 41.10 | 448.10 | 762.00 |
| 53" x 26", two lites high                | BC@1.00 | Ea | 268.00 | 41.10 | 309.10 | 525.00 |
| 53" x 38-1/2", three lites high          | BC@1.00 | Ea | 305.00 | 41.10 | 346.10 | 588.00 |
| 53" x 50-1/2", four lites high           | B3@1.50 | Ea | 397.00 | 53.80 | 450.80 | 766.00 |
| 53" x 63", five lites high               | B3@1.50 | Ea | 467.00 | 53.80 | 520.80 | 885.00 |
| Add for bronze finish                    | —       | %  | 15.0   | —     | —      | —      |
| Add for enamel finish                    | —       | %  | 10.0   | —     | —      | —      |
| Add for special order replacement window | —       | %  | 100.0  | —     | —      | —      |

**Fixed aluminum windows (picture windows), insulating glass.** Bronze or white enamel finish. For new construction.

Wall opening (nominal) size, width by height.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 20" | BC@.500 | Ea | 211.00 | 20.50 | 231.50 | 394.00 |
| 24" x 30" | BC@.500 | Ea | 252.00 | 20.50 | 272.50 | 463.00 |
| 24" x 40" | BC@.500 | Ea | 293.00 | 20.50 | 313.50 | 533.00 |
| 30" x 20" | BC@.750 | Ea | 260.00 | 30.80 | 290.80 | 494.00 |
| 30" x 30" | BC@.750 | Ea | 305.00 | 30.80 | 335.80 | 571.00 |
| 30" x 40" | BC@.750 | Ea | 364.00 | 30.80 | 394.80 | 671.00 |
| 30" x 50" | BC@1.00 | Ea | 439.00 | 41.10 | 480.10 | 816.00 |
| 30" x 60" | BC@1.00 | Ea | 477.00 | 41.10 | 518.10 | 881.00 |
| 36" x 20" | BC@.750 | Ea | 309.00 | 30.80 | 339.80 | 578.00 |
| 36" x 30" | BC@.750 | Ea | 439.00 | 30.80 | 469.80 | 799.00 |
| 36" x 40" | BC@1.00 | Ea | 460.00 | 41.10 | 501.10 | 852.00 |

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| 36" x 50"                                    | B1@1.50          | Ea          | 399.00          | 55.80        | 454.80       | 773.00      |
| 36" x 60"                                    | B1@1.50          | Ea          | 650.00          | 55.80        | 705.80       | 1,200.00    |
| 40" x 20"                                    | BC@.750          | Ea          | 367.00          | 30.80        | 397.80       | 676.00      |
| 40" x 30"                                    | BC@.750          | Ea          | 462.00          | 30.80        | 492.80       | 838.00      |
| 40" x 40"                                    | BC@1.00          | Ea          | 535.00          | 41.10        | 576.10       | 979.00      |
| 48" x 20"                                    | BC@.750          | Ea          | 443.00          | 30.80        | 473.80       | 805.00      |
| 48" x 30"                                    | BC@1.00          | Ea          | 548.00          | 41.10        | 589.10       | 1,000.00    |
| 48" x 40"                                    | BC@1.00          | Ea          | 607.00          | 41.10        | 648.10       | 1,100.00    |
| Add for storm sash, per square foot of glass | —                | SF          | 13.60           | —            | 13.60        | —           |

**Louvered aluminum (jalousie) windows.** Single glazed, 4" clear glass louvers, including hardware. Jalousie windows are usually made to order and can be fabricated to any size.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 18" x 24" | BC@1.00 | Ea | 118.00 | 41.10 | 159.10 | 270.00 |
| 18" x 36" | BC@1.00 | Ea | 169.00 | 41.10 | 210.10 | 357.00 |
| 18" x 48" | BC@1.00 | Ea | 209.00 | 41.10 | 250.10 | 425.00 |
| 18" x 60" | BC@1.00 | Ea | 275.00 | 41.10 | 316.10 | 537.00 |
| 24" x 24" | BC@1.00 | Ea | 134.00 | 41.10 | 175.10 | 298.00 |
| 24" x 36" | BC@1.00 | Ea | 194.00 | 41.10 | 235.10 | 400.00 |
| 24" x 48" | BC@1.00 | Ea | 244.00 | 41.10 | 285.10 | 485.00 |
| 24" x 60" | BC@1.50 | Ea | 319.00 | 61.60 | 380.60 | 647.00 |
| 30" x 24" | BC@1.00 | Ea | 160.00 | 41.10 | 201.10 | 342.00 |
| 30" x 36" | BC@1.00 | Ea | 229.00 | 41.10 | 270.10 | 459.00 |
| 30" x 48" | BC@1.50 | Ea | 291.00 | 61.60 | 352.60 | 599.00 |
| 30" x 60" | BC@1.50 | Ea | 367.00 | 61.60 | 428.60 | 729.00 |
| 36" x 24" | BC@1.00 | Ea | 172.00 | 41.10 | 213.10 | 362.00 |
| 36" x 36" | BC@1.50 | Ea | 253.00 | 61.60 | 314.60 | 535.00 |
| 36" x 48" | BC@1.50 | Ea | 319.00 | 61.60 | 380.60 | 647.00 |
| 36" x 60" | BC@1.50 | Ea | 414.00 | 61.60 | 475.60 | 809.00 |
| 40" x 24" | BC@1.00 | Ea | 202.00 | 41.10 | 243.10 | 413.00 |
| 40" x 36" | BC@1.50 | Ea | 278.00 | 61.60 | 339.60 | 577.00 |
| 40" x 48" | BC@1.50 | Ea | 364.00 | 61.60 | 425.60 | 724.00 |
| 40" x 60" | BC@1.50 | Ea | 462.00 | 61.60 | 523.60 | 890.00 |

## Wood Windows

**Wood double-hung windows.** Treated western pine. Natural wood interior. 4-9/16" jamb width. 5/8" insulating glass. Weatherstripped. Stock units for new construction. Tilt-in, removable sash. With hardware. Nominal sizes, width by height.

|                   |         |    |        |       |        |          |
|-------------------|---------|----|--------|-------|--------|----------|
| 2'0" x 3'2"       | BC@.750 | Ea | 241.00 | 30.80 | 271.80 | 462.00   |
| 2'4" x 3'2"       | BC@.750 | Ea | 299.00 | 30.80 | 329.80 | 561.00   |
| 2'4" x 4'6"       | BC@.750 | Ea | 280.00 | 30.80 | 310.80 | 528.00   |
| 2'8" x 3'2"       | BC@.750 | Ea | 274.00 | 30.80 | 304.80 | 518.00   |
| 2'8" x 3'10"      | BC@.750 | Ea | 357.00 | 30.80 | 387.80 | 659.00   |
| 2'8" x 4'6"       | BC@1.25 | Ea | 325.00 | 51.30 | 376.30 | 640.00   |
| 2'8" x 5'2"       | BC@1.25 | Ea | 372.00 | 51.30 | 423.30 | 720.00   |
| 3'0" x 3'2"       | BC@.750 | Ea | 281.00 | 30.80 | 311.80 | 530.00   |
| 3'0" x 4'6"       | BC@1.25 | Ea | 372.00 | 51.30 | 423.30 | 720.00   |
| 3'0" x 5'2"       | BC@1.25 | Ea | 338.00 | 51.30 | 389.30 | 662.00   |
| 2'8" x 4'6", twin | BC@1.25 | Ea | 718.00 | 51.30 | 769.30 | 1,310.00 |

**Fixed octagon wood windows.** Stock units for new construction. Installed in a pre-cut and framed opening.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 24", insulated glass         | BC@1.50 | Ea | 163.00 | 61.60 | 224.60 | 382.00 |
| 24", single glazed           | BC@1.50 | Ea | 130.00 | 61.60 | 191.60 | 326.00 |
| 24", venting insulated glass | BC@1.50 | Ea | 226.00 | 61.60 | 287.60 | 489.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Angle bay windows.** Fixed center lite and two double-hung flankers. 30-degree angle. Pine with aluminum cladding, insulated glass, screens, white or bronze finish, 4-9/16" wall thickness. Stock units for new construction. Nominal (opening) sizes, width by height. Add the cost of interior trim and installing or framing the bay window roof. See the figures that follow.

|                                 |         |    |          |        |          |          |
|---------------------------------|---------|----|----------|--------|----------|----------|
| 6'4" x 4'8"                     | B1@4.00 | Ea | 2,770.00 | 149.00 | 2,919.00 | 4,960.00 |
| 7'2" x 4'8"                     | B1@4.00 | Ea | 2,780.00 | 149.00 | 2,929.00 | 4,980.00 |
| 7'10" x 4'8"                    | B1@4.50 | Ea | 3,010.00 | 167.00 | 3,177.00 | 5,400.00 |
| 8'6" x 4'8"                     | B1@4.50 | Ea | 3,460.00 | 167.00 | 3,627.00 | 6,170.00 |
| 8'10" x 4'8"                    | B1@4.50 | Ea | 3,650.00 | 167.00 | 3,817.00 | 6,490.00 |
| 9'2" x 4'8"                     | B1@5.00 | Ea | 3,590.00 | 186.00 | 3,776.00 | 6,420.00 |
| 9'10" x 4'8"                    | B1@5.00 | Ea | 3,770.00 | 186.00 | 3,956.00 | 6,730.00 |
| Add for 45-degree angle windows | —       | Ea | 142.00   | —      | 142.00   | —        |
| Add for roof framing kit        | —       | Ea | 260.00   | —      | 260.00   | —        |

**Bay window roof cover.** Architectural copper roof system for standard angle bay windows. Includes hardware.

Stock units for new construction

|   |         |    |          |       |          |          |
|---|---------|----|----------|-------|----------|----------|
| Up to 48" width                               | SW@.500 | Ea | 1,430.00 | 23.30 | 1,453.30 | 2,470.00 |
| 49" to 60" width                              | SW@.500 | Ea | 1,640.00 | 23.30 | 1,663.30 | 2,830.00 |
| 61" to 72" width                              | SW@.600 | Ea | 1,810.00 | 27.90 | 1,837.90 | 3,120.00 |
| 73" to 84" width                              | SW@.600 | Ea | 2,010.00 | 27.90 | 2,037.90 | 3,460.00 |
| 85" to 96" width                              | SW@.600 | Ea | 2,210.00 | 27.90 | 2,237.90 | 3,800.00 |
| 97" to 108" width                             | SW@.700 | Ea | 2,400.00 | 32.60 | 2,432.60 | 4,140.00 |
| 109" to 120" width                            | SW@.700 | Ea | 2,630.00 | 32.60 | 2,662.60 | 4,530.00 |
| 121" to 132" width                            | SW@.800 | Ea | 3,000.00 | 37.20 | 3,037.20 | 5,160.00 |
| 133" to 144" width                            | SW@.800 | Ea | 3,190.00 | 37.20 | 3,227.20 | 5,490.00 |
| 145" to 156" width                            | SW@1.00 | Ea | 3,410.00 | 46.50 | 3,456.50 | 5,880.00 |
| 157" to 168" width                            | SW@1.00 | Ea | 3,600.00 | 46.50 | 3,646.50 | 6,200.00 |
| Add for aged copper, brass or aluminum finish | —       | %  | 20.0     | —     | —        | —        |
| Add for 24" to 26" projection                 | —       | %  | 10.0     | —     | —        | —        |
| Add for 26" to 28" projection                 | —       | %  | 15.0     | —     | —        | —        |
| Add for 28" to 30" projection                 | —       | %  | 20.0     | —     | —        | —        |
| Add for brick soffit kit                      | —       | %  | 45.0     | —     | —        | —        |
| Add for 90-degree bays                        | —       | Ea | 106.00   | —     | 106.0    | —        |

**Casement bow windows.** Insulated glass, assembled, with screens, weatherstripped, unfinished pine, 16" projection, 22" x 56" lites, 4-7/16" jambs. Add the cost of interior trim and installing or framing the bow window roof. Stock units for new construction. Generally a roof kit is required for projections of 12" or more. See the figures that follow.

|                                       |         |    |          |        |          |          |
|---------------------------------------|---------|----|----------|--------|----------|----------|
| 8'1" wide x 4'8" (4 lites, 2 venting) | B1@4.75 | Ea | 2,870.00 | 177.00 | 3,047.00 | 5,180.00 |
| 8'1" wide x 5'4" (4 lites, 2 venting) | B1@4.75 | Ea | 3,100.00 | 177.00 | 3,277.00 | 5,570.00 |
| 8'1" wide x 6'0" (4 lites, 2 venting) | B1@4.75 | Ea | 3,350.00 | 177.00 | 3,527.00 | 6,000.00 |
| 10' wide x 4'8" (5 lites, 2 venting)  | B1@4.75 | Ea | 3,490.00 | 177.00 | 3,667.00 | 6,230.00 |
| 10' wide x 5'4" (5 lites, 2 venting)  | B1@4.75 | Ea | 3,750.00 | 177.00 | 3,927.00 | 6,680.00 |
| 10' wide x 6'0" (5 lites, 2 venting)  | B1@4.75 | Ea | 4,140.00 | 177.00 | 4,317.00 | 7,340.00 |
| Add for roof framing kit, 5 lites     | —       | Ea | 231.00   | —      | 231.00   | —        |

**Bow window wood roof kit.** Framed wood roof kit for four panel bow window. Built with a 10 in 12 pitch, roof overhangs bay or bow 1" to 3". Includes hardware.

|                     |         |    |        |       |        |          |
|---------------------|---------|----|--------|-------|--------|----------|
| Up to 72" width     | B1@.500 | Ea | 321.00 | 18.60 | 339.60 | 577.00   |
| 73" to 96" width    | B1@.500 | Ea | 379.00 | 18.60 | 397.60 | 676.00   |
| 97" to 120" width   | B1@.500 | Ea | 434.00 | 18.60 | 452.60 | 769.00   |
| 121" to 144" width  | B1@.600 | Ea | 493.00 | 22.30 | 515.30 | 876.00   |
| 145" to 168" width  | B1@.600 | Ea | 677.00 | 22.30 | 699.30 | 1,190.00 |
| Add for 5 panel bow | —       | Ea | 60.80  | —     | 60.80  | —        |

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Bow or bay window roof, framed on-site.</b> 1/2" plywood sheathing, fiberglass batt insulation, fascia board, cove molding, roof flashing, 15-pound felt, 240-pound seal-tab asphalt shingles, and cleanup. |                  |             |                 |              |              |             |
| Up to 120" width   | B1@3.50          | Ea          | 107.00          | 130.00       | 237.00       | 403.00      |
| Add per linear foot of width over 10'  | B1@.350          | LF          | 10.70           | 13.00        | 23.70        | 40.30       |

## Storm Windows

**Basement storm windows.** White aluminum frame with removable plexiglass window. Clips on over aluminum or wood basement window. Screen included. Nominal window sizes, width by height.

|           |         |    |       |       |       |        |
|-----------|---------|----|-------|-------|-------|--------|
| 32" x 14" | BC@.420 | Ea | 37.50 | 17.20 | 54.70 | 93.00  |
| 32" x 18" | BC@.420 | Ea | 38.80 | 17.20 | 56.00 | 95.20  |
| 32" x 22" | BC@.420 | Ea | 42.70 | 17.20 | 59.90 | 102.00 |

**Aluminum storm windows.** Removable glass inserts. Removable screen. Double-track. Includes weatherstripping. Adaptable to aluminum single-hung windows.

|                         |         |    |       |       |        |        |
|-------------------------|---------|----|-------|-------|--------|--------|
| 24" x 39", mill finish  | BC@.420 | Ea | 56.10 | 17.20 | 73.30  | 125.00 |
| 24" x 39", white finish | BC@.420 | Ea | 56.10 | 17.20 | 73.30  | 125.00 |
| 24" x 55", mill finish  | BC@.420 | Ea | 83.00 | 17.20 | 100.20 | 170.00 |
| 24" x 55", white finish | BC@.420 | Ea | 75.20 | 17.20 | 92.40  | 157.00 |
| 28" x 39", mill finish  | BC@.420 | Ea | 55.90 | 17.20 | 73.10  | 124.00 |
| 28" x 39", white finish | BC@.420 | Ea | 59.40 | 17.20 | 76.60  | 130.00 |
| 28" x 47", white finish | BC@.420 | Ea | 65.80 | 17.20 | 83.00  | 141.00 |
| 28" x 55", mill finish  | BC@.420 | Ea | 72.80 | 17.20 | 90.00  | 153.00 |
| 28" x 55", white finish | BC@.420 | Ea | 75.20 | 17.20 | 92.40  | 157.00 |
| 32" x 39", mill finish  | BC@.420 | Ea | 61.30 | 17.20 | 78.50  | 133.00 |
| 32" x 39", white finish | BC@.420 | Ea | 70.10 | 17.20 | 87.30  | 148.00 |
| 32" x 47", white finish | BC@.420 | Ea | 89.90 | 17.20 | 107.10 | 182.00 |
| 32" x 55", mill finish  | BC@.420 | Ea | 72.80 | 17.20 | 90.00  | 153.00 |
| 32" x 55", white finish | BC@.420 | Ea | 78.80 | 17.20 | 96.00  | 163.00 |
| 32" x 63", mill finish  | BC@.420 | Ea | 90.60 | 17.20 | 107.80 | 183.00 |
| 32" x 63", white finish | BC@.420 | Ea | 75.90 | 17.20 | 93.10  | 158.00 |
| 32" x 75", white finish | BC@.420 | Ea | 98.40 | 17.20 | 115.60 | 197.00 |
| 36" x 39", mill finish  | BC@.420 | Ea | 64.30 | 17.20 | 81.50  | 139.00 |
| 36" x 39", white finish | BC@.420 | Ea | 71.70 | 17.20 | 88.90  | 151.00 |
| 36" x 55", mill finish  | BC@.420 | Ea | 75.90 | 17.20 | 93.10  | 158.00 |
| 36" x 55", white finish | BC@.420 | Ea | 81.70 | 17.20 | 81.70  | 17.20  |
| 36" x 63", mill finish  | BC@.420 | Ea | 86.20 | 17.20 | 103.40 | 176.00 |
| 36" x 63", white finish | BC@.420 | Ea | 90.60 | 17.20 | 107.80 | 183.00 |

## Window Accessories

**Window sills, EasySills.** Solid vinyl. Set with latex or solvent base adhesive. Hard scratch-resistant surface.

Ultraviolet protection to prevent yellowing. Gloss finish.

|             |         |    |       |       |       |        |
|-------------|---------|----|-------|-------|-------|--------|
| 3-1/2" x 3' | BC@.129 | Ea | 23.30 | 5.30  | 28.60 | 48.60  |
| 3-1/2" x 4' | BC@.172 | Ea | 33.80 | 7.06  | 40.86 | 69.50  |
| 3-1/2" x 5' | BC@.215 | Ea | 41.80 | 8.83  | 50.63 | 86.10  |
| 3-1/2" x 6' | BC@.258 | Ea | 48.70 | 10.60 | 59.30 | 101.00 |
| 4-1/4" x 3' | BC@.129 | Ea | 28.50 | 5.30  | 33.80 | 57.50  |
| 4-1/4" x 4' | BC@.172 | Ea | 39.80 | 7.06  | 46.86 | 79.70  |
| 4-1/4" x 5' | BC@.215 | Ea | 48.70 | 8.83  | 57.53 | 97.80  |
| 4-1/4" x 6' | BC@.258 | Ea | 58.70 | 10.60 | 69.30 | 118.00 |
| 5-1/2" x 3' | BC@.129 | Ea | 32.80 | 5.30  | 38.10 | 64.80  |
| 5-1/2" x 4' | BC@.172 | Ea | 40.80 | 7.06  | 47.86 | 81.40  |
| 5-1/2" x 5' | BC@.215 | Ea | 51.70 | 8.83  | 60.53 | 103.00 |
| 5-1/2" x 6' | BC@.258 | Ea | 51.70 | 10.60 | 62.30 | 106.00 |
| 6-1/4" x 3' | BC@.129 | Ea | 44.80 | 5.30  | 50.10 | 85.20  |

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| 6-1/4" x 4'  | BC@.172          | Ea          | 61.70           | 7.06         | 68.76        | 117.00      |
| 6-1/4" x 5'  | BC@.215          | Ea          | 72.70           | 8.83         | 81.53        | 139.00      |
| 6-1/4" x 6'  | BC@.258          | Ea          | 80.70           | 10.60        | 91.30        | 155.00      |
| <b>Aluminum window mullions.</b> White.  |                  |             |                 |              |              |             |
| 38-1/4"  | —                | Ea          | 76.80           | —            | 76.80        | —           |
| 50-1/2"  | —                | Ea          | 93.20           | —            | 93.20        | —           |
| 62-7/8"  | —                | Ea          | 110.00          | —            | 110.00       | —           |
| <b>Replacement casement window operator handle.</b> 9" arm. Casement opening direction when viewed from the exterior.                          |                  |             |                 |              |              |             |
| Left, aluminum window  | BC@.250          | Ea          | 9.63            | 10.30        | 19.93        | 33.90       |
| Right, aluminum window   | BC@.250          | Ea          | 9.63            | 10.30        | 19.93        | 33.90       |
| Left, wood window  | BC@.250          | Ea          | 36.70           | 10.30        | 47.00        | 79.90       |
| Right, wood window   | BC@.250          | Ea          | 37.30           | 10.30        | 47.60        | 80.90       |
| <b>Casement window lock handle.</b> Universal casement window lock for aluminum or steel windows. Accepts a 1/8" security pin. Screws included |                  |             |                 |              |              |             |
| Aluminum   | BC@.250          | Ea          | 7.16            | 10.30        | 17.46        | 29.70       |
| Bronze finish, 5/16" bore size   | BC@.250          | Ea          | 7.64            | 10.30        | 17.94        | 30.50       |
| White  | BC@.250          | Ea          | 6.65            | 10.30        | 16.95        | 28.80       |
| <b>Awning window operator handle.</b>  |                  |             |                 |              |              |             |
| Left   | BC@.250          | Ea          | 15.20           | 10.30        | 25.50        | 43.40       |
| Right  | BC@.250          | Ea          | 14.60           | 10.30        | 24.90        | 42.30       |
| <b>Jalousie window operator handle.</b>  |                  |             |                 |              |              |             |
| Crank handle, 5/16"  | BC@.250          | Ea          | 6.01            | 10.30        | 16.31        | 27.70       |
| Crank handle, 3/8"   | BC@.250          | Ea          | 6.01            | 10.30        | 16.31        | 27.70       |
| T-handle, 5/16"  | BC@.250          | Ea          | 6.01            | 10.30        | 16.31        | 27.70       |
| T-handle, 3/8"   | BC@.250          | Ea          | 6.01            | 10.30        | 16.31        | 27.70       |
| <b>Wood window sash spring.</b> Replaces broken sash cords and eliminates window rattle. Includes two sash springs and two nail fasteners.     |                  |             |                 |              |              |             |
| Per pair   | BC@.750          | Ea          | 5.69            | 30.80        | 36.49        | 62.00       |
| <b>Sash balance.</b>   |                  |             |                 |              |              |             |
| 4-1/2-pound  | BC@.360          | Ea          | 31.80           | 14.80        | 46.60        | 79.20       |
| 6-pound  | BC@.360          | Ea          | 36.20           | 14.80        | 51.00        | 86.70       |
| 8-pound  | BC@.360          | Ea          | 32.50           | 14.80        | 47.30        | 80.40       |
| 10-pound   | BC@.360          | Ea          | 33.80           | 14.80        | 48.60        | 82.60       |
| 12-pound   | BC@.360          | Ea          | 33.80           | 14.80        | 48.60        | 82.60       |
| <b>Sash lift pull.</b>   |                  |             |                 |              |              |             |
| Oil rubbed bronze  | BC@.060          | Ea          | 10.80           | 2.46         | 13.26        | 22.50       |
| Satin nickel   | BC@.060          | Ea          | 10.80           | 2.46         | 13.26        | 22.50       |
| <b>Double-hung sash lock.</b>  |                  |             |                 |              |              |             |
| Bronze   | BC@.350          | Ea          | 10.90           | 14.40        | 25.30        | 43.00       |
| Oil rubbed bronze  | BC@.350          | Ea          | 11.10           | 14.40        | 25.50        | 43.40       |
| White  | BC@.350          | Ea          | 11.30           | 14.40        | 25.70        | 43.70       |
| Satin nickel   | BC@.350          | Ea          | 25.70           | 43.70        | 25.50        | 43.40       |
| <b>Double-hung window bolt.</b>  |                  |             |                 |              |              |             |
| Brass  | BC@.350          | Ea          | 3.70            | 14.40        | 18.10        | 30.80       |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Arch top louvered exterior shutters.** Copolymer construction with molded-through color. Available in colors and paintable. Price per pair

|                             |         |    |       |       |        |        |
|-----------------------------|---------|----|-------|-------|--------|--------|
| 15" x 36"                   | BC@.200 | Pr | 65.60 | 8.21  | 73.81  | 125.00 |
| 15" x 39"                   | BC@.200 | Pr | 41.80 | 8.21  | 50.01  | 85.00  |
| 15" x 43"                   | BC@.200 | Pr | 45.20 | 8.21  | 53.41  | 90.80  |
| 15" x 48"                   | BC@.200 | Pr | 45.80 | 8.21  | 54.01  | 91.80  |
| 15" x 52"                   | BC@.320 | Pr | 49.80 | 13.10 | 62.90  | 107.00 |
| 15" x 55"                   | BC@.320 | Pr | 54.80 | 13.10 | 67.90  | 115.00 |
| 15" x 60"                   | BC@.320 | Pr | 55.30 | 13.10 | 68.40  | 116.00 |
| 15" x 64"                   | BC@.320 | Pr | 56.00 | 13.10 | 69.10  | 117.00 |
| 15" x 67"                   | BC@.320 | Pr | 70.20 | 13.10 | 83.30  | 142.00 |
| 15" x 72"                   | BC@.320 | Pr | 87.20 | 13.10 | 100.30 | 171.00 |
| 15" x 75"                   | BC@.320 | Pr | 83.80 | 13.10 | 96.90  | 165.00 |
| Decorative shutter hardware | —       | Ea | 11.80 | —     | 11.80  | —      |
| Lock fasteners              | BC@.125 | Ea | 7.52  | 5.13  | 12.65  | 21.50  |

**Classic window guards.** Welded steel 1/2" square tubes with spear points and ornamentation. Add screws and brackets below. Width by height.

|                        |         |    |        |       |        |        |
|------------------------|---------|----|--------|-------|--------|--------|
| 24" x 24"              | BC@.500 | Ea | 80.50  | 20.50 | 101.00 | 172.00 |
| 24" x 36"              | BC@.500 | Ea | 82.60  | 20.50 | 103.10 | 175.00 |
| 24" x 54"              | BC@.500 | Ea | 133.00 | 20.50 | 153.50 | 261.00 |
| 30" x 54"              | BC@.500 | Ea | 190.00 | 20.50 | 210.50 | 358.00 |
| 36" x 24"              | BC@.500 | Ea | 119.00 | 20.50 | 139.50 | 237.00 |
| 36" x 36"              | BC@.500 | Ea | 119.00 | 20.50 | 139.50 | 237.00 |
| 36" x 42"              | BC@.750 | Ea | 119.00 | 30.80 | 149.80 | 255.00 |
| 36" x 48"              | BC@.750 | Ea | 158.00 | 30.80 | 188.80 | 321.00 |
| 36" x 54"              | BC@.750 | Ea | 142.00 | 30.80 | 172.80 | 294.00 |
| 42" x 42"              | BC@.750 | Ea | 155.00 | 30.80 | 185.80 | 316.00 |
| 48" x 36"              | BC@.750 | Ea | 155.00 | 30.80 | 185.80 | 316.00 |
| 48" x 48"              | BC@.750 | Ea | 183.00 | 30.80 | 213.80 | 363.00 |
| 60" x 36"              | BC@.750 | Ea | 198.00 | 30.80 | 228.80 | 389.00 |
| 60" x 48"              | BC@.750 | Ea | 183.00 | 30.80 | 213.80 | 363.00 |
| 72" x 36"              | BC@.750 | Ea | 183.00 | 30.80 | 213.80 | 363.00 |
| 1" one-way screws      | —       | Ea | 9.77   | —     | 9.77   | —      |
| 3" one-way screws      | —       | Ea | 12.40  | —     | 12.40  | —      |
| 4" one-way screws      | —       | Ea | 12.30  | —     | 12.30  | —      |
| Flush brackets         | —       | Ea | 22.30  | —     | 22.30  | —      |
| 3" projection brackets | —       | Ea | 21.80  | —     | 21.80  | —      |
| 3" tee brackets        | —       | Ea | 26.00  | —     | 26.00  | —      |
| Connector pins         | —       | Ea | 11.50  | —     | 11.50  | —      |

**Aluminum window screen frame kits.** For rescreening windows. White or bronze finish. Matching color corners snap into place. Add the cost of screen wire and spline. Labor includes removing the old screen, measuring, cutting and assembling the frame, measuring and cutting screen wire, pressing screen and spline into the frame channel, re-hanging the screen

|                                  |         |    |       |       |       |        |
|----------------------------------|---------|----|-------|-------|-------|--------|
| 5/16" frame, to 24" x 36" screen | BC@.750 | Ea | 13.60 | 30.80 | 44.40 | 75.50  |
| 5/16" frame, to 36" x 48" screen | BC@1.00 | Ea | 16.20 | 41.10 | 57.30 | 97.40  |
| 5/16" frame, to 48" x 60" screen | BC@1.25 | Ea | 17.20 | 51.30 | 68.50 | 116.00 |
| 7/16" frame, to 24" x 36" screen | BC@.750 | Ea | 14.70 | 30.80 | 45.50 | 77.40  |
| 7/16" frame, to 48" x 60" screen | BC@1.25 | Ea | 18.20 | 51.30 | 69.50 | 118.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Window screens, aluminum.** Aluminum mill finish frame. Fiberglass mesh. For double-hung windows. Labor includes removing the old screen and re-hanging the new screen.

|             |         |    |       |       |       |        |
|-------------|---------|----|-------|-------|-------|--------|
| 2'0" x 3'2" | BC@.350 | Ea | 34.00 | 14.40 | 48.40 | 82.30  |
| 2'4" x 3'2" | BC@.350 | Ea | 34.90 | 14.40 | 49.30 | 83.80  |
| 2'4" x 4'6" | BC@.350 | Ea | 38.60 | 14.40 | 53.00 | 90.10  |
| 2'8" x 3'1" | BC@.350 | Ea | 54.20 | 14.40 | 68.60 | 117.00 |
| 2'8" x 3'2" | BC@.350 | Ea | 35.90 | 14.40 | 50.30 | 85.50  |
| 2'8" x 4'6" | BC@.350 | Ea | 58.70 | 14.40 | 73.10 | 124.00 |
| 2'8" x 5'2" | BC@.350 | Ea | 41.10 | 14.40 | 55.50 | 94.40  |
| 2'8" x 6'2" | BC@.350 | Ea | 42.50 | 14.40 | 56.90 | 96.70  |
| 3'0" x 3'1" | BC@.350 | Ea | 46.70 | 14.40 | 61.10 | 104.00 |
| 3'0" x 3'2" | BC@.350 | Ea | 37.00 | 14.40 | 51.40 | 87.40  |
| 3'0" x 4'6" | BC@.350 | Ea | 40.30 | 14.40 | 54.70 | 93.00  |
| 3'0" x 5'2" | BC@.350 | Ea | 42.20 | 14.40 | 56.60 | 96.20  |
| 3'0" x 6'2" | BC@.350 | Ea | 46.70 | 14.40 | 61.10 | 104.00 |

**Aluminum screen rolls.** Replaces worn-out screening on windows, patio doors and screened-in porches. Bright or charcoal.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| 36" x 7'  | — | Ea | 11.20 | — | 11.20 | — |
| 36" x 25' | — | Ea | 23.50 | — | 23.50 | — |
| 48" x 7'  | — | Ea | 11.10 | — | 11.10 | — |
| 48" x 25' | — | Ea | 29.00 | — | 29.00 | — |

**Fiberglass screen rolls.** Charcoal or gray.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| 36" x 7'  | — | Ea | 26.00 | — | 26.00 | — |
| 36" x 25' | — | Ea | 22.50 | — | 22.50 | — |
| 48" x 25' | — | Ea | 26.90 | — | 26.90 | — |
| 60" x 25' | — | Ea | 46.30 | — | 46.30 | — |
| 72" x 25' | — | Ea | 43.20 | — | 43.20 | — |
| 84" x 25' | — | Ea | 50.40 | — | 50.40 | — |
| 96" x 25' | — | Ea | 55.60 | — | 55.60 | — |

**Screen patch.** Self-stick.

|                   |   |    |      |   |      |   |
|-------------------|---|----|------|---|------|---|
| 3" x 3", aluminum | — | Ea | 6.99 | — | 6.99 | — |
| 3" x 3", charcoal | — | Ea | 7.23 | — | 7.23 | — |

**Screen replacement splines.** Black or gray.

|                     |   |    |       |   |       |   |
|---------------------|---|----|-------|---|-------|---|
| 0.125" x 25'        | — | Ea | 5.32  | — | 5.32  | — |
| 0.125" x 100'       | — | Ea | 8.72  | — | 8.72  | — |
| 0.140" x 25'        | — | Ea | 4.84  | — | 4.84  | — |
| 0.140" x 100'       | — | Ea | 9.24  | — | 9.24  | — |
| 0.160" x 25'        | — | Ea | 5.13  | — | 5.13  | — |
| 0.160" x 100'       | — | Ea | 9.11  | — | 9.11  | — |
| 0.175" x 25'        | — | Ea | 5.23  | — | 5.23  | — |
| 0.175" x 100'       | — | Ea | 8.63  | — | 8.63  | — |
| 0.190" x 25'        | — | Ea | 5.32  | — | 5.32  | — |
| 0.190" x 100'       | — | Ea | 9.31  | — | 9.31  | — |
| 0.210" x 25'        | — | Ea | 5.52  | — | 5.52  | — |
| 0.210" x 100', flat | — | Ea | 9.50  | — | 9.50  | — |
| 0.220" x 25'        | — | Ea | 5.53  | — | 5.53  | — |
| 0.220" x 100'       | — | Ea | 12.50 | — | 12.50 | — |
| 0.250" x 25'        | — | Ea | 5.07  | — | 5.07  | — |

**Roller spline tool.**

|                |   |    |      |   |      |   |
|----------------|---|----|------|---|------|---|
| Plastic handle | — | Ea | 6.78 | — | 6.78 | — |
|----------------|---|----|------|---|------|---|

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Tilt sash window grille sets.** Removable window grille system fits double-hung wood windows.

|                            |         |    |       |       |       |       |
|----------------------------|---------|----|-------|-------|-------|-------|
| 2'0" x 3'2", 4 x 4 grille  | BC@.250 | Ea | 19.70 | 10.30 | 30.00 | 51.00 |
| 2'4" x 3'2", 6 x 6 grille  | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 2'4" x 4'6", 6 x 6 grille  | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 2'8" x 3'2", 6 x 6 grille  | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 2'8" x 3'10", 6 x 6 grille | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 2'8" x 4'6", 6 x 6 grille  | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 2'8" x 5'2", 6 x 6 grille  | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 2'8" x 6'2", 9 x 9 grille  | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 3'0" x 3'2", 6 x 6 grille  | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 3'0" x 3'10", 6 x 6 grille | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |
| 3'0" x 4'6", 6 x 6 grille  | BC@.250 | Ea | 29.80 | 10.30 | 40.10 | 68.20 |

## Window Glazing

**Single-strength replacement glass.**

|                    |         |    |       |       |       |        |
|--------------------|---------|----|-------|-------|-------|--------|
| 8" x 10", clear    | BG@.246 | Ea | 2.48  | 9.80  | 12.28 | 20.90  |
| 9" x 12", clear    | BG@.333 | Ea | 2.05  | 13.30 | 15.35 | 26.10  |
| 10" x 12", clear   | BG@.370 | Ea | 2.25  | 14.70 | 16.95 | 28.80  |
| 12" x 14", clear   | BG@.280 | Ea | 2.55  | 11.20 | 13.75 | 23.40  |
| 12" x 16", clear   | BG@.322 | Ea | 13.75 | 23.40 | 17.04 | 29.00  |
| 12" x 18", clear   | BG@.363 | Ea | 3.36  | 14.50 | 17.86 | 30.40  |
| 12" x 24", clear   | BG@.296 | Ea | 6.99  | 11.80 | 18.79 | 31.90  |
| 12" x 30", clear   | BG@.370 | Ea | 4.44  | 14.70 | 19.14 | 32.50  |
| 12" x 36", clear   | BG@.444 | Ea | 7.43  | 17.70 | 25.13 | 42.70  |
| 12" x 36", obscure | BG@.444 | Ea | 9.28  | 17.70 | 26.98 | 45.90  |
| 14" x 20", clear   | BG@.369 | Ea | 3.97  | 14.70 | 18.67 | 31.70  |
| 16" x 20", clear   | BG@.329 | Ea | 5.79  | 13.10 | 18.89 | 32.10  |
| 16" x 28", clear   | BG@.460 | Ea | 5.62  | 18.30 | 23.92 | 40.70  |
| 16" x 32", clear   | BG@.525 | Ea | 6.76  | 20.90 | 27.66 | 47.00  |
| 16" x 36", clear   | BG@.592 | Ea | 7.76  | 23.60 | 31.36 | 53.30  |
| 18" x 24", clear   | BG@.444 | Ea | 4.99  | 17.70 | 22.69 | 38.60  |
| 18" x 36", clear   | BG@.666 | Ea | 9.30  | 26.50 | 35.80 | 60.90  |
| 18" x 36", obscure | BG@.666 | Ea | 23.90 | 26.50 | 50.40 | 85.70  |
| 18" x 52", clear   | BG@.962 | Ea | 13.90 | 38.30 | 52.20 | 88.70  |
| 20" x 24", clear   | BG@.492 | Ea | 7.12  | 19.60 | 26.72 | 45.40  |
| 24" x 30", clear   | BG@.555 | Ea | 11.30 | 22.10 | 33.40 | 56.80  |
| 24" x 36", clear   | BG@.666 | Ea | 11.30 | 26.50 | 37.80 | 64.30  |
| 24" x 52", clear   | BG@.961 | Ea | 18.30 | 38.30 | 56.60 | 96.20  |
| 28" x 36", clear   | BG@.777 | Ea | 12.60 | 30.90 | 43.50 | 74.00  |
| 30" x 32", clear   | BG@.739 | Ea | 11.90 | 29.40 | 41.30 | 70.20  |
| 30" x 36", clear   | BG@.833 | Ea | 19.50 | 33.20 | 52.70 | 89.60  |
| 32" x 40", clear   | BG@.985 | Ea | 16.20 | 39.20 | 55.40 | 94.20  |
| 36" x 48", clear   | BG@1.30 | Ea | 25.40 | 51.80 | 77.20 | 131.00 |

**Jalousie glass.** Replacement horizontal panes or slats for a jalousie window.

|                            |         |    |      |      |       |       |
|----------------------------|---------|----|------|------|-------|-------|
| 4" x 36-1/4", clear        | BG@.200 | Ea | 8.15 | 7.97 | 16.12 | 27.40 |
| 4-1/2" x 36-1/4", clear    | BG@.200 | Ea | 8.01 | 7.97 | 15.98 | 27.20 |
| 4" x 24-7/32", obscure     | BG@.200 | Ea | 6.62 | 7.97 | 14.59 | 24.80 |
| 4" x 36-7/32", obscure     | BG@.200 | Ea | 8.15 | 7.97 | 16.12 | 27.40 |
| 4-1/2" x 36-7/32", obscure | BG@.200 | Ea | 9.77 | 7.97 | 17.74 | 30.20 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Remove and replace glazing putty.</b> Using the existing glass pane. Heat old putty with a heat gun. Scrape out old putty. Refill the channel with putty.   |           |      |          |       |       |       |
| Pane to 4 square feet  | BG@.250   | Ea   | —        | 9.96  | 9.96  | 16.90 |
| Add per square foot over 4 SF  | BG@.063   | SF   | —        | 2.51  | 2.51  | 4.27  |
| <b>Measure and cut glass to size.</b> Single- or double-strength window glass.   |           |      |          |       |       |       |
| Per pane, to 4 square feet   | BG@.167   | Ea   | —        | 6.65  | 6.65  | 11.30 |
| Add for panes over 4 SF, per SF  | BG@.042   | SF   | —        | 1.67  | 1.67  | 2.84  |
| <b>Remove and replace window glass set in putty.</b> Remove sash. Hack out glass fragments. Heat old putty with a heat gun. Scrape out old putty. Pull glazing points. Set glass in putty bead. Reset glazing points. Fill channel with putty. |           |      |          |       |       |       |
| Remove sash from frame and replace   | BG@.400   | Ea   | —        | 15.90 | 15.90 | 27.00 |
| Hack out glass fragments and putty   | BG@.250   | Ea   | —        | 9.96  | 9.96  | 16.90 |
| Set glass and putty, pane to 4 square feet   | BG@.250   | Ea   | 2.12     | 9.96  | 12.08 | 20.50 |
| Set glass and putty, per SF over 4 SF  | BG@.063   | SF   | .71      | 2.51  | 3.22  | 5.47  |
| <b>Remove window glass set in vinyl stops.</b> Remove sash. Hack out glass fragments. No glass included. Per pane, width plus height. For example, the width plus height of a window pane measuring 24" x 36" is 60".                          |           |      |          |       |       |       |
| To 40" width plus height   | BG@.580   | Ea   | —        | 23.10 | 23.10 | 39.30 |
| 41" to 50" width plus height   | BG@.640   | Ea   | —        | 25.50 | 25.50 | 43.40 |
| 51" to 60" width plus height   | BG@.710   | Ea   | —        | 28.30 | 28.30 | 48.10 |
| 61" to 70" width plus height   | BG@.900   | Ea   | —        | 35.80 | 35.80 | 60.90 |
| 81" to 90" width plus height   | BG@1.00   | Ea   | —        | 39.80 | 39.80 | 67.70 |
| Over 91" width plus height   | BG@1.10   | Ea   | —        | 43.80 | 43.80 | 74.50 |
| <b>Set window glass in vinyl stops.</b> No glass included. Add the cost of new vinyl bead, if required. Per pane, width plus height. For example, the width plus height of a window pane measuring 24" x 36" is 60".                           |           |      |          |       |       |       |
| To 40" width plus height   | BG@.580   | Ea   | —        | 23.10 | 23.10 | 39.30 |
| 41" to 50" width plus height   | BG@.640   | Ea   | —        | 25.50 | 25.50 | 43.40 |
| 51" to 60" width plus height   | BG@.710   | Ea   | —        | 28.30 | 28.30 | 48.10 |
| 61" to 70" width plus height   | BG@.900   | Ea   | —        | 35.80 | 35.80 | 60.90 |
| 81" to 90" width plus height   | BG@1.00   | Ea   | —        | 39.80 | 39.80 | 67.70 |
| Over 91" width plus height   | BG@1.10   | Ea   | —        | 43.80 | 43.80 | 74.50 |
| <b>Vinyl glazing bead.</b>   |           |      |          |       |       |       |
| 7/32" x 6', brown  | —         | Ea   | 2.41     | —     | 2.41  | —     |
| 7/32" x 6', gray   | —         | Ea   | 2.41     | —     | 2.41  | —     |
| 7/32" x 6', white  | —         | Ea   | 2.41     | —     | 2.41  | —     |
| <b>Glazing compound, 33®, DAP®.</b> For face-glazing wood or metal window frames. Weather resistant. Smooth and ready mixed.   |           |      |          |       |       |       |
| 1/2 pint   | —         | Ea   | 4.23     | —     | 4.23  | —     |
| Pint   | —         | Ea   | 9.48     | —     | 9.48  | —     |
| Quart  | —         | Ea   | 11.50    | —     | 11.50 | —     |
| Gallon   | —         | Ea   | 34.60    | —     | 34.60 | —     |
| <b>Glazing compound.</b> For face-glazing metal sash. Requires no painting. Gray.  |           |      |          |       |       |       |
| Quart  | —         | Ea   | 10.10    | —     | 10.10 | —     |
| 8 oz   | —         | Ea   | 5.70     | —     | 5.70  | —     |
| <b>Latex glazing compound, DAP®.</b> Resists cracking, sagging, and chalking.  |           |      |          |       |       |       |
| 10.3-ounce tube  | —         | Ea   | 8.48     | —     | 8.48  | —     |
| <b>Glazing points.</b> Secures glass to sash before glazing putty is applied. Push-T style.  |           |      |          |       |       |       |
| Bundle   | —         | Ea   | 3.48     | —     | 3.48  | —     |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---|-----------|------|----------|-------|-------|------|
| <b>Wheel glass cutter.</b>  |           |      |          |       |       |      |
| Steel wheel   | —         | Ea   | 4.97     | —     | 4.97  | —    |
| <b>Glazing tools.</b> 2-in-1 glazing tool has a slotted V-blade on one end to apply a smooth strip of putty. The other end has a heavy-duty 1-1/4" chisel edge to remove old putty and drive push-style glazing points. |           |      |          |       |       |      |
| 2-in-1 glazing tool   | —         | Ea   | 7.48     | —     | 7.48  | —    |
| Pushmate for glazing points   | —         | Ea   | 19.90    | —     | 19.90 | —    |
| Acrylic sheet cutter  | —         | Ea   | 5.78     | —     | 5.78  | —    |
| 6" nipping/running pliers   | —         | Ea   | 24.50    | —     | 24.50 | —    |

## Glass Substitutes

### Acrylic sheet.

|                  |   |    |        |   |        |   |
|------------------|---|----|--------|---|--------|---|
| .093", 11" x 14" | — | Ea | 8.28   | — | 8.28   | — |
| .093", 18" x 24" | — | Ea | 17.50  | — | 17.50  | — |
| .093", 20" x 32" | — | Ea | 25.50  | — | 25.50  | — |
| .093", 24" x 48" | — | Ea | 44.00  | — | 44.00  | — |
| .093", 30" x 36" | — | Ea | 39.40  | — | 39.40  | — |
| .093", 30" x 60" | — | Ea | 79.20  | — | 79.20  | — |
| .093", 36" x 48" | — | Ea | 57.40  | — | 57.40  | — |
| .118", 36" x 72" | — | Ea | 108.00 | — | 108.00 | — |
| .230", 48" x 96" | — | Ea | 111.00 | — | 111.00 | — |
| .236", 18" x 24" | — | Ea | 34.70  | — | 34.70  | — |
| .236", 24" x 48" | — | Ea | 90.00  | — | 90.00  | — |
| .236", 30" x 36" | — | Ea | 82.50  | — | 82.50  | — |

### Fabback acrylic mirror sheet.

Ideal for ceilings, doors, children's rooms.

|                  |   |    |       |   |       |   |
|------------------|---|----|-------|---|-------|---|
| .118", 24" x 48" | — | Ea | 72.60 | — | 72.60 | — |
|------------------|---|----|-------|---|-------|---|

### Polycarbonate sheet Plexiglas®, Lexan® XL-10.

Impact-strength and long service life. UV-resistant surface.

Suitable for vertical-glazing and overhead applications.

|                        |   |    |        |   |        |   |
|------------------------|---|----|--------|---|--------|---|
| .093" thick, 18" x 24" | — | Ea | 31.00  | — | 31.00  | — |
| .093" thick, 30" x 36" | — | Ea | 56.70  | — | 56.70  | — |
| .093" thick, 32" x 44" | — | Ea | 61.40  | — | 61.40  | — |
| .093" thick, 36" x 48" | — | Ea | 99.20  | — | 99.20  | — |
| .093" thick, 36" x 72" | — | Ea | 117.00 | — | 117.00 | — |

### White silicone plastic adhesive.

|                |   |    |      |   |      |   |
|----------------|---|----|------|---|------|---|
| White adhesive | — | Ea | 4.28 | — | 4.28 | — |
|----------------|---|----|------|---|------|---|

## Window Components

### Sliding window track lock with steel locking plate.

|   |         |    |       |       |       |       |
|---|---------|----|-------|-------|-------|-------|
| For horizontal or vertical metal sliding windows. |         |    |       |       |       |       |
| Aluminum key lock                                 | BC@.250 | Ea | 12.70 | 10.30 | 23.00 | 39.10 |
| Aluminum lever lock                               | BC@.250 | Ea | 3.89  | 10.30 | 14.19 | 24.10 |
| Aluminum sash lock                                | BC@.250 | Ea | 3.84  | 10.30 | 14.14 | 24.00 |
| White lever lock                                  | BC@.250 | Ea | 3.89  | 10.30 | 14.19 | 24.10 |

### Sliding window thumbscrew bar lock.

|   |         |    |      |       |       |       |
|---|---------|----|------|-------|-------|-------|
| Anti-lift-out bar. Securely locks window in closed or ventilating position. |         |    |      |       |       |       |
| Reversible, aluminum  | BC@.250 | Ea | 4.72 | 10.30 | 15.02 | 25.50 |
| Reversible, white   | BC@.250 | Ea | 2.30 | 10.30 | 12.60 | 21.40 |

### Wood window flip lock.

Mounts on vertical track. Stops double-hung window in vent position. Wedge flips out of the way to allow opening. Pack of two.

|       |         |    |      |       |       |       |
|-------|---------|----|------|-------|-------|-------|
| Brass | BC@.250 | Ea | 3.18 | 10.30 | 13.48 | 22.90 |
|-------|---------|----|------|-------|-------|-------|

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Window weatherstrip spring brass seal sets.</b> Peel 'N Stick®, per linear foot per side. |                  |             |                 |              |              |             |
| Double-hung window, head and sill  | BC@.008          | LF          | 2.72            | 0.33         | 3.05         | 5.19        |
| Add to remove and replace window sash  | BC@.250          | Ea          | —               | 10.30        | 10.30        | 17.50       |
| Casement window, head and sill   | BC@.008          | LF          | 1.41            | 0.33         | 1.74         | 2.96        |
| Gray or black pile gasket  | BC@.008          | LF          | 1.06            | 0.33         | 1.39         | 2.36        |
| Gray or black pile gasket with adhesive  | BC@.006          | LF          | 1.56            | 0.25         | 1.81         | 3.08        |

## Specialty Windows and Skylights

**Window well, ScapeWEL.** Meets code requirements for basement egress window. Snaps into place on-site. For new construction and remodeling, attaches directly to foundation. Two-tier. 41" projection from foundation. 48" high.

|                                 |         |    |          |       |          |          |
|---------------------------------|---------|----|----------|-------|----------|----------|
| 42" wide window, 3' window buck | B1@1.50 | Ea | 1,500.00 | 55.80 | 1,555.80 | 2,640.00 |
| Polycarbonate well cover        | —       | Ea | 600.00   | —     | 600.00   | —        |
| 54" wide window, 4' window buck | B1@1.50 | Ea | 1,680.00 | 55.80 | 1,735.80 | 2,950.00 |
| Polycarbonate well cover        | —       | Ea | 666.00   | —     | 666.00   | —        |
| 66" wide window, 5' window buck | B1@1.50 | Ea | 1,640.00 | 55.80 | 1,695.80 | 2,880.00 |
| Polycarbonate well cover        | —       | Ea | 709.00   | —     | 709.00   | —        |

**Tubular skylights with install kit.** Acrylic dome on the roof reflects sunlight down a light shaft, providing natural light for bathrooms and hallways. Use a 10"-diameter tube for rooms to 150 square feet and a 14"-diameter tube for rooms to 300 square feet. Use the composition flashing kit for asphalt shingle, slate, or wood shake roofs. Aluminum flashing kit is suitable for other surfaces with pitch from level to 12 in 12. Adjustable tubes make it easy to maneuver around obstacles. Kit contains material to complete a 48" installation from roof surface to interior ceiling surface. Fits between 16" or 24" on center rafters.

|                                 |         |    |        |        |        |        |
|---------------------------------|---------|----|--------|--------|--------|--------|
| 10" tube, aluminum flash kit    | B1@3.00 | Ea | 211.00 | 112.00 | 323.00 | 549.00 |
| 10" tube, composition flash kit | B1@3.00 | Ea | 239.00 | 112.00 | 351.00 | 597.00 |
| 10" tube, tile or flat roof     | B1@3.00 | Ea | 236.00 | 112.00 | 348.00 | 592.00 |
| 14" tube, aluminum flash kit    | B1@3.00 | Ea | 339.00 | 112.00 | 451.00 | 767.00 |
| 14" tube, composition flash kit | B1@3.00 | Ea | 289.00 | 112.00 | 401.00 | 682.00 |
| 14" tube, tile or flat roof     | B1@3.00 | Ea | 354.00 | 112.00 | 466.00 | 792.00 |

**Remove an existing poly dome skylight.** No salvage of materials. Includes disposal.

|   |         |    |       |       |       |        |
|---|---------|----|-------|-------|-------|--------|
| To 10 square feet                       | BL@2.65 | Ea | —     | 88.30 | 88.30 | 150.00 |
| Add per square foot over 10 square feet | BL@.210 | SF | —     | 7.00  | 7.00  | 11.90  |
| Remove and replace poly dome only       | BL@1.00 | SF | 13.90 | 33.30 | 47.20 | 80.20  |

**Cut roof opening for a skylight.** Cut shingles and sheathing, install L-flashing. Self-flashing flush-mount skylights can be installed directly on a roof with a pitch of 3 in 12 or greater. Curb-mounted skylights require a roof curb. Add the cost of roof framing (doubled rafters and two headers) if required. Add the cost of framing a light well through the attic, if required. Add the cost of cutting and finishing a hole in the ceiling (including doubled joists and two headers) if required.

|   |         |    |        |        |        |        |
|---|---------|----|--------|--------|--------|--------|
| Measure and cut roof opening for skylight | BC@3.50 | Ea | —      | 144.00 | 144.00 | 245.00 |
| Frame roof curb                           | BC@2.00 | Ea | 27.20  | 82.10  | 109.30 | 186.00 |
| Curb flashing for skylight                | BC@1.25 | Ea | 146.00 | 51.30  | 197.30 | 335.00 |

**Fixed flush-mount skylights, Velux.** Low-E insulating laminated and tempered glass. Wood interior frame. Exterior aluminum cladding covers gaskets and sealants. Pre-mounted brackets allows adjustment for high or low profile roofing materials

|                            |         |    |        |        |        |          |
|----------------------------|---------|----|--------|--------|--------|----------|
| 15-5/16" x 46-3/8"         | B1@3.42 | Ea | 342.00 | 127.00 | 469.00 | 797.00   |
| 21-1/2" x 27-1/2"          | B1@3.42 | Ea | 279.00 | 127.00 | 406.00 | 690.00   |
| 21-1/2" x 38-1/2"          | B1@3.42 | Ea | 347.00 | 127.00 | 474.00 | 806.00   |
| 21-1/2" x 46-3/8"          | B1@3.42 | Ea | 364.00 | 127.00 | 491.00 | 835.00   |
| 30-5/8" x 38-1/2", Type 74 | B1@3.42 | Ea | 400.00 | 127.00 | 527.00 | 896.00   |
| 30-5/8" x 38-1/2", Type 75 | B1@3.42 | Ea | 354.00 | 127.00 | 481.00 | 818.00   |
| 30-5/8" x 46-7/8"          | B1@3.42 | Ea | 479.00 | 127.00 | 606.00 | 1,030.00 |
| 30-5/8" x 55"              | B1@3.42 | Ea | 533.00 | 127.00 | 660.00 | 1,120.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Fixed curb-mount skylights.** Low-E insulating laminated and tempered glass. Adapts to curb size and roofing material. Anodized aluminum exterior frame with gasket. UV-resistant ABS inner frame.

|                                 |         |    |        |        |        |          |
|---------------------------------|---------|----|--------|--------|--------|----------|
| 22-1/2" x 22-1/2"               | B1@3.00 | Ea | 239.00 | 112.00 | 351.00 | 597.00   |
| 22-1/2" x 46-1/2"               | B1@3.42 | Ea | 319.00 | 127.00 | 446.00 | 758.00   |
| 22-1/2" x 46-1/2", impact glass | B1@3.42 | Ea | 487.00 | 127.00 | 614.00 | 1,040.00 |
| 46-1/2" x 46-1/2"               | B1@3.42 | Ea | 517.00 | 127.00 | 644.00 | 1,090.00 |

**Venting flush-mount glass skylights.** Low-E tempered insulating glass. Wood interior frame. Aluminum cladding. Thru-screen allows skylight operation without removing screen. Stainless steel scissor operator allows easy opening for maximum ventilation. Removable, integrated insect screen.

|                   |         |    |          |        |          |          |
|-------------------|---------|----|----------|--------|----------|----------|
| 21-1/2" x 27-1/2" | B1@3.00 | Ea | 690.00   | 112.00 | 802.00   | 1,360.00 |
| 21-1/2" x 38-1/2" | B1@3.42 | Ea | 751.00   | 127.00 | 878.00   | 1,490.00 |
| 21-1/2" x 46-3/8" | B1@3.42 | Ea | 817.00   | 127.00 | 944.00   | 1,600.00 |
| 30-1/2" x 39"     | B1@3.52 | Ea | 821.00   | 131.00 | 952.00   | 1,620.00 |
| 30-1/2" x 55-1/2" | B1@3.52 | Ea | 990.00   | 131.00 | 1,121.00 | 1,910.00 |
| 44-3/4" x 46-3/8" | B1@3.52 | Ea | 1,100.00 | 131.00 | 1,231.00 | 2,090.00 |

**Venting flush-mount laminated glass skylights, Velux.** Low-E tempered insulating glass. Wood interior frame. Aluminum cladding. Thru-screen allows skylight operation without removing screen. Stainless steel scissor operator allows easy opening for maximum ventilation. Removable, integrated insect screen.

|                                    |         |    |          |        |          |          |
|------------------------------------|---------|----|----------|--------|----------|----------|
| 21-1/2" x 27-1/2"                  | B1@3.00 | Ea | 731.00   | 112.00 | 843.00   | 1,430.00 |
| 21-1/2" x 38-1/2"                  | B1@3.42 | Ea | 810.00   | 127.00 | 937.00   | 1,590.00 |
| 21-1/2" x 46-3/8"                  | B1@3.42 | Ea | 881.00   | 127.00 | 1,008.00 | 1,710.00 |
| 30-5/8" x 38-1/2"                  | B1@3.42 | Ea | 927.00   | 127.00 | 1,054.00 | 1,790.00 |
| 30-5/8" x 46-3/8", Type 75         | B1@3.52 | Ea | 493.00   | 131.00 | 624.00   | 1,060.00 |
| 30-5/8" x 46-3/8", Type 74         | B1@3.52 | Ea | 884.00   | 131.00 | 1,015.00 | 1,730.00 |
| 30-5/8" x 55"                      | B1@3.52 | Ea | 868.00   | 131.00 | 999.00   | 1,700.00 |
| 44-3/8" x 46-3/8"                  | B1@3.52 | Ea | 1,250.00 | 131.00 | 1,381.00 | 2,350.00 |
| Telescoping control rod, 6' to 10' | —       | Ea | 75.20    | —      | 75.20    | —        |

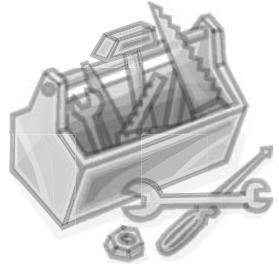
**Fixed skylights.** Folded corners. Watertight seal. 360-degree thermal break frame.

|                  |         |    |        |        |        |        |
|------------------|---------|----|--------|--------|--------|--------|
| 2' x 2', acrylic | B1@3.00 | Ea | 182.00 | 112.00 | 260.00 | 442.00 |
| 2' x 2', glass   | B1@3.00 | Ea | 190.00 | 112.00 | 302.00 | 513.00 |
| 2' x 4', acrylic | B1@3.42 | Ea | 231.00 | 127.00 | 358.00 | 609.00 |
| 2' x 4', glass   | B1@3.42 | Ea | 252.00 | 127.00 | 379.00 | 644.00 |
| 4' x 4', glass   | B1@3.42 | Ea | 414.00 | 127.00 | 541.00 | 920.00 |

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# Doors

# 9



The front entry door is the most important door in any home. It's usually visible from the street and always makes a first impression on visitors. Whether new or old, the front door should both look good and complement the style of the house.

If only cosmetic repairs are needed to an original door, that's the place to start. If the door is original, it's probably in perfect harmony with the exterior décor. Repairing the door saves the time and expense of finding exactly the right replacement door and hauling away the old door. Finding historically correct replacement doors for older homes can be difficult, and they're likely to be expensive. But if the door is already a replacement, then replacing it again probably won't do any harm.

How can you tell if the entry door is original? Replacement doors can be beautiful, but seldom harmonize with the home décor. For example, a light-colored oak flush door (popular in the 1960s) installed on a home built in the 1920s is an obvious replacement. Hanging a 21<sup>st</sup> century door doesn't modernize a 19th century home.

## Repair or Replace

Balance the cost of repair against the cost of buying and hanging a new door of similar quality. Obviously, repair makes sense when the cost is substantially less than the cost of replacement. Figure 9-1 shows extra-wide French doors set with thick, beveled glass. These doors were very dirty and the bottoms scarred and damaged. Brushing them with detergent removed the grime, and the damage on the bottoms was taken care of by simply covering them with brass kickplates. Two hours of work and a \$50 investment salvaged doors that might cost thousands to duplicate.

The most common problem with entry doors is a deteriorated finish. Peeling paint or alligatorated varnish will turn an otherwise attractive door into an eyesore. A bad finish alone isn't an adequate reason to replace an entry door. If the door has a varnish finish that has darkened, wash it before you make a decision about stripping the finish. If the door has been waxed, the finish may be nothing more than dirty. Wax collects dirt and darkens as it ages. That makes the door ugly. But dirty wax also helps protect the finish below. You may find a perfect gem under that wax.



**Figure 9-1**

Repaired French doors

Scrub a small area with a powerful detergent such as Formula 409® or Fantastic®. If you see the color changing dramatically, dirt and wax buildup could be the source of the problem. In that case, it's worth cleaning the entire door. Refinishing may not be needed.

## Refinishing an Entry Door

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If a door has to be refinished, a heat gun is the best tool for stripping the finish. Heat softens the old paint or varnish, making it easy to scrape off. Stripping like this is easier if you lay the door flat across two sawhorses. Once the paint is off, you can apply either paint or varnish. If it's a quality wood door, varnishing will bring out the beauty of the wood.

If you elect to varnish, begin by washing the door with acetone to remove residue that escaped the heat gun. Residue won't show through paint, but it will show through varnish. When using acetone, wear rubber or neoprene gloves to avoid skin irritation, and work in a well-ventilated area to reduce the risk from fumes.

Pour some acetone into a jar with a screw-on lid. Dip a piece of extra-fine steel wool in the acetone (synthetic steel wool may be an even better choice). Then gently scrub the door surface. Work only on a few square inches at a time. Don't scrub hard; let the acetone do the work. You'll see residue dissolve and the original wood surface appear. After a few minutes of scrubbing, the steel wool will get clogged with old paint or varnish. Rinse the steel wool in acetone. Then continue scrubbing. Be sure to keep the jar of acetone capped between dips. Acetone evaporates very quickly.

Before applying varnish, examine the wood tone. Do you like the color? If it's too light, you might want to stain it. If it's too dark, consider bleaching. Light sanding may also lighten the tone a little. Expect to spend about six hours on a door that requires paint stripping, acetone wash and a coat of varnish. But when you're done, the door will probably be as good as new.

If the door is damaged, painting it may be a better choice. Paint will hide repairs that varnish and stain won't. Varnish will work over minor repairs, such as nail holes filled with wood putty, but larger repairs, like a filled-in hole from an old deadbolt, will show through varnish. Wood putty doesn't absorb stain the same way wood does.

If staining the door is essential, buy colored wood putty that matches the stain selected. The patch will still be visible, but not as apparent.

### ***Antiquing***

An antique finish is a painted-on wood grain. When done correctly, the results can be surprisingly believable. You have to look very closely to notice that the finish isn't actually wood grain. Antiquing kits come with complete instructions and all the materials needed, including a special tool for making the fake wood grain.

Antiquing is time-consuming. Any antiqued surface requires three coats: a base coat, the antique wood-grain coat, and a finish coat of varnish. Each coat has to dry overnight before the next coat is applied. Figure about three hours to antique an entry door, not including any other repairs.

Antique finishes are fragile and not recommended for high traffic surfaces. But if the door is too damaged for varnish and painting isn't an option, antiquing will replicate the look and feel of wood grain.

### **Repairing Holes**

Holes are common in older doors. They range from small nail holes, such as used to hang holiday decorations, to abandoned bore holes as big as your fist. Holes of up to about  $1/2$ " can be filled with wood putty. From a foot or two away, the repair won't be noticeable. Repairing larger holes requires a different strategy.

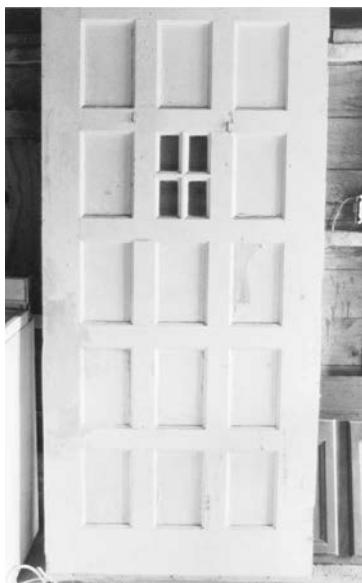
Don't consider a door ruined just because an amateur butchered it trying to install a security lock — or a thief smashed it trying to defeat the same lock. Large holes are fairly easy to fix if you know how. Even a ragged hole the size of a softball can be fixed.

Rather than replace the door, buy a gallon of auto body filler, such as Bondo<sup>®</sup>. It's strong, weatherproof, workable, paintable, and cheap. A gallon goes a long way. Auto body filler is a gooey, clay-like material. The hardener comes in a separate tube. Mix body filler and hardener on a flat surface such as a piece of scrap wood or heavy cardboard. Do the mixing with a putty knife. Be careful not to get Bondo on your skin, as it burns. And keep anything valuable that's nearby well protected, as it's almost impossible to remove once it's hardened. The more hardener you add to the mix, the faster it hardens. Add too much hardener and it sets in seconds.

Body filler is semi-liquid and will ooze and run when applied to a vertical surface. So lay the door down flat across two sawhorses. If the hole you're repairing goes completely through the door, form the underside of the patch with a piece of cardboard. The form material will bond to the door, so if you use wood for a form, you'll end up having to chisel it off. Cardboard will easily peel off the door. Then you can just sand away the residue.

Fill the hole completely with the first layer of body filler. If you have hills and valleys, let the filler harden, then fill in the valleys. In auto body work, three layers are considered the minimum. When repairing doors, two coats will usually do the job.

Use a Surform plane to smooth out hardened body filler. A Surform plane has hundreds of little cutting teeth. Each tooth trims away a little material. You can work at any angle and not have to worry about cutting too deep. The Surform cuts away hills and blobs in seconds, leaving a flat, although rough, surface. When you're done planing, the surface will look like someone clawed the material with fingernails. Use a power sander with coarse sandpaper to smooth out the marks left by the Surform. The result will be a smooth, strong, solid surface.

**Figure 9-2**

Door has been patched with Bondo®

**Figure 9-3**

Repaired door, painted and installed

You'll have to paint this type of repair. It won't take a stain. However, once the door is painted, the repair will be completely invisible. Don't try to bore or drill through the body filler to install a lockset. It's likely to break loose. Bore for a new lockset either above or below the repair, never in exactly the same place.

If you have to install the lock at the same height, turn the door around (outside to inside) so the hinge edge becomes the lock edge and vice versa. Since the hinge edge has never been bored for a lock, you'll have clean wood to work with. The problem, of course, is that the hinge edge has been mortised for hinges. Fill the old hinge mortise cuts with body filler and make new mortise cuts for hinges on the other edge. This adds about a half hour to the task.

Body filler comes in handy when replacing a mortise lock with a modern cylinder lockset. You can buy a lock conversion kit for this. The kit includes an escutcheon plate that fastens over and covers the old mortise hole. The new cylinder lockset mounts in the plate. Unfortunately, these plates aren't very strong and don't offer much protection against forced entry. Although it's more work to plug the mortise void with body filler and bore for a new circular lockset, the finished product is stronger and far more attractive.

Figure 9-2 shows a door repaired with Bondo® after it was kicked in. The old mortise lock burst out, leaving a huge, ragged hole. Figure 9-3 shows the same door, flipped inside to out, painted, and hung with new hinges and lockset. The complete job, including repair, painting, and hanging, took approximately four hours and was much less expensive than a new door.

### **Rebuilding an Entry Door**

Most wood doors are assembled from panels. Figure 9-4 shows an exploded view of door panels. The top and bottom rails are each one piece, and each side is one panel. Each divider between panels is a single piece. The more panels a door has, the more pieces there are. All these pieces are held together with glue. Weather and moisture cause the glue to deteriorate, usually along the lower half of the door.

If an entry door is coming apart but is otherwise worthy of repair, you'll have to disassemble the door and rebuild it. Estimate the time required at about six hours for most doors. The door will be off the hinges for a day or two, so you'll need to board up the opening.

Rebuilding a door with bad joints is a lot like repairing an old piece of furniture that has come unglued. First, take it completely apart. Pry the joints apart carefully, working from the edges to minimize tool marks on the more visible door parts. Most joints will come apart easily. All joints have small, interlocking pieces that are glued together. Try not to break

these joints. If a joint can't be pried apart easily, look for small nails driven into the joint at right angles. Remove these nails very carefully to avoid damaging the joint.

Outside rails are the hardest to get apart. That's where the strength of the door is — or rather, was. Once you get the outside rails apart, the center panels and rails will usually fall right out.

Usually, most of the glue in failing joints has turned to powder. In order for the new glue to form a tight bond in the joint, you'll need to thoroughly clean out all the old, powdery glue. Wipe the visible powder away; then remove any remaining glue residue with a sanding disc. You may need to do a little hand sanding where the sanding disc can't reach.

### ***Reassembling the Door***

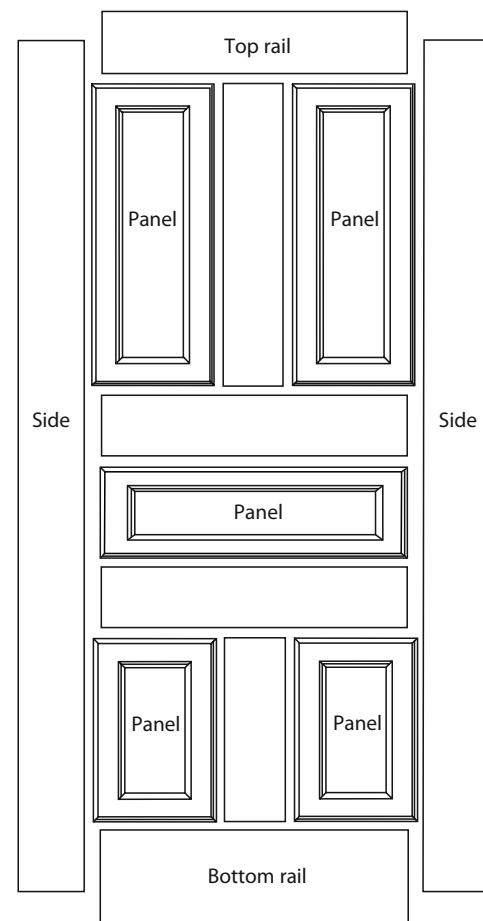
When you've removed the old glue, reglue and reassemble the door. Lay the door flat and make sure that all the corners are straight and true. Once the glue has set, you won't be able to straighten anything. Use a good carpenter's glue and bar clamps to hold the joints firmly in place. Be careful to wipe up any glue drips — once dry, these are hard to remove. Leave the door undisturbed overnight.

If any joints were damaged in the disassembly process, add strength by driving screws through the joint. Use long, thin 8" to 10" wood screws. Working from the edge of the door, pre-drill a hole through the weak joint. The screw should be long enough to go through one rail and into the next. Dip the screw in glue and drive it snug. Since you're driving from the edge of the door, the screw heads will only show when the door is open. Adding screws will substantially strengthen the door.

## **Framing and Replacing Exterior Doors**

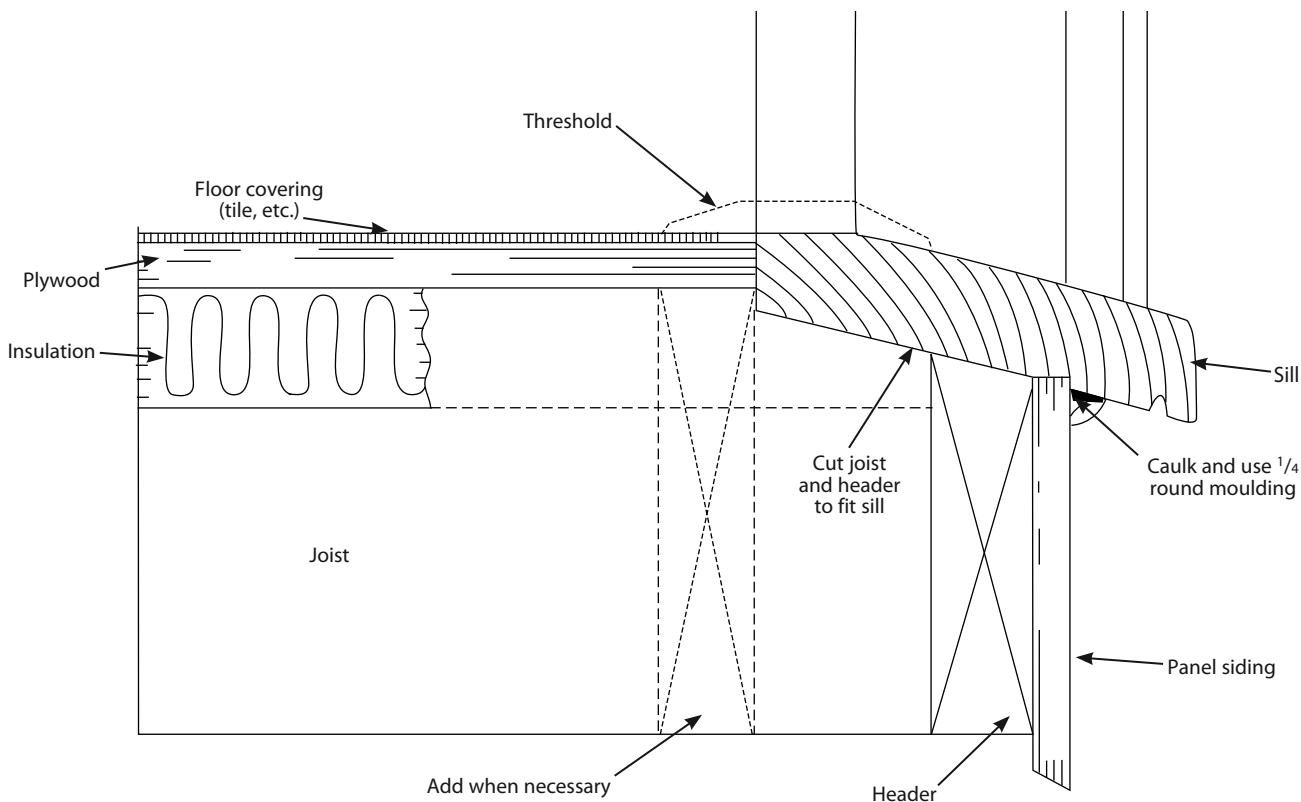
Entry doors usually measure 6'8" high by 3' wide by 1 $\frac{3}{4}$ " thick. Side and rear doors should be at least 2'6" wide. Rough opening height should be the height of the door plus 2 $\frac{1}{4}$ " above the finish floor. The width of the rough opening should be the width of the door plus 2 $\frac{1}{2}$ ". For a 3' door opening, make the header out of two lengths of 2" x 6" set with two 16d nails driven into the studs on each side. If the stud space on each side of the door isn't accessible, toenail the header to studs. Cripple studs (door bucks) support the header on each side of the opening.

If you're framing a new door opening, install a prehung door assembly complete with jamb, hinges and threshold. Prehung doors cost a little more than slab doors, but reduce the labor cost.



**Figure 9-4**

Diagram of a panel door

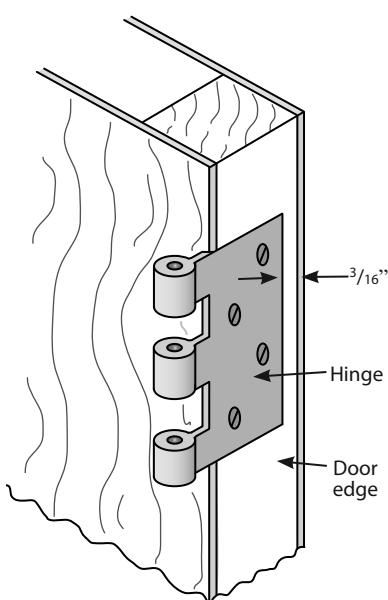
**Figure 9-5**

Door installation at sill

In a new installation, you may have to trim floor joists and the joist header to receive the sill. The top of the sill should be the same height as the finish floor so the threshold can be installed over the joint. See Figure 9-5. Shim the sill when necessary so it's fully supported by floor framing. When joists run parallel to the sill, install headers and a short support member at the edge of the sill. Install the threshold over the joint by nailing with finishing nails.

When the opening is ready for installation, apply a ribbon of caulking sealer down each side and above the door opening. This caulk should seal the gap between the wall and the door casing. Set the door frame in the opening and secure it by nailing through the side and head casing. Nail the hinge side first.

Exterior doors should have a solid core. Hollow-core doors offer little security and warp too much during cold weather to use on the exterior. If a door has to be trimmed to fit the frame, cut on the hinge edge. Mortise hinges into the edge of the door with about  $3/16$ " or  $1/4$ " back spacing. See Figure 9-6. Use  $3\frac{1}{2}$ " by  $3\frac{1}{2}$ " loose-pin hinges on exterior doors that swing in. Use non-removable pins on out-swinging doors. Use three hinges (rather than two) on solid core doors to minimize warping.

**Figure 9-6**

Installation of door hinges

Figure 9-7 shows standard door clearances. Measure the opening width and plane the edge for proper side clearances. Slightly bevel each door edge that fits against the stop. If necessary, square and trim the top of the door for proper fit. In cold climates, exterior doors should have weather seals.

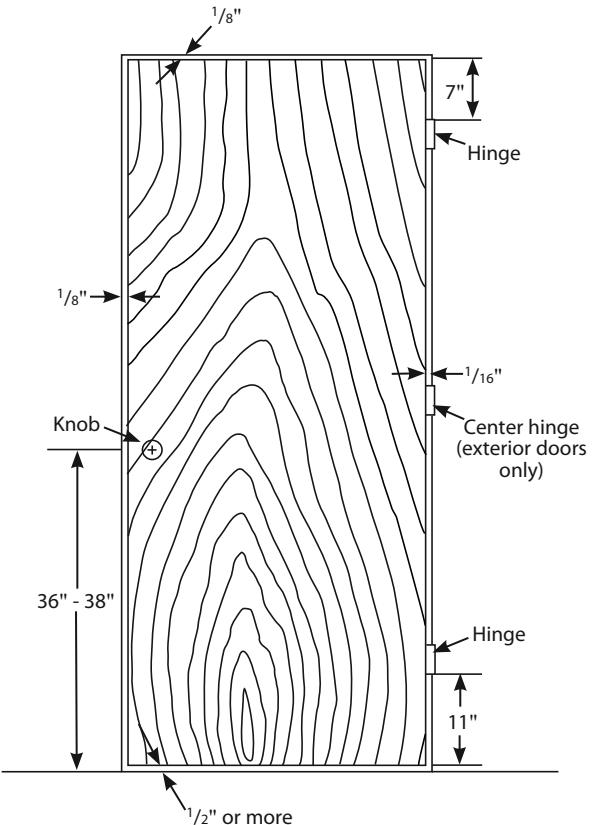
## Interior Doors

Most interior doors get heavy use. But they don't have many moving parts and tend to be durable. Sticking or binding with the jamb and failure to latch are the most common problems. Sticking or binding will rarely be the result of heavy use or abuse. The most common cause is movement in the building frame. Settling at the foundation, shrinkage of framing lumber or heavy floor loads can warp the frame out of square and cause a door to bind. In most cases, minor adjustments will solve the problem.

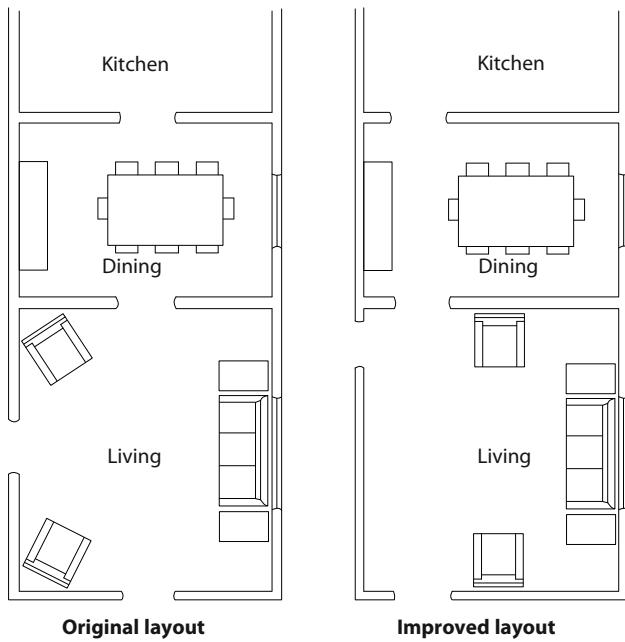
To remedy a binding door, first find the point of contact. You'll usually see scuff marks where the door and jamb are rubbing together. Here are some simple repairs.

- ❖ *Binding on the top or lock edge.* Use a hand plane to remove  $1/8"$  of door where you see scuff marks. Some paint touch-up will be needed where the door edge was sanded or planed off.
- ❖ *Binding on the hinge side.* The hinges may be routed too deeply, causing the door to "bounce" open if the latch doesn't catch. Loosen the hinge leaf enough to add a shim under the leaf. Then re-tighten the leaf screws.
- ❖ *Scraping at the bottom edge.* The frame may be out of square, or a thicker floor cover has been installed. Plane or saw off enough door edge to provide floor clearance.
- ❖ *The latch doesn't close — interior door.* Remove the strike plate and adjust the position slightly or shim it out slightly. To replace the latch, you may need longer screws. Before replacing the old screws, try inserting a filler (such as a wood matchstick) into the old screw hole. Then drive the screw in the same hole. If the latch is secure, you're done.

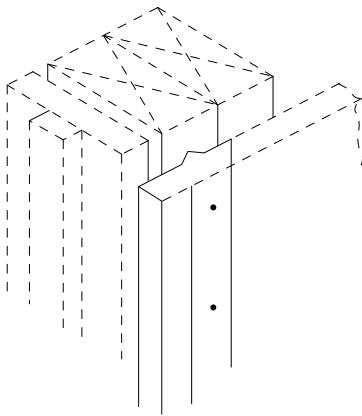
Doors will also bind when they absorb excess moisture during humid weather. This is a symptom of the door not being completely sealed at the edges. Sealing the edges with paint or varnish should solve the problem.



**Figure 9-7**  
Door clearances

**Figure 9-8**

Relocation of doors to direct traffic to one side of the rooms

**Figure 9-9**

Metal casing used with drywall

## Making Changes

Adding or moving a door can make navigating a home more convenient. Traffic through a room should be at the edges, not through the middle. Many older homes have doors centered in a wall, which cuts the wall space in two and makes furniture arrangement difficult. Moving a door opening from the middle of a wall space to the corner of the room will usually add livability to a home. See Figure 9-8. In some cases, simply closing up a doorway is the best choice. If you relocate a door to a corner of the room, be sure the new door swings against the nearest wall (rather than into the open room) and away from the light switch (so the switch is just inside the doorway). Also keep in mind that entire walls (affecting each adjoining room) may need to be re-drywalled when relocating a door. If it's a loadbearing wall, you'll need to allow room for installation of the header. Be sure you and your customer are aware of the additional costs and complexities involved before deciding to relocate a door.

Rough opening dimensions for interior doors are the same as rough opening dimensions for exterior doors. The opening width is the door width plus  $2\frac{1}{2}$ ". The opening height is the door height plus  $2\frac{1}{4}$ " above the finished floor. The head jamb and two side jambs are the same width as the overall wall thickness where wood casing is used. Where metal casing is used with drywall (Figure 9-9), the jamb width is the same as the stud depth.

Installation goes faster if you hang the door in the jamb before setting the frame in the wall. Let the door act as a jig around which you assemble the jambs. To save time, buy jambs in precut sets. The jamb should be about  $\frac{1}{8}$ " wider than the thickness of the finished wall. That's probably  $4\frac{9}{16}$ " for a  $2" \times 4"$  stud wall, or  $6\frac{9}{16}$ " for a  $2" \times 6"$  stud wall. The jamb height is  $\frac{3}{8}$ " less than the rough opening height. Fit the door to the frame, using the clearances shown earlier in Figure 9-7. Bevel the edges slightly where the door meets the stops. Cutting and assembling the jamb will take about a half hour.

Before installing the door, temporarily set the narrow wood strips used as stops. Stops are usually  $\frac{7}{16}$ " thick and from  $1\frac{1}{2}$ " to  $2\frac{1}{4}$ " wide. See Figure 9-10. Cut a mitered joint where the stops meet at the head and side jambs. A 45-degree bevel cut 1" to  $1\frac{1}{2}$ " above the finish floor (as in Figure 9-10) will eliminate a dirt pocket and make cleaning easier. This is called a sanitary stop.

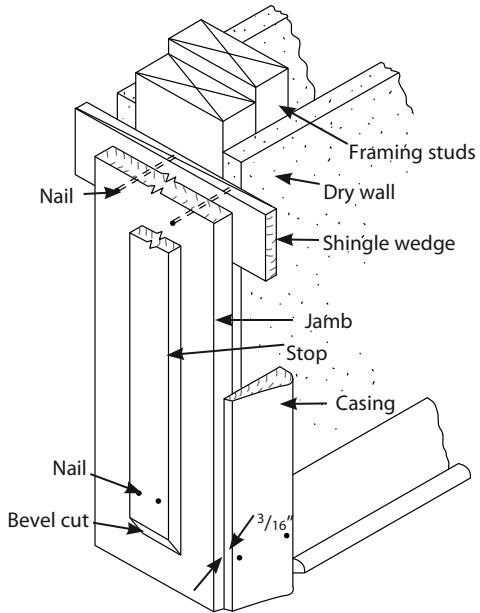
Rout or mortise the hinges into the edge of the door with a  $\frac{3}{16}$ " to  $\frac{1}{4}$ " back spacing. Adjust the hinge, if necessary, so screws penetrate into solid wood. For interior doors, use two  $3" \times 3"$  loose-pin hinges. If a router isn't available, mark the hinge

outline and depth of cut. Then remove just enough wood with a chisel so that the surface of the hinge is flush with the remainder of the door edge.

Place the door in the opening. Block the door in place with proper clearances all around. Then mark the location of the door hinges on the jamb. Remove the door from the opening and rout or chisel the jamb to the thickness of the hinge half. Install the hinge halves on the jamb.

Setting hinges on the door and jamb will require about an hour if you're using hand tools. If a router and door jig are available, reduce that time by about half.

Place the door in the opening and insert the hinge pins. Plumb and fasten the hinge side of the frame first. Drive shingle wedge sets between the side jamb and the rough door buck to plumb the jamb. Place a wedge set opposite the latch, each hinge and at intermediate locations. Nail the jamb with pairs of 8d nails at each wedge. Then fasten the opposite jamb the same way. When the door jamb is secure, cut off the shingle wedges flush with the wall. Allow about a half hour to set the door and jamb in the frame and nail the assembly in place.



**Figure 9-10**  
Installation of sanitary stop

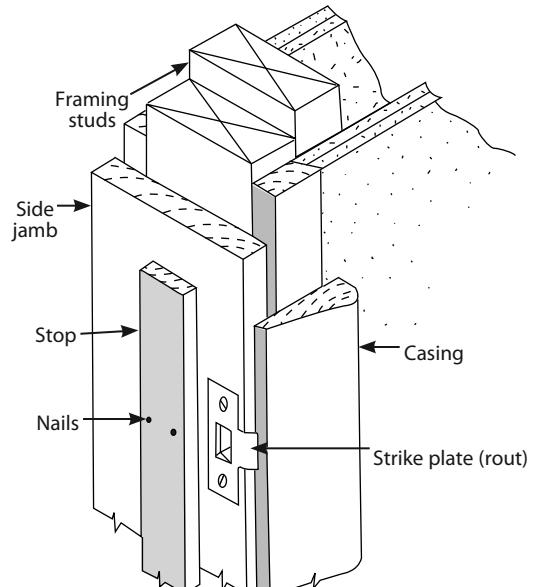
## Door Locksets

Many doors come pre-bored for the lockset. There are four types of locksets:

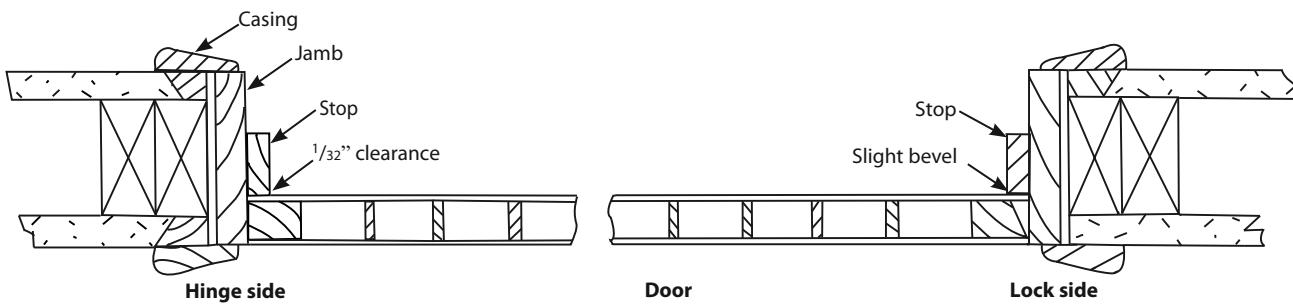
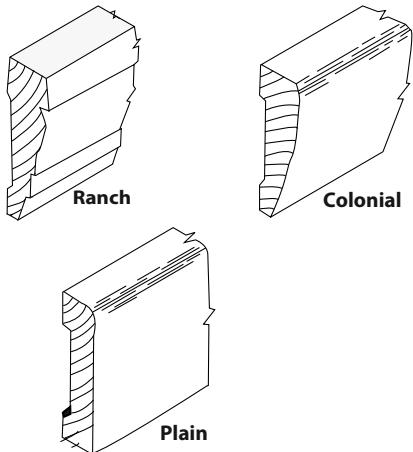
1. Decorative entry keyed locksets;
2. Common keyed locks;
3. Privacy locksets with an inside lock button and a safety slot that allows opening from the outside; and
4. Passage latch sets with no lock.

There are also dummy knobs that merely attach to the face of the door.

After the lockset has been installed, mark the location of the latch on the jamb. Do this with the door nearly closed. Then mark an outline for the strike plate at this position. Rout the jamb so the strike plate will be flush with the face of the jamb. See Figure 9-11. Installing the lockset and setting the strike will take about 15 minutes, assuming the door is already bored for a lockset. If you have to drill the door for a cylinder lock, allow 45 minutes. Routing for a mortise lockset will take over an hour.



**Figure 9-11**  
Installation of strike plate

**Figure 9-12***Location of stops***Figure 9-13***Styles of door casings*

The stops, which were temporarily tacked in place, can now be permanently installed. Nail the stop on the lock side first, setting it against the door face when the door is fully latched. Nail the stops with  $1\frac{1}{2}$ "-long finishing nails or brads spaced in pairs about 16" apart. The stop at the hinge side of the door should have a clearance of  $1/32$ " (Figure 9-12). Allow 15 minutes to set the stops in place.

## Setting the Trim

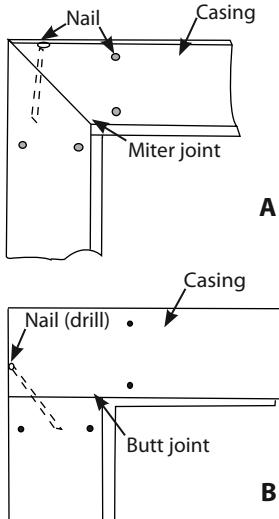
Casing is the trim set around a door or window opening. Most casing is from  $1\frac{1}{2}$ " to  $3\frac{1}{4}$ " thick and from  $2\frac{1}{4}$ " to  $3\frac{1}{2}$ " wide. Figure 9-13 shows three popular casing profiles.

Set the casing back about  $\frac{3}{16}$ " from the face of the jamb. (Refer back to Figure 9-10.) Nail casing with 6d or 7d finishing nails, depending on the thickness of the casing. Space nails in pairs about 16" apart. Casings with molded profiles need a mitered joint where the head and side casings join (Figure 9-14 A). Rectangular casings can be butt-joined (Figure 9-14 B). With metal casing, fit the casing over the drywall, position the sheet properly, then nail through the drywall and casing into the stud behind. See Figure 9-15. Use the same type of nails and spacing as for drywall alone. Setting casing on both sides of the door will take about an hour.

## Hanging a Slab Door

In round numbers, allow about two hours for routine assembly and hanging of a slab door in a rough wall opening. Here's a breakdown:

- ❖ Cut and fit the jamb, 30 minutes
- ❖ Set hinges on the door and jamb, 15 minutes
- ❖ Install jambs and hang the door, 15 minutes

**Figure 9-14***Casing joints*

Install the lockset and strike, 15 minutes

Set door stop on the jamb, 15 minutes

Set casing on two sides, 30 minutes

Add 15 minutes for a French door

Add 30 minutes for setting a threshold

An experienced finish carpenter using a pneumatic nailer, router and door jig may be able to cut this time in half.

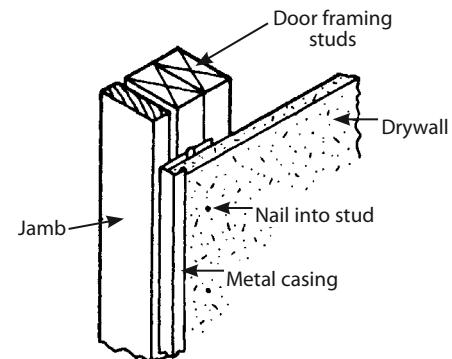
But as mentioned at the start of Chapter 1, your typical door replacement job may be anything but routine.

- ❖ Work starts with removing the old door. That's probably not too hard — once you break through several coats of accumulated paint on the hinges. One whack with a hammer should work wonders.
- ❖ Check the opening for plumb and square. Allow an extra hour or more if you have to align the framing. If the wall is way out of plumb, you may have a serious structural problem that requires reframing the entire wall.
- ❖ If hinge butts are loose, stripped out or poorly aligned, the next step may be installing a blind Dutchman on the jamb where the original hinges were attached.
- ❖ If the jamb is badly chewed up from years of neglect and abuse, you'll have to remove and replace the entire frame.
- ❖ In any case, you'll have to refinish the door and repair cosmetic defects in the interior and exterior wall finish.
- ❖ Finally, you have to haul away the old door and debris.

The pages that follow show a labor estimate of 1.45 hours for hanging a new exterior slab door. That estimate includes setting three hinges on the door and jamb, fitting and hanging the door in an existing cased opening, checking the operation and making minor adjustments as required to the stop, jamb or strike. Add the cost of removing the old door, reframing the opening, repairs to the existing jamb, resetting the latch and strike, and replacing interior casing or exterior brick mold, if required.

The labor estimate for hanging an interior slab door is 1.15 hours and includes setting two hinges on the door and jamb and hanging the door in an existing cased opening. Add the cost of removing the old door, reframing the opening, repairs to the existing jamb, resetting the latch and strike, and replacing casing on two sides, if required.

Prehung doors are a better choice for most jobs and offer obvious advantages.



**Figure 9-15**

*Metal casing*

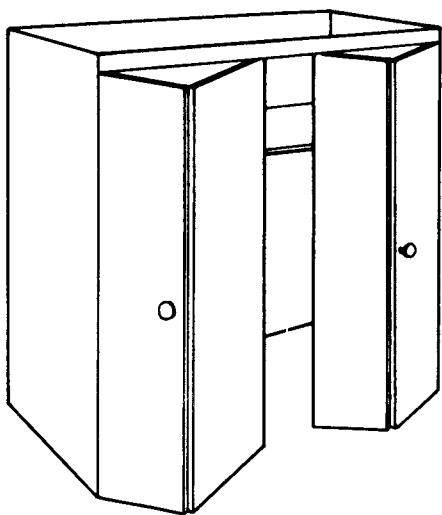
## Prehung Doors

Prehung doors (door, hinges, jamb and casing) cost a little more than slab doors (the door alone) but save money on labor because they require less cutting and fitting. Prehung doors come with the hinges attached, casing set, jamb assembled and door bored for a lockset. Exterior prehung doors usually include an adjustable threshold. The main jamb is attached to the door and is installed from one side of the opening. The other half of the jamb installs from the other side of the opening. When assembled, the two halves fit snugly together. Split jamb prehung doors have a tongue-and-groove joint behind the jamb stop that adjusts to fit the actual wall thickness. The casing will extend about 2" beyond the door edge at both the head and side jambs.

Prehung doors are easy to install. Allow about 45 minutes for an interior prehung door and 60 minutes for an exterior prehung door, assuming the opening is plumb, square and flush. But the door you order has to be exactly the door you need. It's impractical to make changes at the jobsite. All of the following are set at the mill:

- ❖ Door width and height
- ❖ Left or right hinge
- ❖ Inward or outward swing
- ❖ Jamb depth that matches the finished wall thickness
- ❖ Bore diameter and setback.

Identify the "hinge" of a prehung door by opening it away from you. Right-hand (or right-hinge) doors swing out of the way to the right when fully open. Left-hand doors swing to the left. Inward swing is most common for exterior doors.



**Figure 9-16**

Double-hinged door set for full-width opening closet

## Closet Doors

Old homes tend to have larger rooms, higher ceilings and completely inadequate closet space, at least by 21st century standards. Even if there's enough closet space, it may not be well arranged for good use. Adding or rearranging closet space is a popular home improvement project.

One easy closet improvement is to replace a conventional single closet door with doors that open the full width of the closet. You'll need to remove the wall finish and enough studs to provide the opening needed for accordion, bypass or bi-fold doors (Figure 9-16). If the closet wall is a loadbearing wall, install a header across the new opening: two 2 x 8s for a 5' opening; two 2 x 10s for a 6' opening; or two 2 x 12s for an 8' opening. No header is needed for non-loadbearing walls. Frame the opening the same as for any new door opening. The rough opening should be 2 $\frac{1}{2}$ " wider than the door or set of doors.

You can also make closets more useful by adding or altering shelves and clothes rods. The usual closet has one rod with a single shelf above. If hanging space is limited, install a second clothes

rod about halfway between the existing rod and the floor. This type of space is good for children's clothing, shirts and folded pants. Support a new shelf or rod with 1" x 4" cleats nailed to the closet end walls. Nail these cleats with three 6d nails at each end of the closet and at the intermediate stud. Shelf ends can rest directly on these cleats. Attach clothes rods to the same cleats that support the shelf. A long closet rod may sag in the middle when supported with nothing but end cleats. In that case, add steel support brackets fastened to studs at the back of the closet.

## New Closet Space

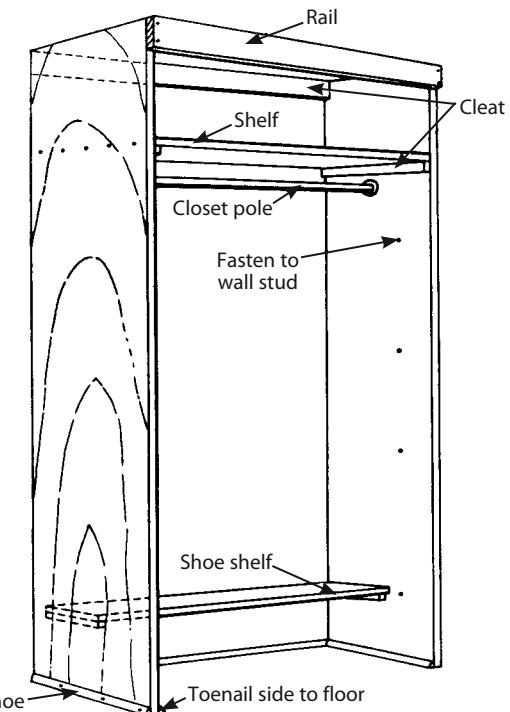
A plywood wardrobe cabinet is an economical and practical alternative to building a conventional closet with studs, drywall and casing. Figure 9-17 shows a simple plywood wardrobe built against a wall. For extra convenience, install additional shelves, drawers and doors.

Build wardrobe closets from  $5/8"$  or  $3/4"$  plywood or particleboard supported on cleats. Use a 1" x 4" top rail and back cleat. Fasten the cleat to the back wall. Fasten the sidewalls to a wall stud. Toenail base shoe molding to the floor to hold the bottoms of the sidewalls in place. Add shelves and closet poles as needed. Then enclose the space with bi-fold doors.

Plan for a coat closet near both the front and rear entrances. There should be a cleaning closet in the work area, and a linen closet in the bedroom area. Each bedroom needs a closet. In most real estate listings, you can't refer to a room as a "bedroom" unless it has a closet. If bedrooms are large, it's a simple matter to build a closet across one end of the room. Build partition walls with 2 x 3 or 2 x 4 framing lumber covered with gypsum board. Provide a cased opening for the closet doors.

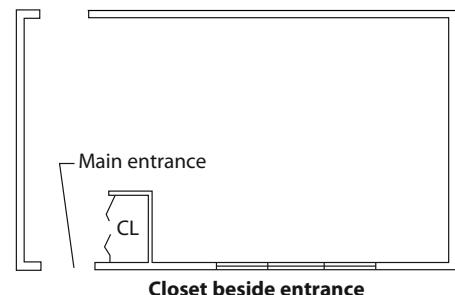
In a small house, look for wasted space at the end of a hallway or at a wall offset. If the front door opens directly into the living room, consider building a coat closet beside or in front of the door to form an entry (Figure 9-18). In a story-and-a-half house, build closets in attic space where headroom is too limited for occupancy.

Closets used for hanging clothes should be about 24" deep. Shallower closets can be useful with appropriate hanging fixtures. Deeper closets need rollout hanging rods. To make the best use of closet space, plan for a full-front opening.

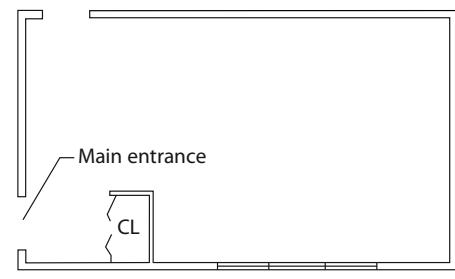


**Figure 9-17**

Wardrobe closet



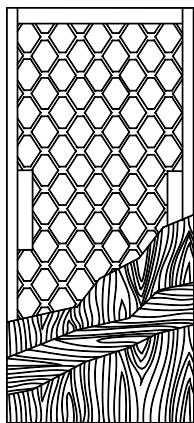
**Closet beside entrance**



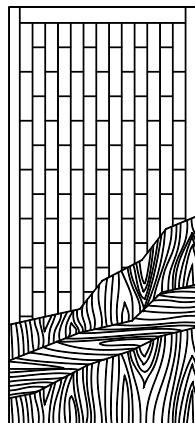
**Closet in front of entrance**

**Figure 9-18**

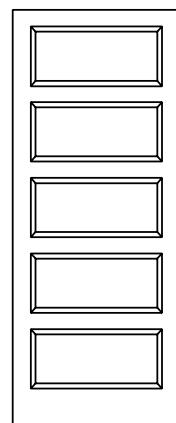
Entry formed by coat closet



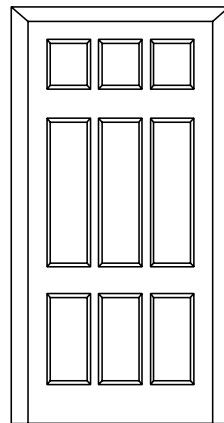
Hollow core door



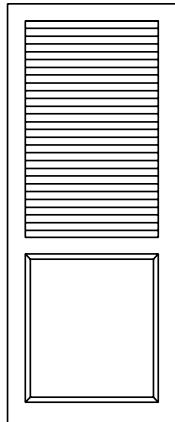
Solid core door



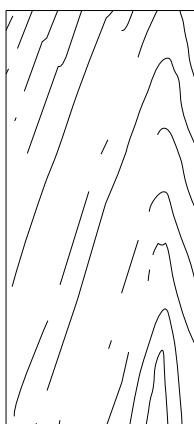
French door, 5 lites



Colonial 9-panel door



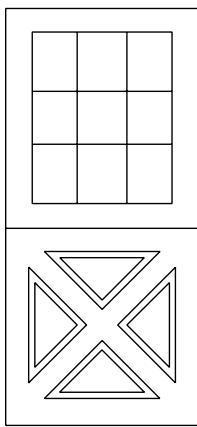
Half louver door



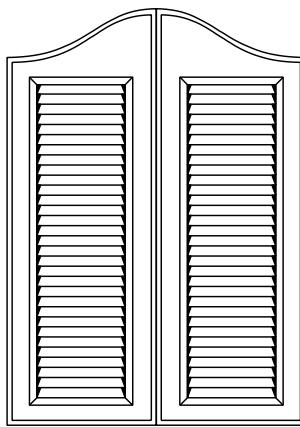
Flush door

## Door Terms

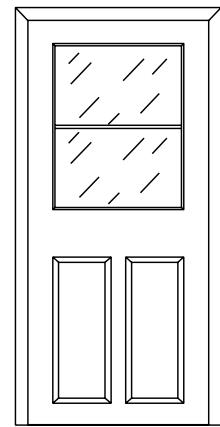
- ❖ Interior doors are usually  $1\frac{3}{8}$ " thick and have a "hollow" core. A wood frame is filled with a matrix of corrugated paper and covered with a thin veneer.
- ❖ Exterior doors are usually  $1\frac{3}{4}$ " thick and solid core — again a thin veneer laid over a frame, but with some other material filling the door cavity. This filler could be foam or composition board or even lumber. Other popular exterior door choices include solid wood, steel and fiberglass.
- ❖ French doors are mostly glass, with one to as many as fifteen panes set in wood sash.
- ❖ Insulated French doors have dual layers of glass, usually with a dividing grille installed between layers.
- ❖ Colonial doors have raised decorative wood panels that resemble doors popular in colonial America. Six or nine panels are most common.
- ❖ Flush doors are smooth and flat, with no decorative treatment.
- ❖ Louver doors include wood louvers that allow air to circulate but obscure vision, an advantage for enclosing a closet, pantry or water heater.
- ❖ Grilles (grids) are laid over the glass in a single-pane French door to create the illusion of multiple glass panes.
- ❖ Paint grade doors are usually primed at the factory and are designed to be painted after installation.
- ❖ Unfinished doors can be stained or given a clear coating, such as urethane, to enhance the beauty of the wood.



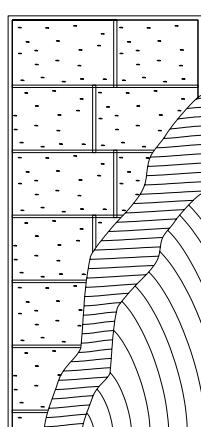
Crossbuck door



Bar doors

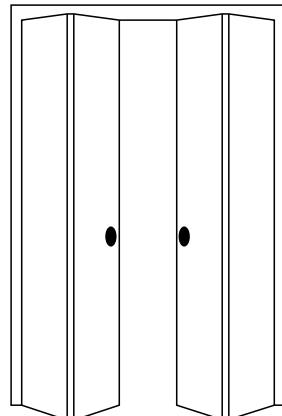


Ventilating door

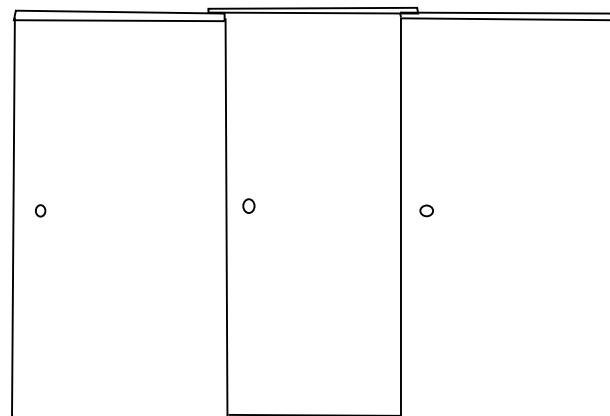


Fire door

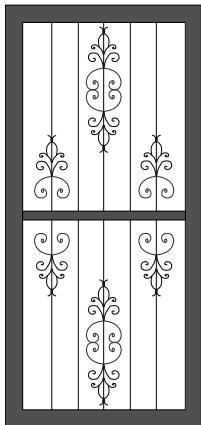
- ❖ Entry doors are decorative exterior doors, often with glass panels set in a border of brass caming.
- ❖ Slab doors are the door alone, as distinguished from prehung doors which are sold with jamb, hinges, trim and threshold attached.
- ❖ Prehung doors are sold as a package with the door, jamb, hinges, and trim already assembled.
- ❖ Brick mold (also called stucco mold) is the casing around each side and head on the exterior side of an exterior door. Prehung doors are sold either with or without brick mold.
- ❖ Crossbuck doors have a raised X design in the bottom half of the door.
- ❖ Bar (café) doors are familiar to everyone who has seen a Western movie.
- ❖ Ventilating doors include a window that can be opened.
- ❖ Fire doors carry a fire rating and are designed to meet building code requirements for specialized occupancies, such as hotel rooms or dormitories. Code also requires that fire doors be used between a house and an attached garage, and that an automatic door closer is installed.
- ❖ Bi-fold doors on closets fold in half when open, revealing nearly the full interior.
- ❖ Bypass closet doors slide left or right, never revealing more than one-half of the interior.



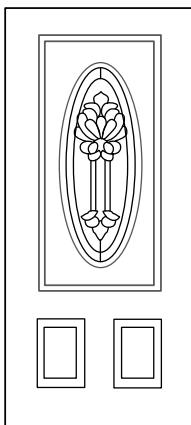
Bi-fold doors



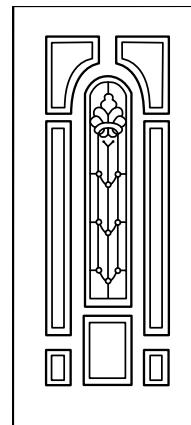
Bypass doors



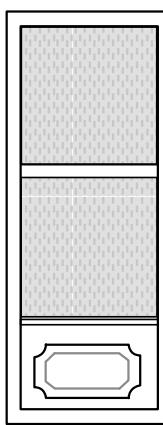
Security door



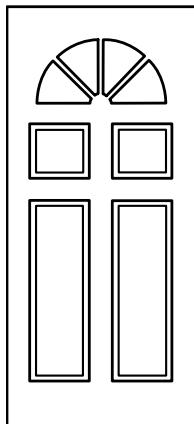
3/4 oval lite door



Arch lite panel door



Self-storing storm door



Fan lite panel door

- ❖ Hardboard doors are made of composition wood veneer, the least expensive material available.
- ❖ Casing is the trim around each side and head of an interior door. Casing covers the joint between jamb and wall.
- ❖ Finger joint trim is made from two or more lengths of wood joined together with a finger-like joint that yields nearly as much strength as trim made of a single, solid piece.
- ❖ Hardwood doors are finished with a thin layer of true hardwood veneer.
- ❖ Lauan doors are finished with a veneer of Philippine hardwood from the mahogany family.
- ❖ Stiles and rails form the framework of a flush door. Stiles are vertical and every door has two — a lock stile and the hinge stile. Rails run horizontally at the top and bottom of the door.
- ❖ Molded face doors have decorative molding applied to at least one side.

|   | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|---|-----------|------|----------|--------|----------|----------|
| <b>Exterior Doors</b>   |           |      |          |        |          |          |
| <b>Cut wall and frame exterior door opening, install slab door and trim.</b> Includes temporary wall bracing and closure, header, trimmer studs, exterior flush slab door, frame, threshold, three hinges, stop, brick mold, casing, cylinder lockset, and weatherstrip. Add the cost of debris removal, painting, and floor and wall finish if needed. |           |      |          |        |          |          |
| 36" x 80" slab exterior door  | BC@10.7   | Ea   | 408.00   | 439.00 | 847.00   | 1,440.00 |
| <b>Remove and replace single exterior slab door and trim.</b> Includes removing the existing door, trim and jamb, aligning the rough frame, installing exterior flush slab door, frame, threshold, three hinges, stop, brick mold, casing, cylinder lockset, and weatherstrip. Add the cost of debris removal and painting.                             |           |      |          |        |          |          |
| Single door, stud wall  | BC@6.40   | Ea   | 351.00   | 263.00 | 614.00   | 1,040.00 |
| Single door, masonry wall   | BC@7.35   | Ea   | 357.00   | 302.00 | 659.00   | 1,120.00 |
| <b>Remove and replace double exterior slab doors and trim.</b> Includes removing the existing doors, trim and jamb, aligning the rough frame, installing two exterior 6-panel slab doors, frame, threshold, six hinges, stop, brick mold, casing, cylinder lockset, two surface slide bolts, and weatherstrip.  |           |      |          |        |          |          |
| Double door, stud wall, per pair  | BC@8.75   | Ea   | 1,060.00 | 359.00 | 1,419.00 | 2,410.00 |
| Double door, masonry wall, per pair   | BC@9.75   | Ea   | 1,090.00 | 400.00 | 1,490.00 | 2,530.00 |
| <b>Remove, clean, refinish and reinstall exterior slab door.</b> Includes removing door finish on all six sides with heat gun and solvent, filling small voids, sanding and refinishing with varnish or stain and sealer, and rehanging the door.   |           |      |          |        |          |          |
| Single door   | PT@6.00   | Ea   | 30.00    | 253.00 | 283.00   | 481.00   |
| Double door   | PT@11.0   | Ea   | 50.10    | 464.00 | 514.10   | 874.00   |
| Refinish jamb and trim, per opening   | PT@2.00   | Ea   | 30.00    | 84.30  | 114.30   | 194.00   |
| Add for antique finish, per door  | PT@1.50   | Ea   | 40.20    | 63.20  | 103.40   | 176.00   |
| <b>Door repairs.</b>  |           |      |          |        |          |          |
| Remove set of three hinge pins  | BC@.067   | Ea   | —        | 2.75   | 2.75     | 4.68     |
| Install set of three hinge pins   | BC@.091   | Ea   | —        | 3.74   | 3.74     | 6.36     |
| Patch 6" hole with body filler  | BC@4.00   | Ea   | 44.30    | 164.00 | 208.30   | 354.00   |
| Align strike plate with latch bolt  | BC@.500   | Ea   | —        | 20.50  | 20.50    | 34.90    |
| Plane 1/8" off door edge  | BC@.250   | Ea   | —        | 10.30  | 10.30    | 17.50    |
| Loosen and reset one hinge butt   | BC@.333   | Ea   | —        | 13.70  | 13.70    | 23.30    |
| Touch-up painting   | PT@.250   | Ea   | 4.22     | 10.50  | 14.72    | 25.00    |
| <b>Install exterior slab door in an existing framed and cased opening.</b> Includes minor repair to the jamb (blind Dutchman), three hinges, flush slab door, stop, cylinder lockset, and weatherstrip.   |           |      |          |        |          |          |
| 36" x 80" exterior door   | BC@3.10   | Ea   | 414.00   | 127.00 | 541.00   | 920.00   |
| <b>Remove and replace exterior door casing, jamb and stop.</b> Includes frame, stop, and casing on one side only.   |           |      |          |        |          |          |
| Per door opening.   |           |      |          |        |          |          |
| Door opening to 36" x 80"   | BC@1.50   | Ea   | 110.00   | 61.60  | 171.60   | 292.00   |
| <b>Remove and replace exterior slab door, on existing hinges.</b> Includes exterior 6-panel slab door and cylinder lockset.   |           |      |          |        |          |          |
| 36" x 80" exterior door   | BC@1.90   | Ea   | 355.00   | 78.00  | 433.00   | 736.00   |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Wood Exterior Slab Doors

**Flush hardboard exterior doors.** Solid core. 1-3/4" thick. Primed and ready to paint. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 30" x 80" | BC@1.45 | Ea | 110.00 | 59.50 | 169.50 | 288.00 |
| 32" x 80" | BC@1.45 | Ea | 115.00 | 59.50 | 174.50 | 297.00 |
| 34" x 80" | BC@1.45 | Ea | 115.00 | 59.50 | 174.50 | 297.00 |
| 36" x 80" | BC@1.45 | Ea | 179.00 | 59.50 | 238.50 | 405.00 |

**Flush hardwood exterior doors.** Solid core. 1-3/4" thick. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|                          |         |    |        |       |        |        |
|--------------------------|---------|----|--------|-------|--------|--------|
| 28" x 80"                | BC@1.45 | Ea | 100.00 | 59.50 | 159.50 | 271.00 |
| 30" x 80"                | BC@1.45 | Ea | 109.00 | 59.50 | 168.50 | 286.00 |
| 32" x 80"                | BC@1.45 | Ea | 113.00 | 59.50 | 172.50 | 293.00 |
| 36" x 80"                | BC@1.45 | Ea | 129.00 | 59.50 | 188.50 | 320.00 |
| 36" x 84"                | BC@1.45 | Ea | 132.00 | 59.50 | 191.50 | 326.00 |
| 30" x 80", diamond light | BC@1.45 | Ea | 132.00 | 59.50 | 191.50 | 326.00 |
| 30" x 80", square light  | BC@1.45 | Ea | 132.00 | 59.50 | 191.50 | 326.00 |
| 32" x 80", square light  | BC@1.45 | Ea | 147.00 | 59.50 | 206.50 | 351.00 |
| 36" x 80", diamond light | BC@1.45 | Ea | 154.00 | 59.50 | 213.50 | 363.00 |
| 36" x 80", square light  | BC@1.45 | Ea | 155.00 | 59.50 | 214.50 | 365.00 |

**Flush birch exterior doors.** Solid core. 1-3/4" thick. Stainable. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 32" x 80" | BC@1.45 | Ea | 129.00 | 59.50 | 188.50 | 320.00 |
| 34" x 80" | BC@1.45 | Ea | 129.00 | 59.50 | 188.50 | 320.00 |
| 36" x 80" | BC@1.45 | Ea | 129.00 | 59.50 | 188.50 | 320.00 |

**Flush lauan exterior doors.** Solid core. 1-3/4" thick. Stainable. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 30" x 80" | BC@1.45 | Ea | 95.20  | 59.50 | 154.70 | 263.00 |
| 30" x 84" | BC@1.45 | Ea | 93.10  | 59.50 | 152.60 | 259.00 |
| 32" x 80" | BC@1.45 | Ea | 95.20  | 59.50 | 154.70 | 263.00 |
| 36" x 80" | BC@1.45 | Ea | 122.00 | 59.50 | 181.50 | 309.00 |

**Flush fire-rated doors.** 1-3/4" thick. 20-minute fire rating. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| 32" x 80", hardboard veneer | BC@1.45 | Ea | 126.00 | 59.50 | 185.50 | 315.00 |
| 36" x 80", hardboard veneer | BC@1.45 | Ea | 126.00 | 59.50 | 185.50 | 315.00 |
| 32" x 80", birch veneer     | BC@1.45 | Ea | 129.00 | 59.50 | 188.50 | 320.00 |
| 36" x 80", birch veneer     | BC@1.45 | Ea | 129.00 | 59.50 | 188.50 | 320.00 |

**Red oak exterior doors.** Wood stave core. 1-3/4" thick. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 30" x 80" | BC@1.45 | Ea | 158.00 | 59.50 | 217.50 | 370.00 |
| 32" x 80" | BC@1.45 | Ea | 158.00 | 59.50 | 217.50 | 370.00 |
| 34" x 80" | BC@1.45 | Ea | 179.00 | 59.50 | 238.50 | 405.00 |
| 36" x 80" | BC@1.45 | Ea | 179.00 | 59.50 | 238.50 | 405.00 |

**6-panel fir exterior doors.** 1-3/4" thick. Beveled, hip-raised panels. Doweled stile and rail joints. 4-1/2" wide stiles. Unfinished clear fir. Ready to paint or stain. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 30" x 80" | BC@1.45 | Ea | 339.00 | 59.50 | 398.50 | 677.00 |
| 32" x 80" | BC@1.45 | Ea | 339.00 | 59.50 | 398.50 | 677.00 |
| 36" x 80" | BC@1.45 | Ea | 339.00 | 59.50 | 398.50 | 677.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**6-panel Douglas fir entry doors.** 1-3/4" thick. Solid core. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 30" x 80" | BC@1.45 | Ea | 358.00 | 59.50 | 417.50 | 710.00 |
| 32" x 80" | BC@1.45 | Ea | 364.00 | 59.50 | 423.50 | 720.00 |
| 36" x 80" | BC@1.45 | Ea | 364.00 | 59.50 | 423.50 | 720.00 |

**Mahogany entry doors.** 1-3/4" thick. Beveled tempered glass lite. Unfinished solid wood. Ready to paint or stain.

Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|                      |         |    |          |       |          |          |
|----------------------|---------|----|----------|-------|----------|----------|
| 30" x 80", arch lite | BC@1.45 | Ea | 1,580.00 | 59.50 | 1,639.50 | 2,790.00 |
| 30" x 80", moon lite | BC@1.45 | Ea | 1,580.00 | 59.50 | 1,639.50 | 2,790.00 |
| 30" x 80", oval lite | BC@1.45 | Ea | 1,680.00 | 59.50 | 1,739.50 | 2,960.00 |

**4-panel 4-lite fir exterior doors.** Vertical grain Douglas fir. 1-3/4" thick. 3/4" thick panels. Unfinished. Veneered and doweled construction. 1/8" tempered safety glass. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 36" x 80" | BC@1.70 | Ea | 328.00 | 69.80 | 397.80 | 676.00 |
|-----------|---------|----|--------|-------|--------|--------|

**2-panel 9-lite entry doors.** 1-3/4" thick. Single-pane glass. Solid core with doweled joints. Unfinished. Suitable for stain or paint. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |          |
|-----------|---------|----|--------|-------|--------|----------|
| 30" x 80" | BC@1.70 | Ea | 706.00 | 69.80 | 775.80 | 1,320.00 |
| 32" x 80" | BC@1.70 | Ea | 747.00 | 69.80 | 816.80 | 1,390.00 |
| 36" x 80" | BC@1.70 | Ea | 706.00 | 69.80 | 775.80 | 1,320.00 |

**1-lite clear fir entry doors.** 1-3/4" thick. Clear fir surface ready to stain or paint. Insulated glass. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 32" x 80" | BC@1.70 | Ea | 321.00 | 69.80 | 390.80 | 664.00 |
| 36" x 80" | BC@1.70 | Ea | 321.00 | 69.80 | 390.80 | 664.00 |

**Fir 10-lite exterior doors.** 1-3/4" thick. Unfinished. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|                    |         |    |        |       |        |        |
|--------------------|---------|----|--------|-------|--------|--------|
| 30" x 80" x 1-3/4" | BC@1.70 | Ea | 317.00 | 69.80 | 386.80 | 658.00 |
| 32" x 80" x 1-3/4" | BC@1.70 | Ea | 318.00 | 69.80 | 387.80 | 659.00 |
| 36" x 80" x 1-3/4" | BC@1.70 | Ea | 317.00 | 69.80 | 386.80 | 658.00 |

**Fir 15-lite entry doors.** Single-pane glass. Ready for stain or paint. 1-3/4" thick. Doweled stile and rail joints. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|                    |         |    |        |       |        |        |
|--------------------|---------|----|--------|-------|--------|--------|
| 30" x 80" x 1-3/4" | BC@1.70 | Ea | 337.00 | 69.80 | 406.80 | 692.00 |
| 32" x 80" x 1-3/4" | BC@1.70 | Ea | 350.00 | 69.80 | 419.80 | 714.00 |
| 36" x 80" x 1-3/4" | BC@1.70 | Ea | 362.00 | 69.80 | 431.80 | 734.00 |

**Fir fan lite entry doors.** Vertical grain Douglas fir. 1-3/4" thick. 3/4" thick panels. Unfinished. Veneer and doweled construction. 1/8" tempered safety glass. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 32" x 80" | BC@1.45 | Ea | 316.00 | 59.50 | 375.50 | 638.00 |
| 30" x 80" | BC@1.45 | Ea | 299.00 | 59.50 | 358.50 | 609.00 |

**Deco fan lite entry doors.** 1-3/4" thick. 3/4" thick panels. Unfinished solid wood. Ready to paint or stain. Beveled insulated glass. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 36" x 80" | BC@1.45 | Ea | 422.00 | 59.50 | 481.50 | 819.00 |
|-----------|---------|----|--------|-------|--------|--------|

|   | Craft@Hrs | Unit | Material | Labor | Total    | Sell     |
|---|-----------|------|----------|-------|----------|----------|
| <b>Flush oak entry doors.</b> 1-3/4" thick. Prefinished. Labor includes setting three hinges on the door and jamb and hanging the door in an existing cased opening.  |           |      |          |       |          |          |
| 36" x 80"   | BC@1.45   | Ea   | 1,650.00 | 59.50 | 1,709.50 | 2,910.00 |
| <b>Reversible hollow metal fire doors.</b>  |           |      |          |       |          |          |
| 34" x 80"   | BC@.721   | Ea   | 237.00   | 29.60 | 266.60   | 453.00   |
| 36" x 80"   | BC@.721   | Ea   | 347.00   | 29.60 | 376.60   | 640.00   |
| <b>Knock down steel door frames.</b> Bored for (3) 4-1/2" hinges, 4-7/8" strike plate and 2-3/4" backset. 90-minute fire label manufactured to N.Y.C. M.E.A. procedures. Hollow core. For drywall and masonry applications. Galvanized steel. |           |      |          |       |          |          |
| 30" x 80"   | BC@.944   | Ea   | 125.00   | 38.80 | 163.80   | 278.00   |
| 32" x 80"   | BC@.944   | Ea   | 125.00   | 38.80 | 163.80   | 278.00   |
| 34" x 80"   | BC@.944   | Ea   | 125.00   | 38.80 | 163.80   | 278.00   |
| 36" x 80"   | BC@.944   | Ea   | 125.00   | 38.80 | 163.80   | 278.00   |
| 36" x 84"   | BC@.944   | Ea   | 125.00   | 38.80 | 163.80   | 278.00   |
| <b>90-minute fire-rated door frame parts.</b>   |           |      |          |       |          |          |
| 4-7/8" x 80" legs, pack of 2  | BC@.778   | Ea   | 154.00   | 31.90 | 185.90   | 316.00   |
| 4-7/8" x 36" head   | BC@.166   | Ea   | 44.00    | 6.82  | 50.82    | 86.40    |
| <b>Steel cellar doors.</b> Durable heavy gauge steel.   |           |      |          |       |          |          |
| 57" x 45" x 24-1/2"   | BC@1.00   | Ea   | 606.00   | 41.10 | 647.10   | 1,100.00 |
| 63" x 49" x 22"   | BC@1.00   | Ea   | 614.00   | 41.10 | 655.10   | 1,110.00 |
| 71" x 53" x 19-1/2"   | BC@1.00   | Ea   | 633.00   | 41.10 | 674.10   | 1,150.00 |
| <b>Door Trim</b>  |           |      |          |       |          |          |
| <b>Install door trim.</b>   |           |      |          |       |          |          |
| Door casing, two sides, hand nailed   | BC@.500   | Ea   | —        | 20.50 | 20.50    | 34.90    |
| Door casing, two sides, power nailed  | BC@.333   | Ea   | —        | 13.70 | 13.70    | 23.30    |
| Install mail slot in door   | BC@.529   | Ea   | —        | 21.70 | 21.70    | 36.90    |
| <b>T-astragal molding.</b> Covers the vertical joint where a pair of doors meets.   |           |      |          |       |          |          |
| 1-1/4" x 2" x 7', pine  | BC@.529   | Ea   | 42.40    | 21.70 | 64.10    | 109.00   |
| Remove and replace 80" long astragal  | BC@.680   | Ea   | —        | 27.90 | 27.90    | —        |
| <b>Primed exterior door jamb.</b> Primed finger joint pine. 1-1/4" thick. Set for a 3' door consists of two 6'8" legs and one 3' head.  |           |      |          |       |          |          |
| 4-5/8" wide, per 6'8" leg   | BC@.204   | Ea   | 36.20    | 8.38  | 44.58    | 75.80    |
| 5-1/4" wide, per 6'8" leg   | BC@.204   | Ea   | 41.70    | 8.38  | 50.08    | 85.10    |
| 6-9/16" wide, per 6'8" leg  | BC@.204   | Ea   | 26.50    | 8.38  | 34.88    | 59.30    |
| 4-5/8" wide, per set  | BC@.500   | Ea   | 63.30    | 20.50 | 83.80    | 142.00   |
| 5-1/4" wide, per set  | BC@.500   | Ea   | 41.70    | 20.50 | 62.20    | 106.00   |
| 6-9/16" wide, per set   | BC@.500   | Ea   | 41.00    | 20.50 | 61.50    | 105.00   |
| <b>Primed kerfed exterior door jamb.</b> 1-1/4" thick. Set for a 3' door consists of two 6'8" legs and one 3' head.   |           |      |          |       |          |          |
| 4-5/8" x 7' leg   | BC@.204   | Ea   | 46.10    | 8.38  | 54.48    | 92.60    |
| 4-5/8" x 3' head  | BC@.092   | Ea   | 22.10    | 3.78  | 25.88    | 44.00    |
| 6-5/8" x 7' leg   | BC@.204   | Ea   | 48.10    | 8.38  | 56.48    | 96.00    |
| 6-5/8" x 3' head  | BC@.092   | Ea   | 23.80    | 3.78  | 27.58    | 46.90    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Aluminum thermal door sill.</b> With vinyl insert. 36" x 5-5/8", mill finish.   |           |      |          |       |        |        |
| Install 30" to 36" aluminum threshold  | BC@.518   | Ea   | 25.70    | 21.30 | 47.00  | 79.90  |
| Install 56" to 72" aluminum threshold  | BC@.623   | Ea   | 52.50    | 25.60 | 78.10  | 133.00 |
| Remove and replace 30" to 36" threshold  | BC@.850   | Ea   | 25.70    | 34.90 | 60.60  | 103.00 |
| Remove and replace 56" to 72" threshold  | BC@1.20   | Ea   | 52.50    | 49.30 | 101.80 | 173.00 |
| <b>Oak high boy threshold.</b> Fits standard door sizes.   |           |      |          |       |        |        |
| 5/8" x 3-1/2" x 36"  | BC@.518   | Ea   | 20.70    | 21.30 | 42.00  | 71.40  |
| <b>Stop molding.</b> Nails to face of door jamb to prevent door from swinging through. Solid pine.   |           |      |          |       |        |        |
| 3/8" x 1-1/4"  | BC@.015   | LF   | 1.97     | .62   | 2.59   | 4.40   |
| 7/16" x 3/4"   | BC@.015   | LF   | .97      | .62   | 1.59   | 2.70   |
| 7/16" x 1-3/8"   | BC@.015   | LF   | 1.97     | .62   | 2.59   | 4.40   |
| 7/16" x 1-5/8"   | BC@.015   | LF   | .79      | .62   | 1.41   | 2.40   |
| 7/16" x 2-1/8"   | BC@.015   | LF   | 2.94     | .62   | 3.56   | 6.05   |
| <b>Solid pine ranch casing.</b>  |           |      |          |       |        |        |
| 9/16" x 2-1/4"   | BC@.015   | LF   | 1.36     | .62   | 1.98   | 3.37   |
| 9/16" x 2-1/4" x 7'  | BC@.105   | Ea   | 8.48     | 4.31  | 12.79  | 21.70  |
| 11/16" x 3-1/2"  | BC@.015   | LF   | 2.80     | .62   | 3.42   | 5.81   |
| 11/16" x 2-1/2" x 7'   | BC@.105   | Ea   | 16.80    | 4.31  | 21.11  | 35.90  |
| <b>Primed finger joint ranch door casing.</b>  |           |      |          |       |        |        |
| 9/16" x 3-1/4"   | BC@.015   | LF   | 2.44     | .62   | 3.06   | 5.20   |
| 11/16" x 2-1/4"  | BC@.015   | LF   | 1.70     | .62   | 2.32   | 3.94   |
| 11/16" x 2-1/4" x 7'   | BC@.105   | Ea   | 10.30    | 4.31  | 14.61  | 24.80  |
| 11/16" x 2-1/2"  | BC@.015   | LF   | 1.74     | .62   | 2.36   | 4.01   |
| 11/16" x 2-1/2" x 7'   | BC@.105   | Ea   | 12.10    | 4.31  | 16.41  | 27.90  |
| <b>Colonial door casing.</b> Solid pine.   |           |      |          |       |        |        |
| 1/2" x 2-1/4"  | BC@.015   | LF   | .98      | .62   | 1.60   | 2.72   |
| 9/16" x 2-1/4" x 7'  | BC@.105   | Ea   | 15.90    | 4.31  | 20.21  | 34.40  |
| 9/16" x 2-1/4"   | BC@.015   | LF   | 1.39     | .62   | 2.01   | 3.42   |
| 11/16" x 2-1/2"  | BC@.015   | LF   | 1.84     | .62   | 2.46   | 4.18   |
| 11/16" x 2-1/2" x 7'   | BC@.105   | Ea   | 12.50    | 4.31  | 16.81  | 28.60  |
| 11/16" x 3-1/2"  | BC@.105   | Ea   | 2.79     | .62   | 3.41   | 5.80   |
| 2-1/2", pre-mitered, 3' opening  | BC@.250   | Ea   | 37.00    | 10.30 | 47.30  | 80.40  |
| <b>Fluted pine casing and rosette set.</b> Includes 1 header piece, 2 side pieces, 2 rosettes and 2 base blocks.                                     |           |      |          |       |        |        |
| Set  | BC@.250   | Ea   | 57.00    | 10.30 | 67.30  | 114.00 |
| <b>Brick mold set.</b> Trim for the exterior side of an exterior door. Two legs and one head. Primed finger joint pine. 36" x 80" door. 1-1/4" x 2". |           |      |          |       |        |        |
| Finger joint pine  | BC@.250   | Ea   | 31.90    | 10.30 | 42.20  | 71.70  |
| Pressure treated pine  | BC@.250   | Ea   | 40.00    | 10.30 | 50.30  | 85.50  |
| Remove and replace brick mold  | BC@.350   | Ea   | —        | 14.40 | 14.40  | 24.50  |
| <b>Brick mold.</b>   |           |      |          |       |        |        |
| 1-3/16" x 2", hemlock  | BC@.015   | LF   | 3.73     | .62   | 4.35   | 7.40   |
| 1-1/4" x 2", fir   | BC@.015   | LF   | 1.87     | .62   | 2.49   | 4.23   |
| 1-1/4" x 2", solid pine  | BC@.015   | LF   | 3.26     | .62   | 3.88   | 6.60   |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell  |
|--|-----------|------|----------|-------|--------|-------|
| <b>Stucco molding.</b> Redwood.  |           |      |          |       |        |       |
| 13/16" x 1-1/2"  | BC@.015   | LF   | 1.71     | .62   | 2.33   | 3.96  |
| 1" x 1-3/8"  | BC@.015   | LF   | 1.77     | .62   | 2.39   | 4.06  |
| <b>Remove door hinge butt.</b> Remove four screws per 3-1/2" hinge butt half. Per hinge.   |           |      |          |       |        |       |
| Door or jamb half hinge butt only  | BC@.089   | Ea   | —        | 3.65  | 3.65   | 6.21  |
| Door and jamb half hinge butts   | BC@.135   | Ea   | —        | 5.54  | 5.54   | 9.42  |
| Remove and reset door hinge in existing mortise  | BC@.275   | Ea   | —        | 11.30 | 11.30  | 19.20 |
| <b>Door hinges.</b> Solid brass. Mortise type. Non-rising removable tip. Includes screws. Installation labor is included with cost of the door.  |           |      |          |       |        |       |
| 3" x 3", square corners 3 pk   | —         | Ea   | 115.00   | —     | 115.00 | —     |
| 3-1/2" x 3-1/2", round corners   | —         | Ea   | 34.70    | —     | 34.70  | —     |
| 3-1/2" x 3-1/2", square corners  | —         | Ea   | 115.00   | —     | 115.00 | —     |
| 4" x 4", round corners 3 pk  | —         | Ea   | 31.00    | —     | 31.00  | —     |
| 4" x 4", square corners 3 pk   | —         | Ea   | 21.20    | —     | 21.20  | —     |
| <b>Door Weatherstrip</b>   |           |      |          |       |        |       |
| <b>Remove and replace vinyl door weatherstrip.</b>   |           |      |          |       |        |       |
| 36" x 80" exterior door  | BC@.589   | Ea   | 21.70    | 24.20 | 45.90  | 78.00 |
| <b>Aluminum and vinyl adjustable door weatherstrip.</b> Seals out drafts and moisture. Fits top and sides of 36" x 80" door. Slotted holes for easy alignments   |           |      |          |       |        |       |
| 3/4" x 17', brown or white   | BC@.381   | Ea   | 21.70    | 15.60 | 37.30  | 63.40 |
| 3/4" x 17', grey   | BC@.381   | Ea   | 20.00    | 15.60 | 35.60  | 60.50 |
| <b>Gray foam weatherstrip.</b> Self-adhesive. Resilient. Open-cell. Compresses flat for a tight seal. Sticks to any dry clean surface. Width by thickness by length.   |           |      |          |       |        |       |
| 1/4" x 1/2" x 17'  | BC@.250   | Ea   | 2.28     | 10.30 | 12.58  | 21.40 |
| 3/8" x 1/2" x 17'  | BC@.250   | Ea   | 2.26     | 10.30 | 12.56  | 21.40 |
| <b>Aluminum and vinyl door bottom.</b> Heavy gauge aluminum with vinyl sweep. Seals out drafts, rain and dust. Screws included. 36" x 1-5/8".  |           |      |          |       |        |       |
| Brown  | BC@.250   | Ea   | 9.95     | 10.30 | 20.25  | 34.40 |
| Brushed chrome   | BC@.250   | Ea   | 1,515.20 | 10.30 | 25.50  | 43.40 |
| <b>Drip cap door bottom seal.</b> Drip cap diverts rain away. Seals out drafts, dust and insects. 36" long.  |           |      |          |       |        |       |
| 1-1/2", brite gold   | BC@.250   | Ea   | 13.50    | 10.30 | 23.80  | 40.50 |
| <b>Magnetic weatherstrip.</b> Provides airtight, refrigerator-like seal. Hinge compression tear strip adjusts after installation.  |           |      |          |       |        |       |
| 36" long   | BC@.250   | Ea   | 28.70    | 10.30 | 39.00  | 66.30 |
| <b>Door sweep.</b> As the door opens, the spring-action door sweep rises to clear the carpet. When the door is closed, the door sweep automatically lowers to firmly press against floor or carpet. Keeps out dirt and dust. |           |      |          |       |        |       |
| Brite gold   | BC@.250   | Ea   | 30.90    | 10.30 | 41.20  | 70.00 |

|  | Craft@Hrs | Unit | Material | Labor  | Total  | Sell     |
|--|-----------|------|----------|--------|--------|----------|
| <b>Prehung Wood Exterior Doors</b>   |           |      |          |        |        |          |
| <b>Cut wall and frame exterior door opening, install prehung door.</b> Includes cutting stud wall, temporary wall bracing and closure, header, trimmer studs, exterior 6-panel prehung steel door with frame, threshold, hinges, stop, brick mold, casing, weatherstrip and cylinder lockset. Add the cost of debris removal, painting, floor and wall finish if needed. |           |      |          |        |        |          |
| 36" x 80" slab exterior door   | BC@8.20   | Ea   | 342.00   | 337.00 | 679.00 | 1,150.00 |
| <b>Remove door and frame and replace with an exterior prehung steel door.</b> Includes removing the existing door, trim and jamb, aligning the rough frame, installing one exterior 6-panel prehung steel door with frame, threshold, hinges, stop, brick mold, casing, weatherstrip and cylinder lockset. Add the cost of debris removal and painting.                  |           |      |          |        |        |          |
| Single door, stud wall   | BC@3.90   | Ea   | 284.00   | 160.00 | 444.00 | 755.00   |
| Single door, masonry wall  | BC@4.85   | Ea   | 291.00   | 199.00 | 490.00 | 833.00   |
| <b>Remove double doors and frame and replace with double exterior prehung steel doors.</b> Includes removing an existing double door, trim and jamb, aligning the rough frame, installing double exterior 6-panel prehung steel doors, with frame, threshold, hinges, stop, brick mold, casing, and weatherstrip. Add cylinder lockset and surface slide bolts.          |           |      |          |        |        |          |
| Double door, stud wall, per pair   | BC@6.25   | Ea   | 573.00   | 257.00 | 830.00 | 1,410.00 |
| Double door, masonry wall, per pair  | BC@7.25   | Ea   | 585.00   | 298.00 | 883.00 | 1,500.00 |
| <b>Flush hardwood prehung exterior doors.</b> 1-3/4" door. Solid particleboard core. Lauan veneer. Weatherstripped. Includes oak sill and threshold with vinyl insert. Finger joint 4-9/16" jamb and finger joint brick mold. 2-1/8" bore for lockset with 2-3/8" backset. Labor includes hanging the door in an existing framed opening.                                |           |      |          |        |        |          |
| 32" x 80"  | BC@1.00   | Ea   | 196.00   | 41.10  | 237.10 | 403.00   |
| 36" x 80"  | BC@1.00   | Ea   | 212.00   | 41.10  | 253.10 | 430.00   |
| <b>Flush birch prehung exterior doors.</b> 1-3/4" door. Solid particleboard core. Weatherstripped. Includes oak sill and threshold. Finger joint 4-9/16" jamb and finger joint brick mold. 2-1/8" bore for lockset with 2-3/8" backset. Labor includes hanging the door in an existing framed opening.   |           |      |          |        |        |          |
| 36" x 80"  | BC@1.00   | Ea   | 142.00   | 41.10  | 183.10 | 311.00   |
| <b>Flush hardboard prehung exterior doors.</b> Primed. Solid core. Weatherstripped. Includes sill and threshold. Finger joint 4-9/16" jamb and finger joint brick mold. 2-1/8" bore for lockset with 2-3/8" backset. Labor includes hanging the door in an existing framed opening.  |           |      |          |        |        |          |
| 32" x 80"  | BC@1.00   | Ea   | 165.00   | 41.10  | 206.10 | 350.00   |
| 36" x 80"  | BC@1.00   | Ea   | 165.00   | 41.10  | 206.10 | 350.00   |
| <b>Fan lite prehung hemlock exterior doors.</b> Weatherstripped. Includes sill and threshold. Finger joint 4-9/16" jamb and finger joint brick mold. 2-1/8" bore for lockset with 2-3/8" backset. Labor includes hanging the door in an existing framed opening.   |           |      |          |        |        |          |
| 36" x 80"  | BC@1.00   | Ea   | 429.00   | 41.10  | 470.10 | 799.00   |
| <b>9-lite prehung fir exterior doors.</b> Inward swing. No brick mold. Solid core. Weatherstripped. Includes sill and threshold. Finger joint 4-9/16" jamb and finger joint brick mold. 2-1/8" bore for lockset with 2-3/8" backset. Labor includes hanging the door in an existing framed opening.  |           |      |          |        |        |          |
| 36" x 80"  | BC@1.00   | Ea   | 305.00   | 41.10  | 346.10 | 588.00   |
| <b>Prehung hardboard fire-rated doors.</b> 20-minute fire rating. 80" high. Labor includes hanging the door in an existing framed opening.   |           |      |          |        |        |          |
| 30" x 80"  | BC@1.00   | Ea   | 211.00   | 41.10  | 252.10 | 429.00   |
| 32" x 80"  | BC@1.00   | Ea   | 227.00   | 41.10  | 268.10 | 456.00   |
| 36" x 80"  | BC@1.00   | Ea   | 238.00   | 41.10  | 279.10 | 474.00   |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

### Prehung Steel Exterior Doors

**Utility flush prehung steel exterior doors.** No brick mold. 26 gauge galvanized steel. Foam core. Compression weatherstrip. Triple fin sweep. Non-thermal threshold. Single bore.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 32" x 80" | BC@1.00 | Ea | 249.00 | 41.10 | 290.10 | 493.00 |
| 36" x 80" | BC@1.00 | Ea | 249.00 | 41.10 | 290.10 | 493.00 |

**Premium flush prehung steel exterior doors.** No brick mold. 24 gauge galvanized steel. Foam core.

Compression weatherstrip. Triple fin sweep. Thermal threshold.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 30" x 80" | BC@1.00 | Ea | 305.00 | 41.10 | 346.10 | 588.00 |
| 32" x 80" | BC@1.00 | Ea | 305.00 | 41.10 | 346.10 | 588.00 |
| 36" x 80" | BC@1.00 | Ea | 305.00 | 41.10 | 346.10 | 588.00 |

**6-panel prehung steel exterior doors.** With brick mold. Inward swing. Non-thermal threshold. Bored for lockset with 2-3/4" backset. Includes compression weatherstrip and thermal-break threshold.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 32" x 80" | BC@1.00 | Ea | 257.00 | 41.10 | 298.10 | 507.00 |
| 36" x 80" | BC@1.00 | Ea | 257.00 | 41.10 | 298.10 | 507.00 |

**6-panel premium prehung steel exterior doors.** 4-9/16" jamb. Adjustable thermal-break sill. Inward swing. 24 gauge galvanized steel. Bored for 2-3/8" lockset. 12" lock block. Impact-resistant laminated glass. Polyurethane core. Triple sweep and compression weatherstripping. Factory primed.

|                            |         |    |        |       |        |          |
|----------------------------|---------|----|--------|-------|--------|----------|
| 32" x 80", no brick mold   | BC@1.00 | Ea | 253.00 | 41.10 | 294.10 | 500.00   |
| 32" x 80", with brick mold | BC@1.00 | Ea | 268.00 | 41.10 | 309.10 | 525.00   |
| 36" x 80", no brick mold   | BC@1.00 | Ea | 230.00 | 41.10 | 271.10 | 461.00   |
| 36" x 80", with brick mold | BC@1.00 | Ea | 268.00 | 41.10 | 309.10 | 525.00   |
| 72" x 80", no brick mold   | BC@1.50 | Ea | 528.00 | 61.60 | 589.60 | 1,000.00 |

**6-panel prehung steel exterior doors.** 24 gauge galvanized steel. Foam core. Caming matches hinge and sill finishes. Jamb guard security plate. No brick mold. Fixed sill. 4-9/16" primed jamb. Triple sweep compression weatherstripping. Factory primed. Thermal-break threshold. 20-minute fire rating. 10-year limited warranty.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 30" x 80" | BC@1.00 | Ea | 302.00 | 41.10 | 343.10 | 583.00 |
| 32" x 80" | BC@1.00 | Ea | 302.00 | 41.10 | 343.10 | 583.00 |
| 36" x 80" | BC@1.00 | Ea | 302.00 | 41.10 | 343.10 | 583.00 |

**6-panel prehung steel entry door with sidelites.** Two 10"-wide sidelites. Sidelites have 5 divided lites.

|           |         |    |        |       |        |          |
|-----------|---------|----|--------|-------|--------|----------|
| 36" x 80" | BC@2.00 | Ea | 908.00 | 82.10 | 990.10 | 1,680.00 |
|-----------|---------|----|--------|-------|--------|----------|

**Fan lite premium prehung steel exterior doors.** With brick mold. 24 gauge galvanized steel. Foam core. Fixed sill. Compression weatherstripping. Factory primed. Thermal-break threshold.

|                         |         |    |        |       |        |        |
|-------------------------|---------|----|--------|-------|--------|--------|
| 32" x 80", 4-9/16" jamb | BC@1.00 | Ea | 341.00 | 41.10 | 382.10 | 650.00 |
| 32" x 80", 6-9/16" jamb | BC@1.00 | Ea | 341.00 | 41.10 | 382.10 | 650.00 |
| 36" x 80", 4-9/16" jamb | BC@1.00 | Ea | 341.00 | 41.10 | 382.10 | 650.00 |
| 36" x 80", 6-9/16" jamb | BC@1.00 | Ea | 341.00 | 41.10 | 382.10 | 650.00 |

**Half lite prehung steel exterior doors.** 4-9/16" jamb. 22" x 36" light. Adjustable sill. With brick mold.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 32" x 80" | BC@1.00 | Ea | 485.00 | 41.10 | 526.10 | 894.00 |
| 36" x 80" | BC@1.00 | Ea | 485.00 | 41.10 | 526.10 | 894.00 |

**Half lite prehung steel exterior doors with mini-blind.** 22" x 36" light. Adjustable sill. 24 gauge galvanized steel. Non-yellowing, white, warp-resistant, paintable, high-performance light frames. Brick mold applied.

|                         |         |    |        |       |        |        |
|-------------------------|---------|----|--------|-------|--------|--------|
| 32" x 80", 4-9/16" jamb | BC@1.00 | Ea | 521.00 | 41.10 | 562.10 | 956.00 |
| 36" x 80", 4-9/16" jamb | BC@1.00 | Ea | 521.00 | 41.10 | 562.10 | 956.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|--|-----------|------|----------|-------|--------|----------|
| <b>Full lite prehung steel exterior doors.</b> 22" x 64" light. 4-9/16" jamb. Adjustable sill. No brick mold. 24 gauge galvanized steel.   |           |      |          |       |        |          |
| 32" x 80"  | BC@1.00   | Ea   | 392.00   | 41.10 | 433.10 | 736.00   |
| 36" x 80"  | BC@1.00   | Ea   | 392.00   | 41.10 | 433.10 | 736.00   |
| <b>2-lite, 4-panel prehung steel exterior doors.</b> 4-9/16" jamb. Adjustable sill. Ready-to-install door and jamb system. 24 gauge galvanized steel. Non-yellowing, white, warp-resistant, paintable, high-performance light frames. Brick mold applied.                                    |           |      |          |       |        |          |
| 30" x 80"  | BC@1.00   | Ea   | 369.00   | 41.10 | 410.10 | 697.00   |
| 32" x 80"  | BC@1.00   | Ea   | 369.00   | 41.10 | 410.10 | 697.00   |
| 36" x 80"  | BC@1.00   | Ea   | 369.00   | 41.10 | 410.10 | 697.00   |
| <b>9-lite prehung steel exterior doors.</b> Insulating glass with internal 9-lite grille. Adjustable sill. Ready-to-install door and jamb system. 24 gauge galvanized steel. Non-yellowing, white, warp-resistant, paintable, high-performance light frames. Brick mold applied.             |           |      |          |       |        |          |
| 32" x 80", 4-9/16" jamb  | BC@1.00   | Ea   | 369.00   | 41.10 | 410.10 | 697.00   |
| 32" x 80", 6-9/16" jamb  | BC@1.00   | Ea   | 380.00   | 41.10 | 421.10 | 716.00   |
| <b>11-lite prehung steel exterior doors.</b> 24 gauge, high-profile, deep embossed steel skins. Impact-resistant glass. Double-bored for deadbolt and doorknob. Brass adjustable threshold. 4-9/16" primed frame. No brick mold.   |           |      |          |       |        |          |
| 32" x 80" left   | BC@1.00   | Ea   | 453.00   | 41.10 | 494.10 | 840.00   |
| <b>15-lite prehung steel exterior doors.</b> Multi-paned insulated glass. 24 gauge hot-dipped galvanized steel. Polyurethane foam core. Compression weatherstrip. Thermal-break construction. No brick mold. Adjustable seal. Aluminum sill with composite adjustable threshold.             |           |      |          |       |        |          |
| 32" x 80"  | BC@1.00   | Ea   | 521.00   | 41.10 | 562.10 | 956.00   |
| 36" x 80"  | BC@1.00   | Ea   | 521.00   | 41.10 | 562.10 | 956.00   |
| <b>Flush ventlite prehung steel exterior doors.</b> No brick mold. 4-9/16" primed jamb. 24 gauge galvanized steel. Foam core. Magnetic weatherstrip. Triple-seal sweep. Thermal-break threshold. Bored for lockset and deadbolt. 20-minute fire rating. 10-year limited warranty.            |           |      |          |       |        |          |
| 30" x 80"  | BC@1.00   | Ea   | 481.00   | 41.10 | 522.10 | 888.00   |
| 32" x 80"  | BC@1.00   | Ea   | 481.00   | 41.10 | 522.10 | 888.00   |
| 36" x 80"  | BC@1.00   | Ea   | 481.00   | 41.10 | 522.10 | 888.00   |
| <b>Decorative Steel Entry Doors</b>  |           |      |          |       |        |          |
| <b>Decorative 3/4 oval lite prehung steel entry doors.</b> 24 gauge galvanized steel. Non-yellowing, white, warp-resistant, paintable, high-performance light frames. Decorative impact-resistant glass. Rot-resistant frame. Polyurethane insulated core. With brick mold. Adjustable sill. |           |      |          |       |        |          |
| 36" x 80", brass caming, 4-9/16" jamb  | BC@1.00   | Ea   | 531.00   | 41.10 | 572.10 | 973.00   |
| 36" x 80", zinc caming, 4-9/16" jamb   | BC@1.00   | Ea   | 533.00   | 41.10 | 574.10 | 976.00   |
| 36" x 80", zinc caming, 6-9/16" jamb   | BC@1.00   | Ea   | 568.00   | 41.10 | 609.10 | 1,040.00 |
| <b>Camber top prehung steel entry doors.</b> 4-9/16" jamb.   |           |      |          |       |        |          |
| 36" x 80", with brick mold   | BC@1.00   | Ea   | 522.00   | 41.10 | 563.10 | 957.00   |
| 36" x 80", no brick mold   | BC@1.00   | Ea   | 522.00   | 41.10 | 563.10 | 957.00   |

|  | Craft@Hrs | Unit | Material | Labor | Total    | Sell     |
|--|-----------|------|----------|-------|----------|----------|
| <b>Decorative central arch lite prehung steel entry door.</b> Decorative laminated glass with brass caming to match hinge and sill finish. 24 gauge galvanized steel. Polyurethane core. Adjustable thermal-break sill. Triple sweep compression weatherstripping. Non-yellowing and warp-resistant light frame. Factory primed.             |           |      |          |       |          |          |
| 36" x 80", with brick mold,<br>4-9/16" jamb  | BC@1.00   | Ea   | 567.00   | 41.10 | 608.10   | 1,030.00 |
| 36" x 80", with no brick mold,<br>4-9/16" jamb   | BC@1.00   | Ea   | 553.00   | 41.10 | 594.10   | 1,010.00 |
| <b>Decorative fan lite prehung steel entry doors.</b> Polyurethane core. Adjustable thermal-break sill with composite saddle. 24 gauge galvanized steel. Laminated glass. Brass caming matches hinge and sill. Triple sweep and compression weatherstrip. Non-yellowing and warp-resistant light frame. Factory primed. Includes brick mold. |           |      |          |       |          |          |
| 32" x 80"  | BC@1.00   | Ea   | 578.00   | 41.10 | 619.10   | 1,050.00 |
| 36" x 80"  | BC@1.00   | Ea   | 578.00   | 41.10 | 619.10   | 1,050.00 |
| <b>Decorative half lite prehung steel entry doors.</b> 22" x 36" laminated safety glass. Brass caming matches sill and hinges. 24 gauge galvanized insulated steel.  |           |      |          |       |          |          |
| 36" x 80", no brick mold   | BC@1.00   | Ea   | 533.00   | 41.10 | 574.10   | 976.00   |
| 36" x 80", with brick mold   | BC@1.00   | Ea   | 533.00   | 41.10 | 574.10   | 976.00   |
| <b>Fiberglass Prehung Entry Doors</b>  |           |      |          |       |          |          |
| <b>6-panel fiberglass prehung exterior doors.</b> Polyurethane core. PVC stiles and rails. Double bore. 4-9/16" prefinished jambs. Adjustable thermal-break brass threshold. Weatherstripped. With brick mold.   |           |      |          |       |          |          |
| 32" x 80"  | BC@1.00   | Ea   | 288.00   | 41.10 | 329.10   | 559.00   |
| 36" x 80"  | BC@1.00   | Ea   | 288.00   | 41.10 | 329.10   | 559.00   |
| <b>Fan lite prehung light oak fiberglass entry doors.</b> With brick mold. Factory prefinished. Triple pane insulated glass with brass caming. Adjustable brass thermal-break threshold and fully weatherstripped. 4-9/16" jamb.   |           |      |          |       |          |          |
| 36" x 80"  | BC@1.00   | Ea   | 815.00   | 41.10 | 856.10   | 1,460.00 |
| <b>3/4 oval lite prehung fiberglass entry doors.</b> With brick mold. Ready to finish.   |           |      |          |       |          |          |
| 36" x 80", 4-9/16" jamb  | BC@1.00   | Ea   | 1,060.00 | 41.10 | 1,101.10 | 1,870.00 |
| 36" x 80", 6-9/16" jamb  | BC@1.00   | Ea   | 1,060.00 | 41.10 | 1,101.10 | 1,870.00 |
| <b>3/4 oval lite prehung light oak fiberglass doors.</b> With brick mold. Prefinished. Polyurethane core. Triple pane insulated glass. Glue chip and clear 30" x 18" beveled glass surrounded by brass caming. Double bore. Extended wood lock block. 4-9/16" primed jamb. Thermal-break brass threshold with adjustable oak cap.            |           |      |          |       |          |          |
| 36" x 80", 4-9/16" jamb  | BC@1.00   | Ea   | 2,240.00 | 41.10 | 2,281.10 | 3,880.00 |
| 36" x 80", 6-9/16" jamb  | BC@1.00   | Ea   | 2,240.00 | 41.10 | 2,281.10 | 3,880.00 |
| <b>Full height oval lite prehung medium oak fiberglass entry doors.</b>  |           |      |          |       |          |          |
| 36" x 80", 4-9/16" jamb  | BC@1.00   | Ea   | 2,090.00 | 41.10 | 2,131.10 | 3,620.00 |
| 36" x 80", 6-9/16" jamb  | BC@1.00   | Ea   | 2,090.00 | 41.10 | 2,131.10 | 3,620.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total    | Sell     |
|--|-----------|------|----------|-------|----------|----------|
| <b>Center arch lite medium oak prehung fiberglass doors.</b> Factory prefinished. Triple pane insulated glass with brass caming. Adjustable brass thermal-break threshold and fully weatherstripped. 4-9/16" jamb except as noted. PVC stiles and rails. |           |      |          |       |          |          |
| 36" x 80", no brick mold   | BC@1.00   | Ea   | 1,630.00 | 41.10 | 1,671.10 | 2,840.00 |
| 36" x 80", with brick mold   | BC@1.00   | Ea   | 1,640.00 | 41.10 | 1,681.10 | 2,860.00 |
| 36" x 80",<br>with brick mold, 6-9/16" jamb  | BC@1.00   | Ea   | 1,780.00 | 41.10 | 1,821.10 | 3,100.00 |
| <b>Fan lite prehung fiberglass entry doors.</b> With brick mold. Ready to finish. Insulated glass. Adjustable thermal-break brass threshold. 4-9/16" jamb except as noted.   |           |      |          |       |          |          |
| 32" x 80"  | BC@1.00   | Ea   | 453.00   | 41.10 | 494.10   | 840.00   |
| 36" x 80"  | BC@1.00   | Ea   | 453.00   | 41.10 | 494.10   | 840.00   |
| 36" x 80", 6-9/16" jamb  | BC@1.00   | Ea   | 528.00   | 41.10 | 569.10   | 967.00   |
| <b>9-lite fiberglass prehung exterior doors.</b> Inward swing. With brick mold. Smooth face.   |           |      |          |       |          |          |
| 32" x 80"  | BC@1.00   | Ea   | 438.00   | 41.10 | 479.10   | 814.00   |
| 36" x 80"  | BC@1.00   | Ea   | 438.00   | 41.10 | 479.10   | 814.00   |
| <b>15-lite smooth prehung fiberglass entry doors.</b> No brick mold. Factory prefinished. Left or right hinge. Triple pane, insulated glass with brass caming. Adjustable brass thermal-break threshold and fully weatherstripped. 4-9/16" jamb.         |           |      |          |       |          |          |
| 32" x 80"  | BC@1.00   | Ea   | 509.00   | 41.10 | 550.10   | 935.00   |
| 32" x 80"  | BC@1.00   | Ea   | 509.00   | 41.10 | 550.10   | 935.00   |
| <b>Full lite prehung smooth fiberglass doors.</b> With brick mold. Inward swing.   |           |      |          |       |          |          |
| 36" x 80", 4-9/16" jamb  | BC@1.00   | Ea   | 1,650.00 | 41.10 | 1,691.10 | 2,870.00 |
| 36" x 80", 6-9/16" jamb  | BC@1.00   | Ea   | 1,650.00 | 41.10 | 1,691.10 | 2,870.00 |
| <b>Smooth prehung fiberglass ventlite exterior doors.</b> Ready to finish. No brick mold.  |           |      |          |       |          |          |
| 32" x 80"  | BC@1.00   | Ea   | 502.00   | 41.10 | 543.10   | 923.00   |
| 36" x 80"  | BC@1.00   | Ea   | 502.00   | 41.10 | 543.10   | 923.00   |
| <b>Entry Locksets</b>  |           |      |          |       |          |          |
| <b>Door lockset repairs.</b>   |           |      |          |       |          |          |
| Adjust strike plate to align with latch bolt   | BC@.200   | Ea   | —        | 8.21  | 8.21     | 14.00    |
| Remove cylinder or deadlock  | BC@.137   | Ea   | —        | 5.63  | 5.63     | 9.57     |
| Reinstall same cylinder or deadlock  | BC@.183   | Ea   | —        | 7.51  | 7.51     | 12.80    |
| Install cylinder lock and strike in pre-bored door   | BC@.250   | Ea   | —        | 10.30 | 10.30    | 17.50    |
| Bore door, install cylinder lock, strike   | BC@.750   | Ea   | —        | 30.80 | 30.80    | 52.40    |
| Remove and replace cylinder or deadlock<br>in existing bore  | BC@.300   | Ea   | —        | 12.30 | 12.30    | 20.90    |
| Remove and replace combination cylinder lock<br>and deadbolt in existing bore  | BC@1.52   | Ea   | —        | 62.40 | 62.40    | 106.00   |
| Remove mortise lock  | BC@.146   | Ea   | —        | 5.99  | 5.99     | 10.20    |
| Install mortise lock   | BC@1.31   | Ea   | —        | 53.80 | 53.80    | 91.50    |
| Remove and replace mortise lock  | BC@1.45   | Ea   | —        | 59.50 | 59.50    | 101.00   |
| <b>Keyed entry locksets.</b> Front or back door. Keyed exterior, turn button interior. Labor cost assumes the door is already bored for a lockset.   |           |      |          |       |          |          |
| Antique brass  | BC@.250   | Ea   | 30.00    | 10.30 | 40.30    | 68.50    |
| Polished brass   | BC@.250   | Ea   | 28.50    | 10.30 | 38.80    | 66.00    |
| Satin chrome   | BC@.250   | Ea   | 31.40    | 10.30 | 41.70    | 70.90    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Keyed entry locksets.</b> Meets ANSI Grade 2 standards for residential security. One-piece knob. Triple option faceplate fits square, radius-round, and drive-in door preps. 10-year finish warranty, lifetime mechanical warranty. Labor cost assumes the door is already bored for a lockset. |           |      |          |       |        |        |
| Antique brass  | BC@.250   | Ea   | 30.00    | 10.30 | 40.30  | 68.50  |
| Antique pewter   | BC@.250   | Ea   | 31.40    | 10.30 | 41.70  | 70.90  |
| Bright brass   | BC@.250   | Ea   | 28.50    | 10.30 | 38.80  | 66.00  |
| Satin chrome   | BC@.250   | Ea   | 31.40    | 10.30 | 41.70  | 70.90  |
| <b>Lever locksets.</b> Dual torque springs eliminate wobble. Labor cost assumes the door is already bored for a lockset.   |           |      |          |       |        |        |
| Bright brass   | BC@.250   | Ea   | 84.90    | 10.30 | 95.20  | 162.00 |
| Satin nickel   | BC@.250   | Ea   | 81.80    | 10.30 | 92.10  | 157.00 |
| <b>Egg knob entry locksets.</b> Labor cost assumes the door is already bored for a lockset.  |           |      |          |       |        |        |
| Satin nickel finish  | BC@.250   | Ea   | 35.40    | 10.30 | 45.70  | 77.70  |
| <b>Egg knob entry locksets — solid forged brass.</b> 5-pin cylinder. Full lip strike. Adjustable backset. Labor cost assumes the door is already bored for a lockset.  |           |      |          |       |        |        |
| Polished brass   | BC@.250   | Ea   | 200.00   | 10.30 | 210.30 | 358.00 |
| <b>Colonial knob entry locksets.</b> Labor cost assumes the door is already bored for a lockset and frame is already bored for a strike plate.   |           |      |          |       |        |        |
| Polished brass   | BC@.250   | Ea   | 143.00   | 10.30 | 153.30 | 261.00 |
| <b>Double cylinder entry door handle set.</b> Forged brass handle with thumb latch. Separate Grade 1 security double cylinder deadbolt. Labor cost assumes the door is already bored for a lockset, but frame is not.  |           |      |          |       |        |        |
| Satin nickel finish  | BC@.820   | Ea   | 125.00   | 33.70 | 158.70 | 270.00 |
| Bronze finish  | BC@.820   | Ea   | 151.00   | 33.70 | 184.70 | 314.00 |
| <b>Deadbolt and lockset combo.</b> Includes keyed alike entry knob and Grade 2 security deadbolt with 4 keys. Labor cost assumes the door is already bored for a lockset.  |           |      |          |       |        |        |
| Brass, single cylinder   | BC@.750   | Ea   | 55.50    | 30.80 | 86.30  | 147.00 |
| Brass, double cylinder   | BC@.750   | Ea   | 62.40    | 30.80 | 93.20  | 158.00 |
| <b>Deadbolts.</b> All metal and brass. ANSI Grade 2 rating. 1" throw deadbolt. Includes 2 keys. Polished brass.  |           |      |          |       |        |        |
| Single cylinder  | BC@.500   | Ea   | 21.50    | 20.50 | 42.00  | 71.40  |
| Double cylinder  | BC@.500   | Ea   | 50.80    | 20.50 | 71.30  | 121.00 |
| <b>Screen Doors</b>  |           |      |          |       |        |        |
| <b>Install wood screen door.</b> Complete with three hinge butts, pneumatic door closer, latch lock and guard. Labor cost includes adjustments to existing screen door frame.  |           |      |          |       |        |        |
| Per screen door  | BC@2.17   | Ea   | —        | 89.10 | 89.10  | 151.00 |
| <b>Install aluminum or vinyl screen door.</b> Complete with pneumatic door closer, chain and spring restrainer and latch lock.   |           |      |          |       |        |        |
| Per screen door  | BC@1.35   | Ea   | —        | 55.40 | 55.40  | 94.20  |
| <b>Remove and replace wood screen door.</b> Using existing hinge butts. With pneumatic door closer, latch lock and guard. Labor cost assumes new door is an exact replacement for the old door.  |           |      |          |       |        |        |
| Per screen door  | BC@1.00   | Ea   | —        | 41.10 | 41.10  | 69.90  |
| <b>Remove and replace aluminum or vinyl screen door.</b> Complete with pneumatic door closer, chain and spring restrainer and latch lock.  |           |      |          |       |        |        |
| Per screen door  | BC@1.97   | Ea   | —        | 80.90 | 80.90  | 138.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Remove wood and replace with aluminum or vinyl screen door.</b> With pneumatic door closer, chain spring retainer and latch lock.   |           |      |          |       |        |        |
| Per screen door  | BC@1.70   | Ea   | —        | 69.80 | 69.80  | 119.00 |
| <b>Screen door hardware.</b>   |           |      |          |       |        |        |
| Remove and replace pneumatic closer  | BC@.296   | Ea   | —        | 12.20 | 12.20  | 20.70  |
| Remove and replace latch lock  | BC@.185   | Ea   | —        | 7.60  | 7.60   | 12.90  |
| Remove and replace chain spring retainer   | BC@.203   | Ea   | —        | 8.34  | 8.34   | 14.20  |
| Remove and replace door bottom wiper   | BC@.187   | Ea   | —        | 7.68  | 7.68   | 13.10  |
| <b>Wood screen doors.</b> 3-3/4"-wide stile and rail with 7-1/4" bottom rail. Removable screen. Mortise and tenon solid construction. Wide center push bar. Ready to finish.   |           |      |          |       |        |        |
| 32" x 80"  | BC@2.17   | Ea   | 62.90    | 89.10 | 152.00 | 258.00 |
| 36" x 80"  | BC@2.17   | Ea   | 62.90    | 89.10 | 152.00 | 258.00 |
| <b>T-style wood screen doors.</b> 3-3/4"-wide stile and rail with 7-1/4" bottom rail. Removable screen. Mortise and tenon solid construction. All joints sealed with water-resistant adhesive. Wide center push bar. |           |      |          |       |        |        |
| 30" x 80"  | BC@2.17   | Ea   | 277.00   | 89.10 | 366.10 | 622.00 |
| 32" x 80"  | BC@2.17   | Ea   | 81.60    | 89.10 | 170.70 | 290.00 |
| 36" x 80"  | BC@2.17   | Ea   | 87.80    | 89.10 | 176.90 | 301.00 |
| <b>Metal screen doors.</b> Includes hardware and fiberglass screening. 1-piece steel frame. Heavy-duty pneumatic closer. 5" kickplate.   |           |      |          |       |        |        |
| 32" x 80"  | BC@1.35   | Ea   | 144.00   | 55.40 | 199.40 | 339.00 |
| 36" x 80"  | BC@1.35   | Ea   | 144.00   | 55.40 | 199.40 | 339.00 |
| <b>Five-bar solid vinyl screen doors.</b> Accepts standard screen door hardware.   |           |      |          |       |        |        |
| 32" x 80"  | BC@1.35   | Ea   | 201.00   | 55.40 | 256.40 | 436.00 |
| 36" x 80"  | BC@1.35   | Ea   | 160.00   | 55.40 | 215.40 | 366.00 |
| <b>Solid pine screen doors.</b> Right or left side installation. 1-1/4" thick. Unfinished. Hardware included.  |           |      |          |       |        |        |
| 32" x 80"  | BC@1.35   | Ea   | 316.00   | 55.40 | 371.40 | 631.00 |
| 36" x 80"  | BC@1.35   | Ea   | 316.00   | 55.40 | 371.40 | 631.00 |
| <b>Steel security screen doors.</b> Class I rated to withstand 300 pounds. All welded steel construction for strength and durability. Double lockbox with extension plate. Baked-on powder coating.                  |           |      |          |       |        |        |
| 36" x 80"  | BC@1.35   | Ea   | 161.00   | 55.40 | 216.40 | 368.00 |
| <b>Replacement aluminum screen doors.</b> Includes all hardware. 2-piece protective grille. 3" x 1-1/4" heavy-duty rails.  |           |      |          |       |        |        |
| 36" wide   | BC@1.35   | Ea   | 189.00   | 55.40 | 244.40 | 415.00 |
| <b>Replacement roll-formed screen doors.</b> 7/8" 1-piece unitized roll-formed frame, mechanically secured corners, epoxy-painted finish over electro-galvanizing, 5" heavy-duty kickplate.                          |           |      |          |       |        |        |
| 32" x 80", gray  | BC@1.35   | Ea   | 176.00   | 55.40 | 231.40 | 393.00 |
| 36" x 80", white   | BC@1.35   | Ea   | 249.00   | 55.40 | 304.40 | 517.00 |
| 36" x 80", bronze  | BC@1.35   | Ea   | 261.00   | 55.40 | 316.40 | 538.00 |
| <b>Replacement steel screen doors.</b> Powder-coated finish. With hardware and closer.   |           |      |          |       |        |        |
| 36" x 80"  | BC@1.35   | Ea   | 229.00   | 55.40 | 284.40 | 483.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|---|-----------|------|----------|-------|--------|----------|
| <b>Storm Doors</b>  |           |      |          |       |        |          |
| <b>Remove existing storm door.</b>  |           |      |          |       |        |          |
| Wood or aluminum  | BC@.353   | Ea   | —        | 14.50 | 14.50  | 24.70    |
| Remove and replace storm door   | BC@1.80   | Ea   | —        | 73.90 | 73.90  | 126.00   |
| <b>Self-storing aluminum storm and screen doors.</b> Pneumatic closer and sweep. Tempered safety glass. Maintenance-free finish. Push-button hardware. 1" x 2-1/8" frame size. Bronze or white. Includes screen.  |           |      |          |       |        |          |
| 30" x 80" x 1-1/4"  | BC@1.45   | Ea   | 148.00   | 59.50 | 207.50 | 353.00   |
| 32" x 80" x 1-1/4"  | BC@1.45   | Ea   | 174.00   | 59.50 | 233.50 | 397.00   |
| 36" x 80" x 1-1/4"  | BC@1.45   | Ea   | 174.00   | 59.50 | 233.50 | 397.00   |
| <b>Self-storing vinyl-covered wood storm doors.</b> White vinyl-covered wood core. Push-button handle set. Self-storing window and screen. Single black closer.   |           |      |          |       |        |          |
| 30" x 80"   | BC@1.45   | Ea   | 149.00   | 59.50 | 208.50 | 354.00   |
| 32" x 80"   | BC@1.45   | Ea   | 149.00   | 59.50 | 208.50 | 354.00   |
| 34" x 80"   | BC@1.45   | Ea   | 184.00   | 59.50 | 243.50 | 414.00   |
| 36" x 80"   | BC@1.45   | Ea   | 149.00   | 59.50 | 208.50 | 354.00   |
| <b>Store-in-Door™ storm doors.</b> 1-1/2"-thick polypropylene frame. Reversible hinge. Slide window or screen, completely concealed when not in use. Brass-finished keylock hardware system with separate color-matched deadbolt. Triple-fin door sweep. 2 color-matched closers. Full-length piano hinge. Flexible weather seal. White.  |           |      |          |       |        |          |
| 30" x 80", crossbuck style  | BC@1.45   | Ea   | 439.00   | 59.50 | 498.50 | 847.00   |
| 32" x 80", crossbuck style  | BC@1.45   | Ea   | 488.00   | 59.50 | 547.50 | 931.00   |
| 36" x 80", crossbuck style  | BC@1.45   | Ea   | 538.00   | 59.50 | 597.50 | 1,020.00 |
| 30" x 80", traditional style  | BC@1.45   | Ea   | 452.00   | 59.50 | 511.50 | 870.00   |
| 36" x 80", traditional style  | BC@1.45   | Ea   | 500.00   | 59.50 | 559.50 | 951.00   |
| <b>Aluminum and wood storm doors.</b> Aluminum over wood core. Self-storing window and screen. Black lever handle set. Separate deadbolt. Single black closer. White finish. Traditional panel style.   |           |      |          |       |        |          |
| 30" x 80"   | BC@1.45   | Ea   | 226.00   | 59.50 | 285.50 | 485.00   |
| 32" x 80"   | BC@1.45   | Ea   | 226.00   | 59.50 | 285.50 | 485.00   |
| 36" x 80"   | BC@1.45   | Ea   | 226.00   | 59.50 | 285.50 | 485.00   |
| <b>Triple-track storm doors.</b> Low-maintenance aluminum over solid wood core. Ventilates from top, bottom or both. Solid brass exterior handle. Color-matched interior handle. Separate deadbolt. 80" high. White, almond or bronze.  |           |      |          |       |        |          |
| 30" x 80"   | BC@1.45   | Ea   | 366.00   | 59.50 | 425.50 | 723.00   |
| 32" x 80"   | BC@1.45   | Ea   | 294.00   | 59.50 | 353.50 | 601.00   |
| 34" x 80"   | BC@1.45   | Ea   | 369.00   | 59.50 | 428.50 | 728.00   |
| 36" x 80"   | BC@1.45   | Ea   | 334.00   | 59.50 | 393.50 | 669.00   |
| <b>All-season storm doors.</b> 1-1/4" thick frame. 1-piece construction with window molding built in. Self-storing tempered safety glass and screen for easy ventilation. Includes solid-brass lockset with deadbolt security. Brass-finished sweep for tight threshold seal. Color-matched screw covers, and two closers. Reversible hinge opens to 180 degrees. White, almond or sandstone. |           |      |          |       |        |          |
| 32" x 80"   | BC@1.45   | Ea   | 459.00   | 59.50 | 518.50 | 881.00   |
| 36" x 80"   | BC@1.45   | Ea   | 459.00   | 59.50 | 518.50 | 881.00   |
| <b>All-season triple-track storm doors.</b> Ventilates from top or bottom, or both. 1" composite frame. Brass handle set with deadbolt security. Wood-grain finish. Color-matched screws. 1-piece construction with window molding built in. Self-storing window and screen. White, almond or sandstone.  |           |      |          |       |        |          |
| 32" x 80"   | BC@1.45   | Ea   | 470.00   | 59.50 | 529.50 | 900.00   |
| 36" x 80"   | BC@1.45   | Ea   | 470.00   | 59.50 | 529.50 | 900.00   |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|---|-----------|------|----------|-------|--------|----------|
| <b>Colonial triple-track storm doors.</b> 1-piece composite frame. 12-lite grille. Vents from top, bottom, or both. Solid-brass handle set with deadbolt security. Brass-finished sweep ensures tight seal across the entire threshold. Wood-grain finish. White, almond or sandstone.  |           |      |          |       |        |          |
| 32" x 80"<br>36" x 80"  |           |      |          |       |        |          |
|   | BC@1.45   | Ea   | 488.00   | 59.50 | 547.50 | 931.00   |
|   | BC@1.45   | Ea   | 488.00   | 59.50 | 547.50 | 931.00   |
| <b>Full-view brass all-season storm doors.</b> Water-diverting rain cap. Brass-finished, color-matched sweep. One closer. Window and insect screen snap in and out. Reversible. Opens 180 degrees when needed. Separate deadbolt for added security. Tempered glass. Heavy-gauge one-piece 1" aluminum construction with reinforced corners and foam insulation.  |           |      |          |       |        |          |
| 36" x 80", green<br>36" x 80", white  |           |      |          |       |        |          |
|   | BC@1.45   | Ea   | 502.00   | 59.50 | 561.50 | 955.00   |
|   | BC@1.45   | Ea   | 502.00   | 59.50 | 561.50 | 955.00   |
| <b>Full-view aluminum storm doors.</b> 1-1/2"-thick heavy-gauge aluminum frame with foam insulation. Extra perimeter weatherstripping and water-diverting rain cap. Solid brass handle set and double-throw deadbolt. Brass-finished sweep. Full-length, piano-style hinge. Reversible hinge for left- or right-side entry door handle. Two heavy-duty, color-matched closers. Solid brass perimeter locks. Insect screen. White, brown, green or almond. |           |      |          |       |        |          |
| 30" x 80"<br>32" x 80"<br>36" x 80"   |           |      |          |       |        |          |
|   | BC@1.45   | Ea   | 401.00   | 59.50 | 460.50 | 783.00   |
|   | BC@1.45   | Ea   | 278.00   | 59.50 | 337.50 | 574.00   |
|   | BC@1.45   | Ea   | 363.00   | 59.50 | 422.50 | 718.00   |
| <b>Full-view woodcore storm doors.</b> 1-1/2-inch thick, heavy-gauge aluminum frame over foam insulation. Perimeter weatherstripping and water-diverting rain cap. Full-length, piano-style hinge. Reversible hinge for left- or right-side entry door handle. Two heavy-duty closers.  |           |      |          |       |        |          |
| 30" x 80", White<br>32" x 80", White<br>36" x 80", White  |           |      |          |       |        |          |
|   | BC@1.45   | Ea   | 209.00   | 59.50 | 268.50 | 456.00   |
|   | BC@1.45   | Ea   | 207.00   | 59.50 | 266.50 | 453.00   |
|   | BC@1.45   | Ea   | 210.00   | 59.50 | 269.50 | 458.00   |
| <b>Security Doors</b>   |           |      |          |       |        |          |
| <b>Security storm doors.</b> 16 gauge steel. Brass deadbolt lock. Tempered safety glass. Interchangeable screen panel. Heavy-gauge all-welded steel frame with mitered top. Double weatherstripped jamb and sweep. Tamper-resistant hinges with concealed interior screws. Heavy-duty pneumatic closer and safety wind chain. Prehung with reversible hinge.  |           |      |          |       |        |          |
| 30" x 80"<br>32" x 80"<br>36" x 80"   |           |      |          |       |        |          |
|   | BC@1.45   | Ea   | 524.00   | 59.50 | 583.50 | 992.00   |
|   | BC@1.45   | Ea   | 524.00   | 59.50 | 583.50 | 992.00   |
|   | BC@1.45   | Ea   | 444.00   | 59.50 | 503.50 | 856.00   |
| <b>Class II security doors.</b> Rated to withstand 400 pounds. Double lockbox with extension plate. Decorative geometric ornaments. All welded steel construction. Expanded, galvanized metal screen. 3/4" square frame design.   |           |      |          |       |        |          |
| 32" x 80"<br>36" x 80"  |           |      |          |       |        |          |
|   | BC@1.45   | Ea   | 163.00   | 59.50 | 222.50 | 378.00   |
|   | BC@1.45   | Ea   | 166.00   | 59.50 | 225.50 | 383.00   |
| <b>Heavy-duty security door with screen.</b> Right- or left-hand exterior mounting. All welded steel construction. Baked-on powder coating. Double lockbox with tamper-resistant extension plate. Uses standard 2-3/8" backset lock (not included). Galvanized perforated metal security screen. 1" x 1" door frame. 1" x 1-1/2" jambs, prehung on hinge side.  |           |      |          |       |        |          |
| 32" x 80"<br>36" x 80"  |           |      |          |       |        |          |
|   | BC@1.45   | Ea   | 225.00   | 59.50 | 284.50 | 484.00   |
|   | BC@1.45   | Ea   | 228.00   | 59.50 | 287.50 | 489.00   |
| <b>Paradise-style security door.</b> Five semi-concealed hinges. Heavy-duty deadbolt. All-steel frame.  |           |      |          |       |        |          |
| 30" x 80"<br>32" x 80"<br>36" x 80"   |           |      |          |       |        |          |
|   | BC@1.45   | Ea   | 662.00   | 59.50 | 721.50 | 1,230.00 |
|   | BC@1.45   | Ea   | 662.00   | 59.50 | 721.50 | 1,230.00 |
|   | BC@1.45   | Ea   | 662.00   | 59.50 | 721.50 | 1,230.00 |
| <b>Folding security gates.</b> Riveted 3/4" top and bottom channel. Gate pivots and folds flat to one side. Provides air circulation and positive visibility.   |           |      |          |       |        |          |
| 48" max width, 79" high   |           |      |          |       |        |          |
|   | BC@1.25   | Ea   | 139.00   | 51.30 | 190.30 | 324.00   |

|  | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|--|-----------|------|----------|--------|--------|--------|
| <b>Interior Slab Doors</b>   |           |      |          |        |        |        |
| <b>Cut wall and frame interior door opening, install slab door and trim.</b> Includes header, trimmer studs, interior flush lauan slab door, jamb, two hinges stop, casing two sides, and passage lockset. Add the cost of debris removal, painting, and floor and wall finish, as needed. |           |      |          |        |        |        |
| 32" to 36" slab interior door  | BC@6.30   | Ea   | 242.00   | 259.00 | 501.00 | 852.00 |
| <b>Install interior slab door in an existing framed and cased opening.</b> Includes minor repair to the jamb (blind Dutchman), two hinges, interior flush lauan slab door, stop, and passage lockset.  |           |      |          |        |        |        |
| 28" to 36" x 80" door  | BC@2.93   | Ea   | 148.00   | 120.00 | 268.00 | 456.00 |
| <b>Remove and replace interior door casing, jamb and stop.</b> Includes jamb, stop, and casing one side only. Per door opening.  |           |      |          |        |        |        |
| Door opening to 36" x 80"  | BC@1.20   | Ea   | 72.40    | 49.30  | 121.70 | 207.00 |
| <b>Remove and replace interior slab door, on existing hinges.</b> Includes interior flush lauan slab door, and passage lockset.  |           |      |          |        |        |        |
| 36" x 80" exterior door  | BC@2.00   | Ea   | 119.00   | 82.10  | 201.10 | 342.00 |
| <b>Install interior slab door in an existing cased opening.</b> Includes interior flush lauan slab door, two hinges and stop. Add the cost of additional work to the jamb (if needed), installing the lockset and strike, setting or adjusting the stop, and setting the door casing.      |           |      |          |        |        |        |
| 36" x 80" interior door  | BC@1.15   | Ea   | 107.00   | 47.20  | 154.20 | 262.00 |
| <b>Flush hardboard interior doors.</b> Hollow core. Bored for lockset. Ready to paint or stain. 1-3/8" thick.  |           |      |          |        |        |        |
| 24" x 80"  | BC@1.15   | Ea   | 67.20    | 47.20  | 114.40 | 194.00 |
| 28" x 80"  | BC@1.15   | Ea   | 78.00    | 47.20  | 125.20 | 213.00 |
| 30" x 80"  | BC@1.15   | Ea   | 77.30    | 47.20  | 124.50 | 212.00 |
| 32" x 80"  | BC@1.15   | Ea   | 82.40    | 47.20  | 129.60 | 220.00 |
| 36" x 80"  | BC@1.15   | Ea   | 87.40    | 47.20  | 134.60 | 229.00 |
| <b>Flush birch interior doors.</b> Hollow core. 1-3/8" thick. Wood veneer. Stainable and paintable. All wood stile and rail.   |           |      |          |        |        |        |
| 18" x 80"  | BC@1.15   | Ea   | 66.90    | 47.20  | 114.10 | 194.00 |
| 24" x 80"  | BC@1.15   | Ea   | 92.50    | 47.20  | 139.70 | 237.00 |
| 28" x 80"  | BC@1.15   | Ea   | 70.80    | 47.20  | 118.00 | 201.00 |
| 30" x 80"  | BC@1.15   | Ea   | 102.00   | 47.20  | 149.20 | 254.00 |
| 32" x 80"  | BC@1.15   | Ea   | 107.00   | 47.20  | 154.20 | 262.00 |
| 36" x 80"  | BC@1.15   | Ea   | 112.00   | 47.20  | 159.20 | 271.00 |
| <b>Flush lauan interior doors.</b> Hollow core. 1-3/8" thick. Wood veneer. Stainable and paintable. All wood stile and rail.   |           |      |          |        |        |        |
| 18" x 80"  | BC@1.15   | Ea   | 63.30    | 47.20  | 110.50 | 188.00 |
| 24" x 80"  | BC@1.15   | Ea   | 57.10    | 47.20  | 104.30 | 177.00 |
| 28" x 80"  | BC@1.15   | Ea   | 67.20    | 47.20  | 114.40 | 194.00 |
| 30" x 80"  | BC@1.15   | Ea   | 72.20    | 47.20  | 119.40 | 203.00 |
| 32" x 80"  | BC@1.15   | Ea   | 77.30    | 47.20  | 124.50 | 212.00 |
| 36" x 80"  | BC@1.15   | Ea   | 82.40    | 47.20  | 129.60 | 220.00 |
| <b>Flush oak interior doors.</b> Hollow core. 1-3/8" thick. Wood veneer. Stainable and paintable. All wood stile and rail.   |           |      |          |        |        |        |
| 18" x 80"  | BC@1.15   | Ea   | 112.00   | 47.20  | 159.20 | 271.00 |
| 24" x 80"  | BC@1.15   | Ea   | 117.00   | 47.20  | 164.20 | 279.00 |
| 28" x 80"  | BC@1.15   | Ea   | 131.00   | 47.20  | 178.20 | 303.00 |
| 30" x 80"  | BC@1.15   | Ea   | 136.00   | 47.20  | 183.20 | 311.00 |
| 32" x 80"  | BC@1.15   | Ea   | 155.00   | 47.20  | 202.20 | 344.00 |
| 36" x 80"  | BC@1.15   | Ea   | 155.00   | 47.20  | 202.20 | 344.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Flush hardboard solid core interior doors.</b> Primed. 1-3/8" thick.  |           |      |          |       |        |        |
| 30" x 80"  | BC@1.15   | Ea   | 111.00   | 47.20 | 158.20 | 269.00 |
| 32" x 80"  | BC@1.15   | Ea   | 116.00   | 47.20 | 163.20 | 277.00 |
| 36" x 80"  | BC@1.15   | Ea   | 125.00   | 47.20 | 172.20 | 293.00 |
| <b>Flush lauan solid core interior doors.</b> 1-3/8" thick. Stainable.   |           |      |          |       |        |        |
| 28" x 80"  | BC@1.15   | Ea   | 112.00   | 47.20 | 159.20 | 271.00 |
| 32" x 80"  | BC@1.15   | Ea   | 116.00   | 47.20 | 163.20 | 277.00 |
| 36" x 80"  | BC@1.15   | Ea   | 121.00   | 47.20 | 168.20 | 286.00 |
| 30" x 84"  | BC@1.15   | Ea   | 96.60    | 47.20 | 143.80 | 244.00 |
| 32" x 84"  | BC@1.15   | Ea   | 96.60    | 47.20 | 143.80 | 244.00 |
| 34" x 84"  | BC@1.15   | Ea   | 112.00   | 47.20 | 159.20 | 271.00 |
| 36" x 84"  | BC@1.15   | Ea   | 96.60    | 47.20 | 143.80 | 244.00 |
| <b>Flush birch solid core interior doors.</b> 1-3/8" thick. Solid core.  |           |      |          |       |        |        |
| 24" x 80"  | BC@1.15   | Ea   | 136.00   | 47.20 | 183.20 | 311.00 |
| 32" x 80"  | BC@1.15   | Ea   | 261.00   | 47.20 | 308.20 | 524.00 |
| 36" x 80"  | BC@1.15   | Ea   | 271.00   | 47.20 | 318.20 | 541.00 |
| <b>Flush hardboard interior doors with lite.</b> 1-3/8" thick.   |           |      |          |       |        |        |
| 30" x 80" x 1-3/8"   | BC@1.15   | Ea   | 177.00   | 47.20 | 224.20 | 381.00 |
| 32" x 80" x 1-3/8"   | BC@1.15   | Ea   | 177.00   | 47.20 | 224.20 | 381.00 |
| <b>Hardboard 6-panel colonist interior doors.</b> Hollow core. Raised panels. 1-3/8" thick. Masonite high-density fiberboard with CraftMaster door facings. Embossed simulated woodgrain panels. Primed. |           |      |          |       |        |        |
| 18" x 80"  | BC@1.15   | Ea   | 52.00    | 47.20 | 99.20  | 169.00 |
| 24" x 80"  | BC@1.15   | Ea   | 57.10    | 47.20 | 104.30 | 177.00 |
| 28" x 80"  | BC@1.15   | Ea   | 64.00    | 47.20 | 111.20 | 189.00 |
| 30" x 80"  | BC@1.15   | Ea   | 67.20    | 47.20 | 114.40 | 194.00 |
| 32" x 80"  | BC@1.15   | Ea   | 70.30    | 47.20 | 117.50 | 200.00 |
| 36" x 80"  | BC@1.15   | Ea   | 80.60    | 47.20 | 127.80 | 217.00 |
| <b>Hardboard 6-panel molded face interior doors.</b> 1-3/8" thick. Molded and primed hardboard. Embossed simulated woodgrain. Hollow core. Ready to paint. Bored for lockset.                            |           |      |          |       |        |        |
| 24" x 80"  | BC@1.15   | Ea   | 48.90    | 47.20 | 96.10  | 163.00 |
| 28" x 80"  | BC@1.15   | Ea   | 51.10    | 47.20 | 98.30  | 167.00 |
| 30" x 80"  | BC@1.15   | Ea   | 53.80    | 47.20 | 101.00 | 172.00 |
| 32" x 80"  | BC@1.15   | Ea   | 56.70    | 47.20 | 103.90 | 177.00 |
| 36" x 80"  | BC@1.15   | Ea   | 61.30    | 47.20 | 108.50 | 184.00 |
| <b>Lauan 6-panel molded face interior doors.</b> Bored for latchset. 1-3/8" thick.   |           |      |          |       |        |        |
| 24" x 80"  | BC@1.15   | Ea   | 58.20    | 47.20 | 105.40 | 179.00 |
| 28" x 80"  | BC@1.15   | Ea   | 63.60    | 47.20 | 110.80 | 188.00 |
| 30" x 80"  | BC@1.15   | Ea   | 65.90    | 47.20 | 113.10 | 192.00 |
| 32" x 80"  | BC@1.15   | Ea   | 66.80    | 47.20 | 114.00 | 194.00 |
| 36" x 80"  | BC@1.15   | Ea   | 69.30    | 47.20 | 116.50 | 198.00 |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Pine 6-panel molded face interior doors.</b> Radiata pine veneer. Primed. Hollow core. 1-3/8" thick. 3/4" double hip raised panels. Unfinished. Ready to paint, stain, or varnish. |                  |             |                 |              |              |             |
| 24" x 80"   | BC@1.15          | Ea          | 90.90           | 47.20        | 138.10       | 235.00      |
| 30" x 80"   | BC@1.15          | Ea          | 98.50           | 47.20        | 145.70       | 248.00      |
| 32" x 80"   | BC@1.15          | Ea          | 100.00          | 47.20        | 147.20       | 250.00      |
| 36" x 80"   | BC@1.15          | Ea          | 103.00          | 47.20        | 150.20       | 255.00      |
| <b>Pine 6-panel stile and rail interior doors.</b> Ready to paint or stain. 1-3/8" thick.   |                  |             |                 |              |              |             |
| 24" x 80"   | BC@1.15          | Ea          | 197.00          | 47.20        | 244.20       | 415.00      |
| 28" x 80"   | BC@1.15          | Ea          | 202.00          | 47.20        | 249.20       | 424.00      |
| 30" x 80"   | BC@1.15          | Ea          | 207.00          | 47.20        | 254.20       | 432.00      |
| 32" x 80"   | BC@1.15          | Ea          | 212.00          | 47.20        | 259.20       | 441.00      |
| 36" x 80"   | BC@1.15          | Ea          | 217.00          | 47.20        | 264.20       | 449.00      |
| <b>Fir 1-panel stile and rail interior doors.</b> 1-3/8" thick.   |                  |             |                 |              |              |             |
| 28" x 80"   | BC@1.15          | Ea          | 376.00          | 47.20        | 423.20       | 719.00      |
| 30" x 80"   | BC@1.15          | Ea          | 380.00          | 47.20        | 427.20       | 726.00      |
| 32" x 80"   | BC@1.15          | Ea          | 382.00          | 47.20        | 429.20       | 730.00      |
| <b>Fir 3-panel stile and rail interior doors.</b> 1-3/8" thick.   |                  |             |                 |              |              |             |
| 28" x 80"   | BC@1.15          | Ea          | 459.00          | 47.20        | 506.20       | 861.00      |
| 30" x 80"   | BC@1.15          | Ea          | 459.00          | 47.20        | 506.20       | 861.00      |
| 32" x 80"   | BC@1.15          | Ea          | 461.00          | 47.20        | 508.20       | 864.00      |
| <b>Fir 6-panel stile and rail interior doors.</b> Select grade. 1-3/8" thick.   |                  |             |                 |              |              |             |
| 24" x 80"   | BC@1.15          | Ea          | 173.00          | 47.20        | 220.20       | 374.00      |
| 28" x 80"   | BC@1.15          | Ea          | 176.00          | 47.20        | 223.20       | 379.00      |
| 30" x 80"   | BC@1.15          | Ea          | 184.00          | 47.20        | 231.20       | 393.00      |
| 32" x 80"   | BC@1.15          | Ea          | 186.00          | 47.20        | 233.20       | 396.00      |
| 36" x 80"   | BC@1.15          | Ea          | 192.00          | 47.20        | 239.20       | 407.00      |
| <b>Oak 6-panel stile and rail interior doors.</b> Red oak. Double bevel hip raised panels. 1-3/8" thick.  |                  |             |                 |              |              |             |
| 24" x 80"   | BC@1.15          | Ea          | 168.00          | 47.20        | 215.20       | 366.00      |
| 28" x 80"   | BC@1.15          | Ea          | 173.00          | 47.20        | 220.20       | 374.00      |
| 30" x 80"   | BC@1.15          | Ea          | 178.00          | 47.20        | 225.20       | 383.00      |
| 32" x 80"   | BC@1.15          | Ea          | 183.00          | 47.20        | 230.20       | 391.00      |
| 36" x 80"   | BC@1.15          | Ea          | 187.00          | 47.20        | 234.20       | 398.00      |
| <b>French stile and rail interior doors.</b> Clear pine. Ready to paint or stain. 1-3/8" thick. Pre-masked tempered glass.  |                  |             |                 |              |              |             |
| 24" x 80", 10 lite  | BC@1.40          | Ea          | 273.00          | 57.50        | 330.50       | 562.00      |
| 28" x 80", 10 lite  | BC@1.40          | Ea          | 157.00          | 57.50        | 214.50       | 365.00      |
| 30" x 80", 15 lite  | BC@1.40          | Ea          | 80.90           | 57.50        | 138.40       | 235.00      |
| 32" x 80", 15 lite  | BC@1.40          | Ea          | 288.00          | 57.50        | 345.50       | 587.00      |
| 36" x 80", 15 lite  | BC@1.40          | Ea          | 293.00          | 57.50        | 350.50       | 596.00      |
| <b>Half louver stile and rail interior doors.</b> 1-3/8" thick.   |                  |             |                 |              |              |             |
| 24" x 80"   | BC@1.15          | Ea          | 264.00          | 47.20        | 311.20       | 529.00      |
| 28" x 80"   | BC@1.15          | Ea          | 265.00          | 47.20        | 312.20       | 531.00      |
| 30" x 80"   | BC@1.15          | Ea          | 313.00          | 47.20        | 360.20       | 612.00      |
| 32" x 80"   | BC@1.15          | Ea          | 311.00          | 47.20        | 358.20       | 609.00      |
| 36" x 80"   | BC@1.15          | Ea          | 302.00          | 47.20        | 349.20       | 594.00      |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Full louver cafe (bar) doors.</b> Per pair of doors. With hardware. |           |      |          |       |        |        |
| 24" wide, 42" high   | BC@1.15   | Ea   | 215.00   | 47.20 | 262.20 | 446.00 |
| 30" wide, 42" high   | BC@1.15   | Ea   | 240.00   | 47.20 | 287.20 | 488.00 |
| 32" wide, 42" high   | BC@1.15   | Ea   | 367.00   | 47.20 | 414.20 | 704.00 |
| 36" wide, 42" high   | BC@1.15   | Ea   | 383.00   | 47.20 | 430.20 | 731.00 |

**Stile and rail cafe doors.** Per pair of doors. With hardware.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 30" x 42" | BC@1.15 | Ea | 195.00 | 47.20 | 242.20 | 412.00 |
| 32" x 42" | BC@1.15 | Ea | 195.00 | 47.20 | 242.20 | 412.00 |
| 36" x 42" | BC@1.15 | Ea | 201.00 | 47.20 | 248.20 | 422.00 |

## Interior Door Jambs

**Finger joint pine interior jamb set.** Unfinished. Two 6'8" legs and one 3' head.

|                  |         |    |       |       |        |        |
|------------------|---------|----|-------|-------|--------|--------|
| 4-9/16" x 11/16" | BC@.500 | Ea | 41.60 | 20.50 | 62.10  | 106.00 |
| 5-1/4" x 11/16"  | BC@.500 | Ea | 87.30 | 20.50 | 107.80 | 183.00 |

**Solid clear pine interior jamb.** Varnish or stain. Jamb set includes two 6'8" legs and one 3' head.

|                            |         |    |       |       |       |        |
|----------------------------|---------|----|-------|-------|-------|--------|
| 11/16" x 4-9/16" x 7' leg  | BC@.210 | Ea | 12.90 | 8.62  | 21.52 | 36.60  |
| 11/16" x 4-9/16" x 3' head | BC@.090 | Ea | 14.90 | 3.70  | 18.60 | 31.60  |
| 11/16" x 4-9/16" jamb set  | BC@.500 | Ea | 57.60 | 20.50 | 78.10 | 133.00 |

## Door jamb set with hinges.

|                        |         |    |       |       |       |        |
|------------------------|---------|----|-------|-------|-------|--------|
| 80" x 4-9/16", per set | BC@.500 | Ea | 65.60 | 20.50 | 86.10 | 146.00 |
| 80" x 6-9/16", per set | BC@.500 | Ea | 72.70 | 20.50 | 93.20 | 158.00 |

## Prehung Interior Doors

**Cut wall and frame interior door opening, install prehung door and trim.** Includes header, trimmer studs, interior flush prehung door with jamb, two hinges, stop, casing two sides, and passage lockset. Add the cost of debris removal, painting, floor and wall finish, as needed.

|                                  |         |    |        |        |        |        |
|----------------------------------|---------|----|--------|--------|--------|--------|
| 32" to 36" prehung interior door | BC@5.08 | Ea | 217.00 | 209.00 | 426.00 | 724.00 |
|----------------------------------|---------|----|--------|--------|--------|--------|

**Install interior prehung door in an existing wall opening.** Includes labor setting the door, casing, jamb and stops. Add the cost of setting the lockset.

|                                |         |    |   |       |       |       |
|--------------------------------|---------|----|---|-------|-------|-------|
| 32" to 36" x 80" interior door | BC@.750 | Ea | — | 30.80 | 30.80 | 52.40 |
|--------------------------------|---------|----|---|-------|-------|-------|

**Flush prehung hardboard interior doors.** 1-3/8" thick. Hollow core. Primed. Ready to paint.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 80" | BC@.750 | Ea | 158.00 | 30.80 | 188.80 | 321.00 |
| 28" x 80" | BC@.750 | Ea | 163.00 | 30.80 | 193.80 | 329.00 |
| 30" x 80" | BC@.750 | Ea | 143.00 | 30.80 | 173.80 | 295.00 |
| 32" x 80" | BC@.750 | Ea | 148.00 | 30.80 | 178.80 | 304.00 |
| 36" x 80" | BC@.750 | Ea | 153.00 | 30.80 | 183.80 | 312.00 |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Flush prehung lauan interior doors.</b> 1-3/8" thick. 4-9/16" jamb. Bored for lockset.   |                  |             |                 |              |              |             |
| 18" x 78"   | BC@.750          | Ea          | 138.00          | 30.80        | 168.80       | 287.00      |
| 24" x 78"   | BC@.750          | Ea          | 143.00          | 30.80        | 173.80       | 295.00      |
| 28" x 78"   | BC@.750          | Ea          | 148.00          | 30.80        | 178.80       | 304.00      |
| 30" x 78"   | BC@.750          | Ea          | 153.00          | 30.80        | 183.80       | 312.00      |
| 32" x 78"   | BC@.750          | Ea          | 158.00          | 30.80        | 188.80       | 321.00      |
| 36" x 78"   | BC@.750          | Ea          | 163.00          | 30.80        | 193.80       | 329.00      |
| 24" x 80"   | BC@.750          | Ea          | 143.00          | 30.80        | 173.80       | 295.00      |
| 28" x 80"   | BC@.750          | Ea          | 148.00          | 30.80        | 178.80       | 304.00      |
| 30" x 80"   | BC@.750          | Ea          | 153.00          | 30.80        | 183.80       | 312.00      |
| 32" x 80"   | BC@.750          | Ea          | 158.00          | 30.80        | 188.80       | 321.00      |
| 36" x 80"   | BC@.750          | Ea          | 163.00          | 30.80        | 193.80       | 329.00      |
| <b>Flush prehung lauan interior doors.</b> 1-3/8" thick. Hollow core. Bored for 2-1/8" lockset with 2-3/8" backset. Casing and lockset sold separately. Wood stile construction. Can be stained or finished naturally. Two brass hinges. Paint grade pine split jambs and 2-1/4" casings. 4" to 4-5/8" adjustable jamb. |                  |             |                 |              |              |             |
| 24" x 80"   | BC@.750          | Ea          | 112.00          | 30.80        | 142.80       | 243.00      |
| 28" x 80"   | BC@.750          | Ea          | 115.00          | 30.80        | 145.80       | 248.00      |
| 30" x 80"   | BC@.750          | Ea          | 115.00          | 30.80        | 145.80       | 248.00      |
| 32" x 80"   | BC@.750          | Ea          | 119.00          | 30.80        | 149.80       | 255.00      |
| 36" x 80"   | BC@.750          | Ea          | 120.00          | 30.80        | 150.80       | 256.00      |
| <b>Flush prehung birch interior doors.</b> Stain grade. 1-3/8" thick. Wood stiles. Bored for lockset. Multi-finger jointed door jamb 11/16" x 4-9/16". 3 brass finish hinges 3-1/2" x 3-1/2".   |                  |             |                 |              |              |             |
| 24" x 80"   | BC@.750          | Ea          | 251.00          | 30.80        | 281.80       | 479.00      |
| 28" x 80"   | BC@.750          | Ea          | 281.00          | 30.80        | 311.80       | 530.00      |
| 30" x 80"   | BC@.750          | Ea          | 281.00          | 30.80        | 311.80       | 530.00      |
| 32" x 80"   | BC@.750          | Ea          | 281.00          | 30.80        | 311.80       | 530.00      |
| 36" x 80"   | BC@.750          | Ea          | 297.00          | 30.80        | 327.80       | 557.00      |
| <b>Flush prehung oak interior doors.</b> Stain grade. 1-3/8" thick. Wood stiles. Bored for lockset. Multi-finger jointed door jamb 11/16" x 4-9/16". 3 brass finish hinges 3-1/2" x 3-1/2".   |                  |             |                 |              |              |             |
| 24" x 80"   | BC@.750          | Ea          | 269.00          | 30.80        | 299.80       | 510.00      |
| 28" x 80"   | BC@.750          | Ea          | 276.00          | 30.80        | 306.80       | 522.00      |
| 30" x 80"   | BC@.750          | Ea          | 283.00          | 30.80        | 313.80       | 533.00      |
| 32" x 80"   | BC@.750          | Ea          | 288.00          | 30.80        | 318.80       | 542.00      |
| 36" x 80"   | BC@.750          | Ea          | 297.00          | 30.80        | 327.80       | 557.00      |
| <b>Flush prehung red oak interior doors.</b> Hollow core. 1-3/8" thick. Stain grade.  |                  |             |                 |              |              |             |
| 24" x 80"   | BC@.750          | Ea          | 292.00          | 30.80        | 322.80       | 549.00      |
| 28" x 80"   | BC@.750          | Ea          | 307.00          | 30.80        | 337.80       | 574.00      |
| 30" x 80"   | BC@.750          | Ea          | 313.00          | 30.80        | 343.80       | 584.00      |
| 32" x 80"   | BC@.750          | Ea          | 323.00          | 30.80        | 353.80       | 601.00      |
| 36" x 80"   | BC@.750          | Ea          | 334.00          | 30.80        | 364.80       | 620.00      |
| <b>Interior prehung lauan heater closet doors.</b>  |                  |             |                 |              |              |             |
| 24" x 60"   | BC@.750          | Ea          | 179.00          | 30.80        | 209.80       | 357.00      |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**6-panel colonial prehung interior doors.** 11/16" x 4-9/16" jamb. Bored for lockset. Casing and hardware sold separately. Hollow core. 1-3/8" thick.

|                    |         |    |        |       |        |        |
|--------------------|---------|----|--------|-------|--------|--------|
| 18" x 80", 3-panel | BC@.750 | Ea | 94.50  | 30.80 | 125.30 | 213.00 |
| 24" x 80"          | BC@.750 | Ea | 98.40  | 30.80 | 129.20 | 220.00 |
| 28" x 80"          | BC@.750 | Ea | 104.00 | 30.80 | 134.80 | 229.00 |
| 30" x 80"          | BC@.750 | Ea | 108.00 | 30.80 | 138.80 | 236.00 |
| 32" x 80"          | BC@.750 | Ea | 110.00 | 30.80 | 140.80 | 239.00 |
| 36" x 80"          | BC@.750 | Ea | 113.00 | 30.80 | 143.80 | 244.00 |

**6-panel colonist prehung interior doors.** 6-9/16" jamb. Hollow core.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 80" | BC@.750 | Ea | 182.00 | 30.80 | 212.80 | 362.00 |
| 30" x 80" | BC@.750 | Ea | 195.00 | 30.80 | 225.80 | 384.00 |
| 32" x 80" | BC@.750 | Ea | 209.00 | 30.80 | 239.80 | 408.00 |
| 36" x 80" | BC@.750 | Ea | 221.00 | 30.80 | 251.80 | 428.00 |

**6-panel colonist prehung interior doors.** Ready to paint or stain. Split flush jambs. Colonial casing attached.

Bored for lockset.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 18" x 78" | BC@.750 | Ea | 132.00 | 30.80 | 162.80 | 277.00 |
| 24" x 78" | BC@.750 | Ea | 138.00 | 30.80 | 168.80 | 287.00 |
| 28" x 78" | BC@.750 | Ea | 143.00 | 30.80 | 173.80 | 295.00 |
| 30" x 78" | BC@.750 | Ea | 148.00 | 30.80 | 178.80 | 304.00 |
| 32" x 78" | BC@.750 | Ea | 153.00 | 30.80 | 183.80 | 312.00 |
| 36" x 78" | BC@.750 | Ea | 158.00 | 30.80 | 188.80 | 321.00 |
| 18" x 80" | BC@.750 | Ea | 169.00 | 30.80 | 199.80 | 340.00 |
| 24" x 80" | BC@.750 | Ea | 138.00 | 30.80 | 168.80 | 287.00 |
| 28" x 80" | BC@.750 | Ea | 143.00 | 30.80 | 173.80 | 295.00 |
| 30" x 80" | BC@.750 | Ea | 147.00 | 30.80 | 177.80 | 302.00 |
| 32" x 80" | BC@.750 | Ea | 153.00 | 30.80 | 183.80 | 312.00 |
| 36" x 80" | BC@.750 | Ea | 158.00 | 30.80 | 188.80 | 321.00 |

**6-panel hardboard prehung interior doors.** Wood stiles. Bored for lockset. Primed finger joint 11/16" x 4-9/16" jamb. 3 brass finish hinges 3-1/2" x 3-1/2". Hollow core.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 80" | BC@.750 | Ea | 127.00 | 30.80 | 157.80 | 268.00 |
| 28" x 80" | BC@.750 | Ea | 132.00 | 30.80 | 162.80 | 277.00 |
| 30" x 80" | BC@.750 | Ea | 138.00 | 30.80 | 168.80 | 287.00 |
| 32" x 80" | BC@.750 | Ea | 143.00 | 30.80 | 173.80 | 295.00 |
| 36" x 80" | BC@.750 | Ea | 148.00 | 30.80 | 178.80 | 304.00 |

**6-panel hardboard prehung interior doors.** 4-9/16" adjustable split jambs. Hollow core. Paint grade casing applied. Pre-drilled for lockset. Ready to paint or gel stain.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 80" | BC@.750 | Ea | 137.00 | 30.80 | 167.80 | 285.00 |
| 28" x 80" | BC@.750 | Ea | 143.00 | 30.80 | 173.80 | 295.00 |
| 30" x 80" | BC@.750 | Ea | 148.00 | 30.80 | 178.80 | 304.00 |
| 32" x 80" | BC@.750 | Ea | 151.00 | 30.80 | 181.80 | 309.00 |
| 36" x 80" | BC@.750 | Ea | 157.00 | 30.80 | 187.80 | 319.00 |

**6-panel hardboard prehung double interior doors.** 1-3/8" thick. Flat jamb.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 48" x 80" | BC@1.25 | Ea | 248.00 | 51.30 | 299.30 | 509.00 |
| 60" x 80" | BC@1.25 | Ea | 263.00 | 51.30 | 314.30 | 534.00 |

**6-panel prehung fire-rated interior doors.** 4-9/16" jamb. 20-minute fire rating.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 32" x 80" | BC@.750 | Ea | 312.00 | 30.80 | 342.80 | 583.00 |
| 36" x 80" | BC@.750 | Ea | 323.00 | 30.80 | 353.80 | 601.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>6-panel oak prehung interior doors.</b> Hollow core. 1-3/8" thick.   |           |      |          |       |        |        |
| 24" x 80"   | BC@.750   | Ea   | 254.00   | 30.80 | 284.80 | 484.00 |
| 28" x 80"   | BC@.750   | Ea   | 304.00   | 30.80 | 334.80 | 569.00 |
| 30" x 80"   | BC@.750   | Ea   | 297.00   | 30.80 | 327.80 | 557.00 |
| 32" x 80"   | BC@.750   | Ea   | 288.00   | 30.80 | 318.80 | 542.00 |
| 36" x 80"   | BC@.750   | Ea   | 295.00   | 30.80 | 325.80 | 554.00 |
| <b>6-panel prehung interior double doors.</b> Bored for lockset. Ready to paint or stain. 1-3/8" thick. 4-9/16" jambs.  |           |      |          |       |        |        |
| 4'0" x 6'8"   | BC@1.50   | Ea   | 225.00   | 61.60 | 286.60 | 487.00 |
| 6'0" x 6'8"   | BC@1.50   | Ea   | 232.00   | 61.60 | 293.60 | 499.00 |
| <b>6-panel hemlock prehung interior doors.</b> Bored for lockset. Ready to paint or stain. 1-3/8" thick. 4-9/16" jambs.   |           |      |          |       |        |        |
| 24" x 80"   | BC@.750   | Ea   | 240.00   | 30.80 | 270.80 | 460.00 |
| 28" x 80"   | BC@.750   | Ea   | 259.00   | 30.80 | 289.80 | 493.00 |
| 30" x 80"   | BC@.750   | Ea   | 261.00   | 30.80 | 291.80 | 496.00 |
| 32" x 80"   | BC@.750   | Ea   | 255.00   | 30.80 | 285.80 | 486.00 |
| 36" x 80"   | BC@.750   | Ea   | 260.00   | 30.80 | 290.80 | 494.00 |
| <b>2-panel knotty alder prehung interior doors.</b> Bored for lockset. 1-3/8" thick.  |           |      |          |       |        |        |
| 24" x 80"   | BC@.750   | Ea   | 318.00   | 30.80 | 348.80 | 593.00 |
| 28" x 80"   | BC@.750   | Ea   | 324.00   | 30.80 | 354.80 | 603.00 |
| 30" x 80"   | BC@.750   | Ea   | 329.00   | 30.80 | 359.80 | 612.00 |
| 32" x 80"   | BC@.750   | Ea   | 334.00   | 30.80 | 364.80 | 620.00 |
| 36" x 80"   | BC@.750   | Ea   | 339.00   | 30.80 | 369.80 | 629.00 |
| <b>Pine full louver prehung interior doors.</b> Ready to install. Provides ventilation while maintaining privacy. 11/16" x 4-9/16" clear face pine door jamb. 1-3/8" thick. Includes (3) 3-1/2" x 3-1/2" hinges with brass finish. Bored for lockset. |           |      |          |       |        |        |
| 24" x 80"   | BC@.750   | Ea   | 230.00   | 30.80 | 260.80 | 443.00 |
| 28" x 80"   | BC@.750   | Ea   | 272.00   | 30.80 | 302.80 | 515.00 |
| 30" x 80"   | BC@.750   | Ea   | 234.00   | 30.80 | 264.80 | 450.00 |
| 32" x 80"   | BC@.750   | Ea   | 241.00   | 30.80 | 271.80 | 462.00 |
| 36" x 80"   | BC@.750   | Ea   | 238.00   | 30.80 | 268.80 | 457.00 |
| <b>Pine louver over louver prehung interior doors.</b> Bored for lockset. 1-3/8" thick.   |           |      |          |       |        |        |
| 32" x 80"   | BC@.750   | Ea   | 407.00   | 30.80 | 437.80 | 744.00 |
| <b>Prehung pantry doors.</b> Finger joint flat jamb. Bored for lockset. 1-3/8" thick.   |           |      |          |       |        |        |
| 28" x 80"   | BC@.750   | Ea   | 461.00   | 30.80 | 491.80 | 836.00 |
| 30" x 80"   | BC@.750   | Ea   | 461.00   | 30.80 | 491.80 | 836.00 |
| <b>10-lite wood French prehung double interior doors.</b> Pre-masked tempered glass for easy finishing. True divided light design. Ponderosa pine. 1-3/8" thick.  |           |      |          |       |        |        |
| 48" x 80", unfinished   | BC@1.25   | Ea   | 410.00   | 51.30 | 461.30 | 784.00 |
| 60" x 80", unfinished   | BC@1.25   | Ea   | 461.00   | 51.30 | 512.30 | 871.00 |
| 48" x 80", primed   | BC@1.25   | Ea   | 410.00   | 51.30 | 461.30 | 784.00 |
| 60" x 80", primed   | BC@1.25   | Ea   | 467.00   | 51.30 | 518.30 | 881.00 |
| <b>15-lite wood French prehung double interior doors.</b> Pre-masked tempered glass for easy finishing. True divided light design. Ponderosa pine. 1-3/8" thick.  |           |      |          |       |        |        |
| 48" x 80"   | BC@1.25   | Ea   | 416.00   | 51.30 | 467.30 | 794.00 |
| 60" x 80"   | BC@1.25   | Ea   | 416.00   | 51.30 | 467.30 | 794.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|--|-----------|------|----------|-------|--------|----------|
| <b>Oak French prehung double interior doors.</b> Bored for lockset. 1-3/8" thick.  |           |      |          |       |        |          |
| 48" x 80"  | BC@1.25   | Ea   | 751.00   | 51.30 | 802.30 | 1,360.00 |
| 60" x 80"  | BC@1.25   | Ea   | 871.00   | 51.30 | 922.30 | 1,570.00 |
| 72" x 80"  | BC@1.25   | Ea   | 881.00   | 51.30 | 932.30 | 1,580.00 |
| <b>Interior Latchsets</b>  |           |      |          |       |        |          |
| <b>Knob passage latch.</b>   |           |      |          |       |        |          |
| Dummy, brass   | BC@.250   | Ea   | 11.30    | 10.30 | 21.60  | 36.70    |
| Dummy, satin nickel  | BC@.250   | Ea   | 13.60    | 10.30 | 23.90  | 40.60    |
| Hall or closet, brass  | BC@.250   | Ea   | 26.00    | 10.30 | 36.30  | 61.70    |
| Hall or closet, satin nickel   | BC@.250   | Ea   | 28.60    | 10.30 | 38.90  | 66.10    |
| <b>Egg knob privacy latchset.</b>  |           |      |          |       |        |          |
| Bright brass   | BC@.250   | Ea   | 25.30    | 10.30 | 35.60  | 60.50    |
| Satin nickel   | BC@.250   | Ea   | 31.50    | 10.30 | 41.80  | 71.10    |
| <b>Privacy lever latchset.</b> Both levers locked or unlocked by turn button. Outside lever can be unlocked by emergency key (included). |           |      |          |       |        |          |
| Antique brass  | BC@.250   | Ea   | 37.60    | 10.30 | 47.90  | 81.40    |
| Polished brass   | BC@.250   | Ea   | 61.10    | 10.30 | 71.40  | 121.00   |
| Satin nickel   | BC@.250   | Ea   | 41.30    | 10.30 | 51.60  | 87.70    |
| <b>Door Hardware</b>   |           |      |          |       |        |          |
| <b>Door knockers.</b> Polished brass.  |           |      |          |       |        |          |
| 3-1/2" x 6", knocker and eye viewer  | BC@.250   | Ea   | 7.89     | 10.30 | 18.19  | 30.90    |
| 6-1/2" x 3-1/2", colonial, ornate  | BC@.250   | Ea   | 69.10    | 10.30 | 79.40  | 135.00   |
| <b>Door pull plates.</b>   |           |      |          |       |        |          |
| 4" x 16", satin aluminum   | BC@.333   | Ea   | 26.70    | 13.70 | 40.40  | 68.70    |
| <b>Door push plates.</b>   |           |      |          |       |        |          |
| 3" x 12", bright brass   | BC@.333   | Ea   | 13.40    | 13.70 | 27.10  | 46.10    |
| 3-1/2" x 15" anodized aluminum   | BC@.333   | Ea   | 11.80    | 13.70 | 25.50  | 43.40    |
| 3-1/2" x 15", solid brass  | BC@.333   | Ea   | 12.80    | 13.70 | 26.50  | 45.10    |
| <b>Door kick plates.</b>   |           |      |          |       |        |          |
| 6" x 30", anodized aluminum  | BC@.333   | Ea   | 14.20    | 13.70 | 27.90  | 47.40    |
| 6" x 30", lifetime brass finish  | BC@.333   | Ea   | 28.80    | 13.70 | 42.50  | 72.30    |
| 6" x 30", mirror brass finish  | BC@.333   | Ea   | 23.30    | 13.70 | 37.00  | 62.90    |
| 6" x 34", polished brass finish  | BC@.333   | Ea   | 18.20    | 13.70 | 31.90  | 54.20    |
| 8" x 34", .050" stainless  | BC@.333   | Ea   | 24.40    | 13.70 | 38.10  | 64.80    |
| 8" x 34", anodized aluminum  | BC@.333   | Ea   | 16.40    | 13.70 | 30.10  | 51.20    |
| 8" x 34", lifetime brass finish  | BC@.333   | Ea   | 32.90    | 13.70 | 46.60  | 79.20    |
| 8" x 34", satin nickel finish  | BC@.333   | Ea   | 27.40    | 13.70 | 41.10  | 69.90    |
| 8" x 34", magnetic, brass finish   | BC@.333   | Ea   | 20.10    | 13.70 | 33.80  | 57.50    |
| 8" x 34", polished brass finish  | BC@.333   | Ea   | 38.40    | 13.70 | 52.10  | 88.60    |
| <b>Door stops.</b>   |           |      |          |       |        |          |
| 3" spring wall stop  | BC@.084   | Ea   | 3.00     | 3.45  | 6.45   | 11.00    |
| 2" wall stop, bright brass   | BC@.084   | Ea   | 5.09     | 3.45  | 8.54   | 14.50    |
| 2" wall stop, satin stainless  | BC@.084   | Ea   | 5.99     | 3.45  | 9.44   | 16.00    |
| 4" kick down stop, aluminum  | BC@.120   | Ea   | 5.99     | 4.93  | 10.92  | 18.60    |
| 4" kick down stop, bright brass  | BC@.120   | Ea   | 5.99     | 4.93  | 10.92  | 18.60    |
| 4" kick down door holder, brass  | BC@.166   | Ea   | 21.60    | 6.82  | 28.42  | 48.30    |
| Floor-mounted door bumper  | BC@.166   | Ea   | 9.59     | 6.82  | 16.41  | 27.90    |

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Door peep sights.</b> Brass with optical lens.  |                  |             |                 |              |              |             |
| 160-degree, 1/2" diameter  | BC@.300          | Ea          | 8.97            | 12.30        | 21.27        | 36.20       |
| 190-degree, 1/2" diameter  | BC@.300          | Ea          | 13.50           | 12.30        | 25.80        | 43.90       |
| 160-degree, 1" diameter  | BC@.300          | Ea          | 16.80           | 12.30        | 29.10        | 49.50       |
| <b>House numbers.</b> Brass or black coated.   |                  |             |                 |              |              |             |
| 4" high, brass   | BC@.103          | Ea          | 8.42            | 4.23         | 12.65        | 21.50       |
| 4" high, stainless steel   | BC@.103          | Ea          | 24.80           | 4.23         | 29.03        | 49.40       |
| 5" high, bronze  | BC@.103          | Ea          | 15.40           | 4.23         | 19.63        | 33.40       |
| <b>Patio Doors</b>   |                  |             |                 |              |              |             |
| <b>Install a sliding or hinged patio door.</b> Setting a door in an existing framed opening.   |                  |             |                 |              |              |             |
| To 6' wide x 8' high   | B1@3.58          | Ea          | —               | 133.00       | 133.00       | 226.00      |
| Over 6' wide x 8' high to 12' x 8'   | B1@4.60          | Ea          | —               | 171.00       | 171.00       | 291.00      |
| <b>Remove and replace a sliding or hinged patio door.</b> Includes removing the existing door and frame down to the rough opening, trim the siding as needed, caulk the opening, shim and nail the door in place, set exterior trim. Add the cost of painting, debris removal, wall and floor finish, as required. |                  |             |                 |              |              |             |
| To 6' wide x 8' high   | B1@5.50          | Ea          | —               | 205.00       | 205.00       | 349.00      |
| Over 6' wide x 8' high to 12' x 8'   | B1@6.95          | Ea          | —               | 258.00       | 258.00       | 439.00      |
| <b>10-lite swinging patio double doors.</b> White finish. Dual-glazed with clear tempered glass. Fully weatherstripped. Pre-drilled lock-bore.   |                  |             |                 |              |              |             |
| 6'0" wide x 6'8" high  | B1@3.58          | Ea          | 618.00          | 133.00       | 751.00       | 1,280.00    |
| <b>Vinyl-clad hinged patio double doors, Frenchwood®, Andersen.</b> White exterior. Perma-Shield® low-maintenance finish. Clear pine interior. 1-lite. 3-point locking system. Adjustable hinges with ball-bearing pivots. Low-E2 tempered insulating glass. Mortise and tenon joints.                             |                  |             |                 |              |              |             |
| 6'0" x 6'8"  | B1@3.58          | Ea          | 3,680.00        | 133.00       | 3,813.00     | 6,480.00    |
| <b>Center hinge 15-lite aluminum patio double doors.</b> Sized for replacement. Unfinished clear pine interior. White extruded aluminum-clad exterior. Weatherstripped frame. Self-draining sill. Bored for lockset. 3/4" Low-E insulated safety glass.  |                  |             |                 |              |              |             |
| 6'0" x 6'8"  | B1@3.58          | Ea          | 1,310.00        | 133.00       | 1,443.00     | 2,450.00    |
| <b>Aluminum inward swing 1-lite patio double doors.</b> Low-E insulated safety glass. Clear wood interior ready to paint or stain.   |                  |             |                 |              |              |             |
| 6'0" x 6'8"  | B1@3.58          | Ea          | 972.00          | 133.00       | 1,105.00     | 1,880.00    |
| <b>Aluminum inward swing 10-lite patio double doors.</b> Unfinished interior. Low-E2 argon-filled insulated glass. Thermal-break sill. Bored for lockset. With head and foot bolts.  |                  |             |                 |              |              |             |
| 6'0" x 6'8"  | B1@3.58          | Ea          | 1,030.00        | 133.00       | 1,163.00     | 1,980.00    |
| <b>Vinyl-clad gliding patio doors.</b> White. Tempered 1" Low-E insulating glass. Anodized aluminum track.   |                  |             |                 |              |              |             |
| 6'0" x 6'8"  | B1@3.58          | Ea          | 916.00          | 133.00       | 1,049.00     | 1,780.00    |
| <b>Vinyl-clad gliding patio doors.</b> Pine core. Dual-pane Low-E tempered insulating glass. Stainless-steel tracks. Ball-bearing rollers. Combination weatherstrip and interlock.   |                  |             |                 |              |              |             |
| 6'0" x 6'8"  | B1@3.58          | Ea          | 2,070.00        | 133.00       | 2,203.00     | 3,750.00    |
| <b>10-lite sliding patio doors.</b> Solid pine core. Weatherstripped on 4 sides of operating panels. Butcher block 4-1/2"-wide stiles and 9-1/2" bottom rail. 4-9/16" jamb width. White. Actual dimensions: 71-1/4" wide x 79-1/2" high. Pre-drilled lock-bore.  |                  |             |                 |              |              |             |
| 6'0" wide x 6'8" high  | B1@3.58          | Ea          | 442.00          | 133.00       | 575.00       | 978.00      |

|   | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|---|-----------|------|----------|--------|----------|----------|
| <b>Aluminum sliding patio doors.</b> Unfinished interior. White aluminum-clad exterior. With lockset. Insulating Low-E2 glass.  |           |      |          |        |          |          |
| 6'0" x 6'8", 1-lite   | B1@3.58   | Ea   | 933.00   | 133.00 | 1,066.00 | 1,810.00 |
| 6'0" x 6'8", 15-lite look   | B1@3.58   | Ea   | 933.00   | 133.00 | 1,066.00 | 1,810.00 |
| <b>Aluminum sliding patio doors.</b> With screen. Single glazed. Reversible, self-aligning ball bearing rollers. Zinc finish lock. Dimensions nominal width by height. Actual height and width are 1/2" less. |           |      |          |        |          |          |
| 5' x 6'8", mill finish  | B1@3.58   | Ea   | 290.00   | 133.00 | 423.00   | 719.00   |
| 6' x 6'8", mill finish  | B1@3.58   | Ea   | 411.00   | 133.00 | 544.00   | 925.00   |
| 6' x 6'8", white finish   | B1@3.58   | Ea   | 468.00   | 133.00 | 601.00   | 1,020.00 |
| 6' x 6'8", bronze finish  | B1@3.58   | Ea   | 485.00   | 133.00 | 618.00   | 1,050.00 |
| 6' x 6'8", white finish, solar gray glass   | B1@3.58   | Ea   | 468.00   | 133.00 | 601.00   | 1,020.00 |
| 8' x 8'0", white finish   | B1@4.60   | Ea   | 416.00   | 171.00 | 587.00   | 998.00   |
| <b>Vinyl sliding patio doors.</b> Single glazed. By opening size. Actual width and height are 1/2" less.  |           |      |          |        |          |          |
| 5'0" x 6'8", with grille  | B1@3.58   | Ea   | 1,260.00 | 133.00 | 1,393.00 | 2,370.00 |
| 6'0" x 6'8"   | B1@3.58   | Ea   | 1,020.00 | 133.00 | 1,153.00 | 1,960.00 |
| 6'0" x 6'8", with grille  | B1@3.58   | Ea   | 1,310.00 | 133.00 | 1,443.00 | 2,450.00 |
| 8'0" x 6'8"   | B1@3.58   | Ea   | 1,470.00 | 133.00 | 1,603.00 | 2,730.00 |
| 8'0" x 6'8", with grille  | B1@3.58   | Ea   | 1,550.00 | 133.00 | 1,683.00 | 2,860.00 |
| <b>1-lite swinging prehung steel patio double doors.</b> Polyurethane core. High-performance weatherstrip. Adjustable thermal-break sill. Non-yellowing frame and grille. Inward swing.                       |           |      |          |        |          |          |
| 6'0" x 6'8"   | B1@3.58   | Ea   | 434.00   | 133.00 | 567.00   | 964.00   |
| <b>10-lite swinging prehung steel patio double doors.</b> 24 gauge galvanized steel. Double bored for deadbolt. Compression weatherstripping. Aluminum T-astragal. Single glazed.                             |           |      |          |        |          |          |
| 6'0" x 6'8"   | B1@3.58   | Ea   | 581.00   | 133.00 | 714.00   | 1,210.00 |
| <b>10-lite swinging steel patio double doors.</b> Inward swing. Insulated Low-E glass.  |           |      |          |        |          |          |
| 5'0" x 6'8"   | B1@3.58   | Ea   | 1,840.00 | 133.00 | 1,973.00 | 3,350.00 |
| 6'0" x 6'8"   | B1@3.58   | Ea   | 1,840.00 | 133.00 | 1,973.00 | 3,350.00 |
| <b>10-lite venting steel patio double doors.</b> Inward swing. Insulated glass.   |           |      |          |        |          |          |
| 6'0" x 6'8"   | B1@3.58   | Ea   | 876.00   | 133.00 | 1,009.00 | 1,720.00 |
| 8'0" x 6'8"   | B1@3.58   | Ea   | 987.00   | 133.00 | 1,120.00 | 1,900.00 |
| <b>15-lite swinging steel patio double doors.</b> Inward swing.   |           |      |          |        |          |          |
| 5'0" x 6'8", insulated glass  | B1@3.58   | Ea   | 1,740.00 | 133.00 | 1,873.00 | 3,180.00 |
| 6'0" x 6'8", Low-E insulated glass  | B1@3.58   | Ea   | 1,740.00 | 133.00 | 1,873.00 | 3,180.00 |
| 6'0" x 6'8", single glazed  | B1@3.58   | Ea   | 1,740.00 | 133.00 | 1,873.00 | 3,180.00 |
| <b>15-lite prehung swinging fiberglass patio double doors.</b> Outward swing. Insulated glass. Adjustable mill finish thermal-break threshold.  |           |      |          |        |          |          |
| 6'0" x 6'8"   | B1@3.58   | Ea   | 2,190.00 | 133.00 | 2,323.00 | 3,950.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Patio Door Replacement Parts</b>  |           |      |          |       |        |        |
| <b>Replacement sliding patio door screen and track.</b>  |           |      |          |       |        |        |
| 2'6" x 6'8" screen   | BC@.335   | Ea   | 222.00   | 13.80 | 235.80 | 401.00 |
| 3'0" x 6'8" screen   | BC@.335   | Ea   | 222.00   | 13.80 | 235.80 | 401.00 |
| <b>Replacement sliding patio door screens.</b> Adjustable 78-1/2" to 80" height. Self-latching. Fiberglass screening. Steel frame. Powder-coated finish. |           |      |          |       |        |        |
| 30" wide, bronze   | BC@.335   | Ea   | 104.00   | 13.80 | 117.80 | 200.00 |
| 36" wide, bronze   | BC@.335   | Ea   | 104.00   | 13.80 | 117.80 | 200.00 |
| 48" wide, gray   | BC@.335   | Ea   | 114.00   | 13.80 | 127.80 | 217.00 |
| <b>Patio door hardware set, Frenchwood® and Perma-Shield®, Andersen.</b> Fits Andersen patio doors.  |           |      |          |       |        |        |
| Bright brass, gliding doors  | —         | Ea   | 390.00   | —     | 390.00 | —      |
| Bright brass, hinged doors   | —         | Ea   | 446.00   | —     | 446.00 | —      |
| Metro, stone, hinged doors   | —         | Ea   | 420.00   | —     | 420.00 | —      |
| Metro, white, gliding doors  | —         | Ea   | 420.00   | —     | 420.00 | —      |
| <b>Sliding aluminum patio door hardware kit.</b>   |           |      |          |       |        |        |
| 6'0" x 6'8", bronze  | BC@.450   | Ea   | 108.00   | 18.50 | 126.50 | 215.00 |
| 6'0" x 6'8", white   | BC@.450   | Ea   | 108.00   | 18.50 | 126.50 | 215.00 |
| <b>Sliding patio door replacement handle set.</b>  |           |      |          |       |        |        |
| White  | BC@.250   | Ea   | 67.10    | 10.30 | 77.40  | 132.00 |
| <b>Sliding patio door replacement locks.</b>   |           |      |          |       |        |        |
| Auxiliary footlock with screws   | BC@.250   | Ea   | 54.20    | 10.30 | 64.50  | 110.00 |
| Reachout deadlock, white   | BC@.250   | Ea   | 51.60    | 10.30 | 61.90  | 105.00 |
| <b>Sliding patio door replacement rollers.</b>   |           |      |          |       |        |        |
| Lower screen roller, per pair  | BC@.450   | Ea   | 15.00    | 18.50 | 33.50  | 57.00  |
| Steel tandem rollers   | BC@.450   | Ea   | 15.00    | 18.50 | 33.50  | 57.00  |
| <b>Patio door window grilles.</b> For 6'0" x 6' 8" door.   |           |      |          |       |        |        |
| 15-lite  | —         | Ea   | 125.00   | —     | 125.00 | —      |
| <b>Patio door jamb extension kit.</b>  |           |      |          |       |        |        |
| 6-9/16", white   | —         | Ea   | 72.70    | —     | 72.70  | —      |
| <b>Swinging patio door threshold.</b>  |           |      |          |       |        |        |
| 6'0", oak  | BC@.500   | Ea   | 64.90    | 20.50 | 85.40  | 145.00 |
| <b>Cat patio pet door.</b>   |           |      |          |       |        |        |
| 6" x 6", mill finish   | BC@.800   | Ea   | 292.00   | 32.80 | 324.80 | 552.00 |
| <b>Pet door.</b> Mill finish aluminum.   |           |      |          |       |        |        |
| Small  | BC@.800   | Ea   | 45.90    | 32.80 | 78.70  | 134.00 |
| Medium   | BC@.800   | Ea   | 59.80    | 32.80 | 92.60  | 157.00 |
| Large  | BC@.800   | Ea   | 79.30    | 32.80 | 112.10 | 191.00 |
| Extra Large  | BC@.800   | Ea   | 121.00   | 32.80 | 153.80 | 261.00 |
| Super Large  | BC@.800   | Ea   | 166.00   | 32.80 | 198.80 | 338.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Door Closers</b>  |           |      |          |       |        |        |
| <b>Remove and replace door closers.</b>  |           |      |          |       |        |        |
| Interior or exterior door  | BC@.540   | Ea   | —        | 22.20 | 22.20  | 37.70  |
| <b>Pneumatic door closers.</b> For wood or metal out-swing doors to 90 degrees. Adjustable closing speed. Internal spring keeps rod from bending. 2-hole end plug for adjusting latching power. Bronze, black or white.                |           |      |          |       |        |        |
| Closer   | BC@.462   | Ea   | 15.00    | 19.00 | 34.00  | 57.80  |
| <b>Light-duty door closers.</b> For free-swinging doors up to 85 pounds and 30" wide. Parallel arm mount. Adjustable closing speed. 125-degree maximum opening angle. Brown or ivory.  |           |      |          |       |        |        |
| Non hold-open  | BC@.462   | Ea   | 44.40    | 19.00 | 63.40  | 108.00 |
| Hold-open  | BC@.462   | Ea   | 44.40    | 19.00 | 63.40  | 108.00 |
| <b>Medium-duty door closers.</b> Adjustable closing and latching speeds. Designed for free-swinging residential and light commercial doors up to 140 pounds. Brown or ivory.   |           |      |          |       |        |        |
| Closer   | BC@.462   | Ea   | 75.40    | 19.00 | 94.40  | 160.00 |
| <b>Heavy-duty door closers.</b>  |           |      |          |       |        |        |
| No cover, painted steel finish   | BC@.462   | Ea   | 100.00   | 19.00 | 119.00 | 202.00 |
| No cover, aluminum finish  | BC@.462   | Ea   | 100.00   | 19.00 | 119.00 | 202.00 |
| With cover, aluminum finish  | BC@.462   | Ea   | 129.00   | 19.00 | 148.00 | 252.00 |
| <b>Commercial-grade hydraulic door closers.</b> For free-swinging doors up to 176 pounds. Includes brackets for three possible mounting applications. Adjustable back check. Adjustable closing and latching speeds. Bronze or silver. |           |      |          |       |        |        |
| Closer   | BC@.462   | Ea   | 135.00   | 19.00 | 154.00 | 262.00 |
| <b>Adjustable hinge pin door closers.</b> Includes screws.   |           |      |          |       |        |        |
| Brass  | BC@.250   | Ea   | 24.10    | 10.30 | 34.40  | 58.50  |
| <b>Accordion Folding Doors</b>   |           |      |          |       |        |        |
| <b>Accordion folding doors.</b> Solid PVC slats with flexible hinges. Vertical embossed surface. Includes hardware. Fully assembled. 32" x 80". Hung in a cased opening.   |           |      |          |       |        |        |
| Light-weight, white  | BC@.750   | Ea   | 31.80    | 30.80 | 62.60  | 106.00 |
| Standard-weight, gray  | BC@.750   | Ea   | 44.50    | 30.80 | 75.30  | 128.00 |
| Standard-weight, white   | BC@.750   | Ea   | 46.50    | 30.80 | 77.30  | 131.00 |
| <b>Premium accordion folding doors.</b> Vertical embossed surface. Preassembled. Prefinished. Adjustable width and height. Flexible vinyl hinges. Hung in a cased opening.   |           |      |          |       |        |        |
| 8" x 80" section   | BC@.750   | Ea   | 39.30    | 30.80 | 70.10  | 119.00 |
| 36" x 80"  | BC@.750   | Ea   | 83.40    | 30.80 | 114.20 | 194.00 |
| <b>Folding door lock.</b>  |           |      |          |       |        |        |
| Door lock  | BC@.250   | Ea   | 9.76     | 10.30 | 20.06  | 34.10  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

### Bypass Closet Doors

**White bypass closet doors.** Prefinished white vinyl-covered hardboard panels instead of mirrors. White steel frame. Jump-proof bottom track. 1-1/2" dual race ball bearing wheels. Injection-molded top guides. Dimensions are width by height. Per pair of doors.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 48" x 80" | BC@.750 | Ea | 110.00 | 30.80 | 140.80 | 239.00 |
| 60" x 80" | BC@1.00 | Ea | 134.00 | 41.10 | 175.10 | 298.00 |
| 72" x 80" | BC@1.00 | Ea | 159.00 | 41.10 | 200.10 | 340.00 |
| 48" x 96" | BC@.750 | Ea | 184.00 | 30.80 | 214.80 | 365.00 |
| 60" x 96" | BC@1.00 | Ea | 210.00 | 41.10 | 251.10 | 427.00 |
| 72" x 96" | BC@1.00 | Ea | 230.00 | 41.10 | 271.10 | 461.00 |

**Economy mirrored bypass closet doors.** Gold finished steel. Plate mirror with double strength glass. Bottom rail with jump-proof track. Dimensions are width by height. Per pair of doors.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 48" x 80" | BC@.750 | Ea | 146.00 | 30.80 | 176.80 | 301.00 |
| 60" x 80" | BC@1.00 | Ea | 187.00 | 41.10 | 228.10 | 388.00 |
| 72" x 80" | BC@1.00 | Ea | 206.00 | 41.10 | 247.10 | 420.00 |
| 96" x 80" | BC@1.25 | Ea | 327.00 | 51.30 | 378.30 | 643.00 |

**Good quality mirrored bypass closet doors.** White frame. Safety-backed mirror. Dimensions are width by height.

Per pair of doors.

|                           |         |    |        |       |        |          |
|---------------------------|---------|----|--------|-------|--------|----------|
| 48" x 80", white          | BC@.750 | Ea | 200.00 | 30.80 | 230.80 | 392.00   |
| 60" x 80", white          | BC@1.00 | Ea | 244.00 | 41.10 | 285.10 | 485.00   |
| 72" x 80", white          | BC@1.00 | Ea | 286.00 | 41.10 | 327.10 | 556.00   |
| 96" x 80", white          | BC@1.25 | Ea | 496.00 | 51.30 | 547.30 | 930.00   |
| 48" x 80", brushed nickel | BC@.750 | Ea | 375.00 | 30.80 | 405.80 | 690.00   |
| 60" x 80", brushed nickel | BC@1.00 | Ea | 414.00 | 41.10 | 455.10 | 774.00   |
| 72" x 80", brushed nickel | BC@1.00 | Ea | 458.00 | 41.10 | 499.10 | 848.00   |
| 48" x 96", white          | BC@1.00 | Ea | 317.00 | 41.10 | 358.10 | 609.00   |
| 60" x 96", white          | BC@1.00 | Ea | 361.00 | 41.10 | 402.10 | 684.00   |
| 72" x 96", white          | BC@1.25 | Ea | 403.00 | 51.30 | 454.30 | 772.00   |
| 96" x 96", white          | BC@1.25 | Ea | 603.00 | 51.30 | 654.30 | 1,110.00 |

**Better quality mirrored bypass closet doors.** White steel frame. Select 3mm plate mirror. Jump-proof bottom track. 1-1/2" dual race ball bearing wheels. Injection-molded top guides. Dimensions are width by height. Per pair of doors.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 48" x 80" | BC@.750 | Ea | 167.00 | 30.80 | 197.80 | 336.00 |
| 60" x 80" | BC@1.00 | Ea | 202.00 | 41.10 | 243.10 | 413.00 |
| 72" x 80" | BC@1.00 | Ea | 237.00 | 41.10 | 278.10 | 473.00 |
| 96" x 80" | BC@1.25 | Ea | 333.00 | 51.30 | 384.30 | 653.00 |
| 48" x 96" | BC@1.00 | Ea | 237.00 | 41.10 | 278.10 | 473.00 |
| 60" x 96" | BC@1.00 | Ea | 267.00 | 41.10 | 308.10 | 524.00 |
| 72" x 96" | BC@1.25 | Ea | 303.00 | 51.30 | 354.30 | 602.00 |
| 96" x 96" | BC@1.25 | Ea | 385.00 | 51.30 | 436.30 | 742.00 |

**Beveled mirror bypass closet doors.** 1/2" bevel on both sides of glass. Safety-backed mirror. Includes hardware. Dimensions are width by height. Per pair of doors.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 48" x 80" | BC@.750 | Ea | 259.00 | 30.80 | 289.80 | 493.00 |
| 60" x 80" | BC@1.00 | Ea | 282.00 | 41.10 | 323.10 | 549.00 |
| 72" x 80" | BC@1.00 | Ea | 339.00 | 41.10 | 380.10 | 646.00 |
| 96" x 80" | BC@1.25 | Ea | 422.00 | 51.30 | 473.30 | 805.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Premium mirrored bypass closet doors.** Bright gold aluminum frame with integrated handle. Select quality 3mm plate mirror and heavy-duty 1-1/2" wide commercial-grade tubular side frame molding. Ultraglide® 2-1/4" deep felt-lined top channel, jump-proof bottom track and precision 1-1/2" dual race ball bearing wheels. Dimensions are width by height. Per pair of doors.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 48" x 81" | BC@.750 | Ea | 353.00 | 30.80 | 383.80 | 652.00 |
| 60" x 81" | BC@1.00 | Ea | 384.00 | 41.10 | 425.10 | 723.00 |
| 72" x 81" | BC@1.00 | Ea | 414.00 | 41.10 | 455.10 | 774.00 |

**Bypass door accessories.**

|              |         |    |      |      |       |       |
|--------------|---------|----|------|------|-------|-------|
| Bumper       | BC@.175 | Ea | 6.29 | 7.19 | 13.48 | 22.90 |
| Carpet riser | BC@.175 | Ea | 5.47 | 7.19 | 12.66 | 21.50 |
| Guide        | BC@.175 | Ea | 5.76 | 7.19 | 12.95 | 22.00 |

**Bi-Fold Closet Doors**

**Luan bi-fold flush closet doors.** 1-3/8" thick. 2 prehinged panels. Ready to paint, stain, or varnish.

|           |         |    |       |       |        |        |
|-----------|---------|----|-------|-------|--------|--------|
| 24" x 80" | BC@.700 | Ea | 75.70 | 28.70 | 104.40 | 177.00 |
| 30" x 80" | BC@.700 | Ea | 85.90 | 28.70 | 114.60 | 195.00 |
| 32" x 80" | BC@.700 | Ea | 90.00 | 28.70 | 118.70 | 202.00 |
| 36" x 80" | BC@.700 | Ea | 96.20 | 28.70 | 124.90 | 212.00 |

**Primed hardboard bi-fold flush closet doors.** 1-3/8" thick. 2 prehinged panels.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 80" | BC@.700 | Ea | 89.30  | 28.70 | 118.00 | 201.00 |
| 30" x 80" | BC@.700 | Ea | 99.70  | 28.70 | 128.40 | 218.00 |
| 32" x 80" | BC@.700 | Ea | 98.90  | 28.70 | 127.60 | 217.00 |
| 36" x 80" | BC@.700 | Ea | 110.00 | 28.70 | 138.70 | 236.00 |

**Clear mahogany bi-fold flush closet doors.** 1-1/8" thick. 2 prehinged panels. Unfinished.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 80" | BC@.700 | Ea | 151.00 | 28.70 | 179.70 | 305.00 |
| 30" x 80" | BC@.700 | Ea | 178.00 | 28.70 | 206.70 | 351.00 |
| 32" x 80" | BC@.700 | Ea | 190.00 | 28.70 | 218.70 | 372.00 |
| 36" x 80" | BC@.700 | Ea | 196.00 | 28.70 | 224.70 | 382.00 |

**2-door colonist molded face bi-fold closet doors.** 1-3/8" thick. Primed. Two panels.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 78" | BC@.700 | Ea | 122.00 | 28.70 | 150.70 | 256.00 |
| 30" x 78" | BC@.700 | Ea | 184.00 | 28.70 | 212.70 | 362.00 |
| 32" x 78" | BC@.700 | Ea | 256.00 | 28.70 | 284.70 | 484.00 |
| 36" x 78" | BC@.700 | Ea | 118.00 | 28.70 | 146.70 | 249.00 |

**4-panel birch bi-fold flush closet doors.** Wood stile and rail construction. 1-3/8" thick. Open left or right. Includes track and hardware.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 80" | BC@.700 | Ea | 75.30  | 28.70 | 104.00 | 177.00 |
| 30" x 80" | BC@.700 | Ea | 87.40  | 28.70 | 116.10 | 197.00 |
| 36" x 80" | BC@.700 | Ea | 99.60  | 28.70 | 128.30 | 218.00 |
| 48" x 80" | BC@.800 | Ea | 148.00 | 32.80 | 180.80 | 307.00 |

**4-panel lauan flush bi-fold closet doors.** Wood stile and rail construction. 1-3/8" thick. Open left or right. Includes track and hardware.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 48" x 80" | BC@.800 | Ea | 119.00 | 32.80 | 151.80 | 258.00 |
|-----------|---------|----|--------|-------|--------|--------|

**4-panel red oak flush bi-fold closet doors.** Wood stile and rail construction. 1-3/8" thick. Open left or right.

Includes track and hardware.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 24" x 80" | BC@.700 | Ea | 104.00 | 28.70 | 132.70 | 226.00 |
| 30" x 80" | BC@.700 | Ea | 110.00 | 28.70 | 138.70 | 236.00 |
| 36" x 80" | BC@.700 | Ea | 120.00 | 28.70 | 148.70 | 253.00 |
| 48" x 80" | BC@.800 | Ea | 199.00 | 32.80 | 231.80 | 394.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>4-panel molded face bi-fold closet doors.</b> 1-3/8" thick. Primed. Two doors.  |           |      |          |       |        |        |
| 24" x 80"  | BC@.700   | Ea   | 110.00   | 28.70 | 138.70 | 236.00 |
| 30" x 80"  | BC@.700   | Ea   | 131.00   | 28.70 | 159.70 | 271.00 |
| 36" x 80"  | BC@.700   | Ea   | 140.00   | 28.70 | 168.70 | 287.00 |
| <b>6-panel molded face bi-fold closet doors.</b> 1-3/8" thick. Unfinished. Molded and primed hardboard.  |           |      |          |       |        |        |
| 24" x 80"  | BC@.700   | Ea   | 174.00   | 28.70 | 202.70 | 345.00 |
| 30" x 80"  | BC@.700   | Ea   | 215.00   | 28.70 | 243.70 | 414.00 |
| 32" x 80"  | BC@.700   | Ea   | 109.00   | 28.70 | 137.70 | 234.00 |
| 36" x 80"  | BC@.700   | Ea   | 215.00   | 28.70 | 243.70 | 414.00 |
| 48" x 80"  | BC@.800   | Ea   | 287.00   | 32.80 | 319.80 | 544.00 |
| 60" x 80"  | BC@.900   | Ea   | 308.00   | 37.00 | 345.00 | 587.00 |
| 72" x 80"  | BC@1.00   | Ea   | 360.00   | 41.10 | 401.10 | 682.00 |
| <b>Colonial 6-panel pine bi-fold closet doors.</b> 1-3/8" thick. Includes track and hardware. Unfinished.  |           |      |          |       |        |        |
| 24" x 78"  | BC@.700   | Ea   | 197.00   | 28.70 | 225.70 | 384.00 |
| 30" x 78"  | BC@.700   | Ea   | 217.00   | 28.70 | 245.70 | 418.00 |
| 36" x 78"  | BC@.700   | Ea   | 234.00   | 28.70 | 262.70 | 447.00 |
| 24" x 80"  | BC@.700   | Ea   | 212.00   | 28.70 | 240.70 | 409.00 |
| 30" x 80"  | BC@.700   | Ea   | 240.00   | 28.70 | 268.70 | 457.00 |
| 32" x 80"  | BC@.700   | Ea   | 244.00   | 28.70 | 272.70 | 464.00 |
| 36" x 80"  | BC@.700   | Ea   | 262.00   | 28.70 | 290.70 | 494.00 |
| <b>Clear pine 2-panel colonial bi-fold closet doors.</b> Clear pine. Recessed rails. Unfinished. Open left or right. Includes all hardware and track. Two hinged panels. |           |      |          |       |        |        |
| 24" x 80"  | BC@.700   | Ea   | 354.00   | 28.70 | 382.70 | 651.00 |
| 30" x 80"  | BC@.700   | Ea   | 368.00   | 28.70 | 396.70 | 674.00 |
| 32" x 80"  | BC@.700   | Ea   | 389.00   | 28.70 | 417.70 | 710.00 |
| 36" x 80"  | BC@.700   | Ea   | 408.00   | 28.70 | 436.70 | 742.00 |
| <b>6-panel oak bi-fold closet doors.</b> Includes track and hardware. 1-1/8" thick.  |           |      |          |       |        |        |
| 24" x 80"  | BC@.700   | Ea   | 308.00   | 28.70 | 336.70 | 572.00 |
| 30" x 80"  | BC@.700   | Ea   | 329.00   | 28.70 | 357.70 | 608.00 |
| 36" x 80"  | BC@.700   | Ea   | 370.00   | 28.70 | 398.70 | 678.00 |
| <b>Metal louver over louver bi-fold doors.</b> Includes track and hardware. 1-3/8" thick. Two prehinged panels.  |           |      |          |       |        |        |
| 24" x 80"  | BC@.700   | Ea   | 103.00   | 28.70 | 131.70 | 224.00 |
| 30" x 80"  | BC@.700   | Ea   | 113.00   | 28.70 | 141.70 | 241.00 |
| 36" x 80"  | BC@.700   | Ea   | 122.00   | 28.70 | 150.70 | 256.00 |
| <b>Oak louver over louver bi-fold doors.</b> Includes track and hardware. 1-3/8" thick. Two hinged panels.   |           |      |          |       |        |        |
| 24" x 96"  | BC@.700   | Ea   | 128.00   | 28.70 | 156.70 | 266.00 |
| 30" x 96"  | BC@.700   | Ea   | 148.00   | 28.70 | 176.70 | 300.00 |
| 36" x 96"  | BC@.700   | Ea   | 148.00   | 28.70 | 176.70 | 300.00 |
| <b>Pine louver over louver bi-fold doors.</b> 1-1/8" thick ponderosa pine. 3-11/16" wide rails. 1-1/4" wide stiles. Two prehinged panels. Unfinished.                    |           |      |          |       |        |        |
| 24" x 80"  | BC@.700   | Ea   | 119.00   | 28.70 | 147.70 | 251.00 |
| 30" x 80"  | BC@.700   | Ea   | 135.00   | 28.70 | 163.70 | 278.00 |
| 32" x 80"  | BC@.700   | Ea   | 147.00   | 28.70 | 175.70 | 299.00 |
| 36" x 80"  | BC@.700   | Ea   | 160.00   | 28.70 | 188.70 | 321.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Louver over panel white bi-fold doors.</b> With track and hardware. Two hinged panels.   |           |      |          |       |        |        |
| 24" x 80"   | BC@.700   | Ea   | 113.00   | 28.70 | 141.70 | 241.00 |
| 30" x 80"   | BC@.700   | Ea   | 124.00   | 28.70 | 152.70 | 260.00 |
| 36" x 80"   | BC@.700   | Ea   | 136.00   | 28.70 | 164.70 | 280.00 |
| <b>Pine louver over panel bi-fold doors.</b> Recessed rails. Open left or right. 1/2" swing space. Two prehinged panels. Includes track and hardware. Unfinished stain grade.   |           |      |          |       |        |        |
| 24" x 80"   | BC@.700   | Ea   | 104.00   | 28.70 | 132.70 | 226.00 |
| 30" x 80"   | BC@.700   | Ea   | 138.00   | 28.70 | 166.70 | 283.00 |
| 36" x 80"   | BC@.700   | Ea   | 150.00   | 28.70 | 178.70 | 304.00 |
| <b>Bi-fold door hardware.</b>   |           |      |          |       |        |        |
| Bi-fold hinge   | BC@.175   | Ea   | 5.83     | 7.19  | 13.02  | 22.10  |
| Carpet riser  | BC@.175   | Ea   | 3.61     | 7.19  | 10.80  | 18.40  |
| Hardware set  | BC@.175   | Ea   | 36.90    | 7.19  | 44.09  | 75.00  |
| 48" track   | —         | Ea   | 13.70    | —     | 13.70  | —      |
| 60" track   | —         | Ea   | 16.70    | —     | 16.70  | —      |
| 72" track   | —         | Ea   | 19.60    | —     | 19.60  | —      |
| <b>Mirrored Bi-Fold Doors</b>   |           |      |          |       |        |        |
| <b>Framed bi-fold mirror doors.</b> White frame. Top-hung with single wheel top hanger. Snap-in bottom guide and fascia. Low-rise bottom track. Non-binding door operation. Reversible top and bottom track. 3mm safety-backed mirror. Two hinged panels.           |           |      |          |       |        |        |
| 24" x 80"   | BC@.700   | Ea   | 327.00   | 28.70 | 355.70 | 605.00 |
| 30" x 80"   | BC@.700   | Ea   | 376.00   | 28.70 | 404.70 | 688.00 |
| 36" x 80"   | BC@.700   | Ea   | 405.00   | 28.70 | 433.70 | 737.00 |
| <b>Bevel edge bi-fold mirror doors.</b> 1/2" vertical bevel with bearing hinges. White finished steel frame with safety-backed mirror. Includes hardware. Full access to closet opening. Reversible high- and low-profile top and bottom tracks. Two hinged panels. |           |      |          |       |        |        |
| 24" x 80"   | BC@.700   | Ea   | 405.00   | 28.70 | 433.70 | 737.00 |
| 30" x 80"   | BC@.700   | Ea   | 431.00   | 28.70 | 459.70 | 781.00 |
| 36" x 80"   | BC@.700   | Ea   | 457.00   | 28.70 | 485.70 | 826.00 |
| <b>Frameless bi-fold mirror doors.</b> Frameless style maximizes the mirror surface. Beveled edge glass. All preassembled hinges. Safety-reinforced mirror backing. Two hinged panels. Includes hardware.   |           |      |          |       |        |        |
| 24" x 80"   | BC@.700   | Ea   | 357.00   | 28.70 | 385.70 | 656.00 |
| 30" x 80"   | BC@.700   | Ea   | 395.00   | 28.70 | 423.70 | 720.00 |
| 36" x 80"   | BC@.700   | Ea   | 427.00   | 28.70 | 455.70 | 775.00 |
| <b>Chrome bi-fold mirror doors.</b> Two hinged panels. Includes hardware.   |           |      |          |       |        |        |
| 24" x 80"   | BC@.700   | Ea   | 200.00   | 28.70 | 228.70 | 389.00 |
| 30" x 80"   | BC@.700   | Ea   | 216.00   | 28.70 | 244.70 | 416.00 |
| 36" x 80"   | BC@.700   | Ea   | 226.00   | 28.70 | 254.70 | 433.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|--|-----------|------|----------|-------|--------|----------|
| <b>Pocket Door Hardware</b>  |           |      |          |       |        |          |
| <b>Pocket door frame and track.</b> Fully assembled frame. Designed to hold 150-pound standard 80" door. Door sold separately. |           |      |          |       |        |          |
| 24" x 80"  | BC@1.00   | Ea   | 212.00   | 41.10 | 253.10 | 430.00   |
| 28" x 80"  | BC@1.00   | Ea   | 228.00   | 41.10 | 269.10 | 457.00   |
| 30" x 80"  | BC@1.00   | Ea   | 229.00   | 41.10 | 270.10 | 459.00   |
| 32" x 80"  | BC@1.00   | Ea   | 232.00   | 41.10 | 273.10 | 464.00   |
| 36" x 80"  | BC@1.00   | Ea   | 247.00   | 41.10 | 288.10 | 490.00   |
| <b>Universal pocket door jamb kit.</b>   |           |      |          |       |        |          |
| Clear pine   | —         | Ea   | 47.10    | —     | 47.10  | —        |
| <b>Pocket door edge pulls.</b>   |           |      |          |       |        |          |
| 2-1/8" round brass   | BC@.300   | Ea   | 12.40    | 12.30 | 24.70  | 42.00    |
| 2-1/8" round brass dummy   | BC@.300   | Ea   | 18.20    | 12.30 | 30.50  | 51.90    |
| 1-3/8" x 3" oval brass   | BC@.300   | Ea   | 11.50    | 12.30 | 23.80  | 40.50    |
| 1-3/8" x 3" rectangular brass  | BC@.300   | Ea   | 11.50    | 12.30 | 23.80  | 40.50    |
| 3/4" round brass   | BC@.300   | Ea   | 7.91     | 12.30 | 20.21  | 34.40    |
| Brass plate  | BC@.300   | Ea   | 14.50    | 12.30 | 26.80  | 45.60    |
| <b>Ball bearing pocket door hangers.</b>   |           |      |          |       |        |          |
| Hanger   | BC@.175   | set  | 13.90    | 7.19  | 21.09  | 35.90    |
| <b>Converging pocket door kit.</b>   |           |      |          |       |        |          |
| Door kit   | —         | Ea   | 25.40    | —     | 25.40  | —        |
| <b>Pocket door hangers.</b>  |           |      |          |       |        |          |
| 3/8" offset, one wheel   | BC@.175   | Ea   | 10.00    | 7.19  | 17.19  | 29.20    |
| 1/16" offset, one wheel  | BC@.175   | Ea   | 19.00    | 7.19  | 26.19  | 44.50    |
| 7/8" offset, two wheel   | BC@.175   | Ea   | 6.78     | 7.19  | 13.97  | 23.70    |
| <b>2-door bypass pocket door track hardware.</b>   |           |      |          |       |        |          |
| 48" width  | BC@.350   | Ea   | 21.50    | 14.40 | 35.90  | 61.00    |
| 60" width  | BC@.350   | Ea   | 23.50    | 14.40 | 37.90  | 64.40    |
| 72" width  | BC@.350   | Ea   | 28.40    | 14.40 | 42.80  | 72.80    |
| <b>Mobile Home Doors and Windows</b>   |           |      |          |       |        |          |
| <b>Exterior mobile home combo doors.</b> Inswing door with outswinging storm and screen door.                                  |           |      |          |       |        |          |
| 32" x 72"  | BC@1.00   | Ea   | 619.00   | 41.10 | 660.10 | 1,120.00 |
| 32" x 76"  | BC@1.00   | Ea   | 619.00   | 41.10 | 660.10 | 1,120.00 |
| 34" x 76"  | BC@1.00   | Ea   | 619.00   | 41.10 | 660.10 | 1,120.00 |
| <b>Exterior mobile home doors.</b> Left hinge. Outswinging.  |           |      |          |       |        |          |
| 32" x 72"  | BC@1.00   | Ea   | 357.00   | 41.10 | 398.10 | 677.00   |
| 32" x 76"  | BC@1.00   | Ea   | 387.00   | 41.10 | 428.10 | 728.00   |
| 34" x 76"  | BC@1.00   | Ea   | 395.00   | 41.10 | 436.10 | 741.00   |

|  | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|--|-----------|------|----------|--------|----------|----------|
| <b>Garage Doors</b>  |           |      |          |        |          |          |
| <b>Install overhead rollup garage door sections only.</b> Assemble and install rollup door. Excludes trolley and springs.  |           |      |          |        |          |          |
| 4 sections high, 8' to 9' wide   | B1@2.73   | Set  | —        | 102.00 | 102.00   | 173.00   |
| 4 sections high, 12' to 16' wide   | B1@4.27   | Set  | —        | 159.00 | 159.00   | 270.00   |
| 6 or 7 sections high, 12' to 16' wide  | B1@5.19   | Set  | —        | 193.00 | 193.00   | 328.00   |
| <b>Install overhead rollup garage door.</b> Assemble and install rollup door. Includes trolley and torsion spring counter-balance installed on wood frame building.    |           |      |          |        |          |          |
| 4 sections high, 8' to 9' wide   | B1@6.46   | Ea   | —        | 240.00 | 240.00   | 408.00   |
| 4 sections high, 12' to 16' wide   | B1@8.33   | Ea   | —        | 310.00 | 310.00   | 527.00   |
| 6 or 7 sections high, 12' to 16' wide  | B1@9.60   | Ea   | —        | 357.00 | 357.00   | 607.00   |
| <b>Remove and replace overhead rollup garage door sections.</b> 4-section-high door. No painting included.   |           |      |          |        |          |          |
| One bottom section, 8' to 9' wide  | B1@2.20   | Ea   | —        | 81.80  | 81.80    | 139.00   |
| One bottom section, 12' to 16' wide  | B1@3.00   | Ea   | —        | 112.00 | 112.00   | 190.00   |
| <b>Remove and replace overhead rollup garage door sections.</b> 6- or 7-section-high door. No painting included.   |           |      |          |        |          |          |
| One bottom section, 12' to 16' wide  | B1@3.84   | Ea   | —        | 143.00 | 143.00   | 243.00   |
| <b>Install overhead rollup garage door torsion spring counter-balance.</b> Per set of two torsion springs.   |           |      |          |        |          |          |
| 4 section door 8' to 9' wide   | B1@1.02   | Ea   | —        | 37.90  | 37.90    | 64.40    |
| 4 section door 12' to 16' wide   | B1@1.33   | Ea   | —        | 49.50  | 49.50    | 84.20    |
| 6 or 7 section door 12' to 16' wide  | B1@2.01   | Ea   | —        | 74.80  | 74.80    | 127.00   |
| <b>Remove and replace torsion springs on overhead garage door.</b> Remove set of two old torsion springs and replace with set of two new torsion springs.              |           |      |          |        |          |          |
| 4 section door 8' to 9' wide   | B1@1.10   | Ea   | —        | 40.90  | 40.90    | 69.50    |
| 4 section door 12' to 16' wide   | B1@1.40   | Ea   | —        | 52.10  | 52.10    | 88.60    |
| 6 or 7 section door 12' to 16' wide  | B1@2.10   | Ea   | —        | 78.10  | 78.10    | 133.00   |
| <b>Install trolleys for overhead rollup garage door.</b> Installation on a frame building. Includes trolleys but no torsion springs.                                   |           |      |          |        |          |          |
| 4 section door, 8' to 16' wide   | B1@2.70   | Ea   | —        | 100.00 | 100.00   | 170.00   |
| 6 to 7 section door, 12' to 16' wide   | B1@3.32   | Ea   | —        | 123.00 | 123.00   | 209.00   |
| <b>Install garage door bottom seal.</b>  |           |      |          |        |          |          |
| 8' to 9' wide  | B1@.143   | Ea   | —        | 5.32   | 5.32     | 9.04     |
| 12' wide   | B1@.204   | Ea   | —        | 7.59   | 7.59     | 12.90    |
| 16' wide   | B1@.259   | Ea   | —        | 9.63   | 9.63     | 16.40    |
| <b>Steel rollup garage door.</b> Torsion springs. 2-layer insulated construction. 7/8" insulation. Steel frame with overlapped section joints. With hardware and lock. |           |      |          |        |          |          |
| 8' x 7'  | B1@6.46   | Ea   | 558.00   | 240.00 | 798.00   | 1,360.00 |
| 9' x 7'  | B1@6.46   | Ea   | 558.00   | 240.00 | 798.00   | 1,360.00 |
| 16' x 7'   | B1@8.33   | Ea   | 941.00   | 310.00 | 1,251.00 | 2,130.00 |
| <b>Raised panel steel garage door.</b> 2-layer construction. 7/8" thick polystyrene insulation.  |           |      |          |        |          |          |
| 8' x 7'  | B1@6.46   | Ea   | 1,730.00 | 240.00 | 1,970.00 | 3,350.00 |
| 9' x 7'  | B1@6.46   | Ea   | 1,860.00 | 240.00 | 2,100.00 | 3,570.00 |
| 16' x 7'   | B1@8.33   | Ea   | 1,990.00 | 310.00 | 2,300.00 | 3,910.00 |

|  | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|--|-----------|------|----------|--------|----------|----------|
| <b>Bonded steel garage door.</b> 3-layer steel exterior. 2"-thick insulation. With torsion springs, hardware and lock. |           |      |          |        |          |          |
| 8' x 7'  | B1@6.46   | Ea   | 1,840.00 | 240.00 | 2,080.00 | 3,540.00 |
| 8' x 7', molding face  | B1@6.46   | Ea   | 1,930.00 | 240.00 | 2,170.00 | 3,690.00 |
| 9' x 7'  | B1@6.46   | Ea   | 1,970.00 | 240.00 | 2,210.00 | 3,760.00 |
| 9' x 7', molding face  | B1@6.46   | Ea   | 2,010.00 | 240.00 | 2,250.00 | 3,830.00 |
| 16' x 7'   | B1@6.46   | Ea   | 3,110.00 | 240.00 | 3,350.00 | 5,700.00 |
| 16' x 7', molding face   | B1@8.33   | Ea   | 3,480.00 | 310.00 | 3,790.00 | 6,440.00 |
| 8' x 6'6", with glass window   | B1@6.46   | Ea   | 2,880.00 | 240.00 | 3,120.00 | 5,300.00 |
| <b>2-layer steel garage door.</b> 7/8"-thick insulation. With torsion springs, hardware and lock.                      |           |      |          |        |          |          |
| 16' x 7', raised panel face  | B1@8.33   | Ea   | 2,050.00 | 310.00 | 2,360.00 | 4,010.00 |
| <b>Non-insulated steel garage door.</b> With rollup hardware and lock.   |           |      |          |        |          |          |
| 8' x 7'  | B1@6.46   | Ea   | 415.00   | 240.00 | 655.00   | 1,110.00 |
| 9' x 7'  | B1@6.46   | Ea   | 437.00   | 240.00 | 677.00   | 1,150.00 |
| 16' x 7'   | B1@8.33   | Ea   | 809.00   | 310.00 | 1,119.00 | 1,900.00 |
| <b>Wood garage doors.</b> Unfinished, jamb hinge, with hardware.   |           |      |          |        |          |          |
| Plain panel uninsulated hardboard door   |           |      |          |        |          |          |
| 9' wide x 7' high  | B1@4.42   | Ea   | 461.00   | 164.00 | 625.00   | 1,060.00 |
| 16' wide x 7' high   | B1@5.90   | Ea   | 795.00   | 219.00 | 1,014.00 | 1,720.00 |
| Styrofoam core hardboard door  |           |      |          |        |          |          |
| 9' wide x 7' high  | B1@4.42   | Ea   | 495.00   | 164.00 | 659.00   | 1,120.00 |
| 16' wide x 7' high   | B1@5.90   | Ea   | 876.00   | 219.00 | 1,095.00 | 1,860.00 |
| Redwood door, raised panels  |           |      |          |        |          |          |
| 9' wide x 7' high  | B1@4.42   | Ea   | 910.00   | 164.00 | 1,074.00 | 1,830.00 |
| 16' wide x 7' high   | B1@5.90   | Ea   | 2,020.00 | 219.00 | 2,239.00 | 3,810.00 |
| Hardboard door with two small lites  |           |      |          |        |          |          |
| 9' wide x 7' high  | B1@4.42   | Ea   | 506.00   | 164.00 | 670.00   | 1,140.00 |
| 16' wide x 7' high   | B1@5.90   | Ea   | 917.00   | 219.00 | 1,136.00 | 1,930.00 |
| Hardboard door with sunburst lites   |           |      |          |        |          |          |
| 9' wide x 7' high  | B1@4.42   | Ea   | 1,290.00 | 164.00 | 1,454.00 | 2,470.00 |
| 16' wide x 7' high   | B1@5.90   | Ea   | 1,410.00 | 219.00 | 1,629.00 | 2,770.00 |
| Hardboard door with cathedral-style lites  |           |      |          |        |          |          |
| 9' wide x 7' high  | B1@4.42   | Ea   | 696.00   | 164.00 | 860.00   | 1,460.00 |
| 16' wide x 7' high   | B1@5.90   | Ea   | 1,360.00 | 219.00 | 1,579.00 | 2,680.00 |
| <b>Garage door jamb hinge.</b> With carriage bolts and nuts.   |           |      |          |        |          |          |
| No. 1, 14 gauge  | BC@.333   | Ea   | 3.69     | 13.70  | 17.39    | 29.60    |
| No. 2, 14 gauge  | BC@.333   | Ea   | 4.09     | 13.70  | 17.79    | 30.20    |
| No. 3, 14 gauge  | BC@.333   | Ea   | 3.98     | 13.70  | 17.68    | 30.10    |
| <b>Steel garage door weather seal.</b> Cellular vinyl.   |           |      |          |        |          |          |
| 7/16" x 2" x 7'  | BC@.400   | Ea   | 10.00    | 16.40  | 26.40    | 44.90    |
| 7/16" x 2" x 9'  | BC@.500   | Ea   | 12.70    | 20.50  | 33.20    | 56.40    |
| 7/16" x 2" x 16'   | BC@.750   | Ea   | 26.30    | 30.80  | 57.10    | 97.10    |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Garage door hardware.</b>  |           |      |          |        |        |        |
| Adjustable kicker   | BC@.250   | Ea   | 16.00    | 10.30  | 26.30  | 44.70  |
| Door cantilever bolts   | BC@.250   | Ea   | 5.88     | 10.30  | 16.18  | 27.50  |
| Garage door handle  | BC@.500   | Ea   | 6.45     | 20.50  | 26.95  | 45.80  |
| Garage door wall pushbutton   | BC@.250   | Ea   | 11.30    | 10.30  | 21.60  | 36.70  |
| Garage door rubber bumpers  | BC@.250   | Ea   | 5.97     | 10.30  | 16.27  | 27.70  |
| 16' Door truss rod kit  | BC@.500   | Ea   | 44.50    | 20.50  | 65.00  | 111.00 |
| 9' Door hardware kit  | BC@1.00   | Ea   | 141.00   | 41.10  | 182.10 | 310.00 |
| 16' Door hardware kit   | BC@1.00   | Ea   | 110.00   | 41.10  | 151.10 | 257.00 |
| Containment C-hook  | —         | Pr   | 10.50    | —      | 10.50  | —      |
| Spring connector C-hook   | —         | Pr   | 8.43     | —      | 8.43   | —      |
| Double door low headroom kit  | BC@.500   | Ea   | 101.00   | 20.50  | 121.50 | 207.00 |
| Track hanger kit  | —         | Ea   | 25.60    | —      | 25.60  | —      |
| <b>Garage door replacement hardware.</b>  |           |      |          |        |        |        |
| 3" replacement pulley   | BC@.500   | Ea   | 5.14     | 20.50  | 25.64  | 43.60  |
| 4" replacement pulley   | BC@.500   | Ea   | 9.48     | 20.50  | 29.98  | 51.00  |
| 7' lift cable set   | BC@.500   | Ea   | 6.31     | 20.50  | 26.81  | 45.60  |
| 8' lift cable set   | BC@.500   | Ea   | 7.51     | 20.50  | 28.01  | 47.60  |
| Safety lift cable set   | BC@.500   | Ea   | 7.26     | 20.50  | 27.76  | 47.20  |
| Window insert   | BC@.250   | Ea   | 79.00    | 10.30  | 89.30  | 152.00 |
| Track, bolt and flange nuts   | —         | Ea   | 3.31     | —      | 3.31   | —      |
| Replacement nylon rollers   | BC@.500   | Ea   | 3.95     | 20.50  | 24.45  | 41.60  |
| G-top bracket   | —         | Ea   | 3.16     | —      | 3.16   | —      |
| Lift handles  | BC@.250   | Ea   | 3.04     | 10.30  | 13.34  | 22.70  |
| <b>Garage door openers.</b> Radio controlled, electric, single or double door, includes typical electric hookup to existing adjacent 110 volt outlet. 1/2 HP opener, wireless receiver and two multiple frequency transmitters. |           |      |          |        |        |        |
| Chain drive glide opener  | BC@3.90   | Ea   | 160.00   | 160.00 | 320.00 | 544.00 |
| Screw drive glide opener  | BC@3.90   | Ea   | 295.00   | 160.00 | 455.00 | 774.00 |
| Add for additional transmitter  | —         | Ea   | 35.20    | —      | 35.20  | —      |
| Add for operator reinforcement kit  | —         | Ea   | 30.20    | —      | 30.20  | —      |
| Add for low headroom kit  | —         | Ea   | 103.00   | —      | 103.00 | —      |
| Add for garage door monitor   | —         | Ea   | 30.70    | —      | 30.70  | —      |
| Add for monitor add-on sensor   | —         | Ea   | 18.30    | —      | 18.30  | —      |
| Add for 8' chain drive extension kit  | —         | Ea   | 36.30    | —      | 36.30  | —      |
| Add for 8' belt drive extension kit   | —         | Ea   | 60.40    | —      | 60.40  | —      |
| Add for remote light control  | —         | Ea   | 25.30    | —      | 25.30  | —      |
| Add for wireless keyless entry control  | —         | Ea   | 48.30    | —      | 48.30  | —      |
| Add for motion detecting wall control   | —         | Ea   | 26.20    | —      | 26.20  | —      |
| Add for opener surge protector  | —         | Ea   | 19.60    | —      | 19.60  | —      |
| Add for replacement safety beam kit   | —         | Ea   | 40.20    | —      | 40.20  | —      |
| Add for battery backup operator   | —         | Ea   | 134.00   | —      | 134.00 | —      |
| <b>Garage door single extension spring.</b>   |           |      |          |        |        |        |
| 70 pounds   | BC@.500   | Ea   | 10.80    | 20.50  | 31.30  | 53.20  |
| 110 pounds  | BC@.500   | Ea   | 12.80    | 20.50  | 33.30  | 56.60  |
| 120 pounds  | BC@.500   | Ea   | 12.40    | 20.50  | 32.90  | 55.90  |
| 130 pounds  | BC@.500   | Ea   | 13.50    | 20.50  | 34.00  | 57.80  |
| 140 pounds  | BC@.500   | Ea   | 13.80    | 20.50  | 34.30  | 58.30  |
| 150 pounds  | BC@.500   | Ea   | 15.10    | 20.50  | 35.60  | 60.50  |
| 160 pounds  | BC@.500   | Ea   | 14.70    | 20.50  | 35.20  | 59.80  |
| U-bolt spring anchor  | BC@.100   | Ea   | 16.10    | 4.11   | 20.21  | 34.40  |
| 8-link spring anchor chain  | BC@.100   | Ea   | 10.20    | 4.11   | 14.31  | 24.30  |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Emergency Exit Hardware

**Install rim panic bar on metal door.** Includes measure and mark, drill holes, cut bar to length, assemble bar, set strike plate.

|                        |         |    |        |       |        |        |
|------------------------|---------|----|--------|-------|--------|--------|
| Per bar, no exit bolts | BC@.685 | Ea | 197.00 | 28.10 | 225.10 | 383.00 |
|------------------------|---------|----|--------|-------|--------|--------|

**Touch bar exit hardware.** For use with 1-3/4"-thick hollow metal and wood doors. Extruded anodized aluminum with stainless steel spring. 3/4" throw stainless steel latch bolts. Strike for 5/8" stop; shim for 1/2" stop; 2-3/4" backset, 4-1/4" minimum stile. Includes standard mounting with sheet metal and machine screws. Recommended mounting height: 40-5/16" from ceiling to finished floor. 36" maximum width. Rim-type cylinders with Schlage C keyway. Includes measure and mark, drill holes, assemble, set strike plate.

|                                       |         |    |        |        |        |        |
|---------------------------------------|---------|----|--------|--------|--------|--------|
| Install, single door                  | BC@1.45 | Ea | 203.00 | 59.50  | 262.50 | 446.00 |
| Install, per set of double doors      | BC@2.97 | Ea | 410.00 | 122.00 | 532.00 | 904.00 |
| Remove, single door                   | BC@.369 | Ea | —      | 15.20  | 15.20  | 25.80  |
| Remove, double doors and mortise lock | BC@1.38 | Ea | —      | 56.70  | 56.70  | 96.40  |

**Basement doors, Bilco.** 12 gauge primed steel, center opening basement doors. Costs include assembly and installation hardware. Add the cost of excavation, concrete, masonry, anchor placement and finish painting.

Doors (overall dimensions)

|                         |         |    |        |        |          |          |
|-------------------------|---------|----|--------|--------|----------|----------|
| 19-1/2" H, 55" W, 72" L | BC@3.41 | Ea | 785.00 | 140.00 | 925.00   | 1,570.00 |
| 22" H, 51" W, 64" L     | BC@3.41 | Ea | 967.00 | 140.00 | 1,107.00 | 1,880.00 |
| 30" H, 47" W, 58" L     | BC@3.41 | Ea | 745.00 | 140.00 | 885.00   | 1,500.00 |
| 52" H, 51" W, 43-1/4" L | BC@3.41 | Ea | 823.00 | 140.00 | 963.00   | 1,640.00 |

Door extensions (available for 19-1/2" H, 55" W, 72" L door only)

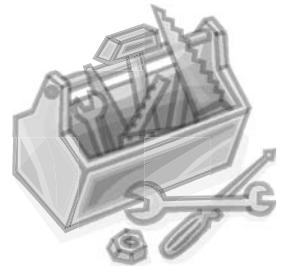
|          |         |    |        |       |        |        |
|----------|---------|----|--------|-------|--------|--------|
| 6" deep  | BC@1.71 | Ea | 268.00 | 70.20 | 338.20 | 575.00 |
| 12" deep | BC@1.71 | Ea | 324.00 | 70.20 | 394.20 | 670.00 |
| 18" deep | BC@1.71 | Ea | 379.00 | 70.20 | 449.20 | 764.00 |
| 24" deep | BC@1.71 | Ea | 339.00 | 70.20 | 409.20 | 696.00 |

Basement door stair stringers, steel, pre-cut for 2" x 10" wood treads (without treads)

|                         |         |    |        |       |        |        |
|-------------------------|---------|----|--------|-------|--------|--------|
| 32" to 39" stair height | BC@1.71 | Ea | 157.00 | 70.20 | 227.20 | 386.00 |
| 48" to 55" stair height | BC@1.71 | Ea | 201.00 | 70.20 | 271.20 | 461.00 |
| 56" to 64" stair height | BC@1.71 | Ea | 237.00 | 70.20 | 307.20 | 522.00 |
| 65" to 72" stair height | BC@1.71 | Ea | 344.00 | 70.20 | 414.20 | 704.00 |
| 73" to 78" stair height | BC@1.71 | Ea | 384.00 | 70.20 | 454.20 | 772.00 |
| 81" to 88" stair height | BC@1.71 | Ea | 415.00 | 70.20 | 485.20 | 825.00 |
| 89" to 97" stair height | BC@1.71 | Ea | 444.00 | 70.20 | 514.20 | 874.00 |

# *Walls and Ceilings*

10



**B**efore about 1950, most homes were built with interior walls and ceilings finished in lath and plaster. During the 1950s, gypsum wallboard became generally available and most owners and industry professionals switched over. While plaster and gypsum wallboard are equally durable (when protected from moisture and impact), and both make attractive wall and ceiling coverings, gypsum wallboard is preferred because it's so much less expensive to install. Lath and plaster is very labor-intensive, and because it requires days or weeks to dry out, it tends to delay construction. Today, it's unlikely you'll be called on to do a lath and plaster job; but you may have to make repairs on one.

Nearly all plaster develops hairline cracks. These cracks and small holes must be patched with patching plaster, joint compound or spackle before repainting. Plan on covering or replacing the surface if plaster is uneven, bulging, loose, or there are many large holes. If there are only a few large holes, you can patch them. If there are more than a few, it's easier to replace the entire wall. Loose or bulging plaster is a sign of water damage. When you find damage caused by water, your first step will be eliminating the source of moisture. Otherwise, the repair will be worthless.

Gypsum wallboard is usually called drywall, though you'll hear the same material referred to as wallboard, gypboard, Sheetrock or simply rock. The term drywall is a little misleading. First, drywall isn't just for walls. It adapts equally well to installation on ceilings. Second, drywall is dry only by comparison with plaster, which goes on wet. The cement (sometimes called mud) used to cover drywall joints is mixed with water and needs at least a few hours to dry completely.

Drywall does have its problems. Unlike plaster walls and ceilings, it can develop nail pops — nail heads that work loose and rise above the surface. Also, the paper tape used to cover panel joints can delaminate and curl if not bedded correctly. Loose tape is a sign of a poor drywall job.

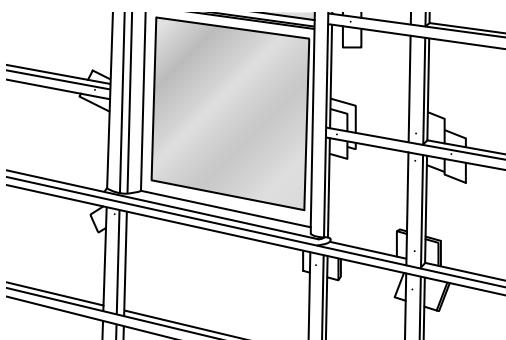
## **Choices for Renewing Wall and Ceiling Cover**

1. Patch and smooth what's there. This is the least expensive choice. But it's not practical when walls or ceilings are seriously damaged.
2. Install furring strips as a base for new wall cover, or apply new wall and ceiling cover directly over the old. This option works when the existing surface is flat and firm. I don't generally recommend this, as the wall will be

| Minimum Material Thickness for On-Center Spacing of Studs and Joists |        |        |
|--|--------|--------|
| Material   | 16" OC | 24" OC |
| Drywall  | 3/8"   | 1/2"   |
| Plywood Paneling   | 1/4"   | 3/8"   |
| Hardboard Paneling   | 1/4"   | —      |
| Tongue-&-Groove Plank  | 3/8"   | 1/2"   |

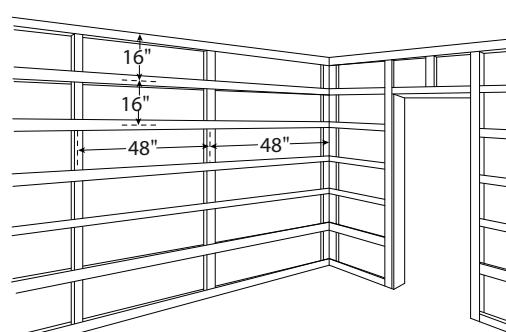
**Note 1.** New wall cover set with nails or adhesive directly on existing wall cover can be any thickness because it's supported continuously on the existing surface.

**Note 2.** 1/4" plywood or hardboard set on framing members 16" on center may be slightly wavy unless applied over at least 3/8" drywall.



**Figure 10-1**

Shingle shims behind furring to produce a smooth vertical surface



**Figure 10-2**

Application of horizontal furring to interior wall

significantly thicker, requiring moldings and casings to be redone, and new trim around wall penetrations. Plus, setting furring strips requires a great deal of work, and can result in an inferior job. Generally it's easier to tear off the existing wall cover and replace it, but you may come across a situation where this may be the best choice — perhaps when it's just one wall in a room and there are no openings. It's a lot less messy.

If new wall cover is going to be nailed over old or set on furring strips, the first step will be finding the studs. They're usually installed 16" on center and at the edge of doors and windows. Where you see a nail head in drywall or baseboard, assume there's a stud under the nail. If stud locations aren't obvious, put a stud finder to work. Stud finders locate dense material in the wall cavity — usually a stud. Mark the center of each stud at the top and bottom of the wall. Then snap a chalkline between the two marks.

Check walls for flatness by holding the straight side of a 2 x 4 against the surface. Furring will correct a bulging or indented wall. Mark wall locations that are uneven. Also check for true vertical alignment by holding a large carpenter's level against a straight 2 x 4 held against the wall. Use shingles to shim out furring and create a flat, vertical surface. See Figure 10-1.

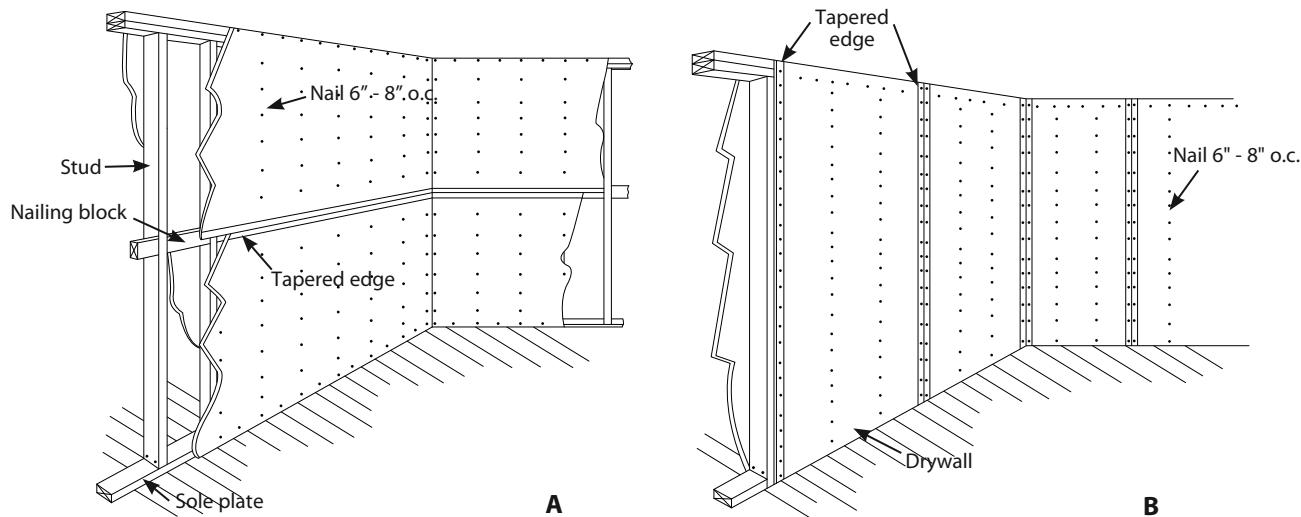
Figure 10-2 shows 1" x 2" furring strips set 16" on center. Nail the furring at each stud. Remove existing base trim, window casings, and door casings. Apply furring around all the openings. Be sure there will be a vertical furring strip under each vertical joint in the new wall cover.

3. Your third choice for renewing wall and ceiling cover is to strip off what's covering the studs and joists and start over. The result is a wall or ceiling that's as good as new. In fact, it is new. This is by far the best option for seriously damaged walls, although stripping off the existing wall covering is messy, and it creates a disposal problem.

Before applying the new wall cover, be sure studs are aligned. Run a string across the front of the studs, holding it taut. The studs should all touch the string equally. Those that don't touch the string, or push the string out, are out of line with the rest and need to be re-aligned or replaced.

## Hanging Drywall

You can hang drywall either with the long edges horizontal (Figure 10-3A) or vertical (Figure 10-3B). Hanging the drywall horizontally reduces the number of vertical joints at the middle



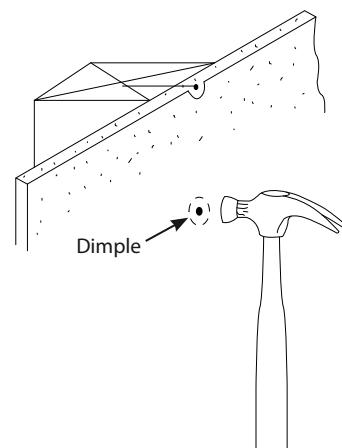
**Figure 10-3**  
Installing drywall on walls: **A**, horizontal application; **B** vertical application

of walls. If you install drywall horizontally, be sure all joints are supported at the ends. If you install drywall vertically, you won't need nailing blocks — the stud acts as the nailing block. All drywall joints must be supported, or they'll crack. Whether hung vertically or horizontally, proper fastening is essential. If you have a drywall screw gun, drive screws every 12" on ceiling joists and every 16" on wall studs. Adjust the gun so it sets the screw just slightly into the board without breaking the paper. Some drywall specialists set the board initially with a few nails driven at the edges and then secure the board in place with screws.

If you nail the board in place, drive a nail every 8" along wall studs and every 6" along ceiling joists. Use 4d ring shank nails on  $\frac{3}{8}$ " board and 5d ring shank nails on  $\frac{1}{2}$ " board. Keep nails at least  $\frac{3}{8}$ " away from the edges of the board. Use a drywall hammer with a slightly convex head that leaves a dimple at each nail location. Be careful not to break the surface of the paper. See Figure 10-4. You'll cover the dimple later with drywall joint compound (mud).

Also be aware of where you're driving fasteners. There may be pipe runs through the studs, and copper pipe is thin, soft and easily punctured with a drywall nail or a screw. Copper pipes and wire are supposed to be protected by metal plates to prevent punctures. But don't count on it. Take care when working around pocket door frames. Don't drive any nails or screw points into the pocket door cavity. When in doubt, use shorter nails or screws.

Drywall is heavy. If you're hanging full 4' x 8' sheets on ceilings, you'll need a crew of at least two, and three would be better. One person working alone can drywall ceilings if it's an emergency, but it's not recommended. Start with the ceiling panels. Center the panel edges on the ceiling joist. Plan the layout so that any cut edges will wind up in the corners, and not



**Figure 10-4**  
Drive nails in "dimple" fashion

in the middle of the ceiling. All joints must center on a joist. If there's no ceiling joist where you need one, you'll have to add one. Don't cut the drywall sheets to make the joint center on a joist — the seam will show.

When the ceiling is done, begin hanging drywall on the walls. The standard ceiling height is  $97\frac{1}{8}$ " between the floor and the bottom of the ceiling joists. Subtracting  $\frac{1}{2}$ " for the thickness of ceiling panels leaves a  $96\frac{5}{8}$ " wall height. Two panel widths total 96". Hang wall panels  $\frac{5}{8}$ " above the finished floor for a snug fit at the ceiling. The  $\frac{5}{8}$ " at the floor will be covered with baseboard. Use a drywall foot lift to hold the panel  $\frac{5}{8}$ " above the floor while driving nails or screws.

Regular core  $\frac{1}{2}$ " drywall panels are recommended for single-layer wall application in new residential construction.  $\frac{3}{8}$ " panels are recommended for ceilings in residential repair and remodeling in single or double-layers. Type X drywall is designed to meet requirements for fire safety. Greenboard is water-resistant for use behind tile. Brownboard is designed for exterior sheathing or soffits.

Joint compound comes in both powder and pre-mixed forms. Home improvement specialists generally use pre-mixed compound. Dry mix has to be used right away after adding water. Pre-mixed cement will last for weeks if kept in a sealed container. Regardless of which you use, the mix should have a soft, putty-like consistency that spreads easily with a trowel or wide putty knife. Mud that runs off the knife is too thin.

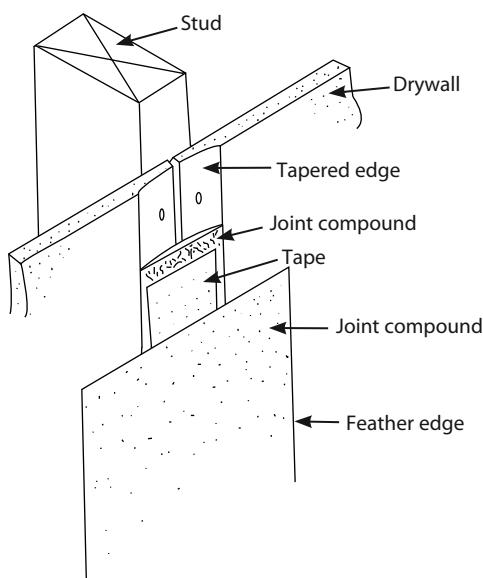
Most drywall has a tapered, or beveled edge. Joint compound and tape fill this recess, leaving a smooth, flat surface. If a sheet has been cut to fit, the edge won't be tapered. You can tape a square edge the same way you tape beveled edges, but the joint compound will rise slightly above the finished surface. The extra depth won't

be as obvious if you feather out the joint compound at least 4" beyond the joint, but one located in the middle of the ceiling is going to be noticeable. In the corners, a taped cut edge won't show. Taping and feathering cut joints will slow your job down to a crawl. Avoid this situation whenever possible.

Taping and finishing joints takes three or four days. Figure 10-5 illustrates the taping sequence. Paper joint tape is the most economical, about \$2.50 per thousand square feet of board hung. Fiberglass tape costs more, about \$6.00 per thousand square feet of board. But self-adhesive fiberglass joint mesh needs no embedding coat and is more durable than paper tape. It flexes rather than curling or tearing if the joint moves.

### **Taping and Finishing Drywall**

1. Start with the ceiling and work down the walls. If you've selected paper tape rather than fiberglass, spread joint compound over panel edges with a 5"-wide taping knife. Don't skimp on the mud. If you're using self-adhesive fiberglass tape, press tape over the joints and skip to step three below.



**Figure 10-5**  
Detail of joint treatment

2. Press the paper tape into the mud with a drywall knife, not your hand. Then smooth the surface with the knife. Press hard enough to force joint compound through the small perforations in the tape, if the tape has perforations. But don't press too hard. Some mud should remain under the tape. When you're done taping and embedding the tape, let everything dry overnight before beginning the finish coats.

3. Cover the tape with cement, feathering the outer edges at least 2" on each side of the paper tape. Feather an additional 2" when covering a cut joint, as there's no taper. Then let the cement dry overnight.

4. When dry, sand lightly. A pole sander speeds this work. Then apply a thin second finish coat, feathering the edges a little past the edge of the prior coat. Use drywall topping compound designed for finish coats to create a smooth joint that's easy to sand. You can buy "all-purpose" compound, which can be used both for bedding and topping. But it's better to use bedding compound for bedding, and topping compound for finishing. Use a wider drywall knife for this finish coat, up to 12" wide. To save sanding time, keep this finish coat as smooth as possible. For top quality work, apply a third coat of mud after the second coat has dried and been sanded.

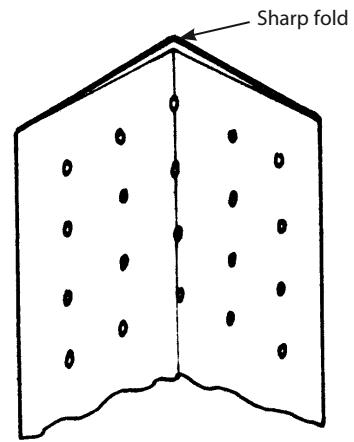
5. When the last coat of cement is dry, sand smooth.

6. Fill all nail and screw dimples with at least one coat of joint compound. Sand the surface after each coat is dry.

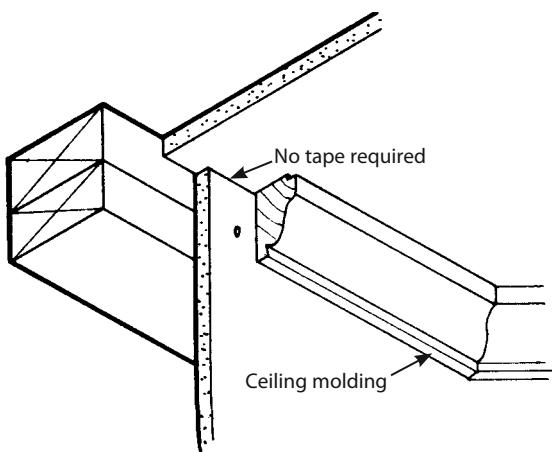
Use folded perforated tape on interior corners. See Figure 10-6. Fold tape down the center to form a right angle. Tape designed for this purpose already has a crease down the middle. Then apply cement on each side of the corner and press the tape in place with the putty knife. Use a drywall corner knife to embed the tape on both intersecting walls at the same time. Finish the corner with a coat of joint compound. Smooth the cement on both surfaces of a corner at the same time with a corner knife. Let the corner dry overnight and then sand the surface smooth.

For exterior corners, use metal or plastic drywall corner bead. This makes a more durable corner, able to withstand impacts that are likely at external corners. Also apply paper drywall tape over the edge of the metal bead. Nail or screw outside corners to the board every 8" and finish with joint compound. When you're finished applying tape, bead and mud at both internal and external corners, you should have a 4" strip of mud on each side of every corner. Don't worry if this strip isn't smooth. Sanding and more finishing will follow.

Drywall mud shrinks as it dries. So apply a little more than actually needed to make a smooth finish, especially over fastener heads. Bear in mind that drywall sanding is very messy! It creates huge, choking clouds of dust. Wear a dust mask to avoid inhaling this stuff. In an unoccupied house, the mess isn't as much of a problem. However, if you're working in an occupied home, you'll need to control the dust. Homeowners don't appreciate having everything in their home covered with a thick layer of white powder. You'll either need to seal off your work area with plastic sheeting, or use a dustless sanding system, such as a wet sanding sponge.



**Figure 10-6**  
Corner tape



**Figure 10-7**  
Ceiling molding

If you plan to install crown molding, no taping is needed where walls meet the ceiling. See Figure 10-7. Set the trim with 8d finishing nails spaced 12" to 16" apart. Be sure to nail into the top wall plate.

## Drywall Ceilings

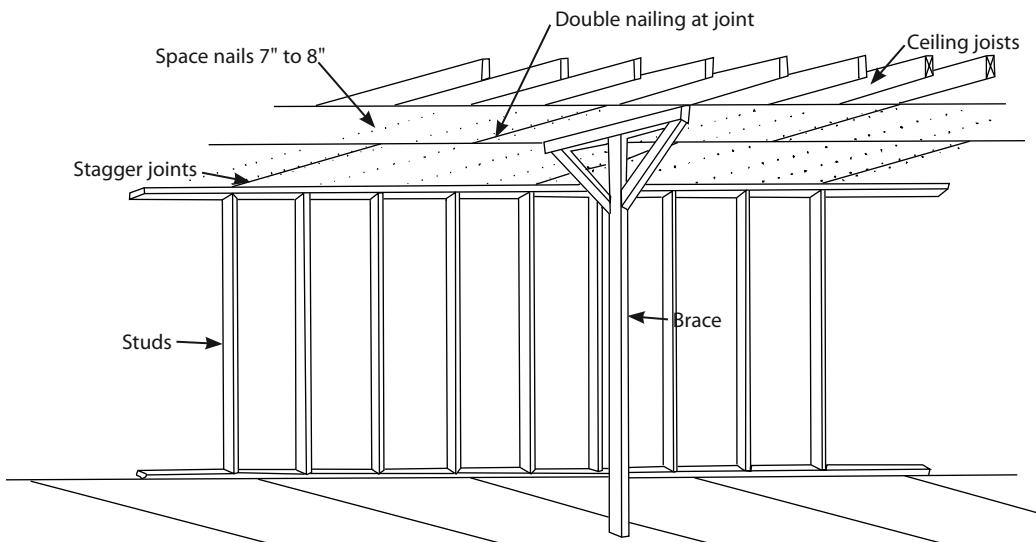
You can apply new drywall directly over old plaster or on furring strips nailed over an uneven plaster ceiling. Applying furring strips on a ceiling won't create the problems that furring would on a wall. But furring out the ceiling will usually be more work than tearing down the ceiling cover and starting over. Use 2" x 2" or 2" x 3" furring strips nailed perpendicular to the joists. Space these furring strips 16" on center for  $\frac{3}{8}$ " drywall or 24" on center for  $\frac{1}{2}$ " drywall. Nail the furring strips with two 8d nails at each joist. Stagger board end joints. Be sure board edges end on a joist or furring strip. Don't jam the boards tightly together. It's best if there's only light contact at each edge.

Hanging ceiling panels is easier with a drywall lift that allows precise positioning while leaving two hands free for driving nails or screws. If you don't have a drywall lift, cut two braces like the one shown in Figure 10-8. Make them slightly longer than the ceiling height. Nail or screw the drywall to all supporting members, spacing the fasteners 7" to 8" apart. If you use nails, select 5d ( $1\frac{1}{4}$ ") ring-shank nails for  $\frac{1}{2}$ " drywall and 4d (1") ring shank nails for  $\frac{3}{8}$ " drywall. Again, don't break the surface of the paper when driving fasteners. Finish ceiling joints the same way you finish wall joints.

## Textured Finishes for Drywall

Wall finish is usually smooth to make cleaning easier. But the ceiling finish may be textured, usually with some form of joint compound. Texture hides ridges and bumps in the ceiling and improves acoustics by eliminating echo off the ceiling. But textured ceilings are also an admission that there's something to hide. Many owners don't like textured ceilings and know that texture is used to hide defects. The first thing they'll say when they see a textured ceiling is, "What's wrong with your ceiling?"

*Orange peel* texture consists of thinned joint compound applied with a long-nap paint roller. In an emergency, you can make ceiling texture by thinning out joint compound with water until it reaches a consistency similar to that of paint. But it's better to buy mix that's specifically made for texturing. It's much easier than trying to make your own. To ensure proper consistency, try applying some mixture to a scrap piece of drywall held upright. Adjust the consistency as necessary by adding



**Figure 10-8**

*Installing drywall on ceiling*

more water or joint compound to the bucket of mixture. When you've got the mixture just right, roll it onto the ceiling or wall. Keep the rolling pattern uniform so the texture appears to have a grain. When the mixture dries, avoid the temptation to sand the surface. The texture is very fragile. Sanding can knock off too much of the desirable surface.

*Spatter finish* is done with a compressor-operated spatter gun that shoots globules of thinned drywall mud on the ceiling at random. Scrape overspray off the walls. Other mixes are available to create different effects. You can get nearly the same spatter effect by dipping a stiff-bristle brush in thinned drywall mud and slinging mud on the ceiling with a snap of the wrist. This takes practice. Don't count on getting this right on the first attempt. Control the size of the spatters by making the mix thinner or thicker. Obviously, this is messy work. But it's an effective technique when you have to match only a few square feet of spatter-finished ceiling. For minor patching, you can also buy spatter finish in an aerosol can.

*Knockdown finish* uses the same technique — spatter blown or snapped on the ceiling. But the mix should be stiffer so spatters are between the size of a pea and a grape. Let the globules dry for a few minutes. Then knock the tops off with a masonry trowel. Work the trowel in all directions to avoid creating an obvious grain in the texture.

*Skip trowel or imperial texture* is like a knockdown finish, only more so. Apply mud to the ceiling or wall in a random pattern. Then smooth out what's there, leaving irregular patterns of texture in some areas and no texture in others. When done, it should look like Spanish stucco.

*Veneer plaster* is used in one or two  $1/8"$  coats over a veneer plaster base such as blueboard. Blueboard is similar to drywall, with a paper surface designed to bond

well with the veneer plaster. Apply enough plaster to trowel a smooth, even finish over the entire surface. It's a lot of work, but veneer plaster hides imperfections and joints better than regular plaster, and provides a hard coat that protects the paper surface below.

*Cottage cheese or popcorn texture* is applied with a compressor, hopper and applicator gun. Although popcorn ceiling texture isn't currently in fashion, and you're not likely to be installing it, you may still be called on to do a repair job. Aerosol sprays are available to match the existing cottage cheese texture if you're only patching a small area.

No matter what finish you apply, the job isn't done until the surface has been primed and painted.

## Repairing Drywall

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Fill nail holes and small cracks in boards by applying a smooth coat of drywall compound. Let it dry. Then sand the surface smooth. Repairing larger holes in drywall isn't as easy. There's nothing but wall cavity behind a full penetration of the board. Drywall compound will fall into holes wider than about  $1/2"$ . Cover larger cracks and small holes with self-adhesive fiberglass tape. Then press stiff drywall compound into the mesh. When the first coat is dry, apply a finish coat. With a patch like this, feather the drywall compound 12" on each side of the crack to avoid leaving an obvious ridge. Again, don't count on getting this right the first time.

Holes larger than a golf ball need some type of backing to hold the drywall mud until it sets. You can buy a drywall repair kit with clips that support drywall cut to cover nearly any size hole. If these drywall clips create lumps or otherwise don't work for you, make a patch kit with cardboard, string and a short length of dowel. Cut a piece of stiff cardboard slightly larger than the hole. Loop a short length of string through the center of the cardboard patch. Then fold the cardboard in half and insert it into the cavity. Pull the string tight, flattening the cardboard against the cavity side of the board and closing off the hole. Tie the loose end of the string around a short dowel laid across the hole. Then apply a coat of drywall compound over the hole and against the cardboard backing. Leave the patch slightly concave. When dry, cut the string and remove the dowel.

Many experienced drywall experts use neither clips nor cardboard. Instead, they cut a piece of scrap wood that will fit through the hole and extend about 2" to either side. They screw this in place with drywall screws on either side of the hole. This puts a firm foundation behind a portion of the hole. Then they cut a piece of drywall to fit the hole and screw it to the scrap wood. Once it's in place, they lay lengths of self-adhesive fiberglass drywall tape over the patch so it laps several inches onto firm wallboard. Then they apply a finish coat of joint compound and feather out several inches beyond the patch. When dry, they sand the patch smooth. Once primed and painted, there should be no evidence of the repair.

A hole more than 12" across is probably too large for a cardboard-backed patch. Instead, mark and cut out a rectangular section of wallboard all the way to the middle of the studs at both sides. Cut two nailing blocks to fit horizontally between the studs. Insert the blocks into the cutout and toenail them at the top and bottom of the rectangular cutout. Then cut drywall to fit in the cutout. Tape and finish the perimeter of the cutout as with any drywall joint.

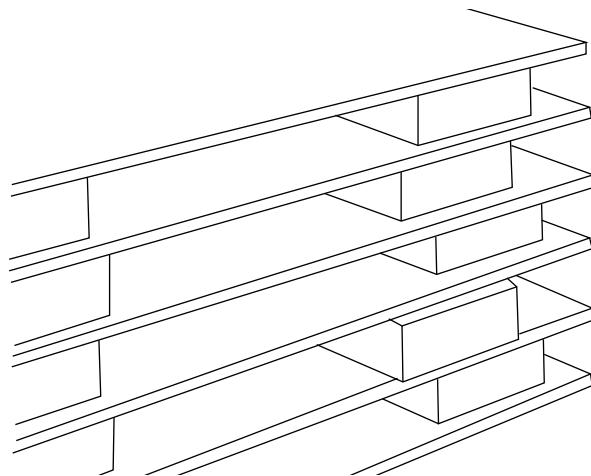
## Wood Paneling

Plywood paneling is sold in many grains and species. Hardboard imprinted with a wood grain pattern is generally less expensive. Better hardboard paneling has a realistic wood grain pattern. Both plywood and hardboard paneling are sold with a hard, plastic finish that's easily wiped clean. Hardboard is also available with vinyl coatings in many patterns and colors, including some that have the appearance of ceramic tile.

Wood paneling should be delivered to the site a few days before application. Panels need time to adapt to room temperature and humidity before you put them up. Stack panels in the room separated by full length furring strips so air can circulate to panel faces and backs. Figure 10-9.

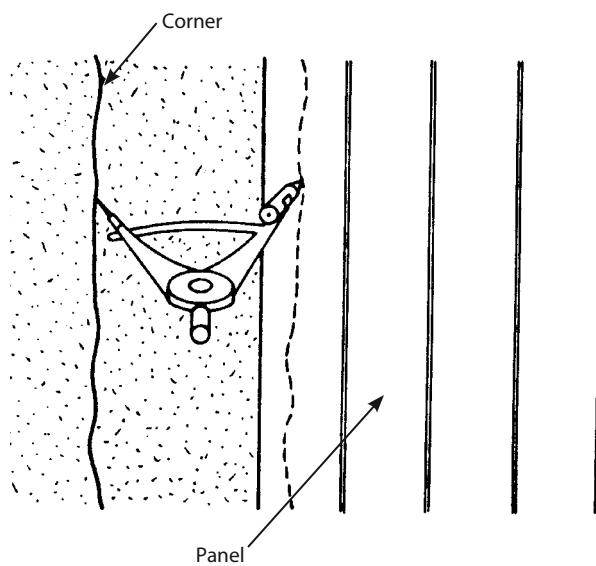
Always start a panel application with a truly vertical edge. If a corner is straight and vertical, butt the first panel into that corner. Cut subsequent panels so they lap on studs. If you don't have a vertical corner, tack a panel perfectly vertical and 2" from the starting corner. Use an art compass to scribe the outline of the corner on the panel edge. See Figure 10-10. Cut the panel along this line and move it into the corner. Butt the next panel against the first, being careful to keep the long edges truly vertical. Use the same art compass to scribe a line for panel top edges.

Fasten the panels with nails or adhesive. Adhesive saves filling nail holes on the panel surface. Use adhesive that provides "work time" before forming a tight bond. That makes it easier to adjust panels for a good fit. If panels are nailed, use small finishing nails (brads). Use 1 1/2"-long brads for 1/4"- or 3/8"-thick materials. Drive a brad each 8" to 10" along edges and at intermediate supports. Most panels are grooved to simulate hardboard panels. Drive brads in these grooves. Set brads slightly below the surface



**Figure 10-9**

Stacking panels for conditioning to room environment prior to use



**Figure 10-10**

Scribing of cut at panel edge to provide exact fit in a corner or at ceiling

with a nail set. Many vendors of prefinished paneling also sell matching nails that require no putty to fill nail holes. Other vendors sell wood-filler putty to match their panels.

### **Hardwood Paneling**

Most hardwood paneling is 8" wide or less. Hardwood paneling needs several days to adapt to room temperature and moisture conditions before being applied. Most paneling is applied with the long edges running vertically. But rustic patterns may be applied horizontally or diagonally to achieve a special effect.

Nail vertical paneling to horizontal furring strips or to nailing blocks set between studs. Use 1 1/2" to 2" finishing or casing nails. Blind nail through the tongue on narrow strips. For 8" boards, face nail near each edge.

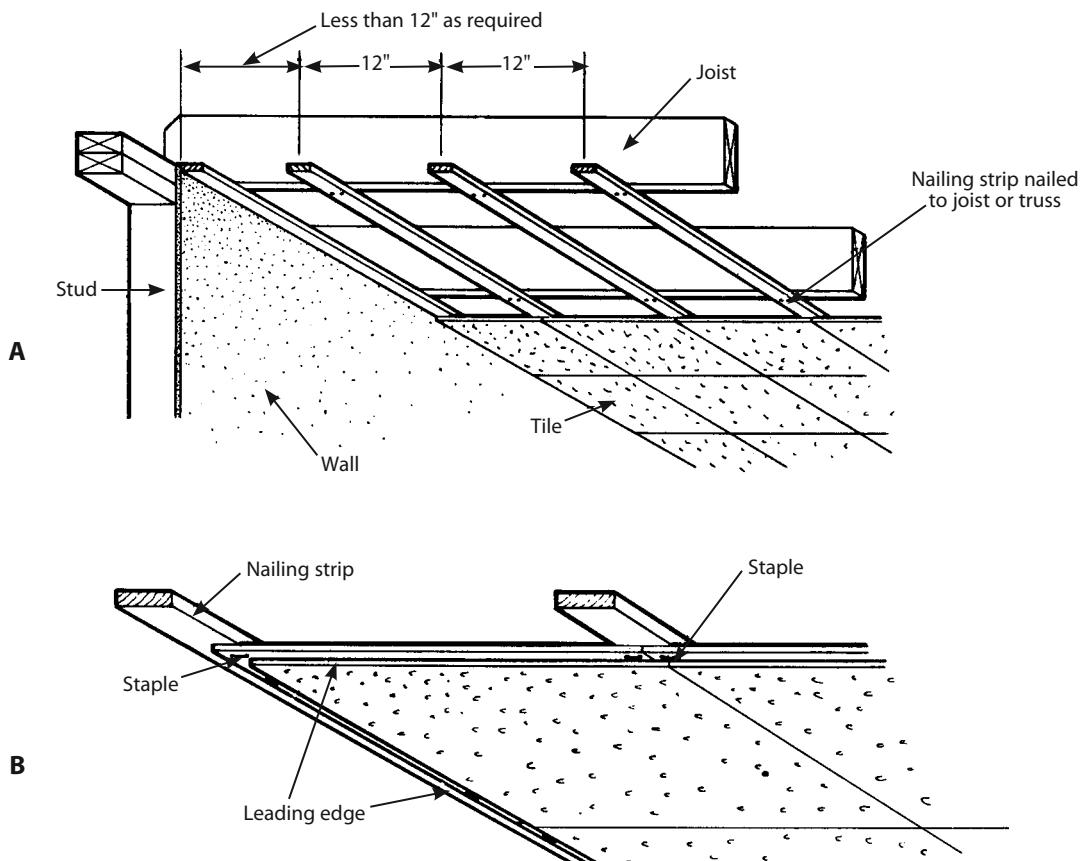
## **Ceiling Tile**

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Tile attached to the ceiling is usually 12" x 12". Suspended ceiling panels are usually 2' x 2' or 2' x 4'. Ceiling tile can be set with adhesive if the surface is smooth, level and firm. Dab a small spot of adhesive at the center and at each corner of the tile. Edge-matched tile can be stapled if the backing is wood.

You can set tile on furring strips to cover unsightly defects. But it's usually faster, cheaper and results in a better job if you tear off the existing cover and start over. If you want to try setting tile over the existing ceiling, use 1" x 3" or 1" x 4" furring strips where ceiling joists are 16" or 24" on center. Fasten the furring with two 7d or 8d nails at each joist. Where trusses or ceiling joists are spaced up to 48" apart, fasten 2" x 2" or 2" x 3" furring strips with two 10d nails at each joist. The furring should be a low-density wood, such as a soft pine, if tile is to be stapled to the furring.

Lay furring strips from the center of the room to the edges. Find the center by snapping chalklines from opposite corners. The ceiling center is where the diagonal lines cross. Place the first furring strip at the room center and at a right angle to the joists. Run parallel furring strips 12" each to both edges of the room. See Figure 10-11A. Edge courses on opposite walls should be equal in width. Plan spacing perpendicular to joists the same way. End courses should also be equal in width. Install tile the same way, working from the center to the edges. Set edge tile last so you get a close fit. Ceiling tile usually has a tongue on two adjacent edges and grooves on the other edges. Keep the tongue edges on the open side so they can be stapled to furring strips. Attach edge tile on the groove side with finishing nails or adhesive. Use one staple at each furring strip on the leading edge and two staples along the side, as in Figure 10-11B. Drive a small finishing nail or use adhesive to set edge tile against the wall.



**Figure 10-11**

Ceiling tile installation: **A**, nailing strip location; **B**, stapling

Be careful not to soil the tile surface. Grease will leave permanent stains on ceiling tile. Professional tile installers rub cornmeal between their palms to keep their hands oil-free.

## Suspended Ceilings

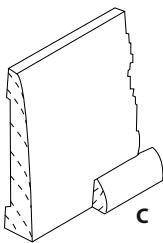
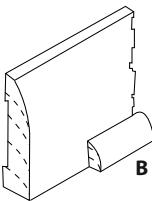
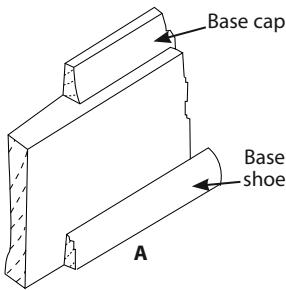
These are fine for basements, or other informal areas. Using them in “formal” rooms, like a living room or dining room, creates a “low-income” effect that may not be exactly what your client intends. Suspended ceilings cover imperfections, lower the ceiling to a more practical height, and add a plenum for running new electrical, plumbing, and HVAC lines.

The ceiling grid is suspended from wires or straps attached to joists. Panels drop into the completed grid. Ceiling height can be any level. Hanger wires may be only 2" or 3" long if the primary purpose is to cover fractured plaster. In earthquake zones, seismic bracing may be required by the building code. Your building department will have more information on this.

## Interior Trim

Many older homes have trim styles no longer available at building material dealers. Matching trim exactly may require expensive custom fabrication. Try to remove trim in salvage condition so it can be re-installed. If trim is damaged or if you have to move doors or windows, it may be easier to replace all the trim in the room rather than try to match existing trim.

Keep in mind that trim work requires a very high level of carpentry skill. Trim needs to be essentially perfect: sloppy joints and visible nail heads won't do. Don't ask a rough carpenter to do trim work — the results will be a disappointment. If trim is going to be painted, select a trim made of extruded polymer, ponderosa pine or northern white pine, or primed MDF. Highly decorative cast trim is another good choice if trim will be painted. Most natural finish trim in modern homes is pine or oak. These woods can be very attractive if they're nicely finished.



**Figure 10-12**

Baseboard: **A**, two-piece;  
**B**, narrow; **C**, medium width

### Casing

Casing is the interior edge trim for door and window openings. Modern casing patterns vary in width from  $2\frac{1}{4}$ " to  $3\frac{1}{2}$ " and in thickness from  $\frac{1}{2}$ " to  $\frac{3}{4}$ ". Install casing about  $\frac{3}{16}$ " back from the face of the door or window jamb. Nail with 6d or 7d casing or finishing nails, depending on the thickness of the casing. Space nails in pairs about 16" apart, nailing to both jambs and framing. Casing with molded forms requires mitered joints, while rectangular casing can be butt-joined.

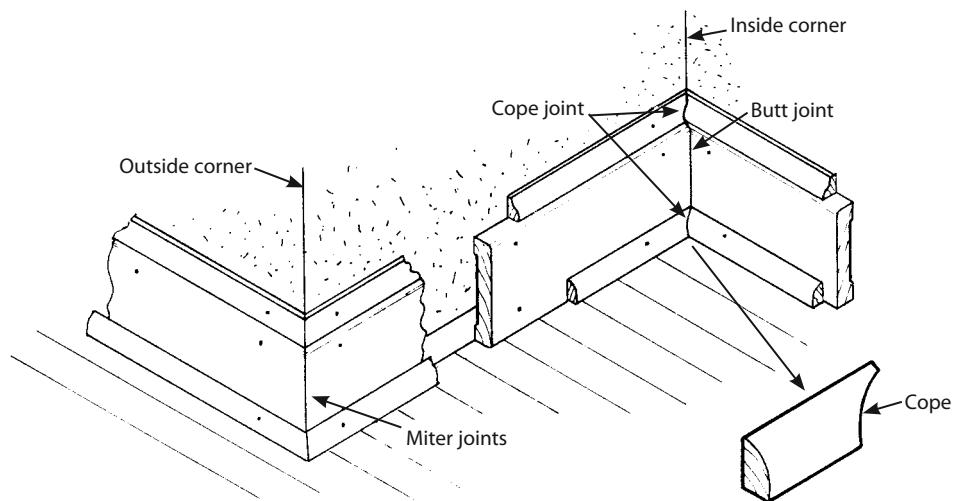
### Baseboard

Finish the joint between the wall and floor with baseboard. Figure 10-12 shows several sizes and forms of baseboard. Two-piece base consists of a baseboard topped with a small base cap. The cap covers any gap caused by irregularities in the wall finish. Base shoe is nailed into the subfloor and covers irregularities in the finished floor. Walls made of drywall seldom need a base cap. Carpeted floors hide variations in the floor and make base shoe unnecessary.

Install square-edged baseboard with butt joints at inside corners and mitered joints at outside corners. Nail at each stud with two 8d finishing nails. Molded base, base cap, and base shoe require a coped joint at inside corners and a mitered joint at outside corners. See Figure 10-13.

### Other Molding

Ceiling molding may be strictly decorative or may be used to hide the joint where the wall and ceiling meet. Use crown molding to cover the gap where wood paneling meets the ceiling. Attach crown molding with finishing nails driven into upper wall plates. Wide crown molding should be nailed both to the wall plate and the ceiling joists.



**Figure 10-13**

*Installation of base molding*

## Removing Partitions

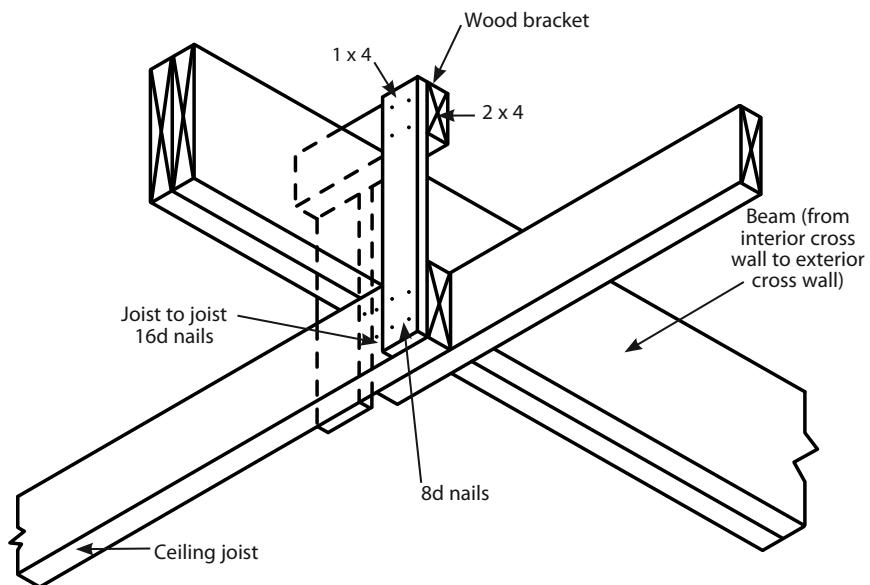
Modern taste favors more open space in homes. For example, new homes often have the family room and kitchen combined as one open area. Many older homes have a formal dining room or kitchen dining area enclosed by four walls and with a door that can be closed. Removing a nonbearing wall (partition) can add livability to an older home.

Nonbearing partitions support neither the roof nor a floor above. Breaking out a partition is only a cosmetic change. If wall cover is plaster or drywall, there's no salvage value in the partition. But save the trim, if possible. You may need it later.

Many partition walls include plumbing, electric or HVAC lines. Plan how those will be handled before you begin demolition.

When the partition is gone, there will be a strip of exposed floor, ceiling and wall where bottom, top and side edges of the partition had been. Finish the ceiling and walls with strips of drywall, tape, joint compound and paint. Filling the strip in the floor isn't as easy. Usually the best you can do is level the surface and cover the area with carpet or vinyl. With oak strip floors, it's possible to patch holes by weaving in new oak strips. However, this is a tricky job, and the entire floor may have to be refinished to get a perfect match of colors.

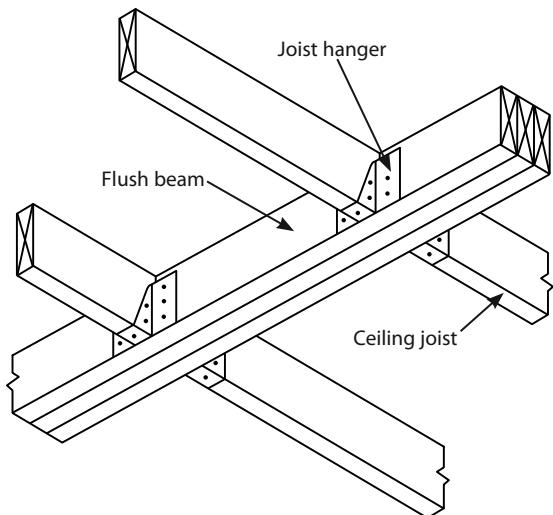
Removing a loadbearing partition requires the same patching of walls, ceiling, and floor. But you also have to add support for ceiling joists. If there's attic space above the partition, install a support beam above the ceiling joists. If it's a loadbearing wall on the first floor of a two-story house, it's holding up the second floor. If you remove it, the upstairs rooms could collapse onto the first floor. You'll need a large beam and posts to carry the weight that the wall was carrying. In this case, the beam will have to be below the ceiling joists, since the ceiling joists of

**Figure 10-14**

Framing for flush ceiling with wood brackets

the first floor are also the floor joists of the second floor. Be sure both ends of the beam are well supported on a bearing wall or post that is supported by the foundation. Support joists with metal framing anchors or wood brackets, as illustrated in Figure 10-14. To eliminate the need for temporary support, install the new beam before demolition begins.

If there's no attic space for a concealed beam, substitute an exposed beam at least 6'8" above the floor. Support ceiling joists temporarily with jacks and blocking while the partition is demolished and until the new beam is in place.

**Figure 10-15**

Flush beam with joist hangers

Figure 10-15 illustrates another option if an exposed beam is objectionable and there's no attic space for a concealed beam. Existing joists are supported by a new beam inserted where the top of the bearing wall had been. Place temporary joist supports on both sides of the bearing wall. Then remove the bearing wall and cut the joists as needed. Insert the new beam and install a hanger for each joist. Posts will also be needed to support this new beam.

The size of the beam required will vary with the span, load and lumber grade. Beam sizing like this is work for a civil engineer. In some communities, you'll need the approval of a licensed engineer before a permit is issued. Your building department or lumber yard probably has span tables for beams and load tables for posts that cover the most common residential situations. You probably won't need an engineer unless you're spanning a huge opening. For example, licensed contractors are often allowed to do simple engineering like this for houses up to

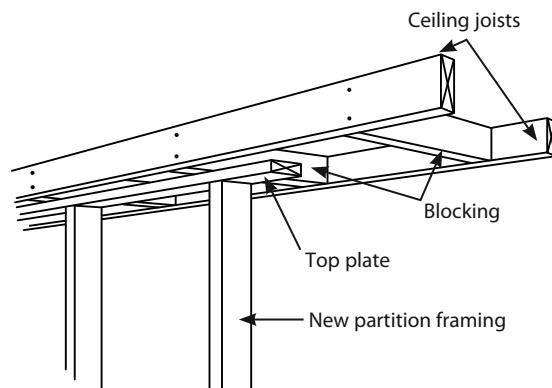
3,000 square feet. Houses this size and smaller are fairly straightforward. Larger houses and commercial buildings are more likely to present more complex engineering problems. When in doubt, make the framing much stronger than necessary. Building departments never have a problem with this.

## Adding Partitions

Partition walls support nothing but their own weight and can be framed from 2"x 3" lumber, though 2" x 4" studs and plates are more common. The first step is to install the top plate. If ceiling joists are perpendicular to the partition, nail the top plate to each joist using 16d nails. If ceiling joists are parallel to the top plate and the partition is not directly under a joist, install solid blocking between joists. Blocks should be no more than 24" on center. See Figure 10-16. Nail the top plate to the blocks.

To be sure the new partition will be vertical, hold a plumb line along the side of the top plate at several points. Mark where the plumb bob touches the floor. Nail the sole plate to the floor joist at that position. If there's no joist where needed, nail solid blocking between joists. Blocks should be no more than 24" on center. Cut studs to fit snugly between the plates every 16" on center. Stud lengths may vary, so measure for each stud. Toenail the studs to the plates using 8d nails.

If you have enough space, assemble the wall on the floor and tilt it into place. Nail the top plate to the studs first. Tilt the assembled wall into place. Then toenail the studs to the bottom plate as described above.



**Figure 10-16**

*Blocking between joists to which the top plate of a new partition is nailed*

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Drywall

**Ceiling and wall demolition.** Knock down with hand tools at heights to 9' and handle debris to a trash bin on site.

Building structure to remain. Includes the cost of breaking out old ceiling or wall cover, pulling or driving the old fasteners and cleaning up the debris. Add the cost of hauling debris off the site and dump fees. These figures assume demolition with a crowbar. Knock a hole with a crowbar, hook the crowbar in the hole, pull, and get out of the way! Ceilings come down fast. Add extra time if you're planning to save the floor, and put down floor protection. Plaster will fall in big chunks that can gouge holes in the floor. Figures in parentheses show the volume and weight of materials after demolition.

Plaster on ceiling (175 to 200 SF per CY and 8 pounds per SF)

|                            |         |    |   |     |     |     |
|----------------------------|---------|----|---|-----|-----|-----|
| Lath and plaster only      | BL@.010 | SF | — | .33 | .33 | .56 |
| Lath, plaster and furring  | BL@.015 | SF | — | .50 | .50 | .85 |
| Suspended lath and plaster | BL@.010 | SF | — | .33 | .33 | .56 |

Plaster on walls (150 SF per CY and 8 pounds per SF)

|                           |         |    |   |     |     |     |
|---------------------------|---------|----|---|-----|-----|-----|
| Lath and plaster only     | BL@.011 | SF | — | .37 | .37 | .63 |
| Lath, plaster and furring | BL@.015 | SF | — | .50 | .50 | .85 |

**Remove drywall.** Includes the cost of breaking out old board, pulling or driving the old fasteners and cleaning up the debris. Add the cost of hauling debris off the site and dump fees.

|  |         |    |   |      |      |       |
|--|---------|----|---|------|------|-------|
| Remove full panels on ceilings                 | BL@.009 | SF | — | .30  | .30  | .51   |
| Remove full panels on walls                    | BL@.008 | SF | — | .27  | .27  | .46   |
| Remove full panels and furring strips          | BL@.028 | SF | — | .93  | .93  | 1.58  |
| Remove and install drywall, no joint treatment |         |    |   |      |      |       |
| per square foot                                | BC@.022 | SF | — | .90  | .90  | 1.53  |
| Add for job setup, per room                    | BC@.200 | Ea | — | 8.21 | 8.21 | 14.00 |

**Repair drywall.** Includes joint tape, three coats of joint compound and finish sanding.

|  |         |    |      |       |       |       |
|--|---------|----|------|-------|-------|-------|
| Cut out section, to 4' x 4'            | D1@.288 | Ea | —    | 11.70 | 11.70 | 19.90 |
| Remove and replace section, to 4' x 4' | D1@.840 | Ea | 8.43 | 34.00 | 42.43 | 72.10 |
| Taping and finishing only, ceilings    | DT@.010 | SF | .03  | .41   | .44   | .75   |
| Taping and finishing only, walls       | DT@.008 | SF | .03  | .33   | .36   | .61   |
| Tape and finish cracks, ceilings       | DT@.060 | LF | .06  | 2.44  | 2.50  | 4.25  |
| Tape and finish cracks, walls          | DT@.050 | LF | .06  | 2.04  | 2.10  | 3.57  |

**Patch hole in drywall.** Cut back drywall, insert backing in wall cavity, apply three coats of joint compound, sand smooth.

|           |         |    |      |       |       |       |
|-----------|---------|----|------|-------|-------|-------|
| Per patch | BC@1.00 | Ea | 8.84 | 41.10 | 49.94 | 84.90 |
|-----------|---------|----|------|-------|-------|-------|

**Regular core drywall.** Tapered edges. Cut ends. Labor includes cutting board around electrical boxes and obstacles, installing on wall studs or ceiling joists 8' to 12' above floor level, joint tape, three coats of joint compound and finish sanding. Material includes 1/2 gallon of premixed joint compound per 100 square feet, 38 linear feet of 2" perforated joint tape per 100 square feet, 1/2 pound of drywall screws per 100 square feet and 10% waste.

|                            |         |    |     |     |      |      |
|----------------------------|---------|----|-----|-----|------|------|
| 3/8" x 4' x 8', ceilings   | D1@.023 | SF | .53 | .93 | 1.46 | 2.48 |
| 3/8" x 4' x 8', walls      | D1@.017 | SF | .53 | .69 | 1.22 | 2.07 |
| 1/2" x 4' x 8', ceilings   | D1@.024 | SF | .53 | .97 | 1.50 | 2.55 |
| 1/2" x 4' x 8', walls      | D1@.018 | SF | .53 | .73 | 1.26 | 2.14 |
| 1/2" x 4' x 9', ceilings   | D1@.024 | SF | .55 | .97 | 1.52 | 2.58 |
| 1/2" x 4' x 9', walls      | D1@.018 | SF | .55 | .73 | 1.28 | 2.18 |
| 1/2" x 4' x 10', ceilings  | D1@.024 | SF | .47 | .97 | 1.44 | 2.45 |
| 1/2" x 4' x 10', walls     | D1@.018 | SF | .47 | .73 | 1.20 | 2.04 |
| 1/2" x 4' x 12', ceilings  | D1@.024 | SF | .54 | .97 | 1.51 | 2.57 |
| 1/2" x 4' x 12', walls     | D1@.018 | SF | .54 | .73 | 1.27 | 2.16 |
| 1/2" x 54" x 12', ceilings | D1@.024 | SF | .50 | .97 | 1.47 | 2.50 |
| 1/2" x 54" x 12', walls    | D1@.018 | SF | .50 | .73 | 1.23 | 2.09 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| 1/2" x 4' x 12', ceilings, sag resistant   | D1@.024   | SF   | .70      | .97   | 1.67  | 2.84 |
| 1/2" x 4' x 12', soffit board              | D1@.035   | SF   | .85      | 1.42  | 2.27  | 3.86 |
| 1/2" panels on ceilings, no tape or finish | D1@.012   | SF   | .53      | .49   | 1.02  | 1.73 |
| 1/2" panels on walls, no tape or finish    | D1@.008   | SF   | .53      | .32   | .85   | 1.45 |
| Arches, soffits, recesses, columns, angles | D1@.035   | SF   | —        | 1.42  | 1.42  | 2.41 |

**Firecode Type X drywall.** Fire-resistant gypsum core. Labor includes cutting board around electrical boxes and obstacles, installing on wall studs or ceiling joists 8' to 12' above floor level, joint tape, three coats of joint compound and finish sanding. Material includes 1/2 gallon of premixed joint compound per 100 square feet, 38 linear feet of 2" perforated joint tape per 100 square feet, 1/2 pound of drywall screws per 100 square feet and 10% waste.

|  |         |    |     |      |      |      |
|--|---------|----|-----|------|------|------|
| 5/8" x 4' x 6', ceilings                   | D1@.025 | SF | .56 | 1.01 | 1.57 | 2.67 |
| 5/8" x 4' x 6', walls                      | D1@.019 | SF | .56 | .77  | 1.33 | 2.26 |
| 5/8" x 4' x 8', ceilings                   | D1@.025 | SF | .57 | 1.01 | 1.58 | 2.69 |
| 5/8" x 4' x 8', walls                      | D1@.019 | SF | .57 | .77  | 1.34 | 2.28 |
| 5/8" x 4' x 9', ceilings                   | D1@.025 | SF | .57 | 1.01 | 1.58 | 2.69 |
| 5/8" x 4' x 9', walls                      | D1@.019 | SF | .57 | .77  | 1.34 | 2.28 |
| 5/8" x 4' x 10', ceilings                  | D1@.025 | SF | .53 | 1.01 | 1.54 | 2.62 |
| 5/8" x 4' x 10', walls                     | D1@.019 | SF | .53 | .77  | 1.30 | 2.21 |
| 5/8" x 4' x 12', ceilings                  | D1@.025 | SF | .58 | 1.01 | 1.59 | 2.70 |
| 5/8" x 4' x 12', walls                     | D1@.019 | SF | .58 | .77  | 1.35 | 2.30 |
| 5/8" panels on ceilings, no tape or finish | D1@.013 | SF | .53 | .53  | 1.06 | 1.80 |
| 5/8" panels on walls, no tape or finish    | D1@.009 | SF | .53 | .36  | .89  | 1.51 |

**Water-resistant drywall.** Moisture-resistant gypsum core and paper as a base for tile or plastic-faced wall panels in bathrooms and kitchens. Not designed for use in high-moisture areas such as tub and shower surrounds. Includes cutting board around obstacles and 10% waste but no taping or finishing.

|                 |         |    |     |     |      |      |
|-----------------|---------|----|-----|-----|------|------|
| 1/2" x 4' x 8'  | D1@.008 | SF | .65 | .32 | .97  | 1.65 |
| 1/2" x 4' x 12' | D1@.008 | SF | .54 | .32 | .86  | 1.46 |
| 5/8" x 4' x 8'  | D1@.009 | SF | .67 | .36 | 1.03 | 1.75 |
| 5/8" x 4' x 12' | D1@.009 | SF | .60 | .36 | .96  | 1.63 |

**Mold- and mildew-resistant drywall.** DensArmor has a glass mat backing. DensArmor Plus has glass mat on both front and back. Includes cutting board around obstacles and 10% waste but no taping or finishing.

|                                |         |    |      |     |      |      |
|--------------------------------|---------|----|------|-----|------|------|
| 1/2" x 4' x 8' DensArmor       | D1@.008 | SF | 1.06 | .32 | 1.38 | 2.35 |
| 1/2" x 4' x 8' DensArmor Plus  | D1@.008 | SF | 1.12 | .32 | 1.44 | 2.45 |
| 1/2" x 4' x 12' DensArmor Plus | D1@.009 | SF | 1.12 | .36 | 1.48 | 2.52 |
| 5/8" x 4' x 8' DensArmor Plus  | D1@.009 | SF | 1.18 | .36 | 1.54 | 2.62 |
| 5/8" x 4' x 12' DensArmor Plus | D1@.009 | SF | 1.18 | .36 | 1.54 | 2.62 |

**Moisture- and fire-resistant drywall.** For use under masonry veneer, aluminum, steel and vinyl siding, wood and mineral shingles, and stucco. Includes cutting board around obstacles and 10% waste, but no taping or finishing. Used to meet fire code in some types of multi-unit residential applications.

|                |         |    |     |     |      |      |
|----------------|---------|----|-----|-----|------|------|
| 1/2" x 4' x 8' | D1@.008 | SF | .65 | .32 | .97  | 1.65 |
| 5/8" x 4' x 8' | D1@.009 | SF | .67 | .36 | 1.03 | 1.75 |

**Sound-deadening drywall.** For use as a base layer under drywall finish. Interior applications only. Must be kept dry. Includes cutting board around electrical boxes and obstacles, hanging on wall studs or ceiling joists 8' to 12' above floor level and 10% waste.

|                          |         |    |     |     |      |      |
|--------------------------|---------|----|-----|-----|------|------|
| 1/2" x 4' x 8', ceilings | D1@.012 | SF | .57 | .49 | 1.06 | 1.80 |
| 1/2" x 4' x 8', walls    | D1@.008 | SF | .57 | .32 | .89  | 1.51 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|---|-----------|------|----------|-------|-------|--------|
| <b>Flexible drywall.</b> For covering curved surfaces. Includes cutting board around electrical boxes and obstacles, hanging board on wall studs or ceiling joists 8' to 12' above floor level, joint tape, three coats of joint compound and finish sanding. Material includes 1/2 gallon of premixed joint compound per 100 square feet, 38 linear feet of 2" perforated joint tape per 100 square feet, 1/2 pound of drywall screws per 100 square feet and 10% waste. |           |      |          |       |       |        |
| 1/4" x 4' x 8', ceilings  | D1@.035   | SF   | .53      | 1.42  | 1.95  | 3.32   |
| 1/4" x 4' x 8', walls   | D1@.035   | SF   | .53      | 1.42  | 1.95  | 3.32   |
| <b>Drywall repair sheet.</b> Includes taping and finishing.   |           |      |          |       |       |        |
| 1/2" x 16" x 16", greenboard  | D1@1.00   | Ea   | 10.30    | 40.50 | 50.80 | 86.40  |
| 1/2" x 24" x 24", regular   | D1@1.00   | Ea   | 6.55     | 40.50 | 47.05 | 80.00  |
| 5/8" x 24" x 24", regular   | D1@1.00   | Ea   | 6.55     | 40.50 | 47.05 | 80.00  |
| <b>Drywall texture.</b> Finish applied to gypsum wallboard.   |           |      |          |       |       |        |
| Orange peel, rolled on, one coat  | PT@.006   | SF   | .29      | .25   | .54   | .92    |
| Spatter finish, one coat  | PT@.007   | SF   | .30      | .30   | .60   | 1.02   |
| Knockdown finish, one coat  | PT@.008   | SF   | .30      | .34   | .64   | 1.09   |
| Skip trowel finish, one coat  | PT@.009   | SF   | .25      | .38   | .63   | 1.07   |
| Smooth finish veneer plaster, one coat  | PR@.018   | SF   | .26      | .74   | 1.00  | 1.70   |
| <b>Wall and ceiling spray texture, unaggregated.</b> Creates spatter, knock down and orange peel texture. Powder mixes with water. Can be spray applied over drywall, concrete or plaster.  |           |      |          |       |       |        |
| 40-pound bag, walls and ceilings  | —         | Ea   | 12.40    | —     | 12.40 | —      |
| 50-pound bag, walls and ceilings  | —         | Ea   | 13.00    | —     | 13.00 | —      |
| <b>Wall and ceiling spray texture, aggregated.</b> Polystyrene aggregate mixes with water for spray application. Produces a white, simulated acoustical ceiling finish. Coarser mix conceals minor surface defects better. For gypsum, plaster and concrete ceilings. One pound of dry mix covers 8 square feet.  |           |      |          |       |       |        |
| Regular, 40-pound bag   | PT@1.60   | Ea   | 12.00    | 67.40 | 79.40 | 135.00 |
| Medium, 32-pound bag  | PT@1.28   | Ea   | 10.30    | 54.00 | 64.30 | 109.00 |
| Medium, 40-pound bag  | PT@1.60   | Ea   | 14.70    | 67.40 | 82.10 | 140.00 |
| Coarse, 40-pound bag  | PT@1.60   | Ea   | 12.40    | 67.40 | 79.80 | 136.00 |
| <b>Spray texture touch-up kit.</b> Hand-operated sprayer for small repairs and touch-up work. Pump body adjusts to spray orange peel, spatter, or knockdown textures. Reusable and refillable. Kit covers 15 square feet. Refill covers 10 square feet for orange peel and medium spatter or 6 square feet for heavy spatter/knockdown finish.  |           |      |          |       |       |        |
| Spray texture touch-up kit  | PT@.250   | Ea   | 24.70    | 10.50 | 35.20 | 59.80  |
| Premixed refill kit   | PT@.167   | Ea   | 15.80    | 7.04  | 22.84 | 38.80  |
| <b>Popcorn ceiling texture.</b> Finish applied to gypsum ceiling board. Applied with a compressed air hopper gun. Add the cost of a compressor.   |           |      |          |       |       |        |
| Blown on polystyrene texture  | PT@.005   | SF   | .44      | .21   | .65   | 1.11   |
| Pneumatic hopper gun, purchase  | —         | Ea   | 88.00    | —     | 88.00 | —      |
| Shop-type compressor rental, per day  | —         | Ea   | 88.40    | —     | 88.40 | —      |
| <b>Popcorn ceiling spray mix.</b> Polystyrene. Mix with water and spray. 13-pound bag.  |           |      |          |       |       |        |
| Bag, titanium white   | PT@1.00   | Ea   | 19.10    | 42.20 | 61.30 | 104.00 |
| <b>Popcorn ceiling texture touch-up kit.</b> Hand-operated sprayer for small repair and touch-up work. Pump body sprays acoustic popcorn texture. Reusable and refillable. Includes texture with polystyrene chip material for matching. Covers two square feet.  |           |      |          |       |       |        |
| Touch-up kit  | PT@.500   | Ea   | 24.70    | 21.10 | 45.80 | 77.90  |
| Pack of 2 dry refills   | PT@1.00   | Ea   | 9.68     | 42.20 | 51.88 | 88.20  |

|  | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|--|-----------|------|----------|--------|--------|--------|
| <b>Popcorn ceiling patch.</b> For repair of popcorn or acoustical rough-textured ceilings. Blends with most existing textures to cover holes, scuffs and scars. Apply with a paint roller or putty knife. One gallon covers 200 square feet.   |           |      |          |        |        |        |
| 13 pound spray   | PT@.250   | Ea   | 19.40    | 10.50  | 29.90  | 50.80  |
| 5 gallons  | PT@3.50   | Ea   | 49.00    | 148.00 | 197.00 | 335.00 |
| <b>Ceiling spray texture.</b> Premixed. Bottle attaches to spray texture hopper gun and covers 200 square feet.  |           |      |          |        |        |        |
| 2.2 liter bottle   | PT@1.00   | Ea   | 32.00    | 42.20  | 74.20  | 126.00 |
| <b>Textured ceiling finish aerosol.</b> 10-ounce aerosol can. Repair for small patches and cracks. Water cleanup.  |           |      |          |        |        |        |
| Popcorn, white   | PT@.167   | Ea   | 35.80    | 7.04   | 42.84  | 72.80  |
| Knockdown or heavy spatter   | PT@.167   | Ea   | 40.00    | 7.04   | 47.04  | 80.00  |
| Orange peel  | PT@.167   | Ea   | 41.20    | 7.04   | 48.24  | 82.00  |
| <b>Imperial veneer plaster base, USG.</b> Rigid plaster base resists sag and sound transmission. Face paper resist plaster slide. Includes 10% waste.  |           |      |          |        |        |        |
| 1/2" x 4' x 8', square edge  | BC@.012   | SF   | .51      | .49    | 1.00   | 1.70   |
| 1/2" x 4' x 12', square edge   | BC@.012   | SF   | .49      | .49    | .98    | 1.67   |
| 5/8" x 4' x 8', fire-resistant Type X  | BC@.013   | SF   | .69      | .53    | 1.22   | 2.07   |
| 5/8" x 4' x 12', fire-resistant Type X   | BC@.013   | SF   | .68      | .53    | 1.21   | 2.06   |
| <b>Cameo Veneer Plaster Base Board, Georgia-Pacific.</b> High-suction face paper. Use as a base for 1- or 2-coat Cameo Veneer Plaster. Includes 10% waste.   |           |      |          |        |        |        |
| 3/8" x 4' x 8', tapered edge   | BC@.012   | SF   | .58      | .49    | 1.07   | 1.82   |
| 1/2" x 4' x 12'  | BC@.012   | SF   | .58      | .49    | 1.07   | 1.82   |
| <b>DensShield® Tile Backer, Georgia-Pacific.</b> Glass mat facing acrylic coating that blocks moisture. For walls, floors, countertops, showers, laboratories. Includes 10% waste.   |           |      |          |        |        |        |
| 1/4" x 4' x 4'   | TL@.042   | SF   | 1.23     | 1.66   | 2.89   | 4.91   |
| 1/2" x 32" x 5'  | TL@.042   | Ea   | 17.60    | 1.66   | 19.26  | 32.70  |
| <b>Durock® Cement Board, USG.</b> Tile base for tub and shower areas, underlayment for tile on floors and countertops. Use the smooth side for ceramic tile mastic and the rough side for thin-set mortar and Portland cement. Hang with Durock® screws or galvanized roofing nails. Includes taping and sealing seams with Durock tape and 10% waste. |           |      |          |        |        |        |
| 5/16" x 4' x 4'  | TL@.037   | SF   | .84      | 1.46   | 2.30   | 3.91   |
| 1/2" x 3' x 5'   | TL@.042   | SF   | .84      | 1.66   | 2.50   | 4.25   |
| 1/2" x 4' x 8', interior   | TL@.042   | SF   | 1.04     | 1.66   | 2.70   | 4.59   |
| 5/8" x 3' x 5'   | TL@.047   | SF   | 1.07     | 1.85   | 2.92   | 4.96   |
| 5/8" x 4' x 8', interior   | TL@.047   | SF   | 1.07     | 1.85   | 2.92   | 4.96   |
| <b>Drywall Joint Compound</b>  |           |      |          |        |        |        |
| <b>Lightweight ready-mix joint compound.</b> For embedding drywall joint tape and finishing drywall joints. One-half gallon finishes three 4' x 8' drywall panels. Installation cost is included in the cost of hanging drywall.   |           |      |          |        |        |        |
| 3.5 gallon carton  | —         | Ea   | 11.20    | —      | 11.20  | —      |
| 4.5 gallon carton, tinted  | —         | Ea   | 15.10    | —      | 15.10  | —      |
| 4.5 gallon pail  | —         | Ea   | 21.90    | —      | 21.90  | —      |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>All-purpose ready-mix joint compound.</b> For embedding joint tape, finishing drywall joints, repairing small cracks and holes in drywall and plaster surfaces, and simple hand-applied texturing. One-half gallon finishes three 4' x 8' drywall panels. Installation cost is included in the cost of hanging drywall.   |           |      |          |       |        |      |
| 3 pound, 1 quart tub   | —         | Ea   | 5.56     | —     | 5.56   | —    |
| 12 pound pail  | —         | Ea   | 9.98     | —     | 9.98   | —    |
| 48 pound carton  | —         | Ea   | 14.60    | —     | 14.60  | —    |
| 50 pound carton  | —         | Ea   | 15.90    | —     | 15.90  | —    |
| 61.7 pound carton  | —         | Ea   | 16.00    | —     | 16.00  | —    |
| 61.7 pound pail  | —         | Ea   | 21.30    | —     | 21.30  | —    |
| <b>Lightweight setting-type joint compound powder.</b> 20-, 45-, and 90-minute setting ranges allow one-day drywall joint finishing with next-day texturing. After a coat has set, apply another coat. No need to wait for each coat to dry completely. Weighs 25% less than all-purpose compound. Sands as easily as ready-mix joint compound. Ideal for patching drywall and plaster surfaces. 18-pound bag. |           |      |          |       |        |      |
| 20-minute set time   | —         | Ea   | 12.00    | —     | 12.00  | —    |
| 45-minute set time   | —         | Ea   | 12.00    | —     | 12.00  | —    |
| 90-minute set time   | —         | Ea   | 12.00    | —     | 12.00  | —    |
| <b>Ready-mix joint topping compound.</b> For filling, leveling and finishing coats over drywall joints. Sands easier and faster than all-purpose compound, and weighs 35% less. Not suitable for embedding joint tape, skim coating, or texturing.   |           |      |          |       |        |      |
| 3.5 gallon carton  | —         | Ea   | 12.30    | —     | 12.30  | —    |
| <b>Drywall ready-mix primer.</b> Primes new drywall panel walls and ceilings before texturing or painting. Brush, roller, or spray application. Dries white in 30 minutes. Topcoat in 1 hour. 200 square feet per gallon.  |           |      |          |       |        |      |
| 5 gallon pail  | —         | Ea   | 104.00   | —     | 104.00 | —    |
| <b>Tuf-Tex hopper gun spray texture.</b> For use with hopper gun or trailer-mounted spray rig. Approximately 500 square feet per bag.  |           |      |          |       |        |      |
| 40 pound bag   | —         | Ea   | 24.00    | —     | 24.00  | —    |
| <b>Plaster of Paris.</b> For patching interior drywall or plaster walls and ceilings. Sets hard in 30 minutes.   |           |      |          |       |        |      |
| 25 pounds  | —         | Ea   | 22.80    | —     | 22.80  | —    |
| <b>One coat veneer plaster.</b> High resistance to cracking, nail-popping, impact and abrasion failure. Mill-mixed plaster components help assure uniform installation performance and finished job quality. Can be applied directly to concrete block.  |           |      |          |       |        |      |
| 50 pounds  | —         | Ea   | 17.60    | —     | 17.60  | —    |
| <b>Drywall Joint Tape</b>  |           |      |          |       |        |      |
| <b>Drywall joint tape.</b> Center-creased paper tape. Six 4' x 8' drywall panels require about 75 linear feet of tape. Tape installation cost is included in the cost of hanging drywall. 2-1/16" wide. Perforated.  |           |      |          |       |        |      |
| 250' roll  | —         | Ea   | 3.11     | —     | 3.11   | —    |
| 500' roll  | —         | Ea   | 6.15     | —     | 6.15   | —    |
| <b>Fiberglass drywall tape.</b> For drywall joints and repairs, veneer plastering, stucco and tile backer board. Self-adhesive 100% fiberglass mesh. Apply directly to drywall joint to eliminate embedding coat. 1-7/8" wide. Six 4' x 8' drywall panels require about 75 linear feet of tape. Cost of joint tape application is included in the Drywall section above.                                       |           |      |          |       |        |      |
| 50' long, white  | —         | Ea   | 4.10     | —     | 4.10   | —    |
| 150' long, white   | —         | Ea   | 8.95     | —     | 8.95   | —    |
| 150' long, yellow  | —         | Ea   | 6.86     | —     | 6.86   | —    |
| 300' long, white   | —         | Ea   | 11.70    | —     | 11.70  | —    |
| 300' long, yellow  | —         | Ea   | 11.00    | —     | 11.00  | —    |
| 500' long, white   | —         | Ea   | 15.60    | —     | 15.60  | —    |
| 500' long, yellow  | —         | Ea   | 13.40    | —     | 13.40  | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Drywall Bead</b>  |           |      |          |       |       |       |
| <b>Galvanized bullnose corner bead.</b> All-metal galvanized steel reinforcement for protecting external drywall corners. Rounded 3/4" radius outside corner on 1/2" or 5/8" drywall. Attached with nails or crimping tool. Finish with USG joint compounds.   |           |      |          |       |       |       |
| 3/4" x 8' long   | DI@.128   | Ea   | 10.60    | 5.16  | 15.76 | 26.80 |
| 3/4" x 10' long  | DI@.128   | Ea   | 11.00    | 5.16  | 16.16 | 27.50 |
| <b>Plastic bullnose corner bead.</b> For use where smooth or rounded corners are specified. Will not dent or rust. Paint and drywall mud adhere well. Finish compatible with drywall mud and all paint finishes.   |           |      |          |       |       |       |
| 3/4" x 8'  | DI@.128   | Ea   | 6.20     | 5.16  | 11.36 | 19.30 |
| <b>135-degree open-angle bullnose drywall arch.</b> Plastic. For hard-to-do arches. No shiner. Wide flange.  |           |      |          |       |       |       |
| 3/4" x 8'  | DI@.128   | Ea   | 9.34     | 5.16  | 14.50 | 24.70 |
| <b>Bullnose open plastic corner.</b> Used where three exterior corners intersect. Treated for maximum joint adhesion and rust protection. Wide flange.   |           |      |          |       |       |       |
| 3-way  | DI@.160   | Ea   | 1.61     | 6.45  | 8.06  | 13.70 |
| <b>Paper-faced metal bullnose outside corner, tape-on.</b> Smooth, rounded radius outside corner for 1/2" or 5/8" drywall. Paper tape cover is laminated to a rust-resistant metal profile for good adhesion of joint compound. Held in place with joint compound instead of nails to bond the bead to the drywall surface. Bead is covered with joint compound.   |           |      |          |       |       |       |
| 3/4" x 8' long   | DI@.128   | Ea   | 5.55     | 5.16  | 10.71 | 18.20 |
| 9/16" x 13/16" x 10'   | DI@.160   | Ea   | 4.34     | 6.45  | 10.79 | 18.30 |
| 11/16" x 15/16" x 8'   | DI@.216   | Ea   | 4.76     | 8.70  | 13.46 | 22.90 |
| 1-1/16" x 1-1/16" x 8'   | DI@.216   | Ea   | 4.98     | 8.70  | 13.68 | 23.30 |
| 1-1/16" x 1-1/16" x 10'  | DI@.270   | Ea   | 6.98     | 10.90 | 17.88 | 30.40 |
| <b>Galvanized bullnose corner bead.</b> Protects corners from damage with a more rounded edge for curves. Textured flanges allow for better bonding.   |           |      |          |       |       |       |
| 1-1/4" x 8'  | DI@.128   | Ea   | 3.65     | 5.16  | 8.81  | 15.00 |
| 1-1/4" x 9'  | DI@.144   | Ea   | 4.10     | 5.80  | 9.90  | 16.80 |
| 1-1/4" x 10'   | DI@.160   | Ea   | 4.56     | 6.45  | 11.01 | 18.70 |
| <b>Paper-faced metal L-shaped tape-on trim.</b> Edge reinforcement for drywall panels where panels abut other materials such as suspended ceilings, beams, plaster, masonry, concrete, door or window jambs. Paper tape covering laminated to an L-shaped rust-resistant metal profile provides excellent adhesion of joint compound, texture and paint. Applied using joint compound instead of nails to bond trim to the drywall surface. Trim is finished with joint compound. For use with 1/2" drywall. |           |      |          |       |       |       |
| 1/2" x 8'  | DI@.160   | Ea   | 4.92     | 6.45  | 11.37 | 19.30 |
| 1/2" x 10'   | DI@.160   | Ea   | 5.20     | 6.45  | 11.65 | 19.80 |
| <b>Paper-faced metal inside corner bead.</b> Tape-on trim used to protect drywall panel assembly edges, corners and sides. Forms a true, inner (90-degree) corner. No fasteners required, adheres to compound. Eliminates edge cracking, nail pops and chipping.   |           |      |          |       |       |       |
| 8' long  | DI@.216   | Ea   | 7.16     | 8.70  | 15.86 | 27.00 |
| <b>Drywall flex corner bead.</b> For use where curve or arch is formed. Pre-slotted flange allows for perfect arches. Tapered flanges are perforated and striated for adhesion. No need to tape the flange. Finish is compatible with drywall mud and all paint finishes.  |           |      |          |       |       |       |
| 1-1/4" x 10'   | DI@.270   | Ea   | 4.70     | 10.90 | 15.60 | 26.50 |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Tape-on flexible metal corner.</b> Provides straight, strong inside or outside corners of any angle. Paper tape is 2-1/16" wide laminated to two 7/16" wide galvanized steel strips with a 1/16" gap between the strips. The strength of steel with the superior bond of joint compound on paper. Strong, chip-resistant, smooth finish. Applied with joint compound instead of nails. Guaranteed against edge cracking. Bead is finished with joint compound. |           |      |          |        |        |        |
| 100' roll   | DI@2.67   | Ea   | 15.60    | 108.00 | 123.60 | 210.00 |
| <b>Drywall metal J-bead.</b> Protects drywall edges around doors and windows. Textured flanges allow for better bonding.  |           |      |          |        |        |        |
| 1/2" x 8'   | DI@.216   | Ea   | 4.00     | 8.70   | 12.70  | 21.60  |
| 1/2" x 10'  | DI@.270   | Ea   | 5.00     | 10.90  | 15.90  | 27.00  |
| <b>Drywall plastic J-bead.</b> For capping vertical and horizontal edges of raw drywall. Helps keep moisture out of board. Finish is compatible with drywall mud and paint finishes.  |           |      |          |        |        |        |
| 1/2" x 10'  | DI@.270   | Ea   | 2.78     | 10.90  | 13.68  | 23.30  |
| 5/8" x 10'  | DI@.270   | Ea   | 2.42     | 10.90  | 13.32  | 22.60  |
| <b>Drywall metal J-trim.</b> Galvanized steel. Provides maximum protection and neat finished edges where panels join window and door jambs, and at internal angles. Install with nails or screws.   |           |      |          |        |        |        |
| 1/2" x 8'   | DI@.216   | Ea   | 4.00     | 8.70   | 12.70  | 21.60  |
| 1/2" x 10'  | DI@.270   | Ea   | 5.00     | 10.90  | 15.90  | 27.00  |
| 5/8" x 8'   | DI@.216   | Ea   | 5.15     | 8.70   | 13.85  | 23.50  |
| 5/8" x 10'  | DI@.270   | Ea   | 8.68     | 10.90  | 19.58  | 33.30  |
| <b>Vinyl drywall outside corner bead.</b> Rust- and impact-resistant. Tapered legs are perforated and striated for better adhesion. No need to tape flange. Prevents electrolysis. Finish compatible with drywall mud and all paint finishes.   |           |      |          |        |        |        |
| 1-1/4" x 8' outside corner  | DI@.216   | Ea   | 2.88     | 8.70   | 11.58  | 19.70  |
| 1-1/4" x 10' outside corner   | DI@.270   | Ea   | 3.74     | 10.90  | 14.64  | 24.90  |
| 1/2" x 10' zip corner   | DI@.270   | Ea   | 4.68     | 10.90  | 15.58  | 26.50  |
| 10' bullnose corner   | DI@.270   | Ea   | 4.96     | 10.90  | 15.86  | 27.00  |
| 10' arch bullnose   | DI@.270   | Ea   | 6.59     | 10.90  | 17.49  | 29.70  |
| 1/2" x 8' J-trim  | DI@.216   | Ea   | 2.59     | 8.70   | 11.29  | 19.20  |
| 5/8" x 8' J-trim  | DI@.216   | Ea   | 2.71     | 8.70   | 11.41  | 19.40  |
| <b>Drywall L-trim.</b> Metal covered with paper. Trims drywall where it abuts with other building components such as suspended ceilings, beams, plaster, masonry, or concrete walls, and untrimmed door or window jambs.  |           |      |          |        |        |        |
| 1/2" x 8'   | DI@.216   | Ea   | 9.98     | 8.70   | 18.68  | 31.80  |
| 1/2" x 10'  | DI@.270   | Ea   | 9.98     | 10.90  | 20.88  | 35.50  |
| <b>Utility access door.</b> For plumbing and electrical access. 28-gauge galvanized steel. Piano hinge. Pressure fit door. Drywall frame with nailing flange.   |           |      |          |        |        |        |
| 14" x 14"   | DI@.500   | Ea   | 26.50    | 20.10  | 46.60  | 79.20  |
| <b>Drywall repair kit.</b> Includes 1-pound bag of setting compound, 5' of drywall, fiberglass drywall tape, 120-grit sandpaper, plastic spreader, four drywall repair clips, and eight drywall screws.   |           |      |          |        |        |        |
| Kit   | —         | Ea   | 19.10    | —      | 19.10  | —      |
| <b>Drywall repair patch.</b> No-rust aluminum plate provides rigid backing. Fiberglass mesh eliminates the need to embed tape.  |           |      |          |        |        |        |
| 4" x 4"   | —         | Ea   | 5.38     | —      | 5.38   | —      |
| 8" x 8"   | —         | Ea   | 8.51     | —      | 8.51   | —      |
| <b>Crack repair mesh, Quik-Tape™.</b> Self-adhesive 100% fiberglass mesh tape. Provides tensile strength and dimensional stability.   |           |      |          |        |        |        |
| 6" wide, 25' long   | —         | Ea   | 6.32     | —      | 6.32   | —      |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell  |
|--|-----------|------|----------|-------|--------|-------|
| <b>Drywall repair clips.</b> For repair of holes over 2". Suitable for both 1/2" and 5/8" thick drywall. Clips hold and reinforce the new piece of drywall sized to fit the hole being repaired.   |           |      |          |       |        |       |
| Kit with 6 clips   | —         | Ea   | 6.23     | —     | 6.23   | —     |
| <b>Tile backer tape.</b> Pressure sensitive, anti-corrosion coating.   |           |      |          |       |        |       |
| 2" x 50'   | —         | Ea   | 4.97     | —     | 4.97   | —     |
| <b>Flexible metal corner tape.</b> For inside and outside corners.   |           |      |          |       |        |       |
| 2" x 25'   | DI@.175   | Ea   | 6.79     | 7.05  | 13.84  | 23.50 |
| 2" x 100'  | DI@.700   | Ea   | 15.60    | 28.20 | 43.80  | 74.50 |
| <b>Corner bead spray adhesive, 3M Company.</b> Quick grab so corner bead can be joined without delay. Longer open time allows assembly flexibility. Covers up to 1,200 linear feet per can. Tinted adhesive helps provide better wall coverage in hard-to-see areas. |           |      |          |       |        |       |
| Adhesive   | —         | Ea   | 8.25     | —     | 8.25   | —     |
| <b>Drywall Fasteners</b>   |           |      |          |       |        |       |
| <b>Drywall screws, Twifast.</b> Sharp, non-walking point. Dual lead. Each 100 square feet of board requires approximately 170 screws (1/2 pound). The cost of fasteners needed to hang drywall is included in the previous section, Drywall.                         |           |      |          |       |        |       |
| #6 x 1", 5 pounds, 2,000 screws  | —         | Ea   | 25.00    | —     | 25.00  | —     |
| #6 x 1-1/4", 5 pounds, 1,700 screws  | —         | Ea   | 25.00    | —     | 25.00  | —     |
| #6 x 1-5/8", 5 pounds, 1,550 screws  | —         | Ea   | 25.00    | —     | 25.00  | —     |
| <b>Drywall nails.</b> Approximately 300 nails per pound. Each 100 square feet of board requires approximately 200 nails (2/3 of a pound). The cost of fasteners needed to hang drywall is included in the previous section, Drywall.                                 |           |      |          |       |        |       |
| 1-3/8", 30 pounds  | —         | Ea   | 50.00    | —     | 50.00  | —     |
| 1-1/2", 1 pound  | —         | Ea   | 5.34     | —     | 5.34   | —     |
| 1-1/2", coated, 1 pound  | —         | Ea   | 8.37     | —     | 8.37   | —     |
| 1-1/2", galvanized, 1 pound  | —         | Ea   | 6.75     | —     | 6.75   | —     |
| <b>Drywall Tools</b>   |           |      |          |       |        |       |
| <b>Electronic stud sensor.</b> Detects wood at 3/4" depth.   |           |      |          |       |        |       |
| Electronic stud sensor   | —         | Ea   | 20.00    | —     | 20.00  | —     |
| <b>Drywall screwdriver, 6-amp, DeWalt.</b> Helical-cut steel, heat-treated gears. Quiet clutch. Depth-sensitive nosepiece. Tool weight: 2.9 pounds. UL Listed and OSHA approved. 60 inch-pounds of torque.   |           |      |          |       |        |       |
| 0 To 4,000 RPM   | —         | Ea   | 129.00   | —     | 129.00 | —     |
| <b>Battery-powered drywall screw gun, DuraSpin, Senco.</b> Drives 600 1" to 3" drywall screws an hour. Adjustable nosepiece. Includes spare drive, bits and case.  |           |      |          |       |        |       |
| 18 volts   | —         | Ea   | 119.00   | —     | 119.00 | —     |
| <b>Drywall to wood collated screws</b> Collated pack of 1,000.   |           |      |          |       |        |       |
| #6 x 1-1/4"  | —         | Ea   | 26.50    | —     | 26.50  | —     |
| #6 x 1-5/8"  | —         | Ea   | 37.90    | —     | 37.90  | —     |
| #7 x 2"  | —         | Ea   | 38.90    | —     | 38.90  | —     |
| <b>Drywall to steel collated screws.</b> Collated pack of 1,000.   |           |      |          |       |        |       |
| #6 x 1-1/4", light steel   | —         | Ea   | 32.00    | —     | 32.00  | —     |
| #6 x 1-1/4", heavy steel   | —         | Ea   | 41.50    | —     | 41.50  | —     |

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| <b>Phillips-head drywall screwdriver bit.</b>  |                  |             |                 |              |              |             |
| #1 insert bit, pack of 30  | —                | Ea          | 22.00           | —            | 22.00        | —           |
| #2 insert bit, pack of 30  | —                | Ea          | 22.00           | —            | 22.00        | —           |
| <b>Drywall hammer.</b> All solid steel construction. Head and handle forged in one piece. Fully polished. Shock-reduction nylon vinyl grip. Crowned and scored face.   |                  |             |                 |              |              |             |
| 13-1/2" long, 16 ounce   | —                | Ea          | 40.70           | —            | 40.70        | —           |
| <b>Drywall T-square.</b> Head riveted to blade. Silver anodized aluminum. 1/8" and 1/16" graduations.  |                  |             |                 |              |              |             |
| 48" blade  | —                | Ea          | 17.00           | —            | 17.00        | —           |
| <b>Stainless steel curved drywall trowel.</b> Soft handle.   |                  |             |                 |              |              |             |
| 11" trowel   | —                | Ea          | 50.00           | —            | 50.00        | —           |
| 14" trowel   | —                | Ea          | 60.00           | —            | 60.00        | —           |
| <b>Drywall corner trowel.</b> Blade set at 80-degree angle that flexes to 90 degrees during use.   |                  |             |                 |              |              |             |
| Hardwood handle  | —                | Ea          | 17.00           | —            | 17.00        | —           |
| <b>Single-texture drywall brush.</b> Horsehair plastic, round for swirled or sponged effects on ceilings and walls.  |                  |             |                 |              |              |             |
| Standard threaded hole in center can be used with any standard broom handle.   |                  |             |                 |              |              |             |
| 2-1/2" trim, 4-3/4" block  | —                | Ea          | 15.90           | —            | 15.90        | —           |
| Stippling brush  | —                | Ea          | 11.70           | —            | 11.70        | —           |
| <b>Crow's foot texturing brush.</b> Tampico hemp bristles set in a wooden base. Can be hand held or center-hole pole mounted.  |                  |             |                 |              |              |             |
| 13" x 9"   | —                | Ea          | 14.70           | —            | 14.70        | —           |
| <b>Drywall stilts.</b> High-strength aluminum alloy with adjustable heights. Spring wishbone locks securely to prevent legs from sliding. Rubber soles prevent slipping. To 225 pounds.  |                  |             |                 |              |              |             |
| 18" to 28" lift  | —                | Ea          | 258.00          | —            | 258.00       | —           |
| <b>Drywall panel lift.</b> Lifts and holds drywall in place on the ceiling.  |                  |             |                 |              |              |             |
| Daily rental   | —                | Ea          | 180.00          | —            | 180.00       | —           |
| Panel lift deposit   | —                | Ea          | 100.00          | —            | 100.00       | —           |
| <b>Drywall sander kit.</b> For drywall sanding without dust. Includes 6' hose with swivel ends, 2 hose adapters, 1 medium grit sandscreen, 1-piece high-impact polystyrene plastic sanding head, and instructions.   |                  |             |                 |              |              |             |
| Drywall sander kit   | —                | Ea          | 38.80           | —            | 38.80        | —           |
| <b>Drywall sanding fiberglass respirator.</b> Strengthened outer shell helps prevent collapse due to moisture buildup. Soft inner shell for comfort and durability. Adjustable metal nosepiece with foam seal fits variety of face sizes. Heavy-duty pre-stretched straps. |                  |             |                 |              |              |             |
| Respirator (2 pack)  | —                | Ea          | 6.70            | —            | 6.70         | —           |
| <b>Drywall sanding sponge.</b> For sanding drywall and plaster during spot repair. Resists clogging and buildup. Fine and medium sanding grits in one sponge.  |                  |             |                 |              |              |             |
| Small  | —                | Ea          | 4.46            | —            | 4.46         | —           |
| Large  | —                | Ea          | 7.82            | —            | 7.82         | —           |
| <b>Plastic drywall hand sander.</b> Lightweight, durable plastic base with multiple sandpaper usage. Use with die-cut or 1/2-sheet standard sandpaper.   |                  |             |                 |              |              |             |
| 3-1/4" x 9-1/4"  | —                | Ea          | 6.96            | —            | 6.96         | —           |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---|-----------|------|----------|-------|-------|------|
| <b>Pole and hand drywall sander.</b>  |           |      |          |       |       |      |
| Sander  | —         | Ea   | 8.94     | —     | 8.94  | —    |
| <b>Sand &amp; Kleen™ dustless drywall sanding system, Magna.</b> 20' of hose to sand 7 drywall panels between water changes. 5-gallon aquair filter, 1-1/4", 2-1/4", and 2-1/2" vacuum adapters.    |           |      |          |       |       |      |
| No. MT800 dustless sander   | —         | Ea   | 39.90    | —     | 39.90 | —    |
| <b>4 x 8 Paneling</b>   |           |      |          |       |       |      |
| <b>Embossed tileboard, ABTCO.</b> Printed hardboard. Including 10% waste.   |           |      |          |       |       |      |
| Aquatile, 4' x 8' panels, 1/8" thick  | BC@.020   | SF   | 1.52     | .82   | 2.34  | 3.98 |
| Glaztile III, 4' x 8' panels, 1/8" thick  | BC@.020   | SF   | 1.36     | .82   | 2.18  | 3.71 |
| <b>Embossed tileboard.</b> Water-resistant surface. The look of real ceramic tile. 1/8" x 4' x 8' panels. Including 10% waste.  |           |      |          |       |       |      |
| Alicante  | BC@.034   | SF   | 1.43     | 1.40  | 2.83  | 4.81 |
| Bisque plain  | BC@.034   | SF   | 1.19     | 1.40  | 2.59  | 4.40 |
| Blue floral   | BC@.034   | SF   | 1.73     | 1.40  | 3.13  | 5.32 |
| Floraleau   | BC@.034   | SF   | 1.48     | 1.40  | 2.88  | 4.90 |
| Golden lace   | BC@.034   | SF   | 1.44     | 1.40  | 2.84  | 4.83 |
| Morning glories   | BC@.034   | SF   | 1.48     | 1.40  | 2.88  | 4.90 |
| Scored white  | BC@.034   | SF   | 1.48     | 1.40  | 2.88  | 4.90 |
| Silver quartz   | BC@.034   | SF   | 1.85     | 1.40  | 3.25  | 5.53 |
| Stone white   | BC@.034   | SF   | 1.22     | 1.40  | 2.62  | 4.45 |
| Thrifty white   | BC@.034   | SF   | .62      | 1.40  | 2.02  | 3.43 |
| Tuscan marble   | BC@.034   | SF   | 1.15     | 1.40  | 2.55  | 4.34 |
| White   | BC@.034   | SF   | .97      | 1.40  | 2.37  | 4.03 |
| <b>Primed fiberboard paneling.</b> Medium-density fiberboard 4' x 8' panels. Per square foot including 10% waste.   |           |      |          |       |       |      |
| 3/16" thick. White.   |           |      |          |       |       |      |
| Beaded  | BC@.020   | SF   | 1.24     | .82   | 2.06  | 3.50 |
| Beaded, grooved 3" on center  | BC@.020   | SF   | 1.30     | .82   | 2.12  | 3.60 |
| <b>Paneling, Georgia-Pacific.</b> Durable wood fiber backing. Simulated woodgrain face. Can be used in basements.   |           |      |          |       |       |      |
| 4' x 8' panels. Per square foot, including 10% waste.   |           |      |          |       |       |      |
| Blanc polare lauan, 5/32"   | BC@.020   | SF   | 1.09     | .82   | 1.91  | 3.25 |
| Moonlight, 1/8"   | BC@.020   | SF   | .81      | .82   | 1.63  | 2.77 |
| <b>Mount Vernon paneling, Georgia-Pacific.</b> Simulated wood grain face on medium-density fiberboard backing. Can be used in basements. 4' x 8' panels. Per square foot, including 10% waste.      |           |      |          |       |       |      |
| Kimberly oak, 1/8"  | BC@.020   | SF   | .67      | .82   | 1.49  | 2.53 |
| <b>Jubilee® beaded paneling, Georgia-Pacific.</b> 3/16" thick. Ready to paint. Simulated woodgrain and decorative finishes. Acryglas® topcoat. 4' x 8' panels. Per square foot including 10% waste. |           |      |          |       |       |      |
| Beaded white ice, 3/16"   | BC@.020   | SF   | 1.46     | .82   | 2.28  | 3.88 |
| Jubilee®, 3/16"   | BC@.020   | SF   | 1.42     | .82   | 2.24  | 3.81 |
| <b>Hardboard paneling.</b> Printed wood grain. 4' x 8' panels. Per square foot, including 10% waste.  |           |      |          |       |       |      |
| Italian Oak, 1/8"   | BC@.020   | SF   | .77      | .82   | 1.59  | 2.70 |
| Kashmir, 5/32"  | BC@.020   | SF   | 1.07     | .82   | 1.89  | 3.21 |
| Wild Dune, 1/8"   | BC@.020   | SF   | 1.23     | .82   | 2.05  | 3.49 |
| Knotty cedar, 5/32"   | BC@.020   | SF   | 1.02     | .82   | 1.84  | 3.13 |
| Norwegian pine, 1/8"  | BC@.020   | SF   | 1.11     | .82   | 1.93  | 3.28 |
| Spartan oak, 1/8"   | BC@.020   | SF   | .60      | .82   | 1.42  | 2.41 |
| Valencia birch, 1/8"  | BC@.020   | SF   | .98      | .82   | 1.80  | 3.06 |

|                              | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|------------------------------|------------------|-------------|-----------------|--------------|--------------|-------------|
| Water resistant, 1/4"        | BC@.020          | SF          | 1.22            | .82          | 2.04         | 3.47        |
| Westminster red brick, 1/4"  | BC@.020          | SF          | 1.60            | .82          | 2.42         | 4.11        |
| Vintage maple, 1/8"          | BC@.020          | SF          | 1.09            | .82          | 1.91         | 3.25        |
| Traditional oak, 1/8"        | BC@.020          | SF          | 1.27            | .82          | 2.09         | 3.55        |
| Honey oak, 1/8"              | BC@.020          | SF          | 1.18            | .82          | 2.00         | 3.40        |
| Cherry oak, 1/8"             | BC@.020          | SF          | 1.18            | .82          | 2.00         | 3.40        |
| Arabella pine, 5/32"         | BC@.020          | SF          | .90             | .82          | 1.72         | 2.92        |
| Heather oak, 5/32"           | BC@.020          | SF          | 1.10            | .82          | 1.92         | 3.26        |
| Juliet cherry, beaded, 5/32" | BC@.020          | SF          | 1.07            | .82          | 1.89         | 3.21        |
| Kristen leather, 5/32"       | BC@.020          | SF          | 1.40            | .82          | 2.22         | 3.77        |

**Designer paneling, Fashion Series.** 3.2 millimeter backing. Texture of wallpaper. Not recommended for floors, ceilings, and high-moisture areas. 4' x 8' panels. Per square foot, including 10% waste.

|                                |         |    |      |      |      |      |
|--------------------------------|---------|----|------|------|------|------|
| Sculptured stripe, 3.2mm thick | BC@.034 | SF | 1.18 | 1.40 | 2.58 | 4.39 |
|--------------------------------|---------|----|------|------|------|------|

## Hardwood Paneling

**Ann Arbor birch prefinished paneling.** For use in basements and below ground level. Rotary cut face. Plywood backing. Permagard® topcoat finish. 4' x 8' panels. Per square foot, including 10% waste.

|             |         |    |      |      |      |      |
|-------------|---------|----|------|------|------|------|
| 5.0mm thick | BC@.034 | SF | 1.93 | 1.40 | 3.33 | 5.66 |
|-------------|---------|----|------|------|------|------|

**Bridgeport Bryant birch paneling.** Offers the beauty of real wood with a durable hardwood plywood backing. Can be used in basements and below ground level. 4' x 8' panels. Per square foot, including 10% waste.

|             |         |    |      |      |      |      |
|-------------|---------|----|------|------|------|------|
| 5.0mm thick | BC@.034 | SF | 1.85 | 1.40 | 3.25 | 5.53 |
|-------------|---------|----|------|------|------|------|

**Brookstone birch paneling.** May be used in basements and below ground level. Rotary cut face and prefinished hardwood plywood substrate. Permagard® topcoat finish and unfinished. 4' x 8' panels. Per square foot, including 10% waste.

|                         |         |    |      |      |      |      |
|-------------------------|---------|----|------|------|------|------|
| Unfinished, 5.0mm thick | BC@.034 | SF | 1.84 | 1.40 | 3.24 | 5.51 |
|-------------------------|---------|----|------|------|------|------|

**Remove tongue-and-groove plank paneling.** Remove 1/4" x 8" x 4' to 8' pieces in salvage condition. Per square foot of wall covered.

|                       |         |    |   |      |      |      |
|-----------------------|---------|----|---|------|------|------|
| Working from a ladder | BC@.040 | SF | — | 1.64 | 1.64 | 2.79 |
|-----------------------|---------|----|---|------|------|------|

**Beaded Cape Cod plank.** Tongue-and-groove. Medium-density fiberboard backing.

|                      |         |    |       |       |       |       |
|----------------------|---------|----|-------|-------|-------|-------|
| 1/4" x 21" x 8"      | BC@.040 | SF | 1.85  | 1.64  | 3.49  | 5.93  |
| 9/16" x 8', trim kit | BC@.250 | Ea | 21.80 | 10.30 | 32.10 | 54.60 |

**Edge V-plank.** 4" wide x 8' long. Including 10% waste.

|                              |         |    |      |      |      |       |
|------------------------------|---------|----|------|------|------|-------|
| Beaded Adirondack oak, 5/16" | BC@.040 | SF | 6.09 | 1.64 | 7.73 | 13.10 |
| Beaded knotty pine, 3/4"     | BC@.040 | SF | 2.05 | 1.64 | 3.69 | 6.27  |
| Knotty cedar, 5/16"          | BC@.040 | SF | 1.93 | 1.64 | 3.57 | 6.07  |

**Edge V-plank trim pack.** Tongue-and-groove.

|                            |         |    |       |       |       |       |
|----------------------------|---------|----|-------|-------|-------|-------|
| Adirondack oak, 5/16" x 6' | BC@.250 | Ea | 40.70 | 10.30 | 51.00 | 86.70 |
|----------------------------|---------|----|-------|-------|-------|-------|

**Pine planking.** 4" x 8' x 5/16". Tongue-and-groove. Including 10% waste.

|                          |         |    |       |       |       |       |
|--------------------------|---------|----|-------|-------|-------|-------|
| Beaded knotty pine       | BC@.040 | SF | 1.52  | 1.64  | 3.16  | 5.37  |
| Knotty pine 8' trim pack | BC@.250 | Ea | 16.40 | 10.30 | 26.70 | 45.40 |
| V-groove pine            | BC@.040 | SF | 1.33  | 1.64  | 2.97  | 5.05  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| <b>Wainscot Paneling</b>   |           |      |          |       |       |        |
| <b>Hardboard wainscot paneling.</b> Paneling covers only the lower 32" of walls. Hardboard with the classic look of fine raised wood. Cost per panel.  |           |      |          |       |       |        |
| 8" x 32"   | BC@.035   | Ea   | 7.39     | 1.44  | 8.83  | 15.00  |
| 12" x 32", Pack of 2   | BC@.105   | Ea   | 29.70    | 4.31  | 34.01 | 57.80  |
| 16" x 32", Pack of 2   | BC@.140   | Ea   | 30.50    | 5.75  | 36.25 | 61.60  |
| 48" x 32", Pack of 2   | BC@.420   | Ea   | 65.20    | 17.20 | 82.40 | 140.00 |
| Dual outlet cover  | BC@.250   | Ea   | 6.88     | 10.30 | 17.18 | 29.20  |
| Universal outlet cover   | BC@.250   | Ea   | 6.88     | 10.30 | 17.18 | 29.20  |
| <b>Birch wainscot paneling.</b> Precut to 32" high. Unfinished. Stain to match an existing wainscot room, or customize. Beaded grooves every 1-1/2". 48" wide x 32" high. 5mm thick. Including 10% waste.  |           |      |          |       |       |        |
| Ann Arbor  | BC@.040   | SF   | 2.54     | 1.64  | 4.18  | 7.11   |
| Unfinished   | BC@.040   | SF   | 2.70     | 1.64  | 4.34  | 7.38   |
| <b>Pine wainscot paneling.</b> 4" x 32". Tongue-and-groove. Including 10% waste.   |           |      |          |       |       |        |
| 4' x 32" x 1/4", paintable white   | BC@.040   | Ea   | 18.60    | 1.64  | 20.24 | 34.40  |
| 4' x 32" x 5/16", beaded knotty pine   | BC@.040   | Ea   | 20.00    | 1.64  | 21.64 | 36.80  |
| 3/4" x 8', knotty pine trim pack   | BC@.030   | LF   | 2.26     | 1.23  | 3.49  | 5.93   |
| <b>Fiberglass Reinforced Plastic Panels</b>  |           |      |          |       |       |        |
| <b>FRP wall and ceiling panels, Structoglas®, Sequentia.</b> For residential construction and remodeling. Won't rust, rot, corrode, stain, dent, peel, or splinter. One side textured. Surface won't support mold, mildew, or other bacterial growth. Impermeable to cooking fumes and grease. Cleans with household detergents. Meets all major model code requirements. Class C flame spread. 4' x 8', .090 thick panels. Including 10% waste. |           |      |          |       |       |        |
| Almond   | BC@.032   | SF   | 1.48     | 1.31  | 2.79  | 4.74   |
| White  | BC@.032   | SF   | 1.48     | 1.31  | 2.79  | 4.74   |
| <b>FRP panel molding.</b> Fiberglass reinforced plastic. White. 10' long.  |           |      |          |       |       |        |
| Division bar   | BC@.160   | Ea   | 3.48     | 6.57  | 10.05 | 17.10  |
| Inside corner  | BC@.160   | Ea   | 3.48     | 6.57  | 10.05 | 17.10  |
| Outside corner   | BC@.160   | Ea   | 3.48     | 6.57  | 10.05 | 17.10  |
| End cap, 8' long   | BC@.160   | Ea   | 3.48     | 6.57  | 10.05 | 17.10  |
| <b>Nylon panel rivets.</b> Non-staining. Maintains moisture seal and provides mechanical fastening for FRP panels when used with silicone sealants. 1/16" minimum grip, 1/2" maximum grip. Pack of 50.   |           |      |          |       |       |        |
| Almond   | —         | Ea   | 12.00    | —     | 12.00 | —      |
| White  | —         | Ea   | 12.00    | —     | 12.00 | —      |
| <b>Ceiling Tile</b>  |           |      |          |       |       |        |
| <b>Acoustical ceiling tile.</b> 12" x 12" tile. Working from a ladder at heights 8' to 12' above floor level.  |           |      |          |       |       |        |
| Remove nailed or glued tile ceiling,<br>per square foot of ceiling   | BC@.009   | SF   | —        | .37   | .37   | .63    |
| Remove and install glued or stapled tile at<br>various locations, per tile   | BC@.100   | Ea   | —        | 4.11  | 4.11  | 6.99   |
| Remove and install border tile by slipping tile<br>under molding, per tile replaced  | BC@.110   | Ea   | —        | 4.52  | 4.52  | 7.68   |
| Staple tile directly on furring, no molding included,<br>per square foot of tile   | BC@.020   | SF   | —        | .82   | .82   | 1.39   |
| Add for job setup, per room  | BC@.150   | Ea   | —        | 6.16  | 6.16  | 10.50  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| Staple tile to 1" x 2" furring strips, including strips, per square foot of tile   | BC@.042   | SF   | —        | 1.72  | 1.72  | 2.92  |
| Add for job setup, per room  | BC@.150   | Ea   | —        | 6.16  | 6.16  | 10.50 |
| Set tile directly on ceiling with adhesive, including cove molding, per square foot of tile  | BC@.020   | SF   | —        | .82   | .82   | 1.39  |
| Add for job setup, per room  | BC@.150   | Ea   | —        | 6.16  | 6.16  | 10.50 |
| Secure loose tile by nailing or driving screws, per tile   | BC@.035   | Ea   | —        | 1.44  | 1.44  | 2.45  |
| <b>Ceiling tile.</b> Covers cracked or stained drywall ceilings. Fire-retardant. Stapled or set with adhesive.   |           |      |          |       |       |       |
| 24" x 24", Good  | BC@.020   | Ea   | 1.89     | .82   | 2.71  | 4.61  |
| 24" x 24", Better  | BC@.020   | Ea   | 1.95     | .82   | 2.77  | 4.71  |
| 24" x 24", Best  | BC@.020   | Ea   | 3.59     | .82   | 4.41  | 7.50  |
| <b>Tin design ceiling tile.</b> Hidden seams, durable, vinyl-coated, fire-retardant.   |           |      |          |       |       |       |
| 12" x 12"  | BC@.020   | Ea   | 2.68     | .82   | 3.50  | 5.95  |
| <b>Wood fiber ceiling tile.</b> Class C panels for non-acoustical and non fire-rated applications. Tongue-and-groove edging hides staples for a smooth, clean look. 12" x 12" x 1/2" with staple flange. Stapled or set with adhesive. |           |      |          |       |       |       |
| Lace   | BC@.020   | Ea   | 1.53     | .82   | 2.35  | 4.00  |
| Tivoli   | BC@.020   | Ea   | 1.71     | .82   | 2.53  | 4.30  |
| White wood fiber   | BC@.020   | Ea   | 1.57     | .82   | 2.39  | 4.06  |
| <b>Acoustical ceiling tile adhesive, 237, Henry.</b> For use on 12" x 12" or 12" x 24" tile. Bonds to concrete, concrete block, drywall, plaster and brick. 30-minute working time. One gallon covers 60 square feet.                  |           |      |          |       |       |       |
| Per square foot  | —         | SF   | .54      | —     | .54   | —     |
| <b>Suspended Ceilings</b>  |           |      |          |       |       |       |
| <b>Remove suspended tile ceiling.</b> (200 to 250 SF of ceiling yields one CY of debris.)  |           |      |          |       |       |       |
| Including suspended grid   | BL@.010   | SF   | —        | .33   | .33   | .56   |
| Including grid in salvage condition  | BL@.019   | SF   | —        | .63   | .63   | 1.07  |
| <b>Install suspended ceiling.</b> Working from a ladder at heights 8' to 12' above floor level. No light fixtures included.  |           |      |          |       |       |       |
| Suspended from wires attached to wood joists through holes broken in drywall, plaster or fiberboard ceiling.   |           |      |          |       |       |       |
| 24" x 24" ceiling grid with panels   | BC@.042   | SF   | —        | 1.72  | 1.72  | 2.92  |
| 24" x 48" ceiling grid with panels   | BC@.028   | SF   | —        | 1.15  | 1.15  | 1.96  |
| 48" x 48" ceiling grid with panels   | BC@.025   | SF   | —        | 1.03  | 1.03  | 1.75  |
| Add for job setup, per room  | BC@.183   | Ea   | —        | 7.51  | 7.51  | 12.80 |
| <b>Remove and replace 24" x 48" ceiling panels on an existing grid.</b>  |           |      |          |       |       |       |
| No cutting of panels, per panel  | BC@.052   | Ea   | —        | 2.14  | 2.14  | 3.64  |
| 10% of panels cut, per panel   | BC@.059   | Ea   | —        | 2.42  | 2.42  | 4.11  |
| 20% of panels cut, per panel   | BC@.064   | Ea   | —        | 2.63  | 2.63  | 4.47  |
| 30% of panels cut, per panel   | BC@.070   | Ea   | —        | 2.87  | 2.87  | 4.88  |
| 40% of panels cut, per panel   | BC@.076   | Ea   | —        | 3.12  | 3.12  | 5.30  |
| 50% of panels cut, per panel   | BC@.082   | Ea   | —        | 3.37  | 3.37  | 5.73  |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Prelude® suspended ceiling system cross tee, Armstrong.</b> Intermediate-duty performance. Meets all building codes for non-residential construction. Hot-dipped galvanized, rust-resistant steel. Double-web construction. Requires only 2-1/2" clearance.   |           |      |          |       |        |        |
| 2', stab-in, white   | BC@.033   | Ea   | 3.47     | 1.35  | 4.82   | 8.19   |
| 4', stab-in, white   | BC@.033   | Ea   | 3.33     | 1.35  | 4.68   | 7.96   |
| <b>Prelude® fire guard suspended ceiling system cross tee, Armstrong.</b> Fire rated intermediate-duty performance. Meets all building codes for non-residential construction. Hot-dipped galvanized, rust-resistant steel. Double-web construction. Requires only 2-1/2" clearance.   |           |      |          |       |        |        |
| 2', stab-in  | BC@.033   | Ea   | 3.55     | 1.35  | 4.90   | 8.33   |
| 4', stab-in, white   | BC@.033   | Ea   | 6.75     | 1.35  | 8.10   | 13.80  |
| <b>Prelude® suspended ceiling system main beam, Armstrong.</b> Intermediate-duty performance. Hot-dipped galvanized, rust-resistant steel. Double-web construction. PeakForm™ end. 12.6 pound per foot carrying capacity.  |           |      |          |       |        |        |
| 12', white   | BC@.167   | Ea   | 11.50    | 6.86  | 18.36  | 31.20  |
| 12', fire guard, white   | BC@.167   | Ea   | 21.20    | 6.86  | 28.06  | 47.70  |
| <b>Prelude® suspended ceiling system wall molding, Armstrong.</b> Fire rated performance. Hemmed edges. Hot-dipped galvanized, rust-resistant steel, 12' x 7/8" x 7/8", 0.018" thick. Meets all building codes for non-residential construction.   |           |      |          |       |        |        |
| 12', white   | BC@.167   | Ea   | 6.98     | 6.86  | 13.84  | 23.50  |
| <b>CeilingMAX™ zero-clearance ceiling tile grid system.</b> Surface mounting for covering old plaster, drywall or paste-up ceilings. No wires to hang or leveling required. Top hanger fastens directly to joists or existing ceiling. Use any 2' x 2' or 4' x 4' acoustic ceiling tile. Eliminates demolition and re-installation. Runner snaps into top hanger to lock entire grid system and ceiling panels. Cross tee is installed perpendicular to top hanger to support ceiling panels. Wall bracket is installed around perimeter of room. Grid snaps out to access plenum above the grid. White vinyl. |           |      |          |       |        |        |
| 2' cross tee   | BC@.033   | Ea   | 1.00     | 1.35  | 2.35   | 4.00   |
| 8' runner insert   | BC@.333   | Ea   | 3.92     | 13.70 | 17.62  | 30.00  |
| 8' top hanger  | BC@.333   | Ea   | 4.66     | 13.70 | 18.36  | 31.20  |
| 8' wall bracket  | BC@.111   | Ea   | 2.49     | 4.56  | 7.05   | 12.00  |
| <b>Drill tip suspension lag screws.</b>  |           |      |          |       |        |        |
| Package of 100   | —         | Ea   | 53.80    | —     | 53.80  | —      |
| <b>White rivets.</b>   |           |      |          |       |        |        |
| Package of 100   | —         | Ea   | 7.33     | —     | 7.33   | —      |
| <b>Ceiling wire hanging kit.</b> Contains 12 gauge support wires and J-hook nails. Suspends 160 square feet with main tees supported on 4' centers.  |           |      |          |       |        |        |
| Ceiling wire kit   | BC@1.67   | Ea   | 32.20    | 68.60 | 100.80 | 171.00 |
| <b>Suspended ceiling installation kit, Armstrong.</b> Kit includes everything needed to install 64 square feet of suspended ceiling grid. White.   |           |      |          |       |        |        |
| 2' x 2' grid   | BC@1.25   | Ea   | 54.70    | 51.30 | 106.00 | 180.00 |
| 2' x 4' grid   | BC@1.25   | Ea   | 40.80    | 51.30 | 92.10  | 157.00 |
| <b>Random textured suspended ceiling panel, Armstrong.</b> Square lay-in panel. Recommended for use with Prelude 15/16" exposed-tee grid. Class A fire-resistance. Reduces sound by 55%. 5-year limited warranty.  |           |      |          |       |        |        |
| 2' x 2' x 5/8" thick   | BC@.027   | Ea   | 2.78     | 1.11  | 3.89   | 6.61   |
| 2' x 4' x 5/8" thick   | BC@.056   | Ea   | 6.61     | 2.30  | 8.91   | 15.10  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Contractor suspended ceiling panel, Armstrong.</b> Fire-retardant. Acoustical NRC .55. Reduces sound by 55%.<br>2' x 2', random textured  | BC@.027   | Ea   | 3.81     | 1.11  | 4.92  | 8.36  |
| <b>Plain white suspended ceiling panel, Armstrong.</b> Fire-retardant. 10-year limited warranty.<br>2' x 4', square edge   | BC@.056   | Ea   | 13.30    | 2.30  | 15.60 | 26.50 |
| <b>Classic fine-textured suspended ceiling panel, Armstrong.</b> 3-dimensional look. Reduces sound by 60%. High light reflectance. BioBlock paint inhibits mold and mildew. HumiGuard Plus for extra sag resistance. Fire-retardant.<br>2' x 2'                                  | BC@.027   | Ea   | 12.70    | 1.11  | 13.81 | 23.50 |
| <b>Acoustical suspended ceiling panel, Armstrong.</b> Square edge. Light reflectance minimum LR 0.80. Reduces sound by 55%.<br>2' x 4', random textured  | BC@.056   | Ea   | 6.70     | 2.30  | 9.00  | 15.30 |
| <b>Textured suspended ceiling panel, Armstrong.</b> Good for basements to hide plumbing and electrical fixtures while allowing access. Acoustical (NRC .55, CAC min. 35). Fire-retardant. Square edge. 5-year limited warranty.<br>2' x 4'                                       | BC@.056   | Ea   | 4.73     | 2.30  | 7.03  | 12.00 |
| <b>Sahara suspended ceiling panel, Armstrong.</b> Regular edge panel. HumiGuard™ Plus and Bioguard™ paint. Class A fire-resistant. 3-dimensional look. Reduces sound by 50%.<br>2' x 2'  | BC@.027   | Ea   | 5.21     | 1.11  | 6.32  | 10.70 |
| <b>HomeStyle™ suspended ceiling panel, Armstrong.</b> Grid-hiding designs. Fire-retardant. 10-year limited warranty.<br>2' x 2', Brighton  | BC@.027   | Ea   | 6.06     | 1.11  | 7.17  | 12.20 |
| 2' x 2', Royal oak   | BC@.027   | Ea   | 9.23     | 1.11  | 10.34 | 17.60 |
| <b>Fiberglass suspended ceiling panel, Armstrong.</b> Square-edge panel with HumiGuard Plus for extra sag resistance for high humidity.<br>2' x 4' x 5/8" thick, random fissured   | BC@.056   | Ea   | 7.43     | 2.30  | 9.73  | 16.50 |
| 2' x 4' x 5/8" thick, Esprit   | BC@.056   | Ea   | 7.47     | 2.30  | 9.77  | 16.60 |
| <b>Fiberglass suspended ceiling panel, Armstrong.</b> Acoustical. UL-approved fire-retardant. Light reflectance minimum LR 0.80. Class A surface-burning characteristics for Flame Spread 25 or under. Meets Class A requirements of ASTM E 1264.<br>2' x 4', reveal-edge design | BC@.056   | Ea   | 8.21     | 2.30  | 10.51 | 17.90 |
| <b>Fissured fire guard suspended ceiling panel, Armstrong.</b> Square lay-in panel. Recommended for use with Prelude 15/16" exposed-tee grid. Class A fire-resistance. UL approved for fire-rated ceiling assemblies. Reduces sound by 55%.<br>2' x 4' x 5/8"                    | BC@.056   | Ea   | 13.10    | 2.30  | 15.40 | 26.20 |
| <b>Prestige suspended ceiling panel, Armstrong.</b> Architectural detail. Grid-blending pattern. Fire-retardant.<br>2' x 2'  | BC@.027   | Ea   | 10.80    | 1.11  | 11.91 | 20.20 |
| <b>Grenoble suspended ceiling panel, Armstrong.</b> HomeStyle™ ceiling panel. Fire-retardant.<br>2' x 4'   | BC@.056   | Ea   | 5.98     | 2.30  | 8.28  | 14.10 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>RADAR™ Illusion suspended ceiling panel, Professional Series, USG Interiors.</b> Non-directional pattern for fast installation. Made with a perforated, water-felted surface for good sound absorption. Face-scored to create the illusion of a smaller-scaled ceiling system without compromising accessibility and speed of installation. Surface cleans with a soft brush or vacuum. |           |      |          |       |       |       |
| 2' x 4' x 3/4", slant edge   | BC@.056   | Ea   | 20.30    | 2.30  | 22.60 | 38.40 |
| 2' x 2' x 5/8", square edge  | BC@.027   | Ea   | 6.59     | 1.11  | 7.70  | 13.10 |
| 2' x 4' x 5/8", square edge  | BC@.056   | Ea   | 13.90    | 2.30  | 16.20 | 27.50 |
| 2' x 2' x 5/8", shadowline tapered edge  | BC@.027   | Ea   | 7.51     | 1.11  | 8.62  | 14.70 |
| <b>Fire guard suspended ceiling panel, Armstrong.</b> Fine-textured ceiling panels with high light reflectance and scratch resistance. Washable. Sag resistant. Resists growth of mold and mildew.   |           |      |          |       |       |       |
| 2' x 2' x 1/2", square edge  | BC@.056   | Ea   | 2.73     | 2.30  | 5.03  | 8.55  |
| <b>Fifth Avenue suspended ceiling panel, Professional Series, USG Interiors.</b> Medium-textured acoustical panels with directional pattern. Made with a water-felted manufacturing process for good sound absorption. Surface cleans easily with a soft brush or vacuum. For home and light commercial applications. Square edge.   |           |      |          |       |       |       |
| 2' x 2' x 5/8"   | BC@.027   | Ea   | 1.58     | 1.11  | 2.69  | 4.57  |
| 2' x 4' x 5/8"   | BC@.056   | Ea   | 5.48     | 2.30  | 7.78  | 13.20 |
| <b>Firecode™ Fifth Avenue suspended ceiling panel, Professional Series, USG Interiors.</b> Medium-textured acoustical panels with directional fissures. Made with a water-felted manufacturing process for good sound absorption. Cleans easily with a soft brush or vacuum. Washable. Class A fire-resistant.   |           |      |          |       |       |       |
| 2' x 4' x 5/8", square edge  | BC@.056   | Ea   | 6.49     | 2.30  | 8.79  | 14.90 |
| <b>Sheetrock® gypsum lay-in ceiling panel, Professional Series, USG Interiors.</b> Vinyl-faced panels for interior or exterior applications. Fire-rated construction up to 1-1/2 hours. USDA accepted for food processing areas.   |           |      |          |       |       |       |
| 2' x 4' x 1/2", square edge  | BC@.056   | Ea   | 17.00    | 2.30  | 19.30 | 32.80 |
| <b>Stonehurst mineral fiber suspended ceiling panel, Advantage Series, USG Interiors.</b> Square edge design for quick installation.   |           |      |          |       |       |       |
| 2' x 4' x 9/16"  | BC@.056   | Ea   | 8.23     | 2.30  | 10.53 | 17.90 |
| <b>Luna™ suspended ceiling panel, Elite Series, USG Interiors.</b> Fine-textured acoustical panels with Climaplus performance to prevent visible sag. High sound absorption and sound blocking. High light reflectance values. Cleans easily with a soft brush or vacuum. High humidity resistance.  |           |      |          |       |       |       |
| 2' x 2' x 3/4", slant edge   | BC@.027   | Ea   | 9.08     | 1.11  | 10.19 | 17.30 |
| <b>Alpine suspended ceiling panel, USG Interiors.</b> Medium-textured acoustical panels made with a water-felted manufacturing process for good sound absorption. Perforated. Excellent light reflectance. Cleans easily with a soft brush or vacuum.  |           |      |          |       |       |       |
| 2' x 2' x 5/8", slant edge   | BC@.027   | Ea   | 8.45     | 1.11  | 9.56  | 16.30 |
| <b>Astro textured suspended ceiling panel, Professional Series, USG Interiors.</b> Ceiling panels with textured surface and good sound absorption.   |           |      |          |       |       |       |
| 2' x 2' x 5/8", square edge  | BC@.027   | Ea   | 7.99     | 1.11  | 9.10  | 15.50 |
| <b>Saville Row suspended ceiling panel, Professional Series, USG Interiors.</b> Medium, natural random texture with a sculptured, upscale appearance at an economy price. Made with a water-felted manufacturing process and perforated for good sound absorption. Excellent light reflectance. Cleans easily with a soft brush or vacuum.   |           |      |          |       |       |       |
| 2' x 2' x 3/4", slant edge   | BC@.027   | Ea   | 14.40    | 1.11  | 15.51 | 26.40 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Acrylic suspended lighting panel.</b>  |           |      |          |       |        |        |
| 2' x 4', cracked ice, clear   | BC@.056   | Ea   | 15.90    | 2.30  | 18.20  | 30.90  |
| 2' x 4', cracked ice, white   | BC@.056   | Ea   | 15.90    | 2.30  | 18.20  | 30.90  |
| 2' x 4', prismatic, clear   | BC@.056   | Ea   | 15.90    | 2.30  | 18.20  | 30.90  |
| 2' x 4', prismatic, white   | BC@.056   | Ea   | 15.90    | 2.30  | 18.20  | 30.90  |
| <b>Styrene suspended lighting panel.</b>  |           |      |          |       |        |        |
| 2' x 2', cracked ice, clear   | BC@.027   | Ea   | 5.40     | 1.11  | 6.51   | 11.10  |
| 2' x 2', cracked ice, white   | BC@.027   | Ea   | 5.40     | 1.11  | 6.51   | 11.10  |
| 2' x 2', prismatic, clear   | BC@.027   | Ea   | 5.40     | 1.11  | 6.51   | 11.10  |
| 2' x 2', prismatic, white   | BC@.027   | Ea   | 5.40     | 1.11  | 6.51   | 11.10  |
| 2' x 4', cracked ice, clear   | BC@.056   | Ea   | 9.68     | 2.30  | 11.98  | 20.40  |
| 2' x 4', cracked ice, white   | BC@.056   | Ea   | 8.26     | 2.30  | 10.56  | 18.00  |
| 2' x 4', eggcrate, metallic   | BC@.056   | Ea   | 36.10    | 2.30  | 38.40  | 65.30  |
| 2' x 4', eggcrate, white  | BC@.056   | Ea   | 19.40    | 2.30  | 21.70  | 36.90  |
| 2' x 4', flat mist, white   | BC@.056   | Ea   | 14.40    | 2.30  | 16.70  | 28.40  |
| 2' x 4', prismatic, clear   | BC@.056   | Ea   | 9.67     | 2.30  | 11.97  | 20.30  |
| 2' x 4', prismatic, white   | BC@.056   | Ea   | 9.67     | 2.30  | 11.97  | 20.30  |
| 2' x 4', Victorian pattern  | BC@.056   | Ea   | 25.30    | 2.30  | 27.60  | 46.90  |
| <b>LED troffer light fixture.</b> For suspending in a ceiling grid. Labor includes fixture hookup only. Add the cost of rough-in electrical and lamps. 32 watt, T-8.  |           |      |          |       |        |        |
| 2' x 2', LED  | BE@.800   | Ea   | 49.20    | 35.90 | 85.10  | 145.00 |
| 2' x 4', LED  | BE@.800   | Ea   | 70.10    | 35.90 | 106.00 | 180.00 |
| 2' x 4', 4 light  | BE@.800   | Ea   | 59.20    | 35.90 | 95.10  | 162.00 |
| 2' x 4', retro fit LED kit  | BE@.800   | Ea   | 216.00   | 35.90 | 251.90 | 428.00 |
| <b>Parabolic troffer fluorescent fixture.</b> For suspending in a ceiling grid. Labor includes fixture hookup only. Add the cost of rough-in electrical and lamps. 32 watt, T-8. Contoured louvers reduce glare. Contains electronic ballast for maximum efficiency.  |           |      |          |       |        |        |
| 2' x 4', 3 light  | BE@.800   | Ea   | 60.80    | 35.90 | 96.70  | 164.00 |
| <b>U-lamp troffer fluorescent fixture.</b> For suspending in a ceiling grid. Labor includes fixture hookup only. Add the cost of rough-in electrical and lamps. Uses two U6 lamps. Energy-saving ballast. White unibody steel housing, reinforced flat white steel door, and mitered corners. Hinged and mitered doorframe. Comes with cam latches for easy opening. 40 or 34 watt bulbs. |           |      |          |       |        |        |
| 2' x 2', 2 light  | BE@.800   | Ea   | 49.20    | 35.90 | 85.10  | 145.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Ornamental Wood Molding</b>   |           |      |          |       |       |       |
| <b>Hardwood Victorian base molding.</b> Labor for moldings is best estimated by the piece rather than by the foot. The hard part is cutting lengths precisely to size. The more cuts needed, the more time required. For example, one 12' run of molding requires two cuts — one on each end. Twelve 1' lengths of molding would require 24 cuts, even though it's the same 12 linear feet. The estimates that follow are based on linear feet, but assume that full 8' lengths can be used to good advantage. |           |      |          |       |       |       |
| 5/8" x 4"  | BC@.032   | LF   | 3.88     | 1.31  | 5.19  | 8.82  |
| <b>Embossed molding, basswood.</b>   |           |      |          |       |       |       |
| No. 630, 3/4" x 1/2" x 8'  | BC@.290   | Ea   | 10.80    | 11.90 | 22.70 | 38.60 |
| <b>Rosette block molding.</b>  |           |      |          |       |       |       |
| 2-3/4" x 2-3/4" x 1"   | BC@.050   | Ea   | 3.35     | 2.05  | 5.40  | 9.18  |
| 3-3/4" x 3-3/4" x 11/16"   | BC@.050   | Ea   | 3.47     | 2.05  | 5.52  | 9.38  |
| <b>Square rosette molding, solid pine.</b>   |           |      |          |       |       |       |
| 7/8" x 2-1/2" x 2-1/2"   | BC@.050   | Ea   | 2.14     | 2.05  | 4.19  | 7.12  |
| 7/8" x 3-1/2" x 3-1/2"   | BC@.050   | Ea   | 3.24     | 2.05  | 5.29  | 8.99  |
| <b>Plinth block.</b>   |           |      |          |       |       |       |
| 3-3/4" x 5-1/2", solid pine  | BC@.050   | Ea   | 5.75     | 2.05  | 7.80  | 13.30 |
| 3-3/4" x 5-3/4", solid pine  | BC@.050   | Ea   | 5.76     | 2.05  | 7.81  | 13.30 |
| <b>Ornamental crown molding.</b>   |           |      |          |       |       |       |
| 3-3/4", dentil, pine   | BC@.044   | LF   | 8.01     | 1.81  | 9.82  | 16.70 |
| 3-3/4", rope, pine   | BC@.044   | LF   | 9.86     | 1.81  | 11.67 | 19.80 |
| 4-7/16", embossed  | BC@.044   | LF   | 6.78     | 1.81  | 8.59  | 14.60 |
| 4-7/8", pine   | BC@.044   | LF   | 5.28     | 1.81  | 7.09  | 12.10 |
| 5-1/2", dentil, pine   | BC@.044   | LF   | 11.70    | 1.81  | 13.51 | 23.00 |
| <b>Embossed decorative hardwood molding.</b>   |           |      |          |       |       |       |
| Base, 5/8" x 4" x 8'   | BC@.128   | Ea   | 34.90    | 5.26  | 40.16 | 68.30 |
| Egg and Dart, 1/2" x 3/4" x 8'   | BC@.128   | Ea   | 15.30    | 5.26  | 20.56 | 35.00 |
| Egg and Dart, 5/8" x 1" x 8'   | BC@.128   | Ea   | 14.90    | 5.26  | 20.16 | 34.30 |
| Flower, 5/8" x 1" x 8'   | BC@.128   | Ea   | 19.30    | 5.26  | 24.56 | 41.80 |
| Flower, 3/4" x 1-15/16" x 8'   | BC@.128   | Ea   | 16.10    | 5.26  | 21.36 | 36.30 |
| Greek Key, 3/8" x 3/4" x 8'  | BC@.128   | Ea   | 14.20    | 5.26  | 19.46 | 33.10 |
| Leaf, 3/8" x 3/4" x 8'   | BC@.128   | Ea   | 9.05     | 5.26  | 14.31 | 24.30 |
| Molding, 3/8" x 3/4" x 8'  | BC@.128   | Ea   | 11.30    | 5.26  | 16.56 | 28.20 |
| Repeating Flower, 3/8" x 1-15/16" x 8'   | BC@.128   | Ea   | 14.40    | 5.26  | 19.66 | 33.40 |
| Rope, 1/4" x 1" x 8'   | BC@.128   | Ea   | 10.90    | 5.26  | 16.16 | 27.50 |
| Rope Flute, 1/2" x 2-1/4" x 7'   | BC@.112   | Ea   | 18.10    | 4.60  | 22.70 | 38.60 |
| Rope Flute, 1/2" x 3" x 7'   | BC@.112   | Ea   | 26.90    | 4.60  | 31.50 | 53.60 |
| Sunburst, 3/4" x 1-15/16" x 8'   | BC@.128   | Ea   | 15.30    | 5.26  | 20.56 | 35.00 |
| Victorian, 5/8" x 3" x 8'  | BC@.128   | Ea   | 31.40    | 5.26  | 36.66 | 62.30 |
| Vine, 3/8" x 3/4" x 8'   | BC@.128   | Ea   | 8.98     | 5.26  | 14.24 | 24.20 |
| Vine, 3/8" x 1-3/4" x 8'   | BC@.128   | Ea   | 14.90    | 5.26  | 20.16 | 34.30 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Primed Finger Joint Molding</b>              |           |      |          |       |       |       |
| <b>Primed finger joint base molding.</b>        |           |      |          |       |       |       |
| No. S, 7/16" x 3"                               | BC@.032   | LF   | 1.25     | 1.31  | 2.56  | 4.35  |
| No. B, 7/16" x 3"                               | BC@.032   | LF   | 1.25     | 1.31  | 2.56  | 4.35  |
| No. 663, 9/16" x 3-1/4"                         | BC@.032   | LF   | 1.81     | 1.31  | 3.12  | 5.30  |
| No. 753, 9/16" x 3-1/4"                         | BC@.032   | LF   | 1.43     | 1.31  | 2.74  | 4.66  |
| No. 750, 9/16" x 4-1/4"                         | BC@.032   | LF   | 2.16     | 1.31  | 3.47  | 5.90  |
| No. 620, 9/16" x 4-1/4"                         | BC@.032   | LF   | 2.18     | 1.31  | 3.49  | 5.93  |
| No. LB-11, 9/16" x 4-1/2"                       | BC@.032   | LF   | 2.07     | 1.31  | 3.38  | 5.75  |
| No. 618, 9/16" x 5-1/4"                         | BC@.032   | LF   | 2.86     | 1.31  | 4.17  | 7.09  |
| No. 5180, 9/16" x 5-1/4"                        | BC@.032   | LF   | 2.35     | 1.31  | 3.66  | 6.22  |
| No. 5163, 9/16" x 5-1/4"                        | BC@.032   | LF   | 2.62     | 1.31  | 3.93  | 6.68  |
| No. A314, 5/8" x 3-1/4"                         | BC@.032   | LF   | 1.45     | 1.31  | 2.76  | 4.69  |
| No. B322, 5/8" x 3-1/4"                         | BC@.032   | LF   | 1.39     | 1.31  | 2.70  | 4.59  |
| <b>Primed finger joint base cap molding.</b>    |           |      |          |       |       |       |
| No. 1207, 11/16" x 7/8"                         | BC@.018   | LF   | 1.62     | .74   | 2.36  | 4.01  |
| No. 167, 11/16" x 1-1/8"                        | BC@.018   | LF   | 1.48     | .74   | 2.22  | 3.77  |
| No. 163, 11/16" x 1-3/8"                        | BC@.018   | LF   | 1.48     | .74   | 2.22  | 3.77  |
| <b>Primed finger joint base shoe molding.</b>   |           |      |          |       |       |       |
| No. 129, 7/16" x 11/16"                         | BC@.020   | LF   | .79      | .82   | 1.61  | 2.74  |
| No. WM126, 1/2" x 3/4"                          | BC@.020   | LF   | .51      | .82   | 1.33  | 2.26  |
| <b>Primed finger joint bead molding.</b>        |           |      |          |       |       |       |
| No. WM75, 9/16" x 1-5/8"                        | BC@.032   | LF   | 1.67     | 1.31  | 2.98  | 5.07  |
| No. WM74, 9/16" x 1-3/4"                        | BC@.032   | LF   | 1.89     | 1.31  | 3.20  | 5.44  |
| <b>Primed finger joint brick molding.</b> Pine. |           |      |          |       |       |       |
| No. 180WMMPA, 1-1/4" x 2"                       | BC@.032   | LF   | 1.99     | 1.31  | 3.30  | 5.61  |
| No. WM180, 1-1/4" x 2" x 7'                     | BC@.224   | Ea   | 14.00    | 9.20  | 23.20 | 39.40 |
| <b>Primed finger joint ranch casing.</b>        |           |      |          |       |       |       |
| No. C101, 1/2" x 2-1/8" x 7'                    | BC@.105   | Ea   | 10.70    | 4.31  | 15.01 | 25.50 |
| No. 713, 9/16" x 3-1/4"                         | BC@.015   | LF   | 2.44     | .62   | 3.06  | 5.20  |
| No. 327, 11/16" x 2-1/4"                        | BC@.015   | LF   | 1.41     | .62   | 2.03  | 3.45  |
| No. 327, 11/16" x 2-1/4" x 7'                   | BC@.105   | Ea   | 9.84     | 4.31  | 14.15 | 24.10 |
| No. 315, 11/16" x 2-1/2" x 7'                   | BC@.105   | Ea   | 18.00    | 4.31  | 22.31 | 37.90 |
| <b>Primed finger joint colonial casing.</b>     |           |      |          |       |       |       |
| No. WM445, 5/8" x 3-1/4"                        | BC@.015   | LF   | 1.86     | .62   | 2.48  | 4.22  |
| No. WM444, 5/8" x 3-1/2"                        | BC@.015   | LF   | 2.40     | .62   | 3.02  | 5.13  |
| No. 442, 11/16" x 2-1/4"                        | BC@.015   | LF   | 1.03     | .62   | 1.65  | 2.81  |
| <b>Primed finger joint chair rail molding.</b>  |           |      |          |       |       |       |
| No. 297H, 5/8" x 3"                             | BC@.030   | LF   | 2.49     | 1.23  | 3.72  | 6.32  |
| No. CR-7, 11/16" x 2-5/8"                       | BC@.030   | LF   | 5.82     | 1.23  | 7.05  | 12.00 |
| No. AIL300, 1-1/16" x 2-3/4"                    | BC@.030   | LF   | 3.23     | 1.23  | 4.46  | 7.58  |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Primed finger joint crown molding.</b>                     |           |      |          |       |       |       |
| No. WM53, 9/16" x 2-5/8"                                      | BC@.044   | LF   | 2.57     | 1.81  | 4.38  | 7.45  |
| No. AMC-R-47, 9/16" x 4-5/8"                                  | BC@.044   | LF   | 4.69     | 1.81  | 6.50  | 11.10 |
| No. L47-PFJ, 9/16" x 4-5/8"                                   | BC@.044   | LF   | 4.37     | 1.81  | 6.18  | 10.50 |
| <b>Primed finger joint reversible flute and reed molding.</b> |           |      |          |       |       |       |
| No. 286-PFJ, 11/16" x 3-1/4"                                  | BC@.023   | LF   | 3.79     | .94   | 4.73  | 8.04  |
| No. 286-POM, 11/16" x 3-1/4"                                  | BC@.023   | LF   | 4.99     | .94   | 5.93  | 10.10 |
| <b>Primed finger joint quarter round molding.</b>             |           |      |          |       |       |       |
| No. WM106, 11/16" x 11/16"                                    | BC@.020   | LF   | 1.27     | .82   | 2.09  | 3.55  |
| No. WM105, 3/4" x 3/4"  | BC@.020   | LF   | 1.27     | .82   | 2.09  | 3.55  |
| <b>Round edge stop molding.</b>                               |           |      |          |       |       |       |
| No. P433FJ, 3/8" x 1-1/4"                                     | BC@.015   | LF   | 1.36     | .62   | 1.98  | 3.37  |
| No. P349PR, 7/16" x 1-1/4"                                    | BC@.015   | LF   | 1.24     | .62   | 1.86  | 3.16  |
| No. P435PR, 1/2" x 1-5/8"                                     | BC@.015   | LF   | 1.50     | .62   | 2.12  | 3.60  |
| <b>Medium Density Fiberboard (MDF) Molding</b>                |           |      |          |       |       |       |
| <b>MDF colonial base molding.</b> Medium density fiberboard.  |           |      |          |       |       |       |
| 7/16" x 3"  | BC@.032   | LF   | 1.24     | 1.31  | 2.55  | 4.34  |
| No. WM-663, 9/16" x 3-1/4"                                    | BC@.032   | LF   | 2.01     | 1.31  | 3.32  | 5.64  |
| No. WM662, 9/16" x 3-1/2"                                     | BC@.032   | LF   | 1.91     | 1.31  | 3.22  | 5.47  |
| 9/16" x 5-1/8"  | BC@.032   | LF   | 2.27     | 1.31  | 3.58  | 6.09  |
| No. 620-MDF, 4-1/4"   | BC@.032   | LF   | 2.06     | 1.31  | 3.37  | 5.73  |
| No. L163E, 5-1/8"   | BC@.032   | LF   | 1.81     | 1.31  | 3.12  | 5.30  |
| <b>MDF primed base corner.</b> Per corner piece.              |           |      |          |       |       |       |
| No. MDF409A-711, 7/16" x 2-1/2"                               | BC@.050   | Ea   | 3.61     | 2.05  | 5.66  | 9.62  |
| No. MDF413A, 7/16" x 2-1/2", 3 step                           | BC@.050   | Ea   | 1.46     | 2.05  | 3.51  | 5.97  |
| No. MDF410A-711, 7/16" x 3-1/2"                               | BC@.050   | Ea   | 4.85     | 2.05  | 6.90  | 11.70 |
| No. MDF24A, 5/8" x 6", imperial                               | BC@.050   | Ea   | 6.34     | 2.05  | 8.39  | 14.30 |
| No. MDF28A, 5/8" x 6-1/2", vintage                            | BC@.050   | Ea   | 8.30     | 2.05  | 10.35 | 17.60 |
| <b>MDF casing.</b> Medium density fiberboard.                 |           |      |          |       |       |       |
| No. AMH52, 1" x 4"  | BC@.015   | LF   | 4.35     | .62   | 4.97  | 8.45  |
| No. AMH56, 1" x 3-1/2"  | BC@.015   | Ea   | 3.50     | .62   | 4.12  | 7.00  |
| No. C322, 5/8" x 2-1/2"                                       | BC@.015   | LF   | 1.78     | .62   | 2.40  | 4.08  |
| No. 1684, 12mm x 3-3/8"                                       | BC@.015   | LF   | 2.48     | .62   | 3.10  | 5.27  |
| <b>MDF chair rail.</b> Medium density fiberboard.             |           |      |          |       |       |       |
| 9/16" x 3", primed  | BC@.030   | LF   | 2.88     | 1.23  | 4.11  | 6.99  |
| 11/16" x 2-1/2"   | BC@.030   | LF   | 2.48     | 1.23  | 3.71  | 6.31  |
| 5/8" x 2-5/8"   | BC@.030   | LF   | 2.69     | 1.23  | 3.92  | 6.66  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| <b>MDF ultralite crown molding.</b>  |           |      |          |       |       |        |
| No. 40, 11/16" x 4-1/4"  | BC@.044   | LF   | 3.54     | 1.81  | 5.35  | 9.10   |
| No. 49, 15mm x 3-5/8"  | BC@.044   | LF   | 1.33     | 1.81  | 3.14  | 5.34   |
| No. 47, 15mm x 4-5/8"  | BC@.044   | LF   | 1.44     | 1.81  | 3.25  | 5.53   |
| No. 43, 18mm x 7-1/4"  | BC@.044   | LF   | 3.48     | 1.81  | 5.29  | 8.99   |
| <b>MDF primed plinth block.</b>  |           |      |          |       |       |        |
| 1" x 3-3/4" x 8"   | BC@.050   | Ea   | 6.41     | 2.05  | 8.46  | 14.40  |
| 1" x 4-1/8" x 9", Victorian  | BC@.050   | Ea   | 6.34     | 2.05  | 8.39  | 14.30  |
| 1-1/4" x 2-1/2" x 5-3/4"   | BC@.050   | Ea   | 5.28     | 2.05  | 7.33  | 12.50  |
| 1-1/4" x 3-1/2" x 6-1/2"   | BC@.050   | Ea   | 6.87     | 2.05  | 8.92  | 15.20  |
| <b>Polyurethane Cast Molding</b>   |           |      |          |       |       |        |
| <b>Cross head polyurethane cast molding.</b>   |           |      |          |       |       |        |
| 6" x 60", dentil   | BC@.250   | Ea   | 84.00    | 10.30 | 94.30 | 160.00 |
| 6" x 60", Tuscan   | BC@.250   | Ea   | 84.00    | 10.30 | 94.30 | 160.00 |
| <b>Frieze polyurethane cast molding, American Molding.</b> Horizontal flat band, usually installed just below cornice molding. |           |      |          |       |       |        |
| 4-7/8" x 96", rococo   | BC@.250   | Ea   | 31.40    | 10.30 | 41.70 | 70.90  |
| 7-1/2" x 92-1/4", grand palmetto   | BC@.250   | Ea   | 60.30    | 10.30 | 70.60 | 120.00 |
| 7-1/2" x 92-1/4", grand Tuscan   | BC@.250   | Ea   | 60.30    | 10.30 | 70.60 | 120.00 |
| <b>Polyurethane cast molding.</b>  |           |      |          |       |       |        |
| 4-1/8" x 8', dentil  | BC@.200   | Ea   | 31.90    | 8.21  | 40.11 | 68.20  |
| 4-1/8" x 8', egg and dart  | BC@.200   | Ea   | 25.40    | 8.21  | 33.61 | 57.10  |
| 4-1/8" x 8', Grecian   | BC@.200   | Ea   | 36.30    | 8.21  | 44.51 | 75.70  |
| 5-7/8" x 8', dentil  | BC@.200   | Ea   | 43.10    | 8.21  | 51.31 | 87.20  |
| 5-7/8" x 8', egg and dart  | BC@.200   | Ea   | 46.40    | 8.21  | 54.61 | 92.80  |
| 5-7/8" x 8', rope crown  | BC@.200   | Ea   | 46.10    | 8.21  | 54.31 | 92.30  |
| <b>Polyurethane corner block.</b>  |           |      |          |       |       |        |
| 4-1/8", inside   | BC@.050   | Ea   | 8.21     | 2.05  | 10.26 | 17.40  |
| 4-1/8", outside  | BC@.050   | Ea   | 8.21     | 2.05  | 10.26 | 17.40  |
| 5-7/8", inside   | BC@.050   | Ea   | 10.30    | 2.05  | 12.35 | 21.00  |
| 5-7/8", outside  | BC@.050   | Ea   | 11.40    | 2.05  | 13.45 | 22.90  |
| <b>Rope polyurethane cast molding.</b> Rope molding is a bead or Torus molding carved to imitate rope.                         |           |      |          |       |       |        |
| 3-1/2" x 8', casing  | BC@.400   | Ea   | 34.50    | 16.40 | 50.90 | 86.50  |
| 3-1/2" x 8', chair rail  | BC@.300   | Ea   | 34.50    | 12.30 | 46.80 | 79.60  |
| 5-1/2" x 8', base  | BC@.250   | Ea   | 47.00    | 10.30 | 57.30 | 97.40  |
| <b>Chair rail polyurethane cast molding.</b>   |           |      |          |       |       |        |
| 3-1/2" x 8', dentil  | BC@.300   | Ea   | 36.30    | 12.30 | 48.60 | 82.60  |
| 3-1/2" x 8', Greek key   | BC@.300   | Ea   | 31.30    | 12.30 | 43.60 | 74.10  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Poly molding.</b>                   |           |      |          |       |       |       |
| Bead, brite white, 8'                  | BC@.128   | Ea   | 5.44     | 5.26  | 10.70 | 18.20 |
| Bead, cherry/mahogany, 8'              | BC@.128   | Ea   | 4.34     | 5.26  | 9.60  | 16.30 |
| Bead, cinnamon chestnut, 8'            | BC@.128   | Ea   | 6.15     | 5.26  | 11.41 | 19.40 |
| Bed mold, brite white, 8'              | BC@.128   | Ea   | 9.38     | 5.26  | 14.64 | 24.90 |
| Bed mold, cinnamon chestnut, 8'        | BC@.128   | Ea   | 8.46     | 5.26  | 13.72 | 23.30 |
| Bed mold, cherry/mahogany, 8'          | BC@.128   | Ea   | 8.41     | 5.26  | 13.67 | 23.20 |
| Casing and base, brite white, 8'       | BC@.184   | Ea   | 12.00    | 7.56  | 19.56 | 33.30 |
| Casing and base, cherry/mahogany, 8'   | BC@.184   | Ea   | 9.63     | 7.56  | 17.19 | 29.20 |
| Casing and base, cinnamon chestnut, 8' | BC@.184   | Ea   | 12.00    | 7.56  | 19.56 | 33.30 |
| Outside corner, brite white, 8'        | BC@.128   | Ea   | 5.44     | 5.26  | 10.70 | 18.20 |
| Outside corner, cherry/mahogany, 8'    | BC@.128   | Ea   | 4.34     | 5.26  | 9.60  | 16.30 |
| Outside corner, cinnamon chestnut, 8'  | BC@.128   | Ea   | 4.37     | 5.26  | 9.63  | 16.40 |
| Plywood cap, brite white, 8'           | BC@.128   | Ea   | 11.60    | 5.26  | 16.86 | 28.70 |
| Shoe, brite white, 8'                  | BC@.128   | Ea   | 6.48     | 5.26  | 11.74 | 20.00 |
| Shoe, cherry/mahogany, 8'              | BC@.128   | Ea   | 4.24     | 5.26  | 9.50  | 16.20 |
| Shoe, cinnamon chestnut, 8'            | BC@.128   | Ea   | 4.37     | 5.26  | 9.63  | 16.40 |
| Stop, brite white, 8'                  | BC@.200   | Ea   | 6.15     | 8.21  | 14.36 | 24.40 |
| Stop, cinnamon chestnut, 8'            | BC@.200   | Ea   | 6.15     | 8.21  | 14.36 | 24.40 |

**White extruded polymer molding.** Durable in high traffic areas. Easy to clean. Paintable and stainable. Unaffected by moisture, will not mold, mildew, swell, or rot. Termite proof. No sanding needed.

|                                     |         |    |      |      |      |      |
|-------------------------------------|---------|----|------|------|------|------|
| No. 49, 1/2" x 3-5/8", crown        | BC@.044 | LF | 2.79 | 1.81 | 4.60 | 7.82 |
| No. 623, 9/16" x 3-1/4", base       | BC@.032 | LF | 2.38 | 1.31 | 3.69 | 6.27 |
| No. 356, 11/16" x 2-1/4", casing    | BC@.050 | LF | 1.55 | 2.05 | 3.60 | 6.12 |
| No. 105, 3/4" x 3/4", quarter round | BC@.032 | LF | 1.34 | 1.31 | 2.65 | 4.51 |
| No. 390, 2-5/8", chair rail         | BC@.032 | LF | 2.55 | 1.31 | 3.86 | 6.56 |

## Prefinished Molding

**Colonial base molding.** Pre-sealed and pre-sanded. Non-repetitive woodgrain finish for consistent appearance. Stain or paint with any oil or latex paint applied by brush, roller or sprayer. Stain or paint absorbs uniformly without discoloration. Clean by wiping with paint thinner, naphtha or ammonia.

|                                 |         |    |       |       |       |       |
|---------------------------------|---------|----|-------|-------|-------|-------|
| 7/16" x 3-1/4" x 8', Bone white | BC@.250 | ea | 14.90 | 10.30 | 25.20 | 42.80 |
| 7/16" x 3-1/4" x 8', Clearwood  | BC@.250 | ea | 13.70 | 10.30 | 24.00 | 40.80 |

### Colonial base paperwrap molding.

|                                    |         |    |       |       |       |       |
|------------------------------------|---------|----|-------|-------|-------|-------|
| 7/16" x 3-1/4" x 8', Highlands oak | BC@.250 | ea | 12.70 | 10.30 | 23.00 | 39.10 |
| 7/16" x 3-1/4" x 8', Imperial oak  | BC@.250 | ea | 12.60 | 10.30 | 22.90 | 38.90 |
| 7/16" x 3-1/4" x 8', Natural maple | BC@.250 | ea | 12.60 | 10.30 | 22.90 | 38.90 |

**Colonial base polystyrene molding.** Non-repetitive woodgrain finish. Pre-sealed and pre-sanded. Stain or paint with any oil or latex paint. Stain and paint absorb uniformly.

|                                   |         |    |       |       |       |       |
|-----------------------------------|---------|----|-------|-------|-------|-------|
| 7/16" x 3-1/4" x 8', Bone white   | BC@.250 | ea | 11.20 | 10.30 | 21.50 | 36.60 |
| 7/16" x 3-1/4" x 8', Dominion oak | BC@.250 | ea | 11.20 | 10.30 | 21.50 | 36.60 |

### Colonial casing paperwrap molding.

|                                    |         |    |      |       |       |       |
|------------------------------------|---------|----|------|-------|-------|-------|
| 9/16" x 2-1/4" x 7', Highlands oak | BC@.250 | ea | 9.66 | 10.30 | 19.96 | 33.90 |
| 9/16" x 2-1/4" x 7', Imperial oak  | BC@.250 | ea | 9.66 | 10.30 | 19.96 | 33.90 |
| 9/16" x 2-1/4" x 7', Natural maple | BC@.250 | ea | 9.66 | 10.30 | 19.96 | 33.90 |

**Ranch casing molding.** Pre-sealed and pre-sanded. Stainable or paint-able with any oil or latex paint applied by brush, roller, or sprayer. Non-repetitive woodgrain finish for consistent appearance. Stain or paint absorbs uniformly without discoloration. Clean by wiping with paint thinner, naphtha, or ammonia.

|                                 |         |    |      |       |       |       |
|---------------------------------|---------|----|------|-------|-------|-------|
| 9/16" x 2-1/4" x 7', Bone white | BC@.250 | ea | 8.14 | 10.30 | 18.44 | 31.30 |
|---------------------------------|---------|----|------|-------|-------|-------|

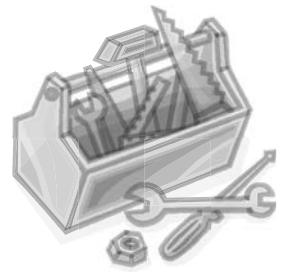
|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Reversible polystyrene casing, Decorator.</b> Won't crack, warp, split, or bow. Paint process finish.  |           |      |          |       |       |       |
| 1" x 3-1/2" x 7', Bone white  | BC@.105   | ea   | 25.00    | 4.31  | 29.31 | 49.80 |
| 1" x 3-1/2" x 7', Clearwood   | BC@.105   | ea   | 25.50    | 4.31  | 29.81 | 50.70 |
| <b>Chair rail paperwrap molding.</b>  |           |      |          |       |       |       |
| 11/16" x 2-5/8" x 8', Highlands oak   | BC@.300   | ea   | 11.00    | 12.30 | 23.30 | 39.60 |
| 11/16" x 2-5/8" x 8', Imperial oak  | BC@.300   | ea   | 11.00    | 12.30 | 23.30 | 39.60 |
| 11/16" x 2-5/8" x 8', Natural maple   | BC@.300   | ea   | 11.00    | 12.30 | 23.30 | 39.60 |
| <b>Chair rail prefinished molding.</b>  |           |      |          |       |       |       |
| 11/16" x 2-5/8" x 8', White marble  | BC@.300   | ea   | 14.30    | 12.30 | 26.60 | 45.20 |
| <b>Inside corner and cove paperwrap molding.</b>  |           |      |          |       |       |       |
| 5/16" x 15/16" x 8', Highlands oak  | BC@.300   | ea   | 5.23     | 12.30 | 17.53 | 29.80 |
| 5/16" x 15/16" x 8', Imperial oak   | BC@.300   | ea   | 5.23     | 12.30 | 17.53 | 29.80 |
| 5/16" x 15/16" x 8', Natural maple  | BC@.300   | ea   | 5.23     | 12.30 | 17.53 | 29.80 |
| <b>Inside corner molding.</b> Pre-sealed and pre-sanded. Stainable or paintable with any oil or latex paint applied by brush, roller, or sprayer. Non-repetitive woodgrain finish for consistent appearance. Stain or paint absorbs uniformly without discoloration. Clean by wiping with paint thinner, naphtha, or ammonia.                 |           |      |          |       |       |       |
| 5/16" x 15/16" x 8', Bone white   | BC@.300   | ea   | 6.34     | 12.30 | 18.64 | 31.70 |
| <b>Outside corner molding, Royal Mouldings.</b> Pre-sealed and pre-sanded. Stainable or paintable with any oil or latex paint applied by brush, roller or sprayer. Non-repetitive woodgrain finish for consistent appearance. Stain or paint absorbs uniformly without discoloration. Clean by wiping with paint thinner, naphtha or ammonia. |           |      |          |       |       |       |
| 11/16" x 11/16" x 8', Clearwood   | BC@.300   | ea   | 9.04     | 12.30 | 21.34 | 36.30 |
| 7/8" x 7/8" x 8' x 8', Bone white   | BC@.300   | ea   | 6.45     | 12.30 | 18.75 | 31.90 |
| 1" x 1" x 8', Bone white  | BC@.300   | ea   | 7.74     | 12.30 | 20.04 | 34.10 |
| 1-1/8" x 1-1/8" x 8', Bone white  | BC@.300   | ea   | 10.00    | 12.30 | 22.30 | 37.90 |
| <b>Outside corner polystyrene molding.</b> Non-repetitive woodgrain finish. Pre-sealed and pre-sanded. Stainable or paintable with any oil or latex paint. Stain and paint absorb uniformly.  |           |      |          |       |       |       |
| 7/8" x 7/8" x 8', Dominion oak  | BC@.300   | ea   | 6.68     | 12.30 | 18.98 | 32.30 |
| <b>Colonial outside corner paperwrap molding.</b>   |           |      |          |       |       |       |
| 1" x 1" x 8', Highlands   | BC@.300   | Ea   | 6.73     | 12.30 | 19.03 | 32.40 |
| 1" x 1" x 8', Imperial oak  | BC@.300   | Ea   | 6.73     | 12.30 | 19.03 | 32.40 |
| 1" x 1" x 8', Natural maple   | BC@.300   | Ea   | 6.73     | 12.30 | 19.03 | 32.40 |
| <b>Vinyl tileboard molding, prefinished rigid divider, Royal Mouldings.</b> 1/8" to 4mm insert.   |           |      |          |       |       |       |
| 8', white   | BC@.200   | Ea   | 3.44     | 8.21  | 11.65 | 19.80 |
| 8', white   | BC@.200   | Ea   | 3.34     | 8.21  | 11.55 | 19.60 |
| 8', white   | BC@.200   | Ea   | 3.48     | 8.21  | 11.69 | 19.90 |
| 8', white   | BC@.200   | Ea   | 3.48     | 8.21  | 11.69 | 19.90 |
| <b>Interior Partition Walls</b>   |           |      |          |       |       |       |
| <b>Remove non-bearing drywall stud walls.</b> Includes allowance for plates, blocking and wall cover. Per SF of wall area demolished, measured one side. Add the cost of patching at floor, wall and ceiling joints, hauling away debris, and dump fees. No salvage of material assumed.  |           |      |          |       |       |       |
| 2" x 3" framing, drywall both sides   | BL@.022   | SF   | —        | .73   | .73   | 1.24  |
| 2" x 4" framing, drywall both sides   | BL@.026   | SF   | —        | .87   | .87   | 1.48  |
| 2" x 6" framing, drywall both sides   | BL@.034   | SF   | —        | 1.13  | 1.13  | 1.92  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Remove plastered stud walls.</b> Includes allowance for plates, blocking and wall cover. Per SF of wall area demolished, measured one side. Add the cost of patching at floor, wall and ceiling joints, hauling away debris, and dump fees. No salvage of material assumed. |           |      |          |       |       |       |
| 2" x 3" framing, lath and plaster both sides   | BL@.038   | SF   | —        | 1.27  | 1.27  | 2.16  |
| 2" x 4" framing, lath and plaster both sides   | BL@.042   | SF   | —        | 1.40  | 1.40  | 2.38  |
| <b>Add 2" x 4" interior stud partition with 1/2" drywall both sides.</b> Add the cost of patching, finishing and trim.   |           |      |          |       |       |       |
| Cost per square foot of wall   | B1@.064   | SF   | 1.76     | 2.38  | 4.14  | 7.04  |
| Cost per running foot, 8' high walls   | B1@.512   | LF   | 14.08    | 19.00 | 33.08 | 56.20 |
| <b>Add 2" x 4" interior stud partition with 5/8" drywall both sides.</b> Includes drywall taping. Add the cost of patching, finishing and trim.  |           |      |          |       |       |       |
| Cost per square foot of wall   | B1@.068   | SF   | 1.81     | 2.53  | 4.34  | 7.38  |
| Cost per running foot, 8' high walls   | B1@.544   | LF   | 14.50    | 20.20 | 34.70 | 59.00 |
| <b>Add 2" x 6" interior stud partition with 1/2" drywall both sides.</b> Add the cost of patching, finishing and trim.   |           |      |          |       |       |       |
| Cost per square foot of wall   | B1@.072   | SF   | 2.19     | 2.68  | 4.87  | 8.28  |
| Cost per running foot, 8' high walls   | B1@.576   | LF   | 17.51    | 21.40 | 38.91 | 66.10 |
| <b>Add 2" x 6" interior stud partition with 5/8" drywall both sides.</b> Add the cost of patching, finishing and trim.   |           |      |          |       |       |       |
| Cost per square foot of wall   | B1@.076   | SF   | 2.24     | 2.83  | 5.07  | 8.62  |
| Cost per running foot, 8' high walls   | B1@.608   | LF   | 17.93    | 22.60 | 40.53 | 68.90 |

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# *Floors and Tile*

11



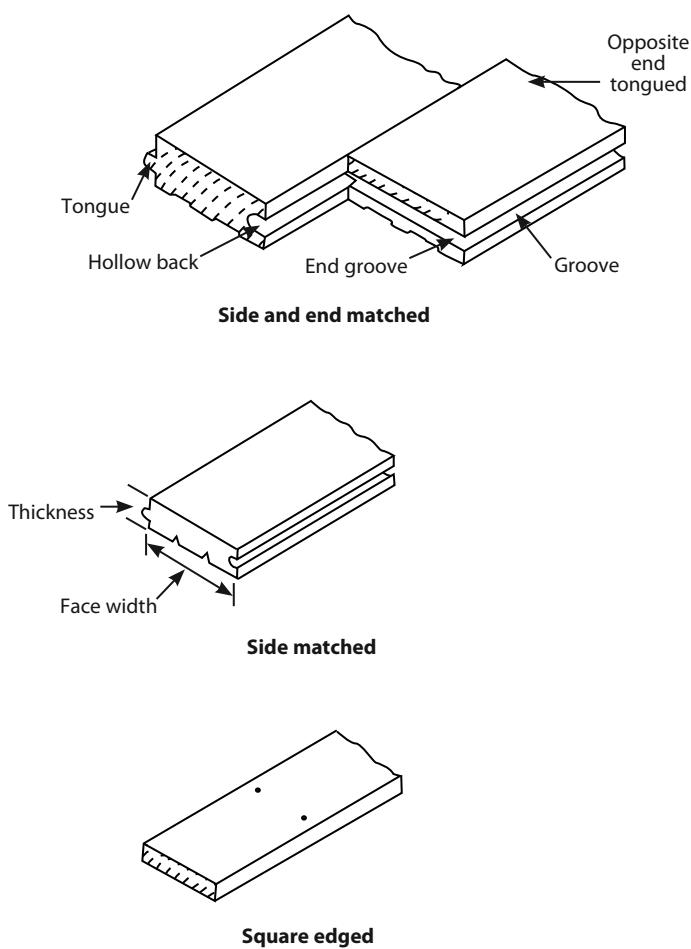
Some types of floor cover are more durable than others. Vinyl lasts longer than carpet. Ceramic tile lasts longer than wood block or strip flooring. But no floor material has a life expectancy equal to that of the house itself. That makes flooring a popular focus in home improvement work.

All floor cover requires a base that's structurally sound, clean, level (to  $1/4$ " per 10' span) and dry (moisture content of the subfloor should not exceed 13 percent). Concrete makes a good base, assuming the surface is smooth and incorporates a good vapor barrier. Untempered hardboard, plywood, and particleboard also make a good base for flooring. Use either  $1/4$ "- or  $3/8$ "-thick sheets. Underlayment needs a  $1/32$ " gap at the edges and the ends to allow for expansion. Underlayment-grade plywood has a sanded, C-plugged or better face. If moisture isn't a problem, use interior type plywood. Otherwise use either exterior or interior grade plywood with exterior glue. Trowel on a smooth coat of cement-based underlayment to prepare nearly any floor surface for resilient flooring.

## **Repair, Recover or Remove?**

Adhesive used to secure resilient flooring tends to deteriorate when moisture comes up through the subfloor. If resilient tile comes loose, try resetting the tile in new adhesive that's designed for use below grade. If the resilient tile is cracked, broken or has chipped edges, it's usually better to install new flooring. Matching new tile with old tile isn't practical. Resilient tile changes color with age. But it may not be necessary to remove the old surface when installing new. If the old surface is scarred, stained, abraded or has been embossed by the weight of furniture, apply a liquid leveler, or trowel on a cement-based underlayment to smooth the surface. Then install the new floor cover. If unevenness in the underlayment is showing through, remove the old surface and do some leveling before installing the new floor cover. Remove resilient tile if the new floor cover is also to be resilient tile.

If a wood floor is smooth and free of large cracks, refinishing may put the floor back in like-new condition. Most wood flooring can be sanded and refinished several times. Softwood flooring with no subfloor is an exception. Even one sanding might weaken the floor too much. Plywood block flooring can sometimes be sanded and refinished. Thin wood flooring and wood flooring with wide cracks usually has to be replaced — any patch would be obvious.



**Figure 11-1**

Strip flooring

Wood flooring, sheet vinyl with resilient backing, and carpeting can be installed directly over an existing hardwood floor, assuming any voids have been filled and the surface isn't loose. Shrinkage cracks are more common where boards are wide. Be sure to check for boards that are buckling, cupping or cracking due to moisture. If there's a moisture problem, solve that before you lay new flooring.

You can install laminated wood flooring over ceramic, wood or resilient flooring, so long as the surface is firm and dry.

## New Wood Flooring

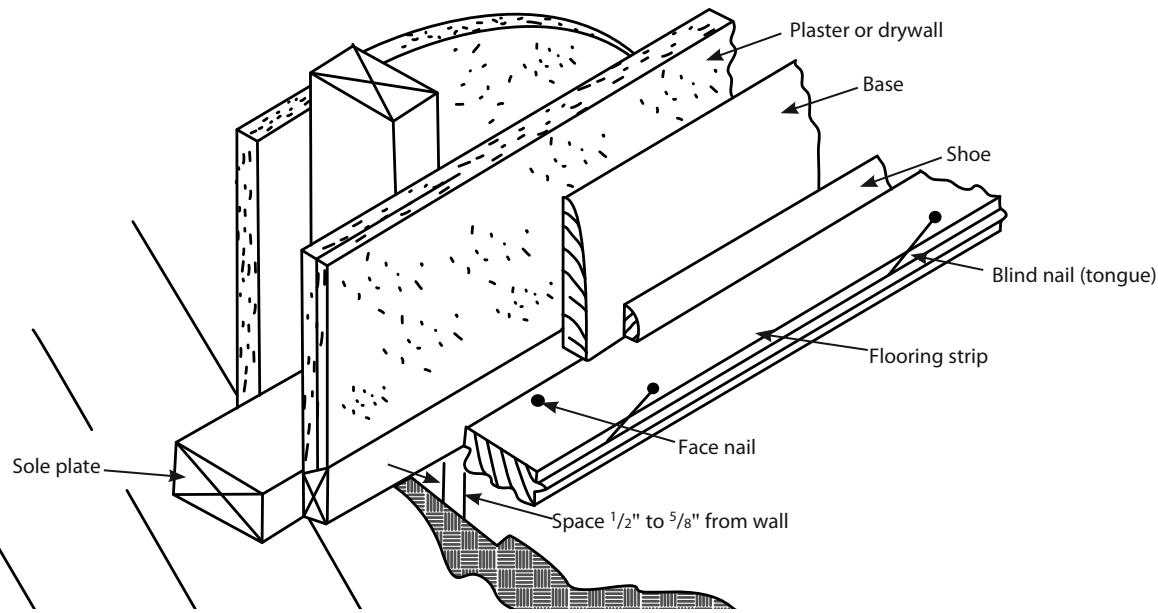
Hardwood flooring is available in tongue-and-groove strips and blocks (parquet). Some thinner patterns of strip flooring are square-edged. See Figure 11-1. The most common hardwood strip flooring is  $25/32$ " thick by  $2\frac{1}{4}$ " wide and has a hollow back. Strips are random lengths and vary from 2' to 16' long. The face is slightly wider than the bottom so joints will be tight on the surface.

Softwood flooring is also available in strips and blocks. Most softwood strip flooring has tongue-and-groove edges, although some types are end matched. Softwood flooring costs less than most hardwood species, but it's also less wear-resistant and shows surface abrasions

more readily. Use softwood flooring in light traffic areas such as closets. No matter which type of flooring you select, give the material a few days to reach the moisture content of the room where it will be installed.

Strip flooring is normally laid at right angles to the floor joists. When new strip flooring is installed over old, lay the new strips at right angles to the old, no matter what direction the floor joists run. Use 8d flooring nails for  $25/32$ " thick flooring, 6d flooring nails for  $1/2$ " flooring, and 4d casing nails for  $3/8$ " flooring. Some manufacturers recommend ring-shank or screw-shank nails. To help prevent splitting the tongue, use flooring brads with blunted points.

Begin installation of tongue-and-groove flooring by placing the first strip  $1/2$ " to  $5/8$ " away from the wall. That allows for expansion and prevents buckling when the moisture content increases. Nail straight down through the face of the first strip, as in Figure 11-2. The nail should be close enough to the wall to be covered by the base or shoe molding. Try to nail into a joist if the new flooring is laid at right



**Figure 11-2**  
*Installation of first strip of flooring*

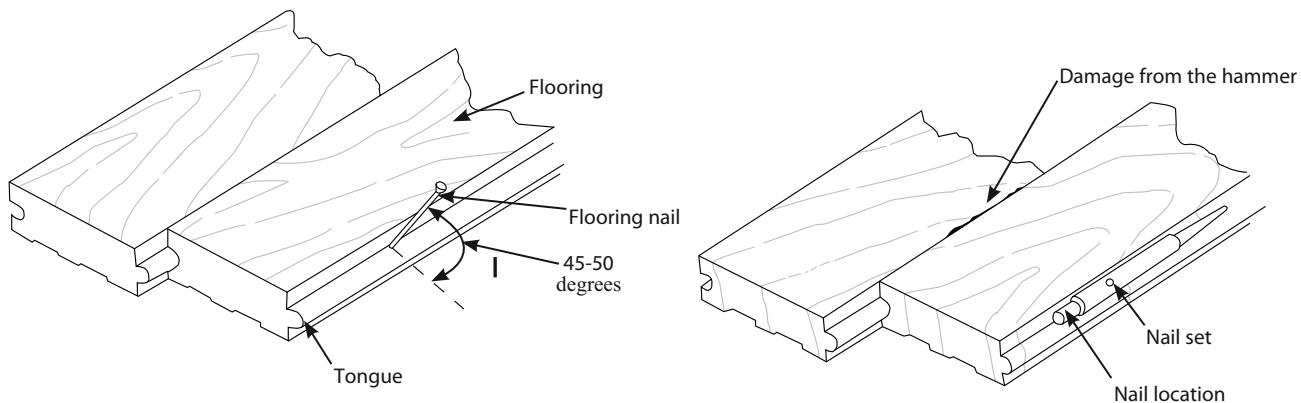
angles to the joists. Drive a second nail through the tongue of this first strip. All other strips are nailed through the tongue only. Drive these nails at an angle of 45 to 50 degrees. But leave the head just above the surface to avoid damaging the strip with your hammer. Use a large nail set to drive nails the last quarter inch. You can lay the nail set flat against the flooring when setting these nails, see Figure 11-3.

Stagger the end joints of strip flooring so butts are separated in adjacent courses. Install each new strip tightly against the previously-installed strip. Use shorter strips and crooked strips at the end of courses or in closets. Leave a  $1/2"$  to  $5/8"$  space between the last course of flooring and the wall, just as with the first course. Face-nail the last course where the base or shoe will cover the nail head.

Square-edged strip flooring must be installed over a substantial subfloor and should be face-nailed. Other than that, the installation procedure is the same as for matched (tongue-and-groove) flooring. Wood strip flooring is always nailed.

Parquet tile is made from narrow wood slats formed into a square. Parquet block flooring can be applied with adhesive over a concrete floor protected from moisture with a vapor barrier. Spread adhesive on the slab or underlayment with a notched trowel. Then lay parquet in the adhesive. If you elect to nail parquet flooring to wood underlayment, nail through the tongue, the same as with wood strip flooring. Minimize problems associated with shrinkage and swelling by changing the grain direction of alternate blocks.

You can install particleboard tile over underlayment the same way you install parquet tile — except particleboard tile shouldn't be installed directly over concrete.

**Figure 11-3**

Nailing strip flooring

Follow the manufacturer's installation instructions. Particleboard tile is usually 9"x 9" and  $\frac{3}{8}$ " thick, with tongue-and-groove edges. The back is often marked with small saw kerfs to stabilize the tile and provide a better grip for adhesive.

## Laminate Wood Flooring

Laminate flooring strips are made from layers of wood and finished with a hard synthetic surface. Pergo® is one popular name. Most laminate flooring is loose lay; neither nails nor adhesive are used. Instead, the flooring floats on a cushioning material designed to reduce noise from foot traffic. Laminate flooring can be installed over nearly any firm, flat flooring material. Install strips parallel to the longest wall in the room. Keep the strips about  $\frac{1}{4}$ " away from the side wall and end wall so the floor can expand with changes in temperature and moisture. Cut laminate flooring with the finish side down, using a carbide-tip blade.

Lay the tongue side of the first strip against the wall. Continue laying boards along that wall, fitting ends snug against the previous board. Use spacers to maintain a  $\frac{1}{4}$ " gap between the flooring and the wall. Avoid short lengths of flooring at the end of a course. If the last board in any course is less than 8", trim that amount off the first board in the course and move the entire course down by that distance. Second and later courses lock into the previous course. Stagger end joints in adjacent courses. Finish the job with base molding that covers the  $\frac{1}{4}$ " gap at side and end walls.

## Resilient Flooring

Sheet vinyl with resilient backing smoothes out minor surface imperfections. Some sheet vinyl is designated *loose lay* and doesn't require adhesive. But use double-faced tape at joints and around edges to keep the covering in place. Manufacturers recommend spreading adhesive under all parts of the sheet for most

products. Others can be bonded at the perimeter and seams only. Minimize the number of joints needed by using wider sheets — some sheet vinyl comes in widths up to 15'.

Both resilient sheet flooring and resilient tile require a smooth surface for proper adhesive bonding. You can repair an irregular surface with an embossing leveler or a masonry leveling compound. When the surface is dry, spread adhesive with a notched trowel, following the adhesive manufacturer's instructions. Lay the tile so joints don't coincide with the joints in the underlayment.

Seamless flooring, consisting of resin chips combined with a urethane binder, can be applied over any stable base, including old floor tile. Apply this liquid in several coats, allowing each coat to dry. A complete application may take several days, depending on the brand. You can repair a seamless floor by applying another coat. Damaged spots are easy to patch by adding more chips and binder.

## Cork Tile

Cork is a natural sound absorber and insulator. It is quiet underfoot, and can last for decades when properly maintained. Cork will expand and contract based on humidity, although to a lesser degree than wood. Cork tiles should be given time to acclimate to the environment before installation. Remove tiles from their packaging and store them in the room where they will be installed for at least 48 hours prior to installation.

Most manufacturers recommend using a water-based contact cement adhesive for cork installation. Cork is porous, allowing the water in the adhesive to evaporate and create a strong bond. It's a good idea to test for proper adhesion before proceeding with the installation. Excessive moisture can damage cork flooring. For kitchen, bathroom or other high-risk applications, follow the manufacturer's guidelines for sealing cork floors with urethane or floor wax.

## Granite and Marble Tile

Common granite and marble surface finishes include *polished*, *honed*, and *flamed*. A polished surface is highly reflective, and is best suited for low-traffic areas. A honed surface has a duller, more slip-resistant finish that's less likely to show scratches. Flamed tiles have a deeply textured surface that's useful for applications requiring additional slip-resistance.

Marble is softer and more porous than granite, so it's more susceptible to scratches, but it can be repolished when necessary. Marble is also susceptible to damage from alcohols, oils and acids commonly found in the home. A penetrative sealer is generally recommended when installing marble in high-risk areas such as kitchens and bathrooms.

Colors and grains will vary from tile to tile and batch to batch. To assure the installation will have a uniform look, be sure you have enough material to finish a complete area. Consider using tiles randomly from different boxes when allocating material for the job. This will more-evenly distribute irregularities, and may actually create a more homogeneous look.

## Flooring Over Concrete

A concrete floor that stays dry in all seasons probably has a good vapor barrier under the slab. If the surface is also smooth and level, nearly any type of resilient flooring or carpet can be installed directly over the slab. If a basement slab is both uneven and moist to the touch, one remedy is to lay a vapor barrier over the existing slab, then cover the entire surface with a 2"- to 3"-thick concrete topping. Another approach is to lay a good-quality vapor barrier directly on the slab, then anchor furring strips or sleepers to the slab with concrete nails or shot fasteners. You can then install hardwood strip flooring directly over the sleepers. See Figure 11-4. For tile or sheet vinyl, nail underlayment or plywood to the sleepers before you install the finish floor.

## Ceramic Tile

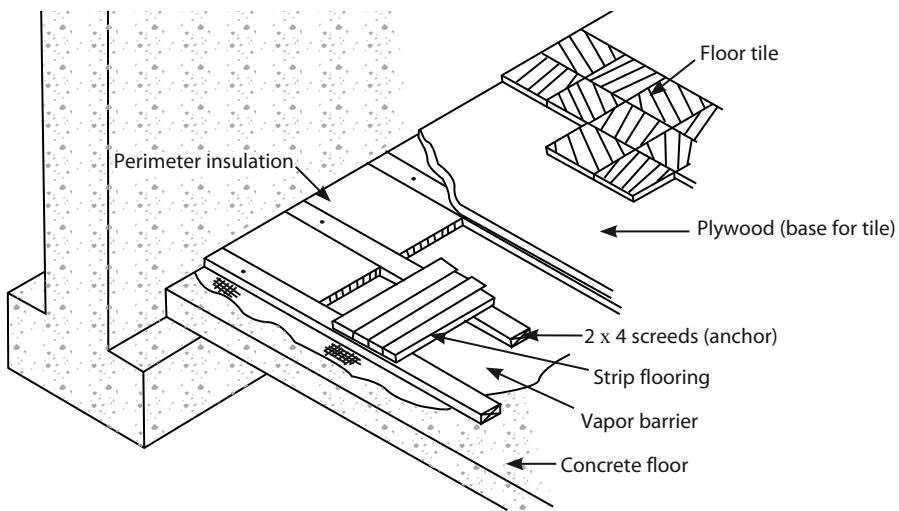
Ceramic tile can be set in either mortar (*thin-set or thick set*) or applied with adhesive. Adhesive is more convenient because no mixing is required, though cleanup takes a little longer. Tile is set on backerboard, cement board reinforced with polymer-coated glass mesh. Common names are Durock®, WonderBoard®, RhinoBoard® and Hardibacker®. For floors and counters, set the backerboard in adhesive on  $\frac{3}{4}$ " exterior grade plywood. For walls, affix backerboard to the studs with cement board screws every 8". On ceilings, drive cement board screws every 6". Regular drywall screws don't have enough holding strength for use on backerboard. Cover panel joints with fiberglass mesh and joint cement. One side of backerboard is rough for use with tile in thin-set mortar. The other side is smooth for use with tile adhesive.

### Ceramic Tile Definitions

- ❖ Field tiles make up most of the job, the "field".
- ❖ Border tiles are trim pieces set around the edge of the field.
- ❖ Listello tiles have a decorative design different from field tile and are generally used on the edge of the field, like the frame of a picture.
- ❖ Rope tiles, as you might expect, have a rope design, usually in raised relief, and are used on the border.

Ceramic tile sizes range from 1" square mosaic to 12" x 12" and even larger. Mosaic tile are usually sold in 12" x 12" squares held together with a mesh backing. The most popular tile size for walls and counters is  $4\frac{1}{4}$ " x  $4\frac{1}{4}$ ".

Avoid using tile with a bright glaze finish on floors. A highly-reflective finish tends to be slippery and offers less resistance to wear. Vitrified porcelain tiles are hard to cut accurately with a tile cutter and may require a circular ceramic wet saw. You also have to apply adhesive to both the tile and the floor when you're installing porcelain tile.



**Figure 11-4**

*Installation of wood floors in a basement*

### **Tips on Ceramic Tile**

Most ceramic tile carries a PEI (Porcelain Enamel Institute) wear rating:

- ❖ *Class 1*, no foot traffic. Interior residential and commercial walls only.
- ❖ *Class 2*, light traffic. Interior residential and commercial walls and residential bathroom floors.
- ❖ *Class 3*, light to moderate traffic. Residential floors, countertops, and walls.
- ❖ *Class 4*, moderate to heavy traffic. Residential, medium commercial and light institutional floors and walls.
- ❖ *Class 5*, heavy to extra-heavy traffic. Residential, commercial and institutional floors and walls.

### **Indoor vs. Outdoor Tile**

Tile that absorbs water will crack when exposed to freezing and thawing. Tile with an absorption rating of 3 percent or less is usually considered acceptable for outdoor use. That includes vitrified and porcelain ceramic tiles. Outdoor tile is very dense and doesn't break easily. Use thin-set mortar with a latex admix.

### **Matching Styles and Batches**

Tile colors and glazes can vary from batch to batch. To make matching easier, many tile manufacturers emboss batch numbers into the back of each tile.

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Remove flooring.</b> Per 100 square feet of floor. Using a long handled spudding spade. Includes removing baseboard as required. Debris piled on site. No salvage of materials or furniture moving included. |           |      |          |        |        |        |
| Remove nailed hardwood floor and prepare surface for new flooring   | BF@3.22   | CSF  | —        | 122.00 | 122.00 | 207.00 |
| Remove glued hardwood floor and prepare surface for new flooring  | BF@5.58   | CSF  | —        | 211.00 | 211.00 | 359.00 |
| Remove sheet vinyl set in adhesive  | BF@.620   | CSF  | —        | 23.50  | 23.50  | 40.00  |
| Remove sheet vinyl and adhesive residue for new flooring  | BF@1.37   | CSF  | —        | 51.90  | 51.90  | 88.20  |
| Remove loose lay sheet flooring   | BF@.138   | CSF  | —        | 5.23   | 5.23   | 8.89   |
| Remove resilient tile, no floor prep  | BF@.777   | CSF  | —        | 29.40  | 29.40  | 50.00  |
| Remove resilient tile and adhesive residue for new flooring   | BF@1.53   | CSF  | —        | 58.00  | 58.00  | 98.60  |
| Remove vinyl cove base  | BF@2.50   | CSF  | —        | 94.80  | 94.80  | 161.00 |
| Remove rubber-back glue-down carpet, no scraping of adhesive included   | BF@.217   | CSF  | —        | 8.22   | 8.22   | 14.00  |
| Remove rubber-back glue-down carpet, and prepare for new flooring   | BF@.967   | CSF  | —        | 36.60  | 36.60  | 62.20  |
| Remove ceramic tile, air hammer   | BL@2.90   | CSF  | —        | 96.60  | 96.60  | 164.00 |
| Remove ceramic tile and tile backer for new flooring  | BL@5.80   | CSF  | —        | 193.00 | 193.00 | 328.00 |

## Wood Strip and Plank Flooring

**Bruce oak solid hardwood strip flooring.** These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time.

Prefinished solid oak strip. Eased edge, square ends. 2-1/4" wide x 3/4" thick. Includes 10% cutting waste.

|                    |         |    |      |      |      |       |
|--------------------|---------|----|------|------|------|-------|
| Gunstock (western) | BF@.050 | SF | 5.49 | 1.90 | 7.39 | 12.60 |
| Gunstock (eastern) | BF@.050 | SF | 5.49 | 1.90 | 7.39 | 12.60 |
| Natural (western)  | BF@.050 | SF | 6.97 | 1.90 | 8.87 | 15.10 |
| Natural (eastern)  | BF@.050 | SF | 6.04 | 1.90 | 7.94 | 13.50 |
| Butterscotch       | BF@.050 | SF | 6.04 | 1.90 | 7.94 | 13.50 |
| Marsh              | BF@.050 | SF | 4.85 | 1.90 | 6.75 | 11.50 |

**Bruce hardwood molding.** Prefinished.

|                     |         |    |       |       |       |        |
|---------------------|---------|----|-------|-------|-------|--------|
| 3'11" reducer       | BF@.160 | Ea | 68.80 | 6.06  | 74.86 | 127.00 |
| 3'11" stair nose    | BF@.160 | Ea | 68.80 | 6.06  | 74.86 | 127.00 |
| 3'11" T-molding     | BF@.160 | Ea | 68.80 | 6.06  | 74.86 | 127.00 |
| 7'10" quarter round | BF@.320 | Ea | 34.40 | 12.10 | 46.50 | 79.10  |

**Bruce touch-up kit.** Includes two touch-up markers, three filler sticks and 1/2 ounce of Dura Luster urethane.

|     |   |    |       |   |       |   |
|-----|---|----|-------|---|-------|---|
| Kit | — | Ea | 43.30 | — | 43.30 | — |
|-----|---|----|-------|---|-------|---|

**Northwoods hardwood strip flooring.** These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Alumide® enhanced urethane finish resists stains and cleans easily. Precise tongue-and-groove for precise fit. Can be sanded and refinished up to three times. Nail-down installation only, on or above grade. 3/4" thick x 2-1/4" wide. Random lengths. Includes 10% cutting waste.

|                 |         |    |      |      |      |       |
|-----------------|---------|----|------|------|------|-------|
| Oak Toffee      | BF@.050 | SF | 6.04 | 1.90 | 7.94 | 13.50 |
| Red Oak natural | BF@.050 | SF | 6.04 | 1.90 | 7.94 | 13.50 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| <b>Northwoods hardwood molding.</b> Prefinished toffee.  |           |      |          |       |       |        |
| 7'10" quarter round  | BF@.320   | Ea   | 20.30    | 12.10 | 32.40 | 55.10  |
| 3'11" reducer strip,<br>carpet to hard surface   | BF@.160   | Ea   | 27.00    | 6.06  | 33.06 | 56.20  |
| 3'11" stair nose   | BF@.160   | Ea   | 27.00    | 6.06  | 33.06 | 56.20  |
| 3'11" T-molding  | BF@.160   | Ea   | 27.00    | 6.06  | 33.06 | 56.20  |
| <b>Rosewood hardwood strip flooring.</b> These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Prefinished one-piece strips. Nail or staple to wood subfloor. 3/4" thick. Random lengths except as noted. Includes 10% cutting waste. |           |      |          |       |       |        |
| 2-1/4" wide  | BF@.050   | SF   | 7.01     | 1.90  | 8.91  | 15.10  |
| 2-1/4" wide, 7' long   | BF@.048   | SF   | 10.70    | 1.82  | 12.52 | 21.30  |
| 3-1/2" wide, 7' long   | BF@.047   | SF   | 10.30    | 1.78  | 12.08 | 20.50  |
| 4-1/2" wide, select  | BF@.047   | SF   | 13.40    | 1.78  | 15.18 | 25.80  |
| 5-1/2" wide, premium   | BF@.045   | SF   | 13.50    | 1.71  | 15.21 | 25.90  |
| 5-1/2" wide, select  | BF@.045   | SF   | 15.90    | 1.71  | 17.61 | 29.90  |
| 5-1/2" wide, select, 6' long   | BF@.045   | SF   | 16.50    | 1.71  | 18.21 | 31.00  |
| <b>Rosewood hardwood molding.</b> 72" long. Prefinished.   |           |      |          |       |       |        |
| Grooved reducer  | BF@.360   | Ea   | 36.60    | 13.60 | 50.20 | 85.30  |
| Quarter round  | BF@.360   | Ea   | 28.70    | 13.60 | 42.30 | 71.90  |
| Stair nosing   | BF@.360   | Ea   | 80.40    | 13.60 | 94.00 | 160.00 |
| T-molding  | BF@.360   | Ea   | 80.40    | 13.60 | 94.00 | 160.00 |
| <b>Maple hardwood flooring.</b> These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Light colored with less distinct grain. Extremely hard. 3/4" thick x 2-1/4" wide. Random lengths. Includes 10% cutting waste. Prefinished.      |           |      |          |       |       |        |
| Ginger   | BF@.050   | Ea   | 14.70    | 1.90  | 16.60 | 28.20  |
| Natural  | BF@.050   | Ea   | 11.60    | 1.90  | 13.50 | 23.00  |
| <b>Maple hardwood molding.</b> Prefinished.  |           |      |          |       |       |        |
| 3'11" floor to carpet<br>reducer strip   | BF@.160   | Ea   | 27.00    | 6.06  | 33.06 | 56.20  |
| 3'11" reducer strip  | BF@.160   | Ea   | 27.00    | 6.06  | 33.06 | 56.20  |
| 3'11" stair nose   | BF@.160   | Ea   | 27.00    | 6.06  | 33.06 | 56.20  |
| 3'11" T-molding  | BF@.160   | Ea   | 27.00    | 6.06  | 33.06 | 56.20  |
| <b>Longstrip hardwood flooring.</b> These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Random lengths. Cost per square foot including 10% cutting waste. Prefinished.  |           |      |          |       |       |        |
| 3/4" x 3-1/4", Medium brown teak   | BF@.047   | SF   | 5.06     | 1.78  | 6.84  | 11.60  |
| 3/8" x 5", Rustic antique oak  | BF@.045   | SF   | 8.45     | 1.71  | 10.16 | 17.30  |
| <b>Pre-finished natural flooring strips.</b> These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. 3/4" thick x 2-1/4" wide. Includes 10% cutting waste.  |           |      |          |       |       |        |
| Natural strips   | BF@.050   | SF   | 5.52     | 1.90  | 7.42  | 12.60  |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Vanguard TapTight hardwood plank flooring, Harris-Tarkett.** These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Factory pre-glued tongue-and-groove. Aluminide®-enhanced urethane finish. Thick top layer can be sanded and refinished up to 3 times. Cross-directional construction for added strength and stability. Floating, glue-down or staple-down installation on grade or above grade. 9/16" x 7.5" x 4' planks. Case covers 13.25 square feet with 10% end-cutting waste.

|                 |         |    |      |      |      |       |
|-----------------|---------|----|------|------|------|-------|
| Heritage Maple  | BF@.045 | SF | 6.45 | 1.71 | 8.16 | 13.90 |
| Oak Wheat       | BF@.045 | SF | 6.57 | 1.71 | 8.28 | 14.10 |
| Red Oak natural | BF@.045 | SF | 6.57 | 1.71 | 8.28 | 14.10 |

**TapTight hardwood moldings.** Prefinished.

|                      |         |    |       |      |       |       |
|----------------------|---------|----|-------|------|-------|-------|
| 3'11" carpet reducer | BF@.160 | Ea | 28.20 | 6.06 | 34.26 | 58.20 |
| 3'11" stair nose     | BF@.160 | Ea | 20.20 | 6.06 | 26.26 | 44.60 |
| 3'11" T-molding      | BF@.160 | Ea | 28.20 | 6.06 | 34.26 | 58.20 |
| 7'10" quarter round  | BF@.160 | Ea | 28.20 | 6.06 | 34.26 | 58.20 |

**Vanguard TapTight floating floor installation kit, Harris-Tarkett.** Includes pull tool, spacers and tapping block.

|     |   |    |       |   |       |   |
|-----|---|----|-------|---|-------|---|
| Kit | — | Ea | 27.30 | — | 27.30 | — |
|-----|---|----|-------|---|-------|---|

**Bamboo plank flooring.** These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. 5/8" thick x 3-5/8" wide. Includes 10% waste. Prefinished.

|         |         |    |      |      |      |       |
|---------|---------|----|------|------|------|-------|
| Natural | BF@.050 | SF | 6.55 | 1.90 | 8.45 | 14.40 |
| Spice   | BF@.050 | SF | 5.39 | 1.90 | 7.29 | 12.40 |

**Bamboo flooring molding.** Prefinished.

|                    |         |    |       |       |       |        |
|--------------------|---------|----|-------|-------|-------|--------|
| Quarter round, 94" | BF@.360 | Ea | 43.70 | 13.60 | 57.30 | 97.40  |
| Reducer, 94"       | BF@.240 | Ea | 54.60 | 9.10  | 63.70 | 108.00 |
| Stair nose, 94"    | BF@.240 | Ea | 65.50 | 9.10  | 74.60 | 127.00 |
| T-molding, 94"     | BF@.240 | Ea | 54.60 | 9.10  | 63.70 | 108.00 |

**Wood plank flooring.** These estimates assume work is done by skilled tradespeople, but not flooring specialists.

Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Prefinished. 3/8" thick x 3" wide. Includes 10% cutting waste.

|              |         |    |      |      |      |       |
|--------------|---------|----|------|------|------|-------|
| Butterscotch | BF@.050 | SF | 7.39 | 1.90 | 9.29 | 15.80 |
| Gunstock     | BF@.050 | SF | 7.39 | 1.90 | 9.29 | 15.80 |

**Rustic oak plank flooring.** These estimates assume work is done by skilled tradespeople, but not flooring specialists.

Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time.

Prefinished. 3/4" thick x 2-1/4" wide. Includes 10% cutting waste.

|        |         |    |      |      |      |       |
|--------|---------|----|------|------|------|-------|
| Toffee | BF@.050 | SF | 4.30 | 1.90 | 6.20 | 10.50 |
| Umber  | BF@.050 | SF | 4.30 | 1.90 | 6.20 | 10.50 |

**Heart pine plank flooring.** These estimates assume work is done by skilled tradespeople, but not flooring specialists.

Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time.

Century-old heart pine timber milled to 3/4" thick. Tongue-and-groove. Random lengths. Includes 10% cutting waste. Prefinished.

|                        |         |    |       |      |       |       |
|------------------------|---------|----|-------|------|-------|-------|
| 3/4" x 2-1/4" x 7'     | BF@.050 | SF | 7.43  | 1.90 | 9.33  | 15.90 |
| 3/4" x 5-1/2", Premium | BF@.045 | SF | 9.69  | 1.71 | 11.40 | 19.40 |
| 3/4" x 5-1/2", Select  | BF@.045 | SF | 10.70 | 1.71 | 12.41 | 21.10 |

|  | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|--|-----------|------|----------|--------|--------|--------|
| <b>Heart pine molding.</b> 72" long. Prefinished.  |           |      |          |        |        |        |
| Baby threshold   | BF@.360   | Ea   | 28.50    | 13.60  | 42.10  | 71.60  |
| Grooved reducer  | BF@.360   | Ea   | 29.40    | 13.60  | 43.00  | 73.10  |
| Quarter round  | BF@.360   | Ea   | 15.00    | 13.60  | 28.60  | 48.60  |
| Stair nose   | BF@.360   | Ea   | 59.80    | 13.60  | 73.40  | 125.00 |
| T-molding  | BF@.360   | Ea   | 45.70    | 13.60  | 59.30  | 101.00 |
| Threshold  | BF@.360   | Ea   | 45.70    | 13.60  | 59.30  | 101.00 |
| <b>Unfinished red oak strip flooring, Harris-Tarkett.</b> These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Random lengths. Nested bundle covers 17.6 square feet including 10% end-cutting waste. Add the cost of finishing. |           |      |          |        |        |        |
| 3/4" x 2-1/4", Select  | BF@.050   | SF   | 6.46     | 1.90   | 8.36   | 14.20  |
| 3/4" x 2-1/4", #1 Common   | BF@.050   | SF   | 4.61     | 1.90   | 6.51   | 11.10  |
| 3/4" x 2-1/4", #2 Common   | BF@.050   | SF   | 2.85     | 1.90   | 4.75   | 8.08   |
| 3/4" x 3-1/4", Select  | BF@.047   | SF   | 7.51     | 1.78   | 9.29   | 15.80  |
| 3/4" x 3-1/4", #1 Common   | BF@.047   | SF   | 5.75     | 1.78   | 7.53   | 12.80  |
| 3/4" x 3-1/4", #2 Common   | BF@.047   | SF   | 4.66     | 1.78   | 6.44   | 10.90  |
| <b>Unfinished white oak strip flooring, Harris-Tarkett.</b> These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Random lengths. Nested bundle covers 17.6 square feet including 10% end-cutting waste.                          |           |      |          |        |        |        |
| 3/4" x 2-1/4", Select  | BF@.050   | SF   | 6.46     | 1.90   | 8.36   | 14.20  |
| 3/4" x 2-1/4", #1 Common   | BF@.050   | SF   | 5.12     | 1.90   | 7.02   | 11.90  |
| <b>Unfinished oak molding.</b>   |           |      |          |        |        |        |
| 3/4" x 2" x 39", reducer   | BF@.160   | Ea   | 24.60    | 6.06   | 30.66  | 52.10  |
| 3/4" x 3/4" x 78", quarter round   | BF@.360   | Ea   | 28.50    | 13.60  | 42.10  | 71.60  |
| 3/4" x 78", stair nose   | BF@.360   | Ea   | 56.30    | 13.60  | 69.90  | 119.00 |
| <b>Unfinished maple strip flooring.</b> These estimates assume work is done by skilled tradespeople, but not flooring specialists. Highly skilled flooring specialists may be able to install strip and plank flooring in 50% less time. Random lengths. Including 10% end-cutting waste.  |           |      |          |        |        |        |
| 3/4" x 2-1/4", 1st Grade   | BF@.050   | SF   | 7.96     | 1.90   | 9.86   | 16.80  |
| <b>Acrylic wood filler.</b> Fills nicks and dents in hardwood flooring.  |           |      |          |        |        |        |
| 4 ounce tub  | —         | Ea   | 6.19     | —      | 6.19   | —      |
| <b>Floor installation tools.</b> Heavy duty.   |           |      |          |        |        |        |
| Pull bar   | —         | Ea   | 16.50    | —      | 16.50  | —      |
| Tapping block  | —         | Ea   | 9.98     | —      | 9.98   | —      |
| <b>Flooring installation clamp.</b> Use to install most wood and laminate flooring. Adjustable cinching system. Recommended use: every 3' to 5'.   |           |      |          |        |        |        |
| 13' maximum span   | —         | Ea   | 18.00    | —      | 18.00  | —      |
| <b>Sand hardwood floor.</b> Sanding floors requires skill. An inexperienced operator can ruin a hardwood floor with a power sander. Using a vibrating or drum sander. Per 100 square feet of floor. No furniture moving included. Add the cost of sandpaper and equipment.   |           |      |          |        |        |        |
| Sand only, 3 passes  | BF@1.08   | CSF  | —        | 40.90  | 40.90  | 69.50  |
| Sand and scrape, 4 passes  | BF@1.31   | CSF  | —        | 49.60  | 49.60  | 84.30  |
| Small room or closet, 3 passes   | BF@2.80   | CSF  | —        | 106.00 | 106.00 | 180.00 |
| Small room or closet, 4 passes   | BF@3.40   | CSF  | —        | 129.00 | 129.00 | 219.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Wood Parquet Flooring

**Hevea parquet flooring, OakCrest Products.** Solid hardwood. Locking tongue-and-groove on all five sides with Tru-Square™ edges. 7.5mm thick. Wire back. UV-cured polyurethane finish, no-wax and stain-resistant. Can be sanded and refinished several times over the life of the floor. Pack of 10 covers 9 square feet with 10% waste. Add the cost of adhesive.

|           |         |    |      |      |      |       |
|-----------|---------|----|------|------|------|-------|
| 12" x 12" | BC@.055 | SF | 4.31 | 2.26 | 6.57 | 11.20 |
|-----------|---------|----|------|------|------|-------|

**Bruce oak parquet flooring.** 12" x 12" x 5/16". Pack of 10 covers 9 square feet with 10% waste. Add the cost of adhesive.

|             |         |    |      |      |      |       |
|-------------|---------|----|------|------|------|-------|
| Natural Oak | BF@.055 | SF | 4.35 | 2.08 | 6.43 | 10.90 |
| Honey       | BF@.055 | SF | 4.87 | 2.08 | 6.95 | 11.80 |

**Parquet floor tile.** Urethane finish. 12" x 12" x 5/16". Case of 25 covers 22.5 square feet with 10% waste. Add the cost of adhesive.

|                   |         |    |      |      |      |      |
|-------------------|---------|----|------|------|------|------|
| Mellow            | BF@.055 | SF | 3.10 | 2.08 | 5.18 | 8.81 |
| Sorrento Chestnut | BF@.055 | SF | 3.10 | 2.08 | 5.18 | 8.81 |
| Sorrento Quartz   | BF@.055 | SF | 3.10 | 2.08 | 5.18 | 8.81 |

**Bruce oak self-stick parquet flooring.** Urethane finish. 12" x 12" x 7/16". Pack of 10 covers 9 square feet with 10% waste.

|          |         |    |      |      |      |       |
|----------|---------|----|------|------|------|-------|
| Chestnut | BF@.050 | SF | 5.46 | 1.90 | 7.36 | 12.50 |
| Desert   | BF@.050 | SF | 5.46 | 1.90 | 7.36 | 12.50 |

## Hardwood moldings for Bruce parquet.

|                     |         |    |       |       |       |       |
|---------------------|---------|----|-------|-------|-------|-------|
| 3'11" reducer       | BF@.160 | Ea | 49.90 | 6.06  | 55.96 | 95.10 |
| 3'11" stair nose    | BF@.160 | Ea | 49.90 | 6.06  | 55.96 | 95.10 |
| 3'11" T-molding     | BF@.160 | Ea | 49.90 | 6.06  | 55.96 | 95.10 |
| 7'10" quarter round | BF@.360 | Ea | 37.80 | 13.60 | 51.40 | 87.40 |

## Wood Flooring Adhesives

**Adhesive remover.** Nonflammable and water rinseable. Softens old adhesive in 5 to 15 minutes. One gallon removes adhesive from 100 to 200 square feet. Semi-paste clings to vertical surfaces. Use with neoprene or rubber gloves and adequate ventilation.

|        |   |    |       |   |       |   |
|--------|---|----|-------|---|-------|---|
| Quart  | — | Ea | 12.60 | — | 12.60 | — |
| Gallon | — | Ea | 44.40 | — | 44.40 | — |

**Adhesive primer.** For use on plywood, concrete, and glasscrete. Primes floors before applying adhesive. Prevents dry-out when adhesive is drawn below the surface. Ensures adhesion of self-stick floor tile. Water cleanup. Covers 300 to 500 square feet per gallon.

|        |   |    |       |   |       |   |
|--------|---|----|-------|---|-------|---|
| Quart  | — | Ea | 9.46  | — | 9.46  | — |
| Gallon | — | Ea | 21.60 | — | 21.60 | — |

**Wood flooring adhesive.** Synthetic latex-based adhesive for use on engineered laminated wood plank and wood parquet flooring. May be used over interior grade plywood subflooring and concrete on and above grade. Not recommended for foam-backed, solid wood flooring or high-pressure laminate flooring (e.g., Wilsonart, Pergo, Formica, etc.). Excellent early grab and develops good water resistance. Covers 40 to 50 square feet per gallon when applied with a 1/8" x 1/8" x 1/8" square-notch trowel for parquet or a 1/4" x 1/4" x 1/4" V-notch trowel for laminated plank.

|             |   |    |        |   |        |   |
|-------------|---|----|--------|---|--------|---|
| Gallon      | — | Ea | 44.00  | — | 44.00  | — |
| 3.5 gallons | — | Ea | 154.00 | — | 154.00 | — |
| Pro trowel  | — | Ea | 9.98   | — | 9.98   | — |

|   | Craft@Hrs             | Unit    | Material | Labor | Total | Sell  |
|---|-----------------------|---------|----------|-------|-------|-------|
| <b>Laminate Plank Flooring</b>  |                       |         |          |       |       |       |
| <b>Pergo Presto laminate wood flooring.</b> Tongue-and-groove joints lock together for a tight fit. Guaranteed secure joint. Case covers 17.59 square feet before end-cutting waste.  |                       |         |          |       |       |       |
| Beech Blocked   | BF@.051               | SF      | 3.31     | 1.93  | 5.24  | 8.91  |
| Washington Cherry   | BF@.051               | SF      | 3.31     | 1.93  | 5.24  | 8.91  |
| Kentucky Oak  | BF@.051               | SF      | 3.31     | 1.93  | 5.24  | 8.91  |
| Toasted Maple   | BF@.051               | SF      | 3.31     | 1.93  | 5.24  | 8.91  |
| <b>Pergo floor molding.</b>   |                       |         |          |       |       |       |
| Multi purpose reducer, 72"  | BF@.320               | Ea      | 33.10    | 12.10 | 45.20 | 76.80 |
| T-molding, 72"  | BF@.320               | Ea      | 33.10    | 12.10 | 45.20 | 76.80 |
| Stair nose molding, 94"   | BF@.320               | Ea      | 36.40    | 12.10 | 48.50 | 82.50 |
| Quarter round molding, 94"  | BF@.320               | Ea      | 14.40    | 12.10 | 26.50 | 45.10 |
| <b>Pergo flooring installation spacers.</b> For maintaining proper spacing along walls and fixed objects. Minimizes movement of floor during installation. Package covers about 48 square feet.                                       | Pack of 48            | —       | Ea       | 10.30 | —     | 10.30 |
| <b>FloorMate™ laminate flooring underlayment, Pergo®.</b> Sound reduction for laminate flooring. Flexible. Cuts without leaving debris or dust. Roll covers 100 square feet.  | Flooring underlayment | BF@.010 | SF       | .79   | .38   | 1.17  |
| <b>Soundbloc™ underlayment foam, Pergo®.</b> Evens out minor irregularities in subfloor. Provides sound and heat insulation. Makes floor comfortable underfoot. Roll covers 1300 square feet.   | Foam underlayment     | BF@.006 | SF       | .38   | .23   | .61   |
| <b>Underlayment.</b> Vapor barrier and sound reducing underlayment in one. For concrete subfloors. 8" band of film along edges for overlap. Alkaline resistant. Roll covers 400 square feet.  | Foam and film pack    | —       | SF       | .32   | —     | .32   |
| <b>Pergo laminate glue.</b> Penetrates the core material to create a super-strong joint. Pergo warranty is valid only if Pergo glue is used for installation.   | 10.5-ounce tube       | —       | Ea       | 15.60 | —     | 15.60 |
| <b>Laminate flooring sealant, Pergo®.</b> Acrylic-based sealing compound for moisture resistance. For use in bathrooms, kitchens, laundry rooms and other wet areas. Formulated to maintain high level of flexibility and elasticity. | 10.5-ounce tube       | —       | Ea       | 11.00 | —     | 11.00 |
| <b>Finishing putty, Pergo®.</b> Water-based putty formulated to fill nail and screw holes in Pergo moldings and wall base. Repairs small chips and dents in the laminate layer.   | Tube                  | —       | Ea       | 17.70 | —     | 17.70 |
| <b>Pergo® universal installation kit.</b> Contains underseal tapping block, 48 installation spacers, pull bar and glue scraper.   | Kit                   | —       | Ea       | 27.60 | —     | 27.60 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Hampton TrafficMaster laminate flooring.** Engineered "longstrip" wood floors with premium oak veneers. Cross-ply, multiple layer construction for long-term dimensional stability and structural integrity. Each plank is 7.5" wide, 72" long, 7/16" thick.

|                                     |         |    |      |      |      |      |
|-------------------------------------|---------|----|------|------|------|------|
| Glenwood Oak, 24.5 SF per case      | BF@.051 | SF | 1.01 | 1.93 | 2.94 | 5.00 |
| Brazilian Cherry, 24.33 SF per case | BF@.051 | SF | 1.05 | 1.93 | 2.98 | 5.07 |
| Shelton Hickory, 17.99 SF per case  | BF@.051 | SF | 1.38 | 1.93 | 3.31 | 5.63 |
| Raintree Acacia, 14 SF per case     | BF@.051 | SF | 1.58 | 1.93 | 3.51 | 5.97 |
| Draya Oak, 21.30 SF per case        | BF@.051 | SF | 2.55 | 1.93 | 4.48 | 7.62 |

### Hampton floor molding.

|                          |         |    |       |       |       |       |
|--------------------------|---------|----|-------|-------|-------|-------|
| 94" Carpet reducer       | BF@.160 | Ea | 30.70 | 6.06  | 36.76 | 62.50 |
| 94" Hard surface reducer | BF@.160 | Ea | 30.70 | 6.06  | 36.76 | 62.50 |
| 94" Stair nose           | BF@.160 | Ea | 35.60 | 6.06  | 41.66 | 70.80 |
| 94" T-molding            | BF@.160 | Ea | 30.70 | 6.06  | 36.76 | 62.50 |
| 94" Quarter round        | BF@.320 | Ea | 16.30 | 12.10 | 28.40 | 48.30 |
| 94" Wall base            | BF@.320 | Ea | 35.60 | 12.10 | 47.70 | 81.10 |

### Legends strip laminate flooring.

Case covers 20 square feet before cutting waste.

|                  |         |    |      |      |      |      |
|------------------|---------|----|------|------|------|------|
| Kempas           | BF@.051 | SF | 3.27 | 1.93 | 5.20 | 8.84 |
| Brazilian cherry | BF@.051 | SF | 3.27 | 1.93 | 5.20 | 8.84 |
| Wheat            | BF@.051 | SF | 3.27 | 1.93 | 5.20 | 8.84 |
| Cognac           | BF@.051 | SF | 3.27 | 1.93 | 5.20 | 8.84 |
| Coffee           | BF@.051 | SF | 3.27 | 1.93 | 5.20 | 8.84 |

### Legends molding.

Molding used to transition from laminate flooring to carpet or at the base of a wall.

|                        |         |    |       |       |       |       |
|------------------------|---------|----|-------|-------|-------|-------|
| 3'11" Bamboo reducer   | BF@.160 | Ea | 20.90 | 6.06  | 26.96 | 45.80 |
| 3'11" Stair nose       | BF@.160 | Ea | 45.00 | 6.06  | 51.06 | 86.80 |
| 3'11" Bamboo T-molding | BF@.160 | Ea | 20.90 | 6.06  | 26.96 | 45.80 |
| 8' quarter round       | BF@.320 | Ea | 17.30 | 12.10 | 29.40 | 50.00 |
| 8' wall base           | BF@.320 | Ea | 35.00 | 12.10 | 47.10 | 80.10 |

### Wood and laminate flooring underlayment, Shaw HardSurfaces.

Roll covers 100 square feet.

|                     |         |    |     |     |     |      |
|---------------------|---------|----|-----|-----|-----|------|
| 3-in-1 underlayment | BF@.010 | SF | .50 | .38 | .88 | 1.50 |
|---------------------|---------|----|-----|-----|-----|------|

### Foam underlayment, Shaw HardSurfaces.

Evens out minor irregularities in subfloor. Provides sound and heat insulation. Makes floor comfortable underfoot. Roll covers 100 square feet.

|                     |         |    |     |     |     |      |
|---------------------|---------|----|-----|-----|-----|------|
| 2-in-1 underlayment | BF@.006 | SF | .39 | .23 | .62 | 1.05 |
|---------------------|---------|----|-----|-----|-----|------|

### Moisturbloc™ polyethylene film.

For installation over concrete subfloors. Lasts for the life of the floor. 6 mil polyethylene film with increased alkaline resistance and 0.2% HALS additive. 120 square foot roll.

|           |         |    |     |     |     |      |
|-----------|---------|----|-----|-----|-----|------|
| Poly film | BF@.006 | SF | .49 | .23 | .72 | 1.22 |
|-----------|---------|----|-----|-----|-----|------|

### Laminate flooring installation system.

Adjustable cinching system pulls laminate floor together and provides a perfect, tight seam.

|              |   |    |       |   |       |   |
|--------------|---|----|-------|---|-------|---|
| Cinch system | — | Ea | 22.00 | — | 22.00 | — |
|--------------|---|----|-------|---|-------|---|

## Floor Surface Prep

### Prepare surface for new flooring.

Per 100 square feet of floor.

|  |         |     |       |       |        |        |
|--|---------|-----|-------|-------|--------|--------|
| Scrape concrete floor to remove adhesive residue | BF@.750 | CSF | —     | 28.40 | 28.40  | 48.30  |
| Apply skim-coat to level surface                 | BF@.563 | CSF | 83.50 | 21.30 | 104.80 | 178.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Adhesive remover.</b> Removes latex, acrylic and pressure-sensitive adhesives from concrete, wood, sheet vinyl, tile, ceramic and terrazzo substrates. Highly concentrated cleaning solution.   |           |      |          |       |        |      |
| Quart  | —         | Ea   | 15.30    | —     | 15.30  | —    |
| <b>Sentinel 747 flooring adhesive remover.</b> For cleaning cutback, emulsion and outdoor flooring mastics. Coverage is 75 to 150 square feet per gallon.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 27.00    | —     | 27.00  | —    |
| <b>Henry 550 embossing leveler.</b> Levels embossed areas in existing resilient flooring prior to installing new resilient flooring. One-part latex polymer resin. No mixing required. Can be used directly over urethane wear surfaces with no special preparation. Eliminates the need to remove the old floor. Prevents pattern show-through. Coverage: approximately 54 square feet per quart over heavy embossed floors or 108 square feet per quart over lightly embossed floors. Working time 15 to 20 minutes. |           |      |          |       |        |      |
| Quart  | —         | Ea   | 34.00    | —     | 34.00  | —    |
| <b>Liquid underlayment.</b> For residential use as an embossing leveler. Can be used directly over CleanSweep surfaces with no special preparation. Eliminates the need to remove a damaged floor. Prevents pattern show-through. Coverage is approximately 216 square feet per gallon over heavily embossed floors or 432 square feet per gallon over lightly embossed floors. Working time is 15 to 20 minutes.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 150.00   | —     | 150.00 | —    |
| <b>Latex primer and additive, S-185, Armstrong.</b> For priming wood and concrete before installing resilient floors. Improves adhesion. Fast-drying, ready for adhesive in 60 minutes. Gallon covers 400 square feet.   |           |      |          |       |        |      |
| Quart  | —         | Ea   | 13.70    | —     | 13.70  | —    |
| Gallon   | —         | Ea   | 24.80    | —     | 24.80  | —    |
| <b>Henry 336 floor primer.</b> Improves adhesion on dry, dusty and porous substrates. Bonds to concrete, poured-in-place gypsum subfloors, wood and wood underlays, radiant-heated subfloors where the surface temperature does not exceed 85 degrees F (29 degrees C), wall surfaces such as wood, plaster, drywall, and masonry.   |           |      |          |       |        |      |
| Quart  | —         | Ea   | 9.46     | —     | 9.46   | —    |
| Gallon   | —         | Ea   | 21.60    | —     | 21.60  | —    |
| <b>Fast-setting patch and underlayment.</b> Cement-based smooth finish under resilient flooring. Ready for adhesive in 60 minutes. Can be used to skim coat over old cutback adhesive.   |           |      |          |       |        |      |
| 3 pounds   | —         | Ea   | 13.00    | —     | 13.00  | —    |
| 10 pounds  | —         | Ea   | 27.30    | —     | 27.30  | —    |
| 25 pounds  | —         | Ea   | 31.70    | —     | 31.70  | —    |
| <b>Cement-based underlayment, Armstrong.</b> Fast-setting cement-based patch and underlayment for use over wood and concrete in resilient flooring application. Ready for most flooring in 1-2 hours. 10-pound bag covers 10 square feet at 1/8" thickness.  |           |      |          |       |        |      |
| 10 pounds  | —         | Ea   | 21.10    | —     | 21.10  | —    |
| 40 pounds  | —         | Ea   | 40.40    | —     | 40.40  | —    |
| <b>Henry 331 patch.</b> Ready-to-use gypsum-based patch – just add water. Fills voids and levels floors from particle thin to 1" thick in a single application. Non-shrinking. Fast-setting.   |           |      |          |       |        |      |
| 25 pounds  | —         | Ea   | 11.60    | —     | 11.60  | —    |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Henry 547 universal underlayment and floor patch.** Use as a patch, underlayment or embossing leveler. For patching, leveling and skim coating; covering existing "cutback" adhesive residue; and leveling the embossing of existing resilient flooring. Sets for most flooring in 1 to 2 hours. Excellent fill characteristics allows for installations from as little as a featheredge to depths of 1" thick. Non-sanded formulation allows product to be troweled to a smooth finish. Compressive strength exceeds 5,000 PSI. Non-shrinking formulation. Bonds to concrete, wood substrates, steel, stainless steel, brass, lead, ceramic, terrazzo, marble, existing "cutback" adhesive residue and existing resilient flooring (as an embossing leveler). Metal substrates must be clean and abraded. 10-year limited warranty. One pound covers one square foot at 1/8" thick.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| 3 pounds  | — | Ea | 8.99  | — | 8.99  | — |
| 10 pounds | — | Ea | 18.00 | — | 18.00 | — |
| 25 pounds | — | Ea | 28.30 | — | 28.30 | — |

**Henry 546 feather edge additive.** Improves the bond and enhances flexural strength when used as a mix instead of water with Henry 547. Extends the pot life for added working time. Not to be used when installing over asphalt "cutback" adhesive residue.

|        |   |    |       |   |       |   |
|--------|---|----|-------|---|-------|---|
| Gallon | — | Ea | 30.90 | — | 30.90 | — |
|--------|---|----|-------|---|-------|---|

**Skimcoat white cover patch and underlayment.** Covers and levels defects in concrete, wood, metal, vinyl, ceramic tile and other subfloors. Smooth-spreading, quick-setting and fast-drying. High compressive strength and adhesion-resistance. Non-staining. Non-alkaline, adhesive-friendly. Non-shrinking, dust-free in thick or thin applications. Use on virtually any flooring surface from particle thin to over 1" thick. One pound covers one square foot at 1/8" thick.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| 7 pounds  | — | Ea | 15.80 | — | 15.80 | — |
| 25 pounds | — | Ea | 28.30 | — | 28.30 | — |
| 35 pounds | — | Ea | 44.20 | — | 44.20 | — |
| 50 pounds | — | Ea | 67.80 | — | 67.80 | — |

## Sheet Vinyl Flooring

**Sheet vinyl flooring, Dupont.** Long-lasting fiberglass sheet flooring is stain and mark resistant, can be installed with full spread (with glue), modified spread (with glue) or floating (without glue), and provides comfort underfoot. 25 Year Warranty. Includes 10% waste.

|                     |         |    |       |       |       |       |
|---------------------|---------|----|-------|-------|-------|-------|
| Cottage Cobblestone | BF@.300 | SY | 15.10 | 11.40 | 26.50 | 45.10 |
| Relic Pottery       | BF@.300 | SY | 15.10 | 11.40 | 26.50 | 45.10 |
| Dakota Cavern       | BF@.300 | SY | 15.10 | 11.40 | 26.50 | 45.10 |

**Sheet vinyl flooring, Armstrong.** CleanSweep® surface. ToughGuard® durability — guaranteed not to rip, tear or gouge. 15-year limited warranty. 12' wide rolls. 0.07" thick. Urethane no-wax wear layer. 3.8 Performance Appearance Rating. Includes 10% waste.

|                      |         |    |       |       |       |       |
|----------------------|---------|----|-------|-------|-------|-------|
| Lava Ridge Cider     | BF@.300 | SY | 14.90 | 11.40 | 26.30 | 44.70 |
| Checkerboard Gray    | BF@.300 | SY | 14.90 | 11.40 | 26.30 | 44.70 |
| River Slate Mushroom | BF@.300 | SY | 14.90 | 11.40 | 26.30 | 44.70 |
| Modular Stone Beige  | BF@.300 | SY | 15.80 | 11.40 | 27.20 | 46.20 |
| Resona Walnut        | BF@.300 | SY | 15.80 | 11.40 | 27.20 | 46.20 |
| Chestnut Corner Rust | BF@.300 | SY | 15.30 | 11.40 | 26.70 | 45.40 |
| Willow Valley        | BF@.300 | SY | 12.60 | 11.40 | 24.00 | 40.80 |
| Sentinel Galaxy      | BF@.300 | SY | 12.60 | 11.40 | 24.00 | 40.80 |
| River Park           | BF@.300 | SY | 16.50 | 11.40 | 27.90 | 47.40 |
| Alexander Oak        | BF@.300 | SY | 14.90 | 11.40 | 26.30 | 44.70 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Themes sheet vinyl flooring, Armstrong.** Easy to clean. ToughGuard® durability. Guaranteed not to rip, tear or gouge. 10-year limited warranty. Urethane no-wax wear layer. 12' wide rolls. 0.08" thick. 2.9 Performance Appearance Rating. Includes adhesive and 10% waste.

|                            |         |    |       |       |       |       |
|----------------------------|---------|----|-------|-------|-------|-------|
| Most colors and designs    | BF@.300 | SY | 13.50 | 11.40 | 24.90 | 42.30 |
| Bayside Slate              | BF@.300 | SY | 12.20 | 11.40 | 23.60 | 40.10 |
| Marble Wisp, White Crystal | BF@.300 | SY | 13.30 | 11.40 | 24.70 | 42.00 |
| Prescott, Natural White    | BF@.300 | SY | 13.30 | 11.40 | 24.70 | 42.00 |

**Wood Grain sheet vinyl flooring.** Urethane wear layer. Modified loose lay. No adhesive needed.

10-year warranty. 12' wide rolls. 0.098" thick. Includes 10% waste.

|                       |         |    |       |       |       |       |
|-----------------------|---------|----|-------|-------|-------|-------|
| Rustic Oak            | BF@.300 | SY | 18.00 | 11.40 | 29.40 | 50.00 |
| Chestnut Corner, Rust | BF@.300 | SY | 15.30 | 11.40 | 26.70 | 45.40 |
| Myrtlewood, Light Oak | BF@.300 | SY | 16.90 | 11.40 | 28.30 | 48.10 |

**Sentinel sheet vinyl flooring.** 5-year limited warranty. 12' wide rolls. Includes adhesive and 10% waste.

|                                  |         |    |       |       |       |       |
|----------------------------------|---------|----|-------|-------|-------|-------|
| Most colors and designs          | BF@.300 | SY | 12.30 | 11.40 | 23.70 | 40.30 |
| Darker colors, intricate designs | BF@.300 | SY | 12.50 | 11.40 | 23.90 | 40.60 |

**Sheet vinyl flooring.** ToughGuard® durability. Guaranteed not to rip, tear or gouge.

5-year limited warranty. 12' wide rolls. 0.045" thick. Vinyl no-wax wear layer. 2.3 Performance Appearance Rating. Includes adhesive and 10% waste.

|                          |         |    |       |       |       |       |
|--------------------------|---------|----|-------|-------|-------|-------|
| Adobe Tan                | BF@.300 | SY | 12.30 | 11.40 | 23.70 | 40.30 |
| Bluelake                 | BF@.300 | SY | 9.30  | 11.40 | 20.70 | 35.20 |
| Cocoa                    | BF@.300 | SY | 10.50 | 11.40 | 21.90 | 37.20 |
| Media Heights, Sandstone | BF@.300 | SY | 10.30 | 11.40 | 21.70 | 36.90 |
| Navy                     | BF@.300 | SY | 13.30 | 11.40 | 24.70 | 42.00 |
| Sand                     | BF@.300 | SY | 10.50 | 11.40 | 21.90 | 37.20 |

**Sheet vinyl flooring.** Vinyl ToughGuard® durability. FHA spec. Guaranteed not to rip, tear or gouge. 5-year limited warranty. 12' wide rolls. 1.7 Performance Appearance Rating. Includes 10% waste.

|                      |         |    |      |       |       |       |
|----------------------|---------|----|------|-------|-------|-------|
| Mountain Meadow      | BF@.300 | SY | 9.64 | 11.40 | 21.04 | 35.80 |
| Country Flair, Rose  | BF@.300 | SY | 9.34 | 11.40 | 20.74 | 35.30 |
| Hampton House, White | BF@.300 | SY | 9.69 | 11.40 | 21.09 | 35.90 |
| Middlesex, Toast     | BF@.300 | SY | 9.18 | 11.40 | 20.58 | 35.00 |

**Sheet vinyl flooring.** No-wax surface. Easy to install. 12' wide rolls. One-year limited warranty. 0.05" thick. Vinyl no-wax wear layer. 1.3 Performance Appearance Rating. Includes 10% waste.

|                           |         |    |       |       |       |       |
|---------------------------|---------|----|-------|-------|-------|-------|
| Mount Carmel Cream        | BF@.300 | SY | 11.10 | 11.40 | 22.50 | 38.30 |
| Hampton Bay Burnt Oak     | BF@.300 | SY | 11.10 | 11.40 | 22.50 | 38.30 |
| Sheffley, Black and White | BF@.300 | SY | 7.55  | 11.40 | 18.95 | 32.20 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Vinyl Floor Tile

**Metro Series™ vinyl floor tile, Armstrong.** 12" x 12". Resists stains, scratches, scuffs and indentations. 5-year warranty. 0.045" thick. Vinyl no-wax wear layer. 2.3 Performance Appearance Rating. Per square foot, including adhesive and 10% waste.

|                             |         |    |      |     |      |      |
|-----------------------------|---------|----|------|-----|------|------|
| Avlana, Golden Mosaic       | BF@.023 | SF | 1.51 | .87 | 2.38 | 4.05 |
| Salina, Beige               | BF@.023 | SF | 1.08 | .87 | 1.95 | 3.32 |
| Salina, Gray                | BF@.023 | SF | 1.17 | .87 | 2.04 | 3.47 |
| Toledo, Slate Blue          | BF@.023 | SF | 1.48 | .87 | 2.35 | 4.00 |
| Tetherow Provincial, Cherry | BF@.023 | SF | 1.42 | .87 | 2.29 | 3.89 |

**Vinyl floor tile.** 12" x 12". ToughGuard® durability. Guaranteed not to rip, tear or gouge. Resists stains, scratches, scuffs and indentations. 25-year warranty. Per square foot, including adhesive and 10% waste.

|                          |         |    |      |     |      |      |
|--------------------------|---------|----|------|-----|------|------|
| Cornwall, Burnt Almond   | BF@.023 | SF | 3.47 | .87 | 4.34 | 7.38 |
| Modern, Rose/Green Inset | BF@.023 | SF | 2.48 | .87 | 3.35 | 5.70 |

**Vinyl floor tile, Armstrong.** 12" x 12". ToughGuard® durability. Guaranteed not to rip, tear or gouge. Resists stains, scratches, scuffs and indentations. 25-year warranty. Self-adhesive. Per square foot, including 10% waste.

|                          |         |    |      |     |      |      |
|--------------------------|---------|----|------|-----|------|------|
| Allenbury, Shadow Blue   | BF@.021 | SF | 1.15 | .80 | 1.95 | 3.32 |
| Classic Marble, Blue     | BF@.021 | SF | 1.29 | .80 | 2.09 | 3.55 |
| Englewood, Oak           | BF@.021 | SF | 1.25 | .80 | 2.05 | 3.49 |
| Floral Focus, Rose Petal | BF@.021 | SF | 1.26 | .80 | 2.06 | 3.50 |
| Montelena, Cinnamon      | BF@.021 | SF | 1.25 | .80 | 2.05 | 3.49 |
| Montelena, White         | BF@.021 | SF | 1.26 | .80 | 2.06 | 3.50 |
| Snapshot, Bianco White   | BF@.021 | SF | 1.41 | .80 | 2.21 | 3.76 |

**Vinyl floor tile.** 12" x 12". ToughGuard® durability. Guaranteed not to rip, tear or gouge. Resists stains, scratches, scuffs and indentations. 10-year warranty. Self-adhesive. Per square foot, including 10% waste.

|               |         |    |      |     |      |      |
|---------------|---------|----|------|-----|------|------|
| Marble Beauty | BF@.021 | SF | 4.28 | .80 | 5.08 | 8.64 |
|---------------|---------|----|------|-----|------|------|

**Themes Collection™ vinyl floor tile, Armstrong.** 12" x 12". ToughGuard® durability. Guaranteed not to rip, tear or gouge. Resists stains, scratches, scuffs and indentations. 10-year warranty. Per square foot, including adhesive and 10% waste.

|                                     |         |    |      |     |      |      |
|-------------------------------------|---------|----|------|-----|------|------|
| Center Piece, Black                 | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Charmayne, Sandstone                | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Classic Mosaic, Deep Blue/Natural   | BF@.023 | SF | 1.87 | .87 | 2.74 | 4.66 |
| Classic Mosaic, Burgundy/Natural    | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Classic Mosaic, Hunter Green/Almond | BF@.023 | SF | 1.90 | .87 | 2.77 | 4.71 |
| Colebrook, Fieldstone               | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Midway, Beige                       | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Midway, Bisque                      | BF@.023 | SF | 1.84 | .87 | 2.71 | 4.61 |
| Naples, Black                       | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Naples, Green                       | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Naples, Natural                     | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Senegal, Light Beige                | BF@.023 | SF | 1.75 | .87 | 2.62 | 4.45 |
| Stonehaven, Orange Bisque           | BF@.023 | SF | 1.88 | .87 | 2.75 | 4.68 |
| Tripoli, Blue/Natural               | BF@.023 | SF | 1.45 | .87 | 2.32 | 3.94 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Safety Zone vinyl floor tile, Armstrong.</b> Slip-retardant vinyl composition tile for use where slips and falls are a concern. Meets or exceeds ADA slip-retardant performance ranges. Low profile for easy maintenance. Styled for all commercial interiors. Per square foot, including adhesive and 10% waste. |           |      |          |       |       |       |
| Earth Stone  | BF@.023   | SF   | 6.88     | .87   | 7.75  | 13.20 |
| Slate Black  | BF@.023   | SF   | 6.88     | .87   | 7.75  | 13.20 |
| Stone Beige  | BF@.023   | SF   | 6.88     | .87   | 7.75  | 13.20 |
| Weathered Alabaster  | BF@.023   | SF   | 6.88     | .87   | 7.75  | 13.20 |
| <b>Stylistik® II vinyl floor tile, Armstrong.</b> 12" x 12". Resists stains, scratches, scuffs and indentations. 5-year warranty. 0.065" thick. Vinyl no-wax wear layer. Self-adhesive. Per square foot, including 10% waste.  |           |      |          |       |       |       |
| Bayville, Bisque   | BF@.021   | SF   | 1.65     | .80   | 2.45  | 4.17  |
| Criswood, Russet Oak   | BF@.021   | SF   | 1.52     | .80   | 2.32  | 3.94  |
| Criswood, Vintage Oak  | BF@.021   | SF   | 1.40     | .80   | 2.20  | 3.74  |
| Firenza, Sapphire  | BF@.021   | SF   | 1.47     | .80   | 2.27  | 3.86  |
| Gladstone, Blue/Natural  | BF@.021   | SF   | 1.65     | .80   | 2.45  | 4.17  |
| Oakland, Dusty Brick   | BF@.021   | SF   | 1.48     | .80   | 2.28  | 3.88  |
| Pequea Park, Canyon Multi  | BF@.021   | SF   | 1.43     | .80   | 2.23  | 3.79  |
| Terramora, Black   | BF@.021   | SF   | 1.47     | .80   | 2.27  | 3.86  |
| Terramora, White   | BF@.021   | SF   | 1.40     | .80   | 2.20  | 3.74  |
| <b>Chesapeake Collection™ vinyl floor tile, Armstrong.</b> 12" x 12". 25-year warranty. 0.08" thick. Urethane no-wax wear layer. Per square foot, including adhesive and 10% waste.  |           |      |          |       |       |       |
| Leesport, Sienna/Gray  | BF@.023   | SF   | 3.00     | .87   | 3.87  | 6.58  |
| Millport, Wheat  | BF@.023   | SF   | 3.00     | .87   | 3.87  | 6.58  |
| Steinway, White Essence  | BF@.023   | SF   | 2.55     | .87   | 3.42  | 5.81  |
| <b>Natural Images™ Vinyl floor tile.</b> 12" x 12". ToughGuard® durability. 25-year warranty. Per square foot including adhesive and 10% waste.  |           |      |          |       |       |       |
| Stonegate, Antique Ivory   | BF@.023   | SF   | 3.97     | .87   | 4.84  | 8.23  |
| Stonegate, Blue Slate  | BF@.023   | SF   | 4.02     | .87   | 4.89  | 8.31  |
| <b>Harbour Collection™ vinyl floor tile, Armstrong.</b> 12" x 12". ToughGuard® durability. Guaranteed not to rip, tear or gouge. Resists stains, scratches, scuffs and indentations. 25-year warranty. Per square foot including adhesive and 10% waste.   |           |      |          |       |       |       |
| Andora, Spring Green   | BF@.023   | SF   | 2.66     | .87   | 3.53  | 6.00  |
| Arrington, Dusty Green   | BF@.023   | SF   | 2.66     | .87   | 3.53  | 6.00  |
| Arrington, Trail Beige   | BF@.023   | SF   | 2.66     | .87   | 3.53  | 6.00  |
| Matheson Park, Emerald   | BF@.023   | SF   | 2.66     | .87   | 3.53  | 6.00  |
| Matheson Park, Sapphire  | BF@.023   | SF   | 2.38     | .87   | 3.25  | 5.53  |
| <b>Place n Press floor tile, Armstrong.</b> 12" x 12". No-wax easy-to-clean finish. Household gauge. Self-adhesive. Per square foot, including 10% waste.  |           |      |          |       |       |       |
| Lockeport, Slate Blue  | BF@.021   | SF   | .77      | .80   | 1.57  | 2.67  |
| Parkson, Light Oak   | BF@.021   | SF   | .77      | .80   | 1.57  | 2.67  |
| <b>Excelon® Imperial Texture vinyl composition tile, Armstrong.</b> 1/8"-thick tile. 12" x 12". Color pattern goes through the tile. Commercial traffic rated. Per square foot, including 10% waste and adhesive.  |           |      |          |       |       |       |
| Blue Cloud   | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37  |
| Blue/Gray  | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37  |
| Caribbean Blue   | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37  |
| Cherry Red   | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37  |
| Classic Black  | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37  |
| Classic White  | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37  |
| Cool White   | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37  |
| Cottage Tan  | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37  |

|                | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|----------------|-----------|------|----------|-------|-------|------|
| Fortress White | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |
| Hazelnut       | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |
| Marina Blue    | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |
| Pearl White    | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |
| Sandrift White | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |
| Sea Green      | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |
| Shelter White  | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |
| Sterling       | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |
| Teal           | BF@.023   | SF   | 1.11     | .87   | 1.98  | 3.37 |

**Excelon® Civic Square vinyl composition tile, Armstrong.** Color pattern goes through the tile. 1/8"-thick tile.

12" x 12". Per square foot, including adhesive and 10% waste.

|              |         |    |     |     |      |      |
|--------------|---------|----|-----|-----|------|------|
| Oyster White | BF@.023 | SF | .97 | .87 | 1.84 | 3.13 |
| Stone Tan    | BF@.023 | SF | .97 | .87 | 1.84 | 3.13 |

**Rubber studded tile.** 12" x 12". Highly resilient to reduce fatigue. 10-year wear warranty. Slip-resistant. Sound absorbent. High-abrasion resistance. Recommended in kitchens and active use rooms.

|        |         |    |      |     |       |       |
|--------|---------|----|------|-----|-------|-------|
| Black  | BF@.025 | SF | 9.75 | .95 | 10.70 | 18.20 |
| Indigo | BF@.025 | SF | 9.75 | .95 | 10.70 | 18.20 |
| Taupe  | BF@.025 | SF | 9.75 | .95 | 10.70 | 18.20 |

## Vinyl Flooring Adhesive

**Sheet flooring adhesive.** For residential felt-backed floors. Water-based rubber-resin. Can be used on all grade levels of concrete, existing resilient floors, ceramic, terrazzo, marble, and wood floors. Solvent-free and low odor. Non-staining. Long working time. Gallon covers 350 to 400 square feet.

|        |   |    |       |   |       |   |
|--------|---|----|-------|---|-------|---|
| Quart  | — | Ea | 12.70 | — | 12.70 | — |
| Gallon | — | Ea | 18.60 | — | 18.60 | — |

**Henry 430 clear thin-spread vinyl tile adhesive.** For installing vinyl composition tile (VCT). 24-hour working time. Dries clear so chalk lines show through. Moisture and alkali resistance allows installation above or below grade. Bonds to concrete, existing asphalt "cutback" adhesive residue, underlays, wood substrates, terrazzo, clean and abraded steel, stainless steel, aluminum, lead, copper, brass and bronze, and existing resilient flooring. Gallon covers 350 to 400 square feet.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| Quart     | — | Ea | 16.80 | — | 16.80 | — |
| Gallon    | — | Ea | 25.10 | — | 25.10 | — |
| 4 gallons | — | Ea | 68.20 | — | 68.20 | — |

**Resilient tile adhesive, Armstrong.** For Excelon®, dry-back vinyl, and residential dry-back tile. Used on all grade levels of concrete, ceramic, terrazzo, marble and polymeric poured floors. Water-based. Up to 6-hour working time. Low odor and solvent-free. Gallon covers 350 to 400 square feet.

|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Quart     | — | Ea | 9.67   | — | 9.67   | — |
| Gallon    | — | Ea | 35.90  | — | 35.90  | — |
| 4 gallons | — | Ea | 149.00 | — | 149.00 | — |

**CX-941 Rubber Adhesive.** Gallon covers 60 square feet.

|                 |   |    |        |   |        |   |
|-----------------|---|----|--------|---|--------|---|
| 2 gallon bucket | — | Ea | 265.00 | — | 265.00 | — |
|-----------------|---|----|--------|---|--------|---|

**Henry 440 cove base adhesive.** Wet-set adhesive for rubber and vinyl cove base. Aggressive initial grab prevents slip during installation. Cleans up with water.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| 11 ounces | — | Ea | 6.20  | — | 6.20  | — |
| 1 quart   | — | Ea | 7.57  | — | 7.57  | — |
| 30 ounces | — | Ea | 7.92  | — | 7.92  | — |
| 1 gallon  | — | Ea | 28.00 | — | 28.00 | — |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| <b>Acrylic tape.</b> Double-face. For Armstrong Sundial sheet vinyl flooring. Allows flooring to be repositioned during installation.  |           |      |          |       |       |      |
| 3" x 164' roll   | —         | Ea   | 27.80    | —     | 27.80 | —    |
| <b>Low-gloss seam coating kit, S-564, Armstrong.</b> Protects seams from dirt and wear. Includes seam cleaner, coating, deglosser, and applicator. Covers approximately 100 linear feet per kit.   |           |      |          |       |       |      |
| Seam coat kit  | —         | Ea   | 17.80    | —     | 17.80 | —    |
| <b>High-gloss seam coating kit, S-595, Armstrong.</b> For use on high-gloss residential sheet vinyl floors. Includes coating, accelerator, and cleaner. Coverage is 250 linear feet.   |           |      |          |       |       |      |
| 3 ounces   | —         | Ea   | 27.70    | —     | 27.70 | —    |
| <b>Vinyl Flooring Tools</b>  |           |      |          |       |       |      |
| <b>Extendable roller.</b> Extension tube with firm-grip handle. Extends from 17" to 27". For rolling vinyl floor covering, carpet, wall covering and cove base.  |           |      |          |       |       |      |
| 7-1/2" wide  | —         | Ea   | 45.00    | —     | 45.00 | —    |
| <b>Margin notch trowel.</b> 2" x 6" flexible steel trowel for patch jobs and hard-to-reach areas.  |           |      |          |       |       |      |
| 1/4" x 1/4" x 1/4" square notch  | —         | Ea   | 12.00    | —     | 12.00 | —    |
| 5/16" x 1/4" x 1/16" V-notch   | —         | Ea   | 9.68     | —     | 9.68  | —    |
| <b>Notched trowels.</b> Large, foam comfort grip. Flexible spring steel blade.   |           |      |          |       |       |      |
| 1/8" x 1/8" V-notch  | —         | Ea   | 10.10    | —     | 10.10 | —    |
| 3/16" x 1/4" U-notch   | —         | Ea   | 17.60    | —     | 17.60 | —    |
| 1/2" x 1/4" U-notch  | —         | Ea   | 17.60    | —     | 17.60 | —    |
| 3/8" x 1/4" U-notch  | —         | Ea   | 17.60    | —     | 17.60 | —    |
| 2-3/4" x 8" square notch   | —         | Ea   | 15.50    | —     | 15.50 | —    |
| <b>Underlay finish trowel.</b> Constructed of welded tool steel. Comfortable hardwood handle.  |           |      |          |       |       |      |
| 2" x 5" margin trowel  | —         | Ea   | 6.74     | —     | 6.74  | —    |
| 6" pointing trowel   | —         | Ea   | 14.20    | —     | 14.20 | —    |
| <b>Chalk line.</b> 100" self-chalking line with aluminum casing and plumb bob.   |           |      |          |       |       |      |
| 100" chalk line  | —         | Ea   | 19.00    | —     | 19.00 | —    |
| Chalk refill, 8 oz. plastic bottle   | —         | Ea   | 3.47     | —     | 3.47  | —    |
| <b>White rubber mallet.</b> Will not mark coping or tile. Rubber head securely mounted on hickory handle.  |           |      |          |       |       |      |
| Mallet   | —         | Ea   | 8.60     | —     | 8.60  | —    |
| <b>Vinyl tile cutter.</b> Cuts vinyl tiles to 12" x 12". Hardened steel blade with die-cast aluminum base. Cushioned rubber handle. Ball bearings at stress points with "guillotine" action. Built-in measuring gauge. Works equally well with peel-and-stick tiles. |           |      |          |       |       |      |
| Tile cutter  | —         | Ea   | 61.50    | —     | 61.50 | —    |
| <b>Cove base adhesive nozzle.</b> Fits all cove base caulking guns. Spreads adhesive evenly for cove base.   |           |      |          |       |       |      |
| 1-3/4" long, 3" wide, 4-1/2" high  | —         | Ea   | 3.97     | —     | 3.97  | —    |
| <b>Scribing felt.</b> For transferring the pattern of the floor to the flooring material.  |           |      |          |       |       |      |
| Per square yard  | —         | Ea   | .07      | —     | .07   | —    |
| 477 square yard roll   | —         | Ea   | 33.80    | —     | 33.80 | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Flooring Transition Strips</b>  |           |      |          |       |       |       |
| <b>Vinyl flooring transition reducer strip, Roppe.</b> Beveled edge for resilient flooring material. Butting edge is 1/8".   |           |      |          |       |       |       |
| 3' long, black   | BF@.250   | Ea   | 2.07     | 9.48  | 11.55 | 19.60 |
| 3' long, brown   | BF@.250   | Ea   | 2.07     | 9.48  | 11.55 | 19.60 |
| 3' long, gray  | BF@.250   | Ea   | 2.07     | 9.48  | 11.55 | 19.60 |
| <b>Carpet-to-tile transition strip, Roppe.</b> Joins 1/4" carpet to 1/8" tile.   |           |      |          |       |       |       |
| 4' long, black   | BF@.250   | Ea   | 17.00    | 9.48  | 26.48 | 45.00 |
| 4' long, brown   | BF@.250   | Ea   | 17.00    | 9.48  | 26.48 | 45.00 |
| 4' long, gray  | BF@.250   | Ea   | 17.00    | 9.48  | 26.48 | 45.00 |
| <b>Oak-to-ceramic tile transition strip.</b>   |           |      |          |       |       |       |
| 3', high pile  | BF@.250   | Ea   | 18.70    | 9.48  | 28.18 | 47.90 |
| 3', laminate   | BF@.250   | Ea   | 18.70    | 9.48  | 28.18 | 47.90 |
| 3', vinyl  | BF@.250   | Ea   | 20.30    | 9.48  | 29.78 | 50.60 |
| 6', high pile  | BF@.500   | Ea   | 22.50    | 19.00 | 41.50 | 70.60 |
| 6', laminate   | BF@.500   | Ea   | 19.30    | 19.00 | 38.30 | 65.10 |
| 6', vinyl  | BF@.500   | Ea   | 24.20    | 19.00 | 43.20 | 73.40 |
| <b>Cove Base for Vinyl Flooring</b>  |           |      |          |       |       |       |
| <b>Dryback vinyl wall base.</b> Resists scratches, scuffs and whitening. Flexible. 0.080 gauge. Per linear foot.   |           |      |          |       |       |       |
| 4", brown  | BF@.025   | LF   | .58      | .95   | 1.53  | 2.60  |
| 4", black  | BF@.025   | LF   | .58      | .95   | 1.53  | 2.60  |
| 4", fawn   | BF@.025   | LF   | .58      | .95   | 1.53  | 2.60  |
| 4", snow   | BF@.025   | LF   | .58      | .95   | 1.53  | 2.60  |
| 4", almond   | BF@.025   | LF   | .58      | .95   | 1.53  | 2.60  |
| 4", gray   | BF@.025   | LF   | .58      | .95   | 1.53  | 2.60  |
| <b>Thermoplastic dryback wall base, Roppe.</b> Type TP thermoplastic rubber. More flexible than vinyl due to its rubber content. Thickness hides many wall irregularities. Good stability. Rib back for positive adhesion. Per foot. |           |      |          |       |       |       |
| 2-1/2" x 120' x 1/8", almond   | BF@.025   | LF   | .70      | .95   | 1.65  | 2.81  |
| 2-1/2" x 120' x 1/8", black  | BF@.025   | LF   | .70      | .95   | 1.65  | 2.81  |
| 2-1/2" x 120' x 1/8", brown  | BF@.025   | LF   | .70      | .95   | 1.65  | 2.81  |
| 2-1/2" x 120' x 1/8", dark gray  | BF@.025   | LF   | .70      | .95   | 1.65  | 2.81  |
| 2-1/2" x 120' x 1/8", fawn   | BF@.025   | LF   | .70      | .95   | 1.65  | 2.81  |
| 2-1/2" x 120' x 1/8", hunter green   | BF@.025   | LF   | .70      | .95   | 1.65  | 2.81  |
| 2-1/2" x 120' x 1/8", white  | BF@.025   | LF   | .70      | .95   | 1.65  | 2.81  |
| 4" x 120' x 1/8", almond   | BF@.025   | LF   | .73      | .95   | 1.68  | 2.86  |
| 4" x 120' x 1/8", black  | BF@.025   | LF   | .73      | .95   | 1.68  | 2.86  |
| 4" x 120' x 1/8", brown  | BF@.025   | LF   | .73      | .95   | 1.68  | 2.86  |
| 4" x 120' x 1/8", fawn   | BF@.025   | LF   | .73      | .95   | 1.68  | 2.86  |
| 4" x 120' x 1/8", hunter green   | BF@.025   | LF   | .73      | .95   | 1.68  | 2.86  |
| 4" x 120' x 1/8", white  | BF@.025   | LF   | .68      | .95   | 1.63  | 2.77  |
| <b>Rubber dryback wall base.</b> 100% synthetic rubber. Extremely flexible. Won't shrink, grab or separate. Resists scuffing, gouging and most chemicals. Low gloss stain finish. Flexible with shade control. 1/8" thick. Per foot. |           |      |          |       |       |       |
| 4", almond   | BF@.025   | LF   | .76      | .95   | 1.71  | 2.91  |
| 4", black  | BF@.025   | LF   | .76      | .95   | 1.71  | 2.91  |
| 4", brown  | BF@.025   | LF   | .76      | .95   | 1.71  | 2.91  |
| 4", dark gray  | BF@.025   | LF   | .76      | .95   | 1.71  | 2.91  |
| 4", fawn   | BF@.025   | LF   | .76      | .95   | 1.71  | 2.91  |
| 4", white  | BF@.025   | LF   | .76      | .95   | 1.71  | 2.91  |
| 4", almond   | BF@.025   | LF   | .76      | .95   | 1.71  | 2.91  |

|               | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---------------|------------------|-------------|-----------------|--------------|--------------|-------------|
| 4", black     | BF@.025          | LF          | .76             | .95          | 1.71         | 2.91        |
| 4", brown     | BF@.025          | LF          | .76             | .95          | 1.71         | 2.91        |
| 4", dark gray | BF@.025          | LF          | .76             | .95          | 1.71         | 2.91        |
| 4", fawn      | BF@.025          | LF          | .76             | .95          | 1.71         | 2.91        |
| 4", white     | BF@.025          | LF          | .76             | .95          | 1.71         | 2.91        |

**Self-stick wall base, Roppe.** Full-cover adhesive for sure-stick installation. Top lip design for tight fit. Special coating resists scuffs and scratches. 1/8" thick. Per foot.

|                   |         |    |      |     |      |      |
|-------------------|---------|----|------|-----|------|------|
| 2-1/2", almond    | BF@.016 | LF | 1.10 | .61 | 1.71 | 2.91 |
| 2-1/2", black     | BF@.016 | LF | 1.10 | .61 | 1.71 | 2.91 |
| 2-1/2", brown     | BF@.016 | LF | 1.10 | .61 | 1.71 | 2.91 |
| 2-1/2", dark gray | BF@.016 | LF | 1.10 | .61 | 1.71 | 2.91 |
| 4", almond        | BF@.016 | LF | 1.29 | .61 | 1.90 | 3.23 |
| 4", black         | BF@.016 | LF | 1.29 | .61 | 1.90 | 3.23 |
| 4", brown         | BF@.016 | LF | 1.29 | .61 | 1.90 | 3.23 |

**Residential self-stick vinyl wall base, Armstrong.** Per foot.

|                         |         |    |      |     |      |      |
|-------------------------|---------|----|------|-----|------|------|
| 4", almond high gloss   | BF@.016 | LF | 1.55 | .61 | 2.16 | 3.67 |
| 4", architectural white | BF@.016 | LF | 1.56 | .61 | 2.17 | 3.69 |
| 4", black high gloss    | BF@.016 | LF | 1.55 | .61 | 2.16 | 3.67 |
| 4", gray                | BF@.016 | LF | 1.55 | .61 | 2.16 | 3.67 |
| 4", walnut high gloss   | BF@.016 | LF | 1.54 | .61 | 2.15 | 3.66 |
| 4", white high gloss    | BF@.016 | LF | 1.55 | .61 | 2.16 | 3.67 |

## Cork Wall and Floor Cover

### Cork Flooring

|            |         |    |      |      |      |       |
|------------|---------|----|------|------|------|-------|
| Long Plank | BF@.051 | SF | 5.29 | 1.93 | 7.22 | 12.30 |
|------------|---------|----|------|------|------|-------|

**Natural cork tile, Boone International.** Case of tiles covers 21.31 square feet with 10% waste.

|                           |         |    |      |      |      |      |
|---------------------------|---------|----|------|------|------|------|
| On Walls 12" x 12" x 3/8" | BF@.030 | SF | 3.85 | 1.14 | 4.99 | 8.48 |
|---------------------------|---------|----|------|------|------|------|

### Cork roll.

|                                      |   |    |        |   |        |   |
|--------------------------------------|---|----|--------|---|--------|---|
| 4' wide, 1/4" thick, per linear foot | — | LF | 4.51   | — | 4.51   | — |
| 4' x 50' x 1/4" roll                 | — | Ea | 226.00 | — | 226.00 | — |

## Ceramic Tile Installation

**Ceramic tile adhesive.** Premixed Type 1, Acryl-4000. Gallon covers 70 square feet applied with #1 trowel (3/16" x 5/32" V-notch), 50 square feet applied with #2 trowel (3-/16" x 1/4" V-notch) or 40 square feet applied with #3 trowel (1/4" x 1/4" square-notch).

|                                      |   |    |       |   |       |   |
|--------------------------------------|---|----|-------|---|-------|---|
| 1/2 pint                             | — | Ea | 5.26  | — | 5.26  | — |
| 1 gallon                             | — | Ea | 23.20 | — | 23.20 | — |
| 3-1/2 gallons                        | — | Ea | 63.80 | — | 63.80 | — |
| Tile adhesive applied with #2 trowel | — | SF | .33   | — | .33   | — |

**Thin-set tile mortar.** 50 pound bag covers 100 square feet applied with #1 trowel (1/4" x 1/4" square-notch), 80 square feet applied with #2 trowel (1/4" x 3/8" square-notch), 45 square feet applied with #3 trowel (1/2" x 1/2" square-notch). Cost per 50 pound bag.

|                                     |   |    |       |   |       |   |
|-------------------------------------|---|----|-------|---|-------|---|
| FlexBond®, gray                     | — | Ea | 42.90 | — | 42.90 | — |
| Marble and granite mix              | — | Ea | 39.00 | — | 39.00 | — |
| MasterBlend™, white                 | — | Ea | 28.40 | — | 28.40 | — |
| Standard, gray                      | — | Ea | 11.10 | — | 11.10 | — |
| MasterBlend™ applied with #3 trowel | — | SF | .51   | — | .51   | — |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Tile grout.</b> Polymer-modified dry grout for joints 1/16" to 1/2". Coverage varies with tile and joint size. Cost per 25 pound bag.                           |           |      |          |       |       |       |
| Sanded, dark colors  | —         | Ea   | 18.80    | —     | 18.80 | —     |
| Sanded, light colors   | —         | Ea   | 17.60    | —     | 17.60 | —     |
| Unsanded   | —         | Ea   | 17.60    | —     | 17.60 | —     |
| <b>Setting counter, wall and floor tile in adhesive.</b> Costs are for adhesive and grout. Add the cost of surface preparation (backerboard) and the cost of tile. |           |      |          |       |       |       |
| Countertops  |           |      |          |       |       |       |
| Ceramic mosaic field tile  | TL@.203   | SF   | .40      | 8.01  | 8.41  | 14.30 |
| 4-1/4" x 4-1/4" to 6" x 6" glazed field tile   | TL@.180   | SF   | .48      | 7.10  | 7.58  | 12.90 |
| Countertop trim pieces and edge tile   | TL@.180   | LF   | .10      | 7.10  | 7.20  | 12.20 |
| Floors   |           |      |          |       |       |       |
| Ceramic mosaic field tile  | TL@.121   | SF   | .46      | 4.77  | 5.23  | 8.89  |
| 4-1/4" x 4-1/4" to 6" x 6" glazed field tile   | TL@.110   | SF   | .48      | 4.34  | 4.82  | 8.19  |
| 8" x 8" and larger field tile  | TL@.100   | SF   | .48      | 3.95  | 4.43  | 7.53  |
| Floor trim pieces and edge tile  | TL@.200   | LF   | .09      | 7.89  | 7.98  | 13.60 |
| Walls  |           |      |          |       |       |       |
| Ceramic mosaic field tile  | TL@.143   | SF   | .46      | 5.64  | 6.10  | 10.40 |
| 4-1/4" x 4-1/4" to 6" x 6" glazed field tile   | TL@.131   | SF   | .48      | 5.17  | 5.65  | 9.61  |
| 8" x 8" and larger field tile  | TL@.120   | SF   | .48      | 4.74  | 5.22  | 8.87  |
| Wall trim pieces and edge tile   | TL@.200   | LF   | .09      | 7.89  | 7.98  | 13.60 |
| <b>Setting counter, wall and floor tile in thin-set mortar.</b> Costs are for mortar and grout. Add the cost of surface preparation (backerboard) and tile.        |           |      |          |       |       |       |
| Countertops  |           |      |          |       |       |       |
| Ceramic mosaic field tile  | TL@.300   | SF   | .33      | 11.80 | 12.13 | 20.60 |
| 4-1/4" x 4-1/4" to 6" x 6" glazed field tile   | TL@.250   | SF   | .33      | 9.87  | 10.20 | 17.30 |
| Countertop trim pieces and edge tile   | TL@.400   | LF   | .06      | 15.80 | 15.86 | 27.00 |
| Floors   |           |      |          |       |       |       |
| Ceramic mosaic field tile  | TL@.238   | SF   | .36      | 9.39  | 9.75  | 16.60 |
| 4-1/4" x 4-1/4" to 6" x 6" field tile  | TL@.210   | SF   | .36      | 8.29  | 8.65  | 14.70 |
| 8" x 8" and larger field tile  | TL@.200   | SF   | .36      | 7.89  | 8.25  | 14.00 |
| Quarry or paver tile   | TL@.167   | SF   | .46      | 6.59  | 7.05  | 12.00 |
| Marble, granite or stone tile  | TL@.354   | SF   | .67      | 14.00 | 14.67 | 24.90 |
| Floor trim pieces and edge tile  | TL@.210   | LF   | .06      | 8.29  | 8.35  | 14.20 |
| Walls  |           |      |          |       |       |       |
| Ceramic mosaic field tile  | TL@.315   | SF   | .67      | 12.40 | 13.07 | 22.20 |
| 4-1/4" x 4-1/4" to 6" x 6" glazed field tile   | TL@.270   | SF   | .36      | 10.70 | 11.06 | 18.80 |
| 8" x 8" and larger field tile  | TL@.260   | SF   | .67      | 10.30 | 10.97 | 18.60 |
| Wall trim pieces and edge tile   | TL@.270   | LF   | .06      | 10.70 | 10.76 | 18.30 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---|-----------|------|----------|-------|-------|------|
| <b>Tile backerboard.</b> (Durock™ or Wonderboard™). Water-resistant underlayment for ceramic tile on floors, walls, countertops, and other interior wet areas. Material cost for 100 square feet (CSF) of board includes waterproofing membrane, the backerboard (10% waste,) 50 pounds of job-mixed latex-fortified mortar for the joints and surface skim coat, 75 linear feet of fiberglass joint tape, and 200 1-1/4" backerboard screws. For scheduling purposes, estimate that a crew of 2 can install, tape and apply the skim coat on the following quantity of backerboard in an 8-hour day: countertops 180 SF, floors 525 SF, and walls 350 SF. Use \$250.00 as a minimum charge for this type work. |           |      |          |       |       |      |
| Using 15 lb. felt waterproofing,<br>per 400 SF, roll  | —         | Ea   | 35.50    | —     | 35.50 | —    |
| Using 1/4" or 1/2" backerboard, per 100 SF  | —         | CSF  | 76.90    | —     | 76.90 | —    |
| Using 50 lbs. of latex-fortified mortar each<br>100 SF, per 50 lb. sack   | —         | Ea   | 13.00    | —     | 13.00 | —    |
| Using 75 LF of backerboard tape for each 100 SF,<br>per 50 LF roll  | —         | Ea   | 5.08     | —     | 5.08  | —    |
| Using 200 backerboard screws for each 100 SF,<br>per pack of 200 screws   | —         | Ea   | 12.00    | —     | 12.00 | —    |
| Backerboard with waterproofing, mortar, tape and screws.  |           |      |          |       |       |      |
| Countertops   | T1@.090   | SF   | 1.28     | 3.28  | 4.56  | 7.75 |
| Floors  | T1@.030   | SF   | 1.28     | 1.09  | 2.37  | 4.03 |
| Walls   | T1@.045   | SF   | 1.28     | 1.64  | 2.92  | 4.96 |
| <b>Wonderboard® backerboard.</b> Underlayment for tile floors in kitchens and baths and for countertops. 1/4" thickness reduces subfloor modifications to adjacent floors, thresholds, carpets and cabinets. 1/2" thickness matches up with surrounding 1/2" (12 mm) drywall without the need to use shims or spacers. Easy to score, snap, cut and nail. For installation cost, see Tile backerboard. Includes 10% waste.  |           |      |          |       |       |      |
| 1/4" x 3' x 5'  | —         | SF   | .80      | —     | .80   | —    |
| 1/2" x 3' x 5'  | —         | SF   | .87      | —     | .87   | —    |
| <b>RhinoBoard™ backerboard.</b> Lightweight fiber-cement backerboard for interior floors and countertops. Used under ceramic tile, natural stone, wood, vinyl, and other resilient flooring. Easy to score, snap, cut and nail. For installation costs, see Tile backerboard. Includes 10% waste.   |           |      |          |       |       |      |
| 1/4" x 3' x 5'  | —         | SF   | 1.18     | —     | 1.18  | —    |
| <b>Hardibacker® backerboard, James Hardie.</b> Water-resistant, cement-based underlayment for floors, walls and countertops. Bonds with mastic or latex-modified thin-set tile adhesive. Non-abrasive to enamel or porcelain surfaces. Easy to score and snap. For installation costs, see Tile backerboard. Includes 10% waste.  |           |      |          |       |       |      |
| 1/4" x 3' x 5'  | —         | SF   | .67      | —     | .67   | —    |
| 1/2" x 3' x 5'  | —         | SF   | .84      | —     | .84   | —    |
| 1/2" x 4' x 8'  | —         | SF   | .71      | —     | .71   | —    |
| <b>Aqua-Tough™ tile underlayment, USG Interiors.</b> Underlayment for ceramic tile, resilient flooring, laminated or hardwood flooring in both wet and dry areas. For installation costs, see Tile backerboard. Includes 10% waste.   |           |      |          |       |       |      |
| 1/4" x 4' x 4'  | —         | SF   | .84      | —     | .84   | —    |
| <b>8" x 8" Ceramic Floor Tile</b>   |           |      |          |       |       |      |
| <b>8" ceramic floor tile.</b> Glazed ceramic residential indoor tile. Class 3, light-to-moderate traffic. Case of 25 tiles covers 10 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.  |           |      |          |       |       |      |
| Ivory   | —         | SF   | 1.31     | —     | 1.31  | —    |
| White   | —         | SF   | 1.31     | —     | 1.31  | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| <b>8" Ragione ceramic floor tile.</b> Satin finish for ease of maintenance. Subtle shading provides a warm, natural, earthy feel. Stained finish makes tile durable, practical and easy to maintain. Case of 25 tiles covers 10 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.  |           |      |          |       |       |      |
| White, Case of 25,   | —         | SF   | 1.10     | —     | 1.10  | —    |
| <b>8" ceramic floor tile.</b> Case of 36 tiles covers 15 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.   |           |      |          |       |       |      |
| Castle Gray  | —         | SF   | 3.22     | —     | 3.22  | —    |
| <b>8" Natura® ceramic floor tile.</b> A natural stone-look ceramic tile with warm earth tones. Suitable for all interior residential and light commercial applications. Case of 25 tiles covers 10 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.   |           |      |          |       |       |      |
| Stone  | —         | SF   | 2.30     | —     | 2.30  | —    |
| <b>8" x 8" ceramic floor tile.</b> Class 3, light-to-moderate traffic for bathrooms, kitchens, foyers, dining rooms, and recreation areas. Case of 30 tiles covers 12.92 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.   |           |      |          |       |       |      |
| Pietra, Alabaster  | —         | SF   | 2.15     | —     | 2.15  | —    |
| Pietra, Gem  | —         | SF   | 2.15     | —     | 2.15  | —    |
| <b>8" glazed ceramic floor tile.</b> Extra durable matte glaze. Non-slip finish. Exceptional wear and scratch resistance. Case of 25 tiles covers 10 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.   |           |      |          |       |       |      |
| Blue   | —         | SF   | 2.87     | —     | 2.87  | —    |
| White  | —         | SF   | 2.87     | —     | 2.87  | —    |
| <b>12" x 12" Ceramic Floor Tile</b>  |           |      |          |       |       |      |
| <b>12" x 12" ceramic residential floor tile.</b> Class 3, light-to-moderate traffic. For bathrooms, kitchens, foyers, dining rooms and recreation areas. Case of 15 tiles covers 15 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.  |           |      |          |       |       |      |
| Carrara, Beige   | —         | SF   | 1.77     | —     | 1.77  | —    |
| Carrara, Gray  | —         | SF   | 1.64     | —     | 1.64  | —    |
| Pietra, Alabaster  | —         | SF   | 1.37     | —     | 1.37  | —    |
| Pietra, Gem  | —         | SF   | 1.65     | —     | 1.65  | —    |
| Saltillo, Monterey   | —         | SF   | 1.38     | —     | 1.38  | —    |
| <b>12" x 12" glazed porcelain residential and commercial floor tile, American Marazzi.</b> For residential, commercial and light institutional applications, including restaurant dining rooms, shopping malls, offices, lobbies, showrooms and corridors. Class 4, moderate-to-heavy traffic. Case of 15 tiles covers 15 square feet, including 10% waste. This product does not meet the minimum coefficient of friction to be considered a slip-resistant tile. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout. |           |      |          |       |       |      |
| Rapolano, Noce   | —         | SF   | 2.60     | —     | 2.60  | —    |
| Salento Sabbia, Beige  | —         | SF   | 2.94     | —     | 2.94  | —    |
| Salento Sabbia, Gray   | —         | SF   | 2.07     | —     | 2.07  | —    |
| Vermont, Caledonia Porcelain   | —         | SF   | 3.47     | —     | 3.47  | —    |
| <b>12" x 12" ceramic floor tile.</b> For all residential applications. Class 3, light-to-moderate traffic, including bathrooms, kitchens, foyers, dining rooms and recreation areas. Case of 15 tiles covers 15 square feet, including 10% waste. This product does not meet the minimum coefficient of friction to be considered a slip-resistant tile. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.   |           |      |          |       |       |      |
| Verona, Beige  | —         | SF   | 2.94     | —     | 2.94  | —    |
| Verona, White  | —         | SF   | 2.56     | —     | 2.56  | —    |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**12" x 12" ceramic floor tile, Dal-Tile.** Field tile. For interior floors, walls, and counter tops. Case of 11 tiles covers 10 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                              |   |    |      |   |      |   |
|------------------------------|---|----|------|---|------|---|
| Dakota™, Rushmore Gray       | — | SF | 2.42 | — | 2.42 | — |
| French Quarter®, Cobblestone | — | SF | 1.93 | — | 1.93 | — |
| French Quarter®, Mardi Gras  | — | SF | 3.61 | — | 3.61 | — |
| Gold Rush®, California Sand  | — | SF | 1.76 | — | 1.76 | — |
| Gold Rush®, Golden Nugget    | — | SF | 2.58 | — | 2.58 | — |
| Gold Rush®, Goldust          | — | SF | 3.31 | — | 3.31 | — |
| Edgefield™, Beige            | — | SF | 2.12 | — | 2.12 | — |

**12" x 12" ceramic floor and wall tile, Eliane Ceramic Tile.** Marbleized look floor ceramic designed for bathrooms. Can be used as wall coverings. Rated PEI 4 and Mohs scale 3. Eleven tiles cover 10 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                    |   |    |      |   |      |   |
|--------------------|---|----|------|---|------|---|
| Autumn, White      | — | SF | 2.42 | — | 2.42 | — |
| Illusione, Beige   | — | SF | 2.49 | — | 2.49 | — |
| Illusione, Caramel | — | SF | 2.60 | — | 2.60 | — |
| Illusione, Ice     | — | SF | 2.48 | — | 2.48 | — |

## Large Ceramic Floor Tile

**16" x 16" ceramic floor tile, Megatrade.** Smooth stone finish. PEI rating of 4. Indoor use only. Case of 9 tiles covers 15.5 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|       |   |    |      |   |      |   |
|-------|---|----|------|---|------|---|
| Beige | — | SF | 5.24 | — | 5.24 | — |
| Ivory | — | SF | 5.38 | — | 5.38 | — |
| White | — | SF | 5.33 | — | 5.33 | — |

**Fossile Cotto 16" x 16" ceramic floor tile, Eliane Ceramic Tile.** Rated PEI 4 and Mohs scale 5. Indoor. Suitable for offices, living rooms, bedrooms, bathrooms, halls and kitchens. Rustic look. Can also be used as wall covering. Case of 9 tiles covers 16 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|             |   |    |      |   |      |   |
|-------------|---|----|------|---|------|---|
| Rustic look | — | SF | 2.87 | — | 2.87 | — |
| Rustic look | — | SF | 2.77 | — | 2.77 | — |

**Illusione 16" x 16" ceramic floor tile, Eliane Ceramic Tile.** Rated PEI 4 and Mohs scale 3. Marbleized look.

Designed for bathrooms. Can also be used as wall coverings. Case of 9 tiles covers 14.4 square feet, including 10% waste. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|         |   |    |      |   |      |   |
|---------|---|----|------|---|------|---|
| Beige   | — | SF | 4.17 | — | 4.17 | — |
| Caramel | — | SF | 4.17 | — | 4.17 | — |
| Ice     | — | SF | 4.17 | — | 4.17 | — |

**16" x 16" ceramic residential and medium commercial floor tile, American Marazzi.** PEI class 4, moderate-to-heavy traffic. For residential, medium commercial and light institutional applications, including restaurant dining rooms, shopping malls, offices, lobbies, showrooms and corridors. Case of 8 tiles covers 13.77 square feet, including 10% waste. Does not meet the minimum coefficient of friction to be considered a slip-resistant tile. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                  |   |    |      |   |      |   |
|------------------|---|----|------|---|------|---|
| Island Sand      | — | SF | 6.41 | — | 6.41 | — |
| Montagna Cortina | — | SF | 6.41 | — | 6.41 | — |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**16" x 16" glazed porcelain residential and medium commercial floor tile, American Marazzi.** PEI Class 4, moderate-to-heavy traffic. For residential, medium commercial and light institutional applications, including restaurant dining rooms, shopping malls, offices, lobbies, showrooms and corridors. Case of 9 tiles covers 15.5 square feet. Does not meet the minimum coefficient of friction to be considered a slip-resistant tile. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                 |   |    |      |   |      |   |
|-----------------|---|----|------|---|------|---|
| Romance, Almond | — | SF | 7.05 | — | 7.05 | — |
|-----------------|---|----|------|---|------|---|

## Natural Stone and Slate Flooring

**Botticino Americana marble floor tile.** Highly polished genuine marble. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|           |   |    |      |   |      |   |
|-----------|---|----|------|---|------|---|
| 12" x 12" | — | Ea | 8.37 | — | 8.37 | — |
|-----------|---|----|------|---|------|---|

**Grigio Venato marble tile.** Gray with natural shade variations. For interior and exterior floors and walls. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|           |   |    |      |   |      |   |
|-----------|---|----|------|---|------|---|
| 12" x 12" | — | Ea | 3.89 | — | 3.89 | — |
|-----------|---|----|------|---|------|---|

**Coral Venato marble tile.** Polished marble with soft hues of rose and gray to match all decors. For interior and exterior floors, wall fireplaces and bathroom countertops. Gloss finish. High durability. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|           |   |    |      |   |      |   |
|-----------|---|----|------|---|------|---|
| 12" x 12" | — | Ea | 3.45 | — | 3.45 | — |
|-----------|---|----|------|---|------|---|

**Maron Venato marble tile.** For floors, fireplaces, and countertops. Residential and commercial applications. High sheen finish. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|           |   |    |      |   |      |   |
|-----------|---|----|------|---|------|---|
| 12" x 12" | — | Ea | 6.14 | — | 6.14 | — |
|-----------|---|----|------|---|------|---|

**White Gioia marble floor tile.** First-quality Italian marble. Each tile has unique polished surface. Residential and commercial applications. Rich classic look. High sheen finish. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|           |   |    |      |   |      |   |
|-----------|---|----|------|---|------|---|
| 12" x 12" | — | Ea | 9.24 | — | 9.24 | — |
|-----------|---|----|------|---|------|---|

**Nero Black marble floor tile.** Tile size is approximate. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|           |   |    |      |   |      |   |
|-----------|---|----|------|---|------|---|
| 12" x 12" | — | Ea | 6.76 | — | 6.76 | — |
|-----------|---|----|------|---|------|---|

**Marble floor tile, Bestview Ltd.** 12" x 12" and standard thickness of 10mm. Suitable for both interior and exterior wall and floor applications. Highly polished surface and beveled on the edges. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                 |   |    |      |   |      |   |
|-----------------|---|----|------|---|------|---|
| Botticino Beige | — | Ea | 7.42 | — | 7.42 | — |
|-----------------|---|----|------|---|------|---|

|                |   |    |      |   |      |   |
|----------------|---|----|------|---|------|---|
| Emperador Lite | — | Ea | 7.74 | — | 7.74 | — |
|----------------|---|----|------|---|------|---|

|            |   |    |      |   |      |   |
|------------|---|----|------|---|------|---|
| Cream Jade | — | Ea | 3.37 | — | 3.37 | — |
|------------|---|----|------|---|------|---|

**Travertine stone tile, Emser International.** Rustic look with natural color variations. For floors or fireplaces. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                            |   |    |      |   |      |   |
|----------------------------|---|----|------|---|------|---|
| 12" x 12", Dorato, regular | — | Ea | 9.45 | — | 9.45 | — |
|----------------------------|---|----|------|---|------|---|

|                            |   |    |       |   |       |   |
|----------------------------|---|----|-------|---|-------|---|
| 12" x 12", Coliseum, honed | — | Ea | 14.40 | — | 14.40 | — |
|----------------------------|---|----|-------|---|-------|---|

|                         |   |    |      |   |      |   |
|-------------------------|---|----|------|---|------|---|
| 12" x 12", Medium beige | — | Ea | 7.84 | — | 7.84 | — |
|-------------------------|---|----|------|---|------|---|

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---|-----------|------|----------|-------|-------|------|
| <b>Travertine floor tile.</b> See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.   |           |      |          |       |       |      |
| 12" x 12", Noce   | —         | Ea   | 9.35     | —     | 9.35  | —    |
| 12" x 12", Rojo   | —         | Ea   | 8.14     | —     | 8.14  | —    |
| 16" x 16", Desert Sand  | —         | Ea   | 11.30    | —     | 11.30 | —    |
| 18" x 18", Desert Sand  | —         | Ea   | 13.90    | —     | 13.90 | —    |
| <b>Granite floor tile.</b> For bathrooms, entryways, fireplaces or countertops. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.   |           |      |          |       |       |      |
| 12" x 12", Mauve  | —         | Ea   | 6.49     | —     | 6.49  | —    |
| 12" x 12", Absolute Black   | —         | Ea   | 6.38     | —     | 6.38  | —    |
| 12" x 12", Mystique   | —         | Ea   | 4.96     | —     | 4.96  | —    |
| 12" x 12", Pacific Gray   | —         | Ea   | 7.17     | —     | 7.17  | —    |
| 12" x 12", Sonoma Montecruz   | —         | Ea   | 5.05     | —     | 5.05  | —    |
| <b>Natural granite tile.</b> Pattern and color varies. For interior, exterior walls, heavy-duty interior floors and polished, honed, or flamed surfaces. Slightly eased edges. 3/8" thick. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.                    |           |      |          |       |       |      |
| 12" x 12", Black  | —         | Ea   | 10.10    | —     | 10.10 | —    |
| 12" x 12", Balmoral Red   | —         | Ea   | 10.10    | —     | 10.10 | —    |
| <b>Natural gauged slate floor tile.</b> Rustic earth tones. Indoor or outdoor use. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.  |           |      |          |       |       |      |
| 12" x 12", Autumn   | —         | Ea   | 2.75     | —     | 2.75  | —    |
| 12" x 12", Earth  | —         | Ea   | 2.49     | —     | 2.49  | —    |
| 12" x 12", Golden White Quartz  | —         | Ea   | 3.83     | —     | 3.83  | —    |
| 16" x 16", Earth  | —         | Ea   | 6.23     | —     | 6.23  | —    |
| <b>Natural stone floor tile.</b> See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.  |           |      |          |       |       |      |
| 12" x 12", Absolute Black   | —         | Ea   | 13.60    | —     | 13.60 | —    |
| 12" x 12", Caffe Mist   | —         | Ea   | 7.95     | —     | 7.95  | —    |
| 12" x 12", Malaga Beige   | —         | Ea   | 12.50    | —     | 12.50 | —    |
| 12" x 12", Panetella Brown  | —         | Ea   | 7.95     | —     | 7.95  | —    |
| <b>Paver Tile</b>   |           |      |          |       |       |      |
| <b>Saltillo floor tile.</b> 12" x 12". Refined natural Saltillo clay tile. Slight rustic appearance with subtle color variations. Rounded edges. Indoor or outdoor use. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.                                       |           |      |          |       |       |      |
| Handcrafted, regular  | —         | Ea   | 2.29     | —     | 2.29  | —    |
| Handcrafted, super  | —         | Ea   | 3.05     | —     | 3.05  | —    |
| Oil sealed  | —         | Ea   | 3.81     | —     | 3.81  | —    |
| <b>Quarrybasics® Mayflower Red quarry tile, U.S. Ceramic Tile.</b> Indoor or outdoor use. 6" x 6" x 1/2" thick. Relieved edges. Four tiles per square foot before cutting waste and breakage. Low absorption. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout. |           |      |          |       |       |      |
| 6" x 6" x 1/2" flat tile  | —         | SF   | .86      | —     | .86   | —    |
| 6" bullnose trim  | —         | Ea   | 3.38     | —     | 3.38  | —    |
| 6" bullnose corner  | —         | Ea   | 4.39     | —     | 4.39  | —    |
| 6" round top cove base  | —         | Ea   | 5.01     | —     | 5.01  | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Brick paver, Magnolia Brick and Tile.** 4" x 8" x 1/2". Magnolia Brick Pavers install like ceramic tile, but look and perform like real brick floors. Case of pavers covers approximately 10 square feet. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|              |   |    |      |   |      |   |
|--------------|---|----|------|---|------|---|
| Old Kentucky | — | SF | 2.91 | — | 2.91 | — |
| Old South    | — | SF | 3.43 | — | 3.43 | — |
| Savannah     | — | SF | 3.42 | — | 3.42 | — |
| St. Louis    | — | SF | 3.45 | — | 3.45 | — |

## Tumbled Marble Tile Flooring

**4" x 4" tumbled stone tile, Jeffrey Court.** Case of 9 tiles covers 1 square foot. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                  |   |    |      |   |      |   |
|------------------|---|----|------|---|------|---|
| Botticino        | — | SF | 4.88 | — | 4.88 | — |
| Light Travertine | — | SF | 4.88 | — | 4.88 | — |
| Roso Perlina     | — | SF | 4.88 | — | 4.88 | — |
| Travertino Noce  | — | SF | 4.88 | — | 4.88 | — |

**6" x 6" tumbled slate tile, Jeffrey Court.** Case of 4 tiles covers 1 square foot. See Ceramic Tile Installation for tile setting costs, including either thin-set mortar or adhesive and grout.

|         |   |    |      |   |      |   |
|---------|---|----|------|---|------|---|
| Sequoia | — | SF | 5.71 | — | 5.71 | — |
|---------|---|----|------|---|------|---|

**Tumbled marble listello tile, Westminster Ceramics.** For walls or floors. Stone marble from Italy. Per linear foot of tile before waste and breakage. See Ceramic Tile Installation for tile setting costs, including either thin-set mortar or adhesive and grout.

|                              |   |    |      |   |      |   |
|------------------------------|---|----|------|---|------|---|
| 3" x 12", Chiaro Rosso       | — | Ea | 7.24 | — | 7.24 | — |
| 3" x 12", Chiaro Rosso Verde | — | Ea | 6.88 | — | 6.88 | — |
| 3" x 12", Noce Chiaro        | — | Ea | 7.18 | — | 7.18 | — |
| 4" x 12", Bottichino, Scabas | — | Ea | 8.02 | — | 8.02 | — |
| 4" x 12", Chiaro Rosso       | — | Ea | 7.99 | — | 7.99 | — |
| 4" x 12", Chiaro Rosso Verde | — | Ea | 8.07 | — | 8.07 | — |
| 4" x 12", Noce               | — | Ea | 7.99 | — | 7.99 | — |

## Ceramic Tile Threshold, Saddle

**Carrera sill and saddle.** 5/8" thick.

|                                   |         |    |       |       |       |        |
|-----------------------------------|---------|----|-------|-------|-------|--------|
| 4" x 24", double Hollywood saddle | TL@.687 | Ea | 20.70 | 27.10 | 47.80 | 81.30  |
| 5" x 30", Hollywood saddle        | TL@.687 | Ea | 41.30 | 27.10 | 68.40 | 116.00 |
| 5" x 36", double Hollywood saddle | TL@.687 | Ea | 61.20 | 27.10 | 88.30 | 150.00 |
| 5" x 37", sill                    | TL@.687 | Ea | 32.60 | 27.10 | 59.70 | 101.00 |
| 5" x 73", sill                    | TL@.687 | Ea | 61.10 | 27.10 | 88.20 | 150.00 |
| 6" x 37", sill                    | TL@.687 | Ea | 42.20 | 27.10 | 69.30 | 118.00 |

**Marble threshold.** A natural marble threshold provides a transition from one flooring surface to another or from one room to another.

|                                    |         |    |       |       |       |       |
|------------------------------------|---------|----|-------|-------|-------|-------|
| 36" x 2" x 3/8", gray              | TL@.687 | Ea | 12.40 | 27.10 | 39.50 | 67.20 |
| 36" x 2" x 3/8", white             | TL@.687 | Ea | 16.00 | 27.10 | 43.10 | 73.30 |
| 36" x 2" x 5/8", white             | TL@.687 | Ea | 9.99  | 27.10 | 37.09 | 63.10 |
| 36" x 4" x 3/8", white             | TL@.687 | Ea | 13.90 | 27.10 | 41.00 | 69.70 |
| 36" x 4" x 5/8", white, gray veins | TL@.687 | Ea | 29.00 | 27.10 | 56.10 | 95.40 |

|                                      | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--------------------------------------|-----------|------|----------|-------|--------|--------|
| <b>Ceramic threshold.</b> Off-white. |           |      |          |       |        |        |
| 1/4" x 36"                           | TL@.515   | Ea   | 29.80    | 20.30 | 50.10  | 85.20  |
| 1/4" x 72"                           | TL@.730   | Ea   | 66.40    | 28.80 | 95.20  | 162.00 |
| 1/2" x 36"                           | TL@.515   | Ea   | 33.20    | 20.30 | 53.50  | 91.00  |
| 1/2" x 72"                           | TL@.730   | Ea   | 68.80    | 28.80 | 97.60  | 166.00 |
| 3/4" x 36"                           | TL@.515   | Ea   | 53.10    | 20.30 | 73.40  | 125.00 |
| 3/4" x 72"                           | TL@.730   | Ea   | 95.60    | 28.80 | 124.40 | 211.00 |
| <b>Ceramic window sill.</b>          |           |      |          |       |        |        |
| 4" x 37" x 3/4"                      | TL@.687   | Ea   | 29.10    | 27.10 | 56.20  | 95.50  |
| 4" x 54" x 3/4"                      | TL@.687   | Ea   | 50.50    | 27.10 | 77.60  | 132.00 |
| 4" x 74" x 3/4"                      | TL@.730   | Ea   | 69.60    | 28.80 | 98.40  | 167.00 |
| 5" x 37" x 3/4"                      | TL@.687   | Ea   | 43.70    | 27.10 | 70.80  | 120.00 |
| 5" x 54" x 3/4"                      | TL@.687   | Ea   | 62.00    | 27.10 | 89.10  | 151.00 |
| 5" x 74" x 3/4"                      | TL@.730   | Ea   | 72.80    | 28.80 | 101.60 | 173.00 |
| 6" x 37" x 3/4"                      | TL@.687   | Ea   | 51.20    | 27.10 | 78.30  | 133.00 |
| 6" x 54" x 3/4"                      | TL@.687   | Ea   | 76.70    | 27.10 | 103.80 | 176.00 |
| 6" x 74" x 3/4"                      | TL@.730   | Ea   | 92.30    | 28.80 | 121.10 | 206.00 |

## Ceramic Field Wall Tile

**4-1/4" x 4-1/4" ceramic wall tile, U.S. Ceramic Tile.** For full-wall interior residential, commercial, and institutional applications. Matte glaze suitable for residential countertops and light-duty floors. Designer's choice glaze. A case of 80 tiles covers 10 square feet, and a case of 120 tiles covers 15 square feet. Add for cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                             |   |    |      |   |      |   |
|-----------------------------|---|----|------|---|------|---|
| Black                       | — | SF | 5.29 | — | 5.29 | — |
| Burgundy                    | — | SF | 4.45 | — | 4.45 | — |
| Crystal Bone                | — | SF | 3.78 | — | 3.78 | — |
| Crystal White               | — | SF | 3.78 | — | 3.78 | — |
| Fawn Beige, bright glaze    | — | SF | 2.60 | — | 2.60 | — |
| Flaxseed                    | — | SF | 2.60 | — | 2.60 | — |
| Gold Dust, bright glaze     | — | SF | 2.60 | — | 2.60 | — |
| Granite                     | — | SF | 2.85 | — | 2.85 | — |
| Kelly                       | — | SF | 4.45 | — | 4.45 | — |
| Medium Blue, bright glaze   | — | SF | 2.60 | — | 2.60 | — |
| Moonstone Bone, matte glaze | — | SF | 2.53 | — | 2.53 | — |
| Navy                        | — | SF | 5.29 | — | 5.29 | — |
| Pink                        | — | SF | 2.46 | — | 2.46 | — |
| Sterling, bright glaze      | — | SF | 2.60 | — | 2.60 | — |
| White, matte glaze          | — | SF | 2.59 | — | 2.59 | — |
| Windrift White, matte glaze | — | SF | 2.93 | — | 2.93 | — |
| Yellow                      | — | SF | 2.30 | — | 2.30 | — |

**4-1/4" x 4-1/4" ceramic single bullnose tile, U.S. Ceramic Tile.** Per trim piece. Add for cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                           |   |    |      |   |      |   |
|---------------------------|---|----|------|---|------|---|
| Fawn Beige                | — | Ea | 1.24 | — | 1.24 | — |
| Flaxseed                  | — | Ea | 1.21 | — | 1.21 | — |
| Gold Dust, bright glaze   | — | Ea | 1.41 | — | 1.41 | — |
| Granite                   | — | Ea | .99  | — | .99  | — |
| Medium Blue, bright glaze | — | Ea | 1.24 | — | 1.24 | — |
| Moonstone, matte glaze    | — | Ea | 1.24 | — | 1.24 | — |
| Pink                      | — | Ea | 1.24 | — | 1.24 | — |

|                    | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--------------------|-----------|------|----------|-------|-------|------|
| Sterling           | —         | Ea   | 1.23     | —     | 1.23  | —    |
| White, matte glaze | —         | Ea   | 1.21     | —     | 1.21  | —    |
| Yellow             | —         | Ea   | 1.20     | —     | 1.20  | —    |

**4-1/4" x 4-1/4" ceramic bullnose corner tile, U.S. Ceramic Tile.** Per trim piece. Add for cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                           |   |    |      |   |      |   |
|---------------------------|---|----|------|---|------|---|
| Crystal White             | — | Ea | 2.31 | — | 2.31 | — |
| Fawn Beige                | — | Ea | 2.02 | — | 2.02 | — |
| Flaxseed                  | — | Ea | 2.02 | — | 2.02 | — |
| Gold Dust, bright glaze   | — | Ea | 2.15 | — | 2.15 | — |
| Granite                   | — | Ea | 2.02 | — | 2.02 | — |
| Medium Blue, bright glaze | — | Ea | 2.02 | — | 2.02 | — |
| Moonstone, matte glaze    | — | Ea | 1.97 | — | 1.97 | — |
| Pink                      | — | Ea | 2.01 | — | 2.01 | — |
| Sterling                  | — | Ea | 2.01 | — | 2.01 | — |
| White, matte glaze        | — | Ea | 4.44 | — | 4.44 | — |
| Yellow                    | — | Ea | 1.99 | — | 1.99 | — |

**Ceramic sink rail, U.S. Ceramic Tile.** Per trim piece. Add for cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                                     |   |    |      |   |      |   |
|-------------------------------------|---|----|------|---|------|---|
| 1-5/8" x 2-1/4", corner, Moonstone  | — | Ea | 8.88 | — | 8.88 | — |
| 2" x 2", corner, Bone, bright glaze | — | Ea | 4.77 | — | 4.77 | — |
| 2" x 6", Bone, bright glaze         | — | Ea | 2.42 | — | 2.42 | — |
| 2" x 6", Moonstone                  | — | Ea | 2.63 | — | 2.63 | — |
| 2" x 6", White, matte glaze         | — | Ea | 2.66 | — | 2.66 | — |

**2" x 2" ceramic surface cap corner, U.S. Ceramic Tile.** Per trim piece. Add for cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                           |   |    |      |   |      |   |
|---------------------------|---|----|------|---|------|---|
| Black                     | — | Ea | 1.27 | — | 1.27 | — |
| Bone, bright glaze        | — | Ea | .93  | — | .93  | — |
| Burgundy                  | — | Ea | 1.29 | — | 1.29 | — |
| Fawn Beige                | — | Ea | .93  | — | .93  | — |
| Flaxseed                  | — | Ea | .96  | — | .96  | — |
| Gold Dust, bright glaze   | — | Ea | .96  | — | .96  | — |
| Granite                   | — | Ea | .95  | — | .95  | — |
| Kelly                     | — | Ea | 1.26 | — | 1.26 | — |
| Medium Blue, bright glaze | — | Ea | .92  | — | .92  | — |
| Moonstone, matte glaze    | — | Ea | 1.92 | — | 1.92 | — |
| Navy                      | — | Ea | 1.25 | — | 1.25 | — |
| Pink                      | — | Ea | .67  | — | .67  | — |
| Sterling, bright glaze    | — | Ea | .96  | — | .96  | — |
| White, bright glaze       | — | Ea | .75  | — | .75  | — |
| White, matte glaze        | — | Ea | 1.92 | — | 1.92 | — |
| Yellow                    | — | Ea | .90  | — | .90  | — |

**2" x 6" ceramic surface cap, U.S. Ceramic Tile.** Per trim piece. Add for cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|                                   |   |    |      |   |      |   |
|-----------------------------------|---|----|------|---|------|---|
| Black, Designer's Choice glaze    | — | Ea | 1.29 | — | 1.29 | — |
| Bone, bright glaze                | — | Ea | 1.01 | — | 1.01 | — |
| Burgundy, Designer's Choice glaze | — | Ea | 1.33 | — | 1.33 | — |
| Fawn Beige                        | — | Ea | .97  | — | .97  | — |
| Flaxseed                          | — | Ea | 1.03 | — | 1.03 | — |
| Gold Dust, bright glaze           | — | Ea | .96  | — | .96  | — |
| Granite                           | — | Ea | .72  | — | .72  | — |

|                                | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--------------------------------|-----------|------|----------|-------|-------|------|
| Kelly, Designer's Choice glaze | —         | Ea   | .72      | —     | .72   | —    |
| Medium Blue, bright glaze      | —         | Ea   | 1.33     | —     | 1.33  | —    |
| Moonstone, matte glaze         | —         | Ea   | .93      | —     | .93   | —    |
| Navy, Designer's Choice glaze  | —         | Ea   | 1.29     | —     | 1.29  | —    |
| Pink                           | —         | Ea   | .93      | —     | .93   | —    |
| White, matte glaze             | —         | Ea   | .93      | —     | .93   | —    |
| Yellow                         | —         | Ea   | .97      | —     | .97   | —    |

**Gold Rush® glazed ceramic tile, Dal-Tile.** Glazed paver with unique textured surface. Durable and easy to maintain. Ideal for floors, walls and countertops. Provides good slip, wear and stain resistance. No sealers or waxes needed. One case covers 11 square feet.

|                   |   |    |      |   |      |   |
|-------------------|---|----|------|---|------|---|
| 6" x 6", Goldust  | — | SF | 3.28 | — | 3.28 | — |
| 6" x 12", Goldust | — | SF | 3.87 | — | 3.87 | — |

**6" x 6" ceramic wall tile, U.S. Ceramic Tile.** For full-wall interior residential, commercial, and institutional applications. Bright glaze suitable for residential countertops and light-duty floors. Case of 50 tiles covers 12.5 square feet. Add for cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or adhesive and grout.

|         |   |    |      |   |      |   |
|---------|---|----|------|---|------|---|
| Biscuit | — | SF | 2.27 | — | 2.27 | — |
| White   | — | SF | 2.27 | — | 2.27 | — |

**6" x 6" ceramic residential and commercial wall tile, American Marazzi.** For interior residential and commercial wall applications and for residential bathroom floor applications only. PEI Class 2, light traffic. Case of 48 tiles covers 12 square feet.

|                                    |   |    |      |   |      |   |
|------------------------------------|---|----|------|---|------|---|
| Explorer Atlantis, 6" x 6", per SF | — | SF | 3.98 | — | 3.98 | — |
| 2" x 2" angle, each                | — | Ea | 3.78 | — | 3.78 | — |
| 2" x 6" single bullnose, each      | — | Ea | 3.34 | — | 3.34 | — |
| Explorer Columbia, 6" x 6", per SF | — | SF | 3.11 | — | 3.11 | — |
| 2" x 2" angle, each                | — | Ea | 3.54 | — | 3.54 | — |
| 2" x 6" single bullnose, each      | — | Ea | 3.17 | — | 3.17 | — |
| Explorer Gemini, 6" x 6", per SF   | — | SF | 3.09 | — | 3.09 | — |
| 2" x 2" angle, each                | — | Ea | 3.54 | — | 3.54 | — |
| 2" x 6" single bullnose, each      | — | Ea | 1.66 | — | 1.66 | — |
| Explorer Voyager, 6" x 6", per SF  | — | SF | 2.67 | — | 2.67 | — |
| 2" x 2" angle, each                | — | Ea | 3.54 | — | 3.54 | — |
| 2" x 6" single bullnose, each      | — | Ea | 3.34 | — | 3.34 | — |

**6" x 8" ceramic wall tile, U.S. Ceramic Tile.** For full-wall interior residential, commercial, and institutional applications. Matte glaze suitable for residential countertops and light-duty floors.

|                           |   |    |      |   |      |   |
|---------------------------|---|----|------|---|------|---|
| Beige                     | — | SF | 3.25 | — | 3.25 | — |
| Biscuit, bright glaze     | — | SF | 2.41 | — | 2.41 | — |
| Blush                     | — | SF | 3.27 | — | 3.27 | — |
| Sierra Gray, bright glaze | — | SF | 2.81 | — | 2.81 | — |
| Sierra Sand, bright glaze | — | SF | 2.78 | — | 2.78 | — |
| White, bright glaze       | — | SF | 2.16 | — | 2.16 | — |

**Tile edge protection, Schluter Systems.** Finishes and protects the edges of tiled surfaces. Provides a smooth transition between surfaces of the same height or different heights. Per 8'2-1/2" length

|                                    |   |    |       |   |       |   |
|------------------------------------|---|----|-------|---|-------|---|
| 1/4", aluminum/bright brass        | — | Ea | 26.80 | — | 26.80 | — |
| 5/16", aluminum                    | — | Ea | 13.70 | — | 13.70 | — |
| 5/16", aluminum/brass, round edge  | — | Ea | 30.50 | — | 30.50 | — |
| 5/16", aluminum/chrome, round edge | — | Ea | 29.00 | — | 29.00 | — |
| 5/16", aluminum/gold               | — | Ea | 21.80 | — | 21.80 | — |
| 3/8", aluminum                     | — | Ea | 14.00 | — | 14.00 | — |
| 3/8", aluminum/brass, round edge   | — | Ea | 34.50 | — | 34.50 | — |

|                     | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---------------------|-----------|------|----------|-------|-------|------|
| 3/8", aluminum/gold | —         | Ea   | 21.90    | —     | 21.90 | —    |
| 3/8", brass         | —         | Ea   | 44.40    | —     | 44.40 | —    |
| 3/8", solid brass   | —         | Ea   | 24.10    | —     | 24.10 | —    |
| 1/2", aluminum      | —         | Ea   | 14.70    | —     | 14.70 | —    |

**Tile reducer strip, Schluter Systems.** Protective edge profile with a sloped transition. Use for higher tiled surfaces to lower carpet, vinyl or wood.

|                                   |   |    |       |   |       |   |
|-----------------------------------|---|----|-------|---|-------|---|
| 5/16" x 4', aluminum/bright gold  | — | Ea | 11.60 | — | 11.60 | — |
| 5/16" x 8', aluminum/bright brass | — | Ea | 21.70 | — | 21.70 | — |
| 5/16" x 8', anodized aluminum     | — | Ea | 23.60 | — | 23.60 | — |
| 3/8" x 4', aluminum/bright brass  | — | Ea | 29.80 | — | 29.80 | — |
| 3/8" x 8', anodized aluminum      | — | Ea | 23.60 | — | 23.60 | — |
| 3/8" x 4', aluminum/bright gold   | — | Ea | 12.50 | — | 12.50 | — |
| 3/8" x 4', brass                  | — | Ea | 38.90 | — | 38.90 | — |

## Mosaic Tile

**Octagon mosaic dot ceramic tile, Dal-Tile.** Face-mounted 12" x 12" sheets. One sheet covers one square foot before cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or grout.

|                               |   |    |      |   |      |   |
|-------------------------------|---|----|------|---|------|---|
| 2", burgundy matte with white | — | SF | 3.97 | — | 3.97 | — |
| 2", white with black          | — | SF | 4.48 | — | 4.48 | — |
| 2", white with white          | — | SF | 3.49 | — | 3.49 | — |

**Octagon mosaic dot ceramic tile.** Face-mounted 12" x 12" sheets. One sheet covers one square foot before cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or grout.

|                          |   |    |      |   |      |   |
|--------------------------|---|----|------|---|------|---|
| 2-1/4", white with black | — | SF | 3.27 | — | 3.27 | — |
| 2-1/4", white with green | — | SF | 2.96 | — | 2.96 | — |
| 2-1/4", white with white | — | SF | 3.43 | — | 3.43 | — |

**Accent mosaic ceramic tile, Dal-Tile.** Face-mounted 12" x 12" sheets. One sheet covers one square foot before cutting waste and breakage. See Ceramic Tile Installation for tile setting costs, including tile backer, thin-set mortar or grout.

|                             |   |    |       |   |       |   |
|-----------------------------|---|----|-------|---|-------|---|
| 2" x 2", mottled sandalwood | — | SF | 11.10 | — | 11.10 | — |
|-----------------------------|---|----|-------|---|-------|---|

## Ceramic Tile Fixtures

**Ceramic tile corner shelf, Professional, Lenape.** Genuine porcelain. Mastic installation.

|                                 |         |    |       |       |       |       |
|---------------------------------|---------|----|-------|-------|-------|-------|
| 4-1/2" x 4-1/2" x 2-1/4", bone  | TL@.500 | Ea | 11.00 | 19.70 | 30.70 | 52.20 |
| 4-1/2" x 4-1/2" x 2-1/4", white | TL@.500 | Ea | 13.80 | 19.70 | 33.50 | 57.00 |
| 7-1/4" x 7-1/4" x 3", bone      | TL@.500 | Ea | 29.50 | 19.70 | 49.20 | 83.60 |
| 7-1/4" x 7-1/4" x 3", white     | TL@.500 | Ea | 27.70 | 19.70 | 47.40 | 80.60 |

**Ceramic tile soap dish, Dal-Tile.** Mastic installation.

|                 |         |    |      |      |       |       |
|-----------------|---------|----|------|------|-------|-------|
| 4" x 6", almond | TL@.250 | Ea | 4.14 | 9.87 | 14.01 | 23.80 |
| 4" x 6", white  | TL@.250 | Ea | 4.14 | 9.87 | 14.01 | 23.80 |

**Ceramic tile toilet tissue paper holder, Professional, Lenape.** 4-1/4" x 6", Genuine porcelain. Mastic installation.

|       |         |    |      |       |       |       |
|-------|---------|----|------|-------|-------|-------|
| Bone  | BC@.300 | Ea | 7.99 | 12.30 | 20.29 | 34.50 |
| White | BC@.300 | Ea | 7.99 | 12.30 | 20.29 | 34.50 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell  |
|---|-----------|------|----------|-------|--------|-------|
| <b>Ceramic tile toothbrush and tumbler holder, Professional, Lenape.</b> 4-1/4" x 4-1/4". Genuine porcelain. Mastic installation.   |           |      |          |       |        |       |
| Bone  | TL@.250   | Ea   | 5.91     | 9.87  | 15.78  | 26.80 |
| White   | TL@.250   | Ea   | 5.91     | 9.87  | 15.78  | 26.80 |
| <b>Ceramic tile 24" towel bar assembly, Professional, Lenape.</b> Includes bar and posts. High-fired porcelain. Coordinates with most ceramic tile. Mastic installation.  |           |      |          |       |        |       |
| Bone  | BC@.400   | Ea   | 11.00    | 16.40 | 27.40  | 46.60 |
| White   | BC@.400   | Ea   | 11.00    | 16.40 | 27.40  | 46.60 |
| <b>5-piece ceramic tile porcelain bath fixture set, Lenape.</b> Includes soap dish, toothbrush holder, tub soap dish, toilet paper holder and 24" towel bar and posts. Genuine porcelain. Made in USA. Lifetime warranty. Mastic installation.  |           |      |          |       |        |       |
| Bone  | BC@.500   | Ea   | 31.40    | 20.50 | 51.90  | 88.20 |
| White   | BC@.500   | Ea   | 31.40    | 20.50 | 51.90  | 88.20 |
| <b>SunTouch® ceramic tile floor warming system, Watts Radiant.</b> Electric floor warming for tile and stone floors. Dual-insulated heating cable woven into thin tile warming mats that install in thin-set mortar below tile and stone. All mats are 120 volts AC and deliver 12 watts per square foot. All sizes are 30" wide by 4', 6', 8', and 10' long. Warms the floor and keeps it dry. Adds warmth to the floor, as well as the entire room. The SunTouch® system consists of an electric mat (or mats) and a control (either programmable or non-programmable). The system comes with an in-depth installation manual and installation video. The mat installs easily — just roll it out on the subfloor or backerboard and secure it with the double-sided tape provided, or just staple it down. Then apply the mortar. |           |      |          |       |        |       |
| 4' x 30" mat  | —         | Ea   | 127.00   | —     | 127.00 | —     |
| 6' x 30" mat  | —         | Ea   | 149.00   | —     | 149.00 | —     |
| 8' x 30" mat  | —         | Ea   | 196.00   | —     | 196.00 | —     |
| 10' x 30" mat   | —         | Ea   | 244.00   | —     | 244.00 | —     |
| <b>Floor warming system thermostat, Watts Radiant.</b> Multi-function thermostat. Senses the floor temperature via a remote floor sensor. Includes a large digital display showing floor temperature, comfort temperature, and set-back temperature. Built-in 15 amp relay can control up to 150 square feet of SunTouch (15 amp load). With ground-fault circuit interrupter. Select both comfort setting and set-back setting at the touch of a button.   |           |      |          |       |        |       |
| Non-programmable  | —         | Ea   | 111.00   | —     | 111.00 | —     |
| Programmable  | —         | Ea   | 197.00   | —     | 197.00 | —     |
| <b>Tile Adhesive and Grout</b>  |           |      |          |       |        |       |
| <b>Semco anti-fracture tile membrane.</b> Protects tile installations from minor substrate movement. Provides crack resistance. Can set tile directly over membrane. Easy-to-use, one-step system. Covers 40 to 45 square feet per gallon when applied with a 3/16" x 1/4" V-notch trowel.  |           |      |          |       |        |       |
| 1 Gallon  | —         | Ea   | 65.70    | —     | 65.70  | —     |
| <b>RedGard™ waterproofing and anti-fracture membrane, Custom® Building Products.</b> Elastomeric waterproofing and anti-fracture membrane for interior or exterior commercial and residential tile and stone installations. Can also be used as a slab-on-grade moisture barrier under resilient or wood flooring. Applied with roller, trowel or sprayer. Reduces crack transmission in ceramic tile and stone floors.   |           |      |          |       |        |       |
| Gallon  | —         | Ea   | 56.00    | —     | 56.00  | —     |
| <b>VersaBond® bonding mortar, Custom® Building Products.</b> All-purpose tile mortar for walls and floors. Trowels smoothly and cures fast, even in cold weather. Just add water and mix; no additives needed.  |           |      |          |       |        |       |
| Gray, 50 pounds   | —         | Ea   | 25.60    | —     | 25.60  | —     |
| White, 50 pounds  | —         | Ea   | 29.60    | —     | 29.60  | —     |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|---|-----------|------|----------|-------|--------|------|
| <b>Medium-bed mortar, Custom® Building Products.</b> For installing large tile over 12" x 12" tile or natural stone. To 3/4" thick on horizontal applications. Meets ANSI A118.4.   |           |      |          |       |        |      |
| Gray, 50 pounds   | —         | Ea   | 17.50    | —     | 17.50  | —    |
| <b>CustomBlend® thin-set mortar, Custom® Building Products.</b> Economical bonding adhesive for most basic job tile installations. Good for floor installations and Saltillo or clay pavers. Offers good open time, pot life and adjustment time to apply and adjust tiles. Interior or exterior use. Mix with acrylic mortar admix for best results when setting dense tile or setting over hard-to-bond-to surfaces such as laminates, existing ceramic tile and plywood. |           |      |          |       |        |      |
| Gray, 50 pounds   | —         | Ea   | 5.98     | —     | 5.98   | —    |
| White, 50 pounds  | —         | Ea   | 5.97     | —     | 5.97   | —    |
| <b>100 percent solids epoxy mortar, Custom® Building Products.</b> For use where high chemical resistance is required, as in commercial kitchens, dairies, and animal hospitals. Pure, 3-component epoxy mortar with high bond and compressive strengths. Provides exceptional resistance to chemicals and staining. Water washable. Also for installation of true green marble.  |           |      |          |       |        |      |
| 5-gallon pail   | —         | Ea   | 106.00   | —     | 106.00 | —    |
| <b>FlexBond® premium flexible bonding mortar, Custom® Building Products.</b> For tiling over surfaces subject to minor movement and hard-to-bond-to surfaces such as laminates, ceramic tile and plywood. Allows tiling over cracks up to 1/16" (2 mm) without repairs. Just add water and mix. No additives needed.  |           |      |          |       |        |      |
| Gray, 50 pounds   | —         | Ea   | 34.50    | —     | 34.50  | —    |
| White, 50 pounds  | —         | Ea   | 36.60    | —     | 36.60  | —    |
| <b>CustomFloat® bedding mortar, Custom® Building Products.</b> A lightweight Portland-cement-based, pre-blended mortar for use as a bedding or brown coat. Very low shrinkage, exceptional bond strength. For floors, walls and countertops. Excellent for overhead work such as showers, arches and coves.   |           |      |          |       |        |      |
| 50 pounds   | —         | Ea   | 24.00    | —     | 24.00  | —    |
| <b>Porcelain mortar, Custom® Building Products.</b> For setting impervious porcelain, glass mosaics and large tile to concrete. Also used over radiant heating systems.   |           |      |          |       |        |      |
| 50 pounds   | —         | Ea   | 43.90    | —     | 43.90  | —    |
| <b>Marble and granite mortar mix, Custom® Building Products.</b> For setting marble, granite, other natural stone, large modular tile, Saltillo pavers and other tiles requiring a medium-bed mortar. Can be applied up to 3/4" (19 mm) thick. Polymer-modified for high bond strength. Interior or exterior.   |           |      |          |       |        |      |
| White, 50 pounds  | —         | Ea   | 37.00    | —     | 37.00  | —    |
| <b>Marble and granite stone-setting adhesive, Custom® Building Products.</b> Formulated specifically for setting moisture-sensitive stones such as green and black marble and granite. Fast-setting, self-drying technology inhibits warping and staining that can occur with traditional thin-set mortars. Grout in two hours. No additives required. Interior use only.   |           |      |          |       |        |      |
| 12.5 pounds   | —         | Ea   | 25.00    | —     | 25.00  | —    |
| <b>Glass block mortar mix, Custom® Building Products.</b> For installing all types of glass block. Suitable for new installations or to repair old mortar joints. Pre-mixed.  |           |      |          |       |        |      |
| White, 50 pounds  | —         | Ea   | 21.30    | —     | 21.30  | —    |
| <b>PremiumPlus® thin-set mortar, Custom® Building Products.</b> Extra high bond strength for most basic job tile installations. Offers maximum open time, pot life and extra long working time.   |           |      |          |       |        |      |
| Gray, 50 pounds   | —         | Ea   | 23.30    | —     | 23.30  | —    |
| White, 50 pounds  | —         | Ea   | 27.10    | —     | 27.10  | —    |
| <b>Tile repair mortar, Custom® Building Products.</b> A polymer-modified mortar with maximum bond strength. Use to replace broken interior or exterior tile. Ready to grout in 24 hours.  |           |      |          |       |        |      |
| White, 1 pound  | —         | Ea   | 7.81     | —     | 7.81   | —    |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|---|-----------|------|----------|-------|--------|------|
| <b>Underwater tile repair mortar, Custom® Building Products.</b> Replace broken tile underwater without draining fountains, pools or spas. Mix with water for immediate use.  |           |      |          |       |        |      |
| 1.5 pound   | —         | Ea   | 10.40    | —     | 10.40  | —    |
| <b>Acrylic mortar admix, Custom® Building Products.</b> Greatly increases bond strength, water-resistance and impact resistance of non-polymer modified thin-sets, mortars and grouts. Use with PremiumPlus®, MasterBlend™ and CustomBlend® thin-sets, Portland cement mortar mixes and non-polymer modified grouts. Recommended to use with non-polymer modified thin-set mortars when setting vitreous, dense tile or setting over hard-to-bond-to surfaces such as laminates, existing ceramic tile and plywood. |           |      |          |       |        |      |
| 3 quarts  | —         | Ea   | 17.90    | —     | 17.90  | —    |
| 2-1/2 gallons   | —         | Ea   | 37.60    | —     | 37.60  | —    |
| <b>AFM® anti-fracture membrane kit, ProtectoWrap.</b> Peel-and-stick 40 mm membrane. For indoor use under thin-set tile, stone and marble for crack suppression. Includes primer, knife, and instruction sheet.   |           |      |          |       |        |      |
| 12" x 25' roll, per square foot   | —         | SF   | 2.44     | —     | 2.44   | —    |
| 5' wide roll, per square foot   | —         | SF   | 2.05     | —     | 2.05   | —    |
| <b>Ceramic tile adhesive caulk, Tile Perfect.</b> For tile, tubs, showers, and countertops. Mold and mildew resistant. Remains flexible and paintable.  |           |      |          |       |        |      |
| 5.5 ounce tube  | —         | Ea   | 6.87     | —     | 6.87   | —    |
| <b>White dry tile grout (non-sanded), Custom® Building Products.</b> Portland-cement-based grout for interior/exterior floor and wall tiles with narrow joints up to 1/8" (3 mm). For soft-glazed, high-glazed and marble tile subject to scratching by sanded grouts.  |           |      |          |       |        |      |
| 1 pound   | —         | Ea   | 2.82     | —     | 2.82   | —    |
| 5 pounds  | —         | Ea   | 7.86     | —     | 7.86   | —    |
| 10 pounds   | —         | Ea   | 9.79     | —     | 9.79   | —    |
| 25 pounds   | —         | Ea   | 14.10    | —     | 14.10  | —    |
| <b>Grout colorant, Custom® Building Products.</b> Renews or changes grout color, interior or exterior. Seals grout joints and evens color. Water-based and fade-resistant. Available in 10 popular Polyblend® grout colors.   |           |      |          |       |        |      |
| 1/2 pint, most colors   | —         | Ea   | 18.00    | —     | 18.00  | —    |
| <b>Saltillo grout mix, Custom® Building Products.</b> Pre-blended mix of Portland cement, silica sand and pigments. For any interior or exterior tile with wide grout joints, 1/2" to 1-1/4". Recommend mixing with acrylic mortar admix diluted 1:1 with water for higher strength.  |           |      |          |       |        |      |
| Gray, tan or red, 50 pounds   | —         | Ea   | 16.50    | —     | 16.50  | —    |
| <b>Sanded tile grout, Weco.</b> Provides a smooth, colorfast joint for wall and floor installations.  |           |      |          |       |        |      |
| Most colors, 25 pounds  | —         | Ea   | 14.30    | —     | 14.30  | —    |
| <b>Polyblend® ceramic tile caulk, Custom® Building Products.</b> Fills and repairs joints around sinks, tubs, showers and countertops. Siliconate acrylic formula.  |           |      |          |       |        |      |
| Sanded, various colors, 5.5 ounces  | —         | Ea   | 5.49     | —     | 5.49   | —    |
| <b>High-gloss finish/sealer, Miracle Sealants Co.</b> Medium- to high-gloss interior surface sealer for Saltillo tile, terra cotta tile, unglazed ceramic tile, brick, slate and concrete. One gallon covers 500 to 1000 square feet.   |           |      |          |       |        |      |
| Quart   | —         | Ea   | 15.00    | —     | 15.00  | —    |
| Gallon  | —         | Ea   | 37.30    | —     | 37.30  | —    |
| <b>Sealer's Choice 15 Gold, Aqua Mix.</b> Water-based sealer leaves a no-sheen natural look. Maximum stain protection in food preparation areas, on porous tile and natural stone. One gallon covers 300 to 1500 square feet.   |           |      |          |       |        |      |
| Pint  | —         | Ea   | 44.70    | —     | 44.70  | —    |
| Quart   | —         | Ea   | 51.30    | —     | 51.30  | —    |
| Gallon  | —         | Ea   | 151.00   | —     | 151.00 | —    |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Tile gloss and seal.** Two coats protect from grease, food and oil. For unglazed Mexican paver, terrazzo, flagstone, and Saltillo. Clear interior and exterior tile sealer. Non-yellowing, non-flammable, low odor. Dries in 8 to 24 hours. Water clean up. Wax can be applied over product. One gallon covers 125 to 300 square feet.

|             |   |    |        |   |        |   |
|-------------|---|----|--------|---|--------|---|
| Gallon      | — | Ea | 57.70  | — | 57.70  | — |
| 2.5 gallons | — | Ea | 140.00 | — | 140.00 | — |

**Grout sealer.** Water-based sealer resists water, oil and acid-based contaminants. Repels food, dirt and grease. Does not change the appearance of grout. Inhibits mildew and bacteria. For interior and exterior use.

|      |   |    |       |   |       |   |
|------|---|----|-------|---|-------|---|
| Pint | — | Ea | 16.00 | — | 16.00 | — |
|------|---|----|-------|---|-------|---|

**Ditra detaching membrane, Schluter Systems.** Polyethylene membrane with a grid structure of square, cut-back cavities on a base of anchoring fleece. Forms an uncoupling, waterproofing, and vapor pressure equalization layer. Installed in binding mortar; spread with a notched trowel. Apply tile over Ditra using thin-set mortar.

|                    |   |    |      |   |      |   |
|--------------------|---|----|------|---|------|---|
| Detaching membrane | — | SF | 2.08 | — | 2.08 | — |
|--------------------|---|----|------|---|------|---|

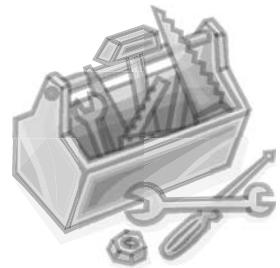
## Carpet

Includes sweeping a prepared surface, setting carpet tack strip, rebond pad, unrolling 12'- to 15'-wide carpet, measuring, marking, cutting, trimming one edge, hot melt tape on seams and disposal of debris.

|  |         |      |       |       |       |        |
|--|---------|------|-------|-------|-------|--------|
| Minimum quality olefin,                        |         |      |       |       |       |        |
| 25 to 35 ounce, with 1/2" (3 lb. density) pad  | BF@.150 | SY   | 21.00 | 5.69  | 26.69 | 45.40  |
| Standard quality polyester or olefin,          |         |      |       |       |       |        |
| 35 to 50 ounce, with 1/2" (6 lb. density) pad  | BF@.160 | SY   | 27.70 | 6.06  | 33.76 | 57.40  |
| Better quality nylon,                          |         |      |       |       |       |        |
| 50 (plus) ounce, with 1/2" (6 lb. density) pad | BF@.170 | SY   | 41.70 | 6.44  | 48.14 | 81.80  |
| Wool carpet, 36 ounce medium traffic           | BF@.300 | SY   | 48.60 | 11.40 | 60.00 | 102.00 |
| Wool carpet, 42 ounce heavy traffic            | BF@.300 | SY   | 62.60 | 11.40 | 74.00 | 126.00 |
| Sisal carpet, no pad                           | BF@.130 | SY   | 13.90 | 4.93  | 18.83 | 32.00  |
| Foam-backed olefin carpet, no pad              | BF@.130 | SY   | 9.76  | 4.93  | 14.69 | 25.00  |
| Add for typical furniture moving               | BF@.060 | SY   | —     | 2.27  | 2.27  | 3.86   |
| Add for waterfall (box steps) stairways        | BF@.190 | Step | —     | 7.20  | 7.20  | 12.20  |
| Add for wrapped steps (open riser), sewn       | BF@.250 | Step | —     | 9.48  | 9.48  | 16.10  |
| Add for steps with sewn edge on one side       | BF@.310 | Step | —     | 11.70 | 11.70 | 19.90  |
| Add for circular stair steps, typical cost     | BF@.440 | Step | —     | 16.70 | 16.70 | 28.40  |
| Add for carpet edge binding                    | BF@.062 | LF   | —     | 2.35  | 2.35  | 4.00   |
| Rebond 1/2" thick 4-pound pad only             | —       | SY   | 2.79  | —     | 2.79  | —      |
| Rebond 1/2" thick 6-pound pad only             | —       | SY   | 5.31  | —     | 5.31  | —      |
| Carpet tile, 22" x 23", with adhesive          | BF@.022 | SF   | 3.66  | .83   | 4.49  | 7.63   |
| Peel-and-stick carpet tile, 12" x 12"          | BF@.020 | SF   | 1.26  | .76   | 2.02  | 3.43   |
| Indoor/outdoor carpet, 16 ounce olefin         | BF@.025 | SF   | .62   | .95   | 1.57  | 2.67   |

# Kitchens

# 12



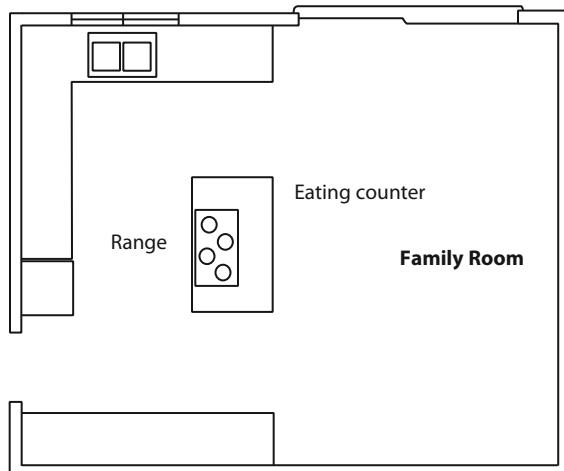
Living area in a home can be divided into three categories: the private area (bedrooms and bathrooms), the relaxing area (living room, dining room, den) and the work area (kitchen and laundry).

This work area is more efficient when the kitchen is like the hub of the wheel. The dining area should be only a few steps away. The entrance off the garage should be nearby in another direction to make unloading groceries easier. The laundry room should be another spoke off the hub. Anyone preparing meals in the kitchen should be able to monitor the washer and dryer. Storage space (or a pantry) should be close at hand. But remember that a kitchen is a work area. Traffic from the rear entry or laundry shouldn't pass through the kitchen work triangle — range-to-refrigerator-to-sink.

In the 1960s and 1970s, designers favored small kitchens on the theory that smaller work triangles saved steps and reduced fatigue. The proliferation of appliances at the end of the 20<sup>th</sup> century made small kitchens seem cramped. Modern kitchen counters need space for juicers, extractors, grinders, mixers, toasters, dispensers, coffee makers, microwave ovens, electric pots, grills, griddles and more.

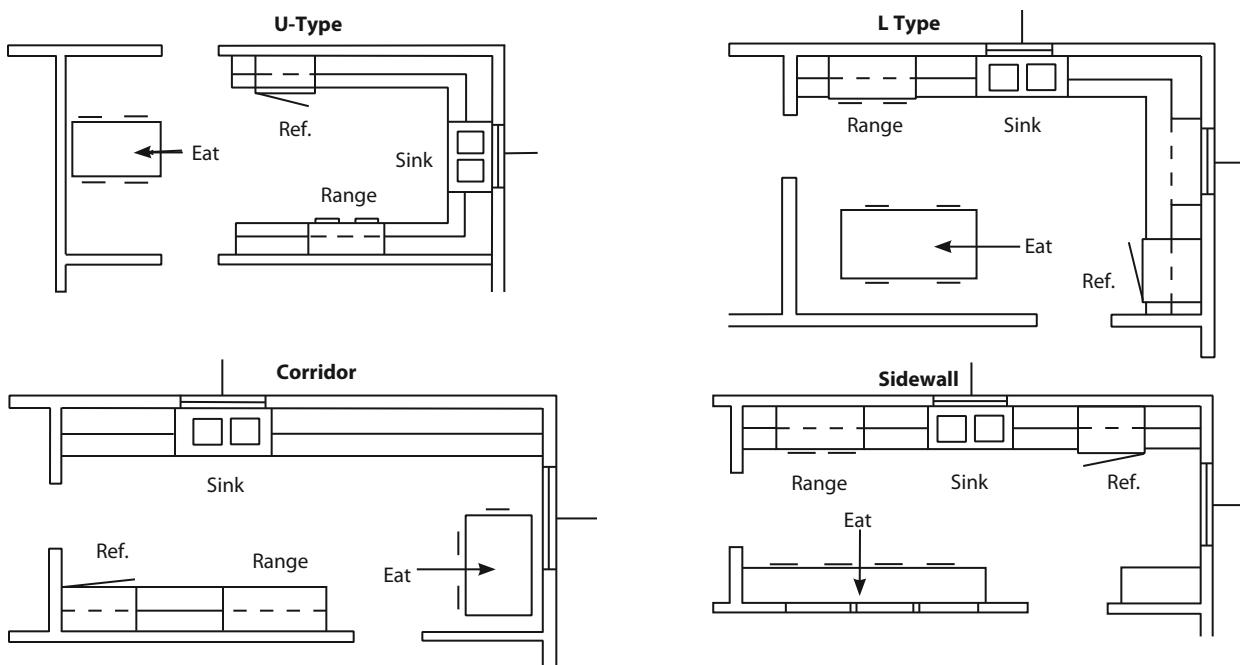
Avoid setting a door that swings *into* a kitchen. Doors interfere with use of appliances, cabinets and countertops. If a door is essential, consider a pocket or folding door. Provide enough glass area to make the kitchen a light and cheerful place. Time spent in this work area is more enjoyable when there's a window over the kitchen sink with a view. To make food preparation easier for outdoor living, install a large sliding window over the sink or counter. Extend the window sill 14" beyond the window to form a level shelf for passage of plates or a food tray between interior and exterior.

Every kitchen is also a family meeting place. Consider combining work with pleasure: Merge the kitchen (work area) with the family room (relaxing area) by removing a partition or by adding extra living space. Figure 12-1 shows a kitchen and family room combined with an island cook center that doubles as a breakfast bar for casual dining.



**Figure 12-1**

*Island counter dividing kitchen and family room*

**Figure 12-2***Kitchen arrangements*

Food usually moves from the refrigerator to the sink to the range. That's the work triangle. Figure 12-2 shows four common kitchen floor plans: "U", "L", corridor and sidewall kitchens. The work triangle is smallest in "U" and corridor kitchens. Use a sidewall kitchen when space is very limited. The "L" arrangement is best for a square kitchen that includes an eating area with a table.

## Cabinets and Counters

Here's a yardstick to judge whether there's enough cabinet and counter space in a home. Figures are in linear feet of counter or cabinet face per thousand square feet of floor in the living area (everything under the roof except the garage, soffit, patio and porch). Allow a little more counter and cabinet space in a small home (under 1,200 square feet). A very large home (over 4,000 square feet) may need less space than indicated below. Measure linear feet of counter at the front or back edge, whichever is shorter.

**Notes:** Base cabinet length assumes one sink base cabinet. Wall cabinets can include vertical storage cabinets (such as for trays and cookie sheets) above a built-in oven. Count utility cabinets (6' high or more) as both base and wall cabinet. Credit a corner rotating shelf (Lazy Susan) base cabinet with 2 linear feet of base cabinet, regardless of the actual width.

- ❖ *Counter.* 8 linear feet per 1,000 square feet of living area
- ❖ *Base cabinet.* 7 linear feet per 1,000 square feet of living area
- ❖ *Wall cabinet.* 6 linear feet per 1,000 square feet of living area

- ❖ *Drawer base cabinet.* one per 10 linear feet of base cabinet
- ❖ *Counter width and height.* 25" wide x 36" high
- ❖ *Dishwasher.* 24" wide x 35" high
- ❖ *Trash compactor.* 15" wide x 35" high

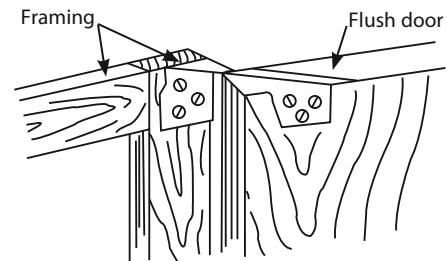
Modern kitchens include a work desk with connections for electric service, telephone, computer and TV. Minimum desk width is about 3', with a book shelf (for cook books) above the desk. Minimum desk cutout (seating area) is 24". Install a 14"- to 20"-wide drawer base cabinet at the right of the cutout. Desk depth can be 25", the same as normal counter depth. Desk height should be 28". Provide task lighting above the desk.

## Refreshing the Look

Kitchen cabinets seldom wear out before they go out of style. If kitchen cabinet space is adequate and well arranged, refinishing cabinets and adding new hardware may be enough. Replace roller catches with magnetic hardware. The magnet attaches to the cabinet interior and the complementary metal plate fits on the door interior. New knobs or pulls (handles) complete the makeover.

For a more modern look, replace cabinet doors and drawer fronts on the existing cabinet frames. Consider flush doors with concealed (European) hinges, as in Figure 12-3. Cabinet doors fit edge to edge for a continuous panel effect. Finger slots at the edge of doors and drawers make cabinet knobs and pulls unnecessary.

Countertops are subject to considerable wear and often need to be replaced before the cabinets. Installing a simulated stone countertop will modernize any kitchen. Figure 12-4 shows standard counter and cabinet dimensions. Counter height is usually 36". Counter depth is usually 25".



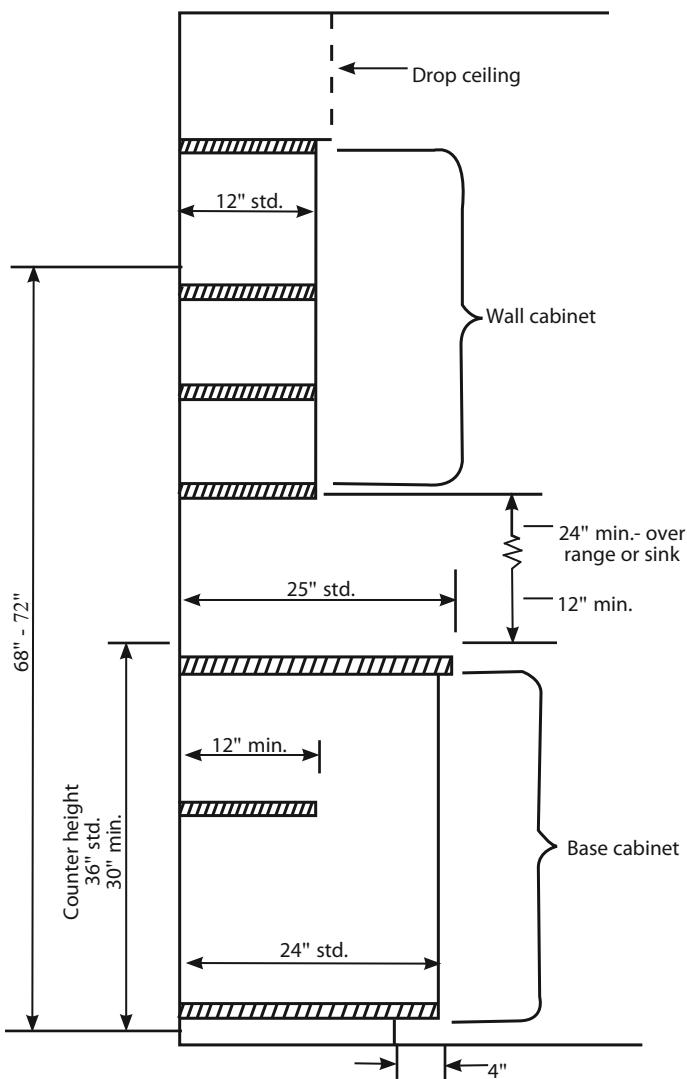
**Figure 12-3**

Concealed hinge used with flush cabinet door

## Cabinet Costs

Cabinets are like furniture. Prices vary widely. For example, a drawer with hardwood rails, plywood bottom and dovetail joints will cost considerably more than a particleboard drawer with stapled butt joints. Better-quality custom and semi-custom cabinets are made from  $\frac{3}{4}$ " or  $\frac{1}{2}$ " furniture-grade plywood covered with hardwood veneer. Drawers have full-extension roller hardware. Less-expensive cabinets are made from  $\frac{3}{8}$ " or  $\frac{1}{2}$ " particleboard, usually with a melamine coating.

“Ready to assemble” cabinets cost the least and are sold primarily in do-it-yourself outlets. Options are limited and units require about an hour of assembly before they are ready to install.



**Figure 12-4**  
Kitchen cabinet standards

rior cabinet wall) hide nearly all the cabinet frame and will cost more than traditional doors with hinges mounted on the exterior. Doors and drawers set inside the cabinet face frame (*inset*) will cost even more than full overlay doors and drawers.

About 60 percent of the cost of most cabinets is the wood itself. So you can expect to pay more for cabinets made with exotic wood veneers such as cherry, hickory, alder, redwood or teak on a plywood base. Oak, birch, maple and pine are the most common wood species used for cabinets. The least expensive cabinets have a melamine or plastic laminate surface on a particleboard core. Cabinets surfaced in stainless steel are among the most expensive. Some older homes have steel cabinets that were popular in the middle of the 20<sup>th</sup> century. Steel cabinets are

Cabinet costs listed in this chapter are based on good quality stock units such as those offered by American Woodmark, IXL (Triangle Pacific), Kabinet, Merillat, Mills Pride, Prestige, and Thomasville. Semi-custom cabinets will cost about 50 percent more. Manufacturers of semi-custom cabinets include Brandom, Decora, Diamond, Kemper, KraftMaid, Schrock, Shenandoah and Yorktowne. Costs for true custom cabinets will be about double the figures listed later in this chapter. Vendors of true custom cabinets include Crystal, J.H. Brubaker, DBS, Fieldstone, Neff, Omega, Plato, Poggenpohl, Rutt, Snaidero, SieMatic, Studio Becker, Wood-Mode, and any cabinet shop in your community.

The advantage of custom-made cabinets is flexibility in style, finish, size and design. For example, custom cabinets can be made in any width or height to fit any kitchen. Stock cabinets come in widths that increment 3 inches at a time, such as 15", 18", 21" and 24". Most installations will require a filler strip to extend the line of cabinets to exactly the right length. The disadvantage of custom cabinets is price — about double the cost of stock cabinets. Incidentally, nearly all cabinets are priced with the screws, hinges, rails and guides needed to finish the job. But door and drawer pulls and knobs are generally left to the discretion of the homeowner.

Cabinet prices in this chapter reflect what most home improvement contractors install — stock cabinets with flat panel faces, picture frame molding or a simple design. Doors and drawers with grooves, raised panels, bead or elaborate molding will cost more. Full overlay doors (installed with Euro hinges mortised into the

still made, but their primary use is in hospitals and laboratories rather than in homes.

Wood cabinets are stained to bring out the warmth of the wood grain and then sealed for moisture protection. Install unfinished cabinets if your client wants to match existing wood-work in the home. But be prepared to do a lot of sanding and hand rubbing to produce a finish equal to the best of stock cabinets. Many cabinet vendors offer special custom glazes and layered finishes at extra cost — usually about 10 percent more than standard stained cabinets.

## Kitchen Appliances

Most home improvement contractors avoid reselling kitchen appliances that only need to be plugged in. Every homeowner knows where to get a good deal on a refrigerator. Instead of quoting prices, include a cash allowance for appliances in the contract price. For example, your contract might include the following language:

*This agreement includes an allowance of \$\_\_\_\_\_ for the following appliances:*

*Owner agrees to bear the cost of appliances that exceed this allowance. Contractor agrees to furnish and install all gas, water, drain, vent and electrical lines required for operation of these appliances. Contractor is not responsible for installation, service or maintenance of these appliances.*

Built-in appliances, such as garbage disposers, cooktops and wall ovens are an exception to the rule on appliances. These are fixtures, a part of the home itself, and should be included in your bid as a courtesy to the owner. Be sure to specify in the contract the brand and model the customer chose so that's what you price.

You'll never see an old kitchen with adequate electrical service. Upgrading the electrical service is a prime reason for remodeling most kitchens. Consider the following checklist when planning extra runs from the electrical service panel. Note that some building codes require as many as three ground-fault receptacles in the kitchen. If you're adding base cabinets, figure which electrical outlets have to be moved.

### Kitchen Remodeling Checklist

- Cabinets* — Soffits, countertops, size of backsplash, accommodating a dishwasher?
- Ceiling* — Repaired, acoustic tile, suspended ceiling, drywall
- Electrical* — See the Kitchen Electrical Service Checklist for new outlets needed
- Floor* — Underlayment, vinyl tile, sheet vinyl, ceramic or clay tile
- Heating and cooling* — Ducts or radiators relocated
- Doors* — Change in location or swing. New trim
- Plumbing* — New venting, gas line relocated, change sink location, dishwasher
- Structural changes* — Partitions removed or moved
- Wall repairs* — Ceramic tile, paint, wallpaper, paneling
- Windows* — Relocated, increase or decrease in size. Storm windows
- Ventilation* — Kitchen exhaust hood, ducted or ductless

**Kitchen Electrical Service Checklist**

- Ceiling fixture
- Ceiling paddle fan
- Clock in soffit
- Dishwasher
- Disposer
- Electric range
- Hood over the stove
- Soffit lighting (fluorescent strip)
- Light fixture recessed over the sink
- Light fixture over the desk
- Microwave oven
- Oven
- Refrigerator
- Small appliance outlets
- Three ground-fault receptacles
- Trash compactor
- TV
- Wall or ceiling exhaust fan
- Wall switches

**Other Cost Considerations**

Extensive kitchen remodeling will usually require HVAC work such as moving duct, registers, grilles, hydronic piping or radiators. Consider also the cost of patching walls or ceilings after HVAC materials have been moved or added. Figure a half-day of work (\$150) as the minimum charge for drywall hanging, taping and finishing.

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Kitchen Demolition

**Remove cabinets.** Per linear foot of cabinet face or back (whichever is longer). The cost of removing base cabinets includes the cost of removing the countertop. Add the cost of moving plumbing, electrical and HVAC lines. These figures assume debris is piled on site. No salvage of materials or fixture moving is included.

|                                 |         |    |   |       |       |       |
|---------------------------------|---------|----|---|-------|-------|-------|
| Wall cabinets, wood             | BL@.250 | LF | — | 8.33  | 8.33  | 14.20 |
| Wall cabinets, metal            | BL@.350 | LF | — | 11.70 | 11.70 | 19.90 |
| Base cabinets, wood             | BL@.400 | LF | — | 13.30 | 13.30 | 22.60 |
| Base cabinets, metal            | BL@.550 | LF | — | 18.30 | 18.30 | 31.10 |
| Remove cabinet door only        | BC@.250 | Ea | — | 10.30 | 10.30 | 17.50 |
| Remove and replace cabinet door | BC@.580 | Ea | — | 23.80 | 23.80 | 40.50 |

**Remove kitchen fixtures.** These figures include turning off the water, disconnecting the drain, capping the lines, disconnecting faucets and fittings, removing the sink from the base cabinet and piling debris on site. No salvage value assumed. Reduce these costs by 25% if countertop and base cabinets are also being demolished. If a new floor surface has been laid over the original floor, there may be no way to remove undercounter appliances without damaging either the floor or the countertop.

|  |         |    |   |       |       |        |
|--|---------|----|---|-------|-------|--------|
| Self-rimming sink                            | BL@1.00 | Ea | — | 33.30 | 33.30 | 56.60  |
| Ledge-type or huddee ring sink               | BL@1.65 | Ea | — | 55.00 | 55.00 | 93.50  |
| Self-rimming sink with disposer              | BL@1.50 | Ea | — | 50.00 | 50.00 | 85.00  |
| Ledge-type or huddee ring sink with disposer | BL@2.00 | Ea | — | 66.60 | 66.60 | 113.00 |
| Garbage disposer                             | BL@.500 | Ea | — | 16.70 | 16.70 | 28.40  |
| Undercounter dishwasher                      | BL@1.00 | Ea | — | 33.30 | 33.30 | 56.60  |
| Undercounter trash compactor                 | BL@.800 | Ea | — | 26.60 | 26.60 | 45.20  |

**Remove ceiling cover.** Per square foot of ceiling. Add the cost of removing electrical fixtures. Debris piled on site.

No salvage of materials included except as noted.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| Plaster ceiling   |         |    |   |      |      |      |
| Including lath and furring                                    | BL@.025 | SF | — | .83  | .83  | 1.41 |
| Including suspended grid                                      | BL@.020 | SF | — | .67  | .67  | 1.14 |
| Acoustic tile ceiling   |         |    |   |      |      |      |
| Including suspended grid                                      | BL@.010 | SF | — | .33  | .33  | .56  |
| Including grid in salvage condition                           | BL@.019 | SF | — | .63  | .63  | 1.07 |
| Tile glued or stapled to ceiling                              | BL@.015 | SF | — | .50  | .50  | .85  |
| Tile on strip furring, including furring                      | BL@.025 | SF | — | .83  | .83  | 1.41 |
| Drywall ceiling   |         |    |   |      |      |      |
| Nailed or attached with screws to joists                      | BL@.010 | SF | — | .33  | .33  | .56  |
| Dropped drywall ceiling on wood or metal grid, including grid | BL@.022 | SF | — | .73  | .73  | 1.24 |
| Drywall on plaster and lath, including lath and plaster       | BL@.041 | SF | — | 1.37 | 1.37 | 2.33 |

**Remove floor cover.** Per square yard of floor cover removed. Debris piled on site. No salvage of materials included.

|                                 |         |    |   |       |       |       |
|---------------------------------|---------|----|---|-------|-------|-------|
| Ceramic tile, pneumatic breaker | BL@.263 | SY | — | 8.76  | 8.76  | 14.90 |
| Hardwood, nailed                | BL@.290 | SY | — | 9.66  | 9.66  | 16.40 |
| Hardwood, glued                 | BL@.503 | SY | — | 16.80 | 16.80 | 28.60 |
| Linoleum or sheet vinyl         | BL@.056 | SY | — | 1.87  | 1.87  | 3.18  |
| Resilient tile                  | BL@.300 | SY | — | 9.99  | 9.99  | 17.00 |
| Terrazzo                        | BL@.286 | SY | — | 9.53  | 9.53  | 16.20 |
| Carpet on tack strip            | BL@.028 | SY | — | .93   | .93   | 1.58  |
| Bonded floor, scraped           | BL@.135 | SY | — | 4.50  | 4.50  | 7.65  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| <b>Remove wall cover.</b> Per square foot of wall. Debris piled on site. |           |      |          |       |       |      |
| Drywall nailed or attached with screws to joists                         | BL@.010   | SF   | —        | .33   | .33   | .56  |
| Drywall on plaster and lath, including lath and plaster                  | BL@.041   | SF   | —        | 1.37  | 1.37  | 2.33 |
| Plywood or insulation board  | BL@.018   | SF   | —        | .60   | .60   | 1.02 |
| Plaster and lath   | BL@.025   | SF   | —        | .83   | .83   | 1.41 |
| Beaded partitioning dado   | BL@.025   | SF   | —        | .83   | .83   | 1.41 |

**Soffits.** These figures assume a 12" wide by 12" high soffit or drop ceiling (as in Figure 12-4) installed above wall cabinets. Per linear foot of soffit measured on the longest side. Demolition figures assume debris is piled on site. Figure a half-day of work (\$150) as the minimum charge for drywall or plaster finish

|  |         |    |      |       |       |       |
|--|---------|----|------|-------|-------|-------|
| Remove wood frame soffit with drywall or plaster finish                    | BL@.059 | LF | —    | 1.97  | 1.97  | 3.35  |
| Install wood frame soffit with drywall finish                              | BC@.471 | LF | 3.75 | 19.30 | 23.05 | 39.20 |
| Install wood frame soffit with rock lath and plaster finish                | BC@.600 | LF | 3.46 | 24.60 | 28.06 | 47.70 |
| Illuminated soffit with ceiling strips, battens and luminous ceiling panel | BC@.318 | LF | 5.36 | 13.10 | 18.46 | 31.40 |
| Undercounter refrigerator  | BL@1.00 | Ea | —    | 33.30 | 33.30 | 56.60 |
| Pendant, wall or recessed light fixture                                    | BL@.590 | Ea | —    | 19.70 | 19.70 | 33.50 |

## Kitchen Cabinets

For detailed coverage of custom-built cabinets, see *National Framing & Finish Carpentry Estimator*, <https://craftsman-book.com/national-estimator-cloud>.

**Unfinished oak cabinet door only.** Ready to stain. With hardware. Labor cost assumes exact fit replacement door with standard hinges.

|               |         |    |       |       |       |        |
|---------------|---------|----|-------|-------|-------|--------|
| 10" x 22"     | BC@.250 | Ea | 38.40 | 10.30 | 48.70 | 82.80  |
| 10" x 28"     | BC@.250 | Ea | 42.20 | 10.30 | 52.50 | 89.30  |
| 13" x 13"     | BC@.250 | Ea | 32.20 | 10.30 | 42.50 | 72.30  |
| 13" x 22"     | BC@.250 | Ea | 51.10 | 10.30 | 61.40 | 104.00 |
| 13" x 28"     | BC@.250 | Ea | 47.00 | 10.30 | 57.30 | 97.40  |
| 14-1/2" x 22" | BC@.250 | Ea | 44.70 | 10.30 | 55.00 | 93.50  |
| 14" x 28"     | BC@.250 | Ea | 47.50 | 10.30 | 57.80 | 98.30  |
| 16" x 13"     | BC@.250 | Ea | 37.10 | 10.30 | 47.40 | 80.60  |
| 16" x 22"     | BC@.250 | Ea | 43.50 | 10.30 | 53.80 | 91.50  |
| 16" x 28"     | BC@.250 | Ea | 44.40 | 10.30 | 54.70 | 93.00  |
| 22" x 22"     | BC@.250 | Ea | 61.80 | 10.30 | 72.10 | 123.00 |
| 22" x 28"     | BC@.250 | Ea | 61.80 | 10.30 | 72.10 | 123.00 |

**Unfinished oak cabinet drawer front only.** Ready to stain. With hardware.

|              |         |    |       |       |       |       |
|--------------|---------|----|-------|-------|-------|-------|
| 10" x 5-3/4" | BC@.250 | Ea | 13.50 | 10.30 | 23.80 | 40.50 |
| 13" x 5-3/4" | BC@.250 | Ea | 14.10 | 10.30 | 24.40 | 41.50 |
| 16" x 5-3/4" | BC@.250 | Ea | 15.60 | 10.30 | 25.90 | 44.00 |
| 22" x 5-3/4" | BC@.250 | Ea | 20.50 | 10.30 | 30.80 | 52.40 |

**Unfinished oak cabinet door trim.** Ready to stain.

|                       |         |    |       |       |       |       |
|-----------------------|---------|----|-------|-------|-------|-------|
| 3" x 30" filler strip | BC@.500 | Ea | 18.50 | 20.50 | 39.00 | 66.30 |
| 3" x 36" valance      | BC@.250 | Ea | 33.50 | 10.30 | 43.80 | 74.50 |
| 4-1/2" x 96" toe kick | BC@.750 | Ea | 16.50 | 30.80 | 47.30 | 80.40 |

**Unfinished oak cabinet end panel.** Ready to stain.

|                             |         |    |       |      |       |       |
|-----------------------------|---------|----|-------|------|-------|-------|
| 11" x 30", wall cabinet     | BC@.200 | Ea | 14.60 | 8.21 | 22.81 | 38.80 |
| 24" x 34-1/2", base cabinet | BC@.200 | Ea | 22.00 | 8.21 | 30.21 | 51.40 |
| 24" x 84", utility cabinet  | BC@.200 | Ea | 40.20 | 8.21 | 48.41 | 82.30 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

### Unfinished Birch Kitchen Cabinets

**Unfinished birch base cabinets.** 34-1/2" high, 24" deep. Birch face frame and door frame. Ready to stain. With hardware.

|                                     |         |    |        |       |        |        |
|-------------------------------------|---------|----|--------|-------|--------|--------|
| 12" wide, 1 door                    | BC@.640 | Ea | 55.40  | 26.30 | 81.70  | 139.00 |
| 15" wide, 1 door                    | BC@.640 | Ea | 74.20  | 26.30 | 100.50 | 171.00 |
| 18" wide, 1 door                    | BC@.770 | Ea | 85.00  | 30.30 | 115.30 | 196.00 |
| 18" wide, 3 drawer                  | BC@.770 | Ea | 91.40  | 31.60 | 123.00 | 209.00 |
| 24" wide, 2 doors                   | BC@.770 | Ea | 102.00 | 31.60 | 133.60 | 227.00 |
| 24" wide, 3 drawer                  | BC@.910 | Ea | 140.00 | 37.40 | 177.40 | 302.00 |
| 30" wide, 2 doors                   | BC@.910 | Ea | 117.00 | 37.40 | 154.40 | 262.00 |
| 36" wide, 2 doors                   | BC@.910 | Ea | 117.00 | 37.40 | 154.40 | 262.00 |
| 36" wide, blind corner base, 1 door | BC@.910 | Ea | 181.00 | 37.40 | 218.40 | 371.00 |
| 36" wide, sink base, 1 door         | BC@.770 | Ea | 127.00 | 31.60 | 158.60 | 270.00 |
| 48" wide, sink base, 2 doors        | BC@.770 | Ea | 154.00 | 31.60 | 185.60 | 316.00 |
| 60" wide, sink base, 2 doors        | BC@.910 | Ea | 185.00 | 37.40 | 222.40 | 378.00 |

**Unfinished birch wall cabinets.** 12" deep. Birch face frame and door frame. Ready to stain. With hardware.

|                                       |         |    |        |       |        |        |
|---------------------------------------|---------|----|--------|-------|--------|--------|
| 12" wide x 30" high, 1 door           | BC@.640 | Ea | 36.40  | 26.30 | 62.70  | 107.00 |
| 15" wide x 30" high, 1 door           | BC@.640 | Ea | 49.10  | 26.30 | 75.40  | 128.00 |
| 18" wide x 30" high, 1 door           | BC@.770 | Ea | 58.00  | 31.60 | 89.60  | 152.00 |
| 24" wide x 30" high, corner, 1 door   | BC@.770 | Ea | 112.00 | 31.60 | 143.60 | 244.00 |
| 24" wide x 30" high, 2 doors          | BC@.770 | Ea | 112.00 | 31.60 | 143.60 | 244.00 |
| 30" wide x 30" high, 2 doors          | BC@.910 | Ea | 83.80  | 37.40 | 121.20 | 206.00 |
| 36" wide x 30" high, 2 doors          | BC@.910 | Ea | 101.00 | 37.40 | 138.40 | 235.00 |
| 30" wide x 15" high, 2 doors          | BC@.770 | Ea | 62.50  | 31.60 | 94.10  | 160.00 |
| 36" wide x 15" high, 2 doors          | BC@.770 | Ea | 68.60  | 31.60 | 100.20 | 170.00 |
| 42" wide x 21" high, 2 doors          | BC@.910 | Ea | 86.10  | 37.40 | 123.50 | 210.00 |
| 54" wide x 24" high, laundry, 2 doors | BC@.910 | Ea | 111.00 | 37.40 | 148.40 | 252.00 |

**Unfinished birch utility cabinet.** 2 doors and 2 drawers. 24" deep. Birch face frame and door frame. Ready to stain. With hardware.

|                     |         |    |        |       |        |        |
|---------------------|---------|----|--------|-------|--------|--------|
| 18" wide x 84" high | BC@.910 | Ea | 238.00 | 37.40 | 275.40 | 468.00 |
|---------------------|---------|----|--------|-------|--------|--------|

### Unfinished birch cabinet end panels.

|                     |         |    |       |      |       |       |
|---------------------|---------|----|-------|------|-------|-------|
| 12" wide x 30" high | BC@.200 | Ea | 8.40  | 8.21 | 16.61 | 28.20 |
| 24" wide x 35" high | BC@.200 | Ea | 12.10 | 8.21 | 20.31 | 34.50 |
| 24" wide x 84" high | BC@.200 | Ea | 29.60 | 8.21 | 37.81 | 64.30 |

**Unfinished birch filler strip.** Ready to stain.

|          |         |    |      |       |       |       |
|----------|---------|----|------|-------|-------|-------|
| 3" x 32" | BC@.500 | Ea | 6.97 | 20.50 | 27.47 | 46.70 |
|----------|---------|----|------|-------|-------|-------|

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Unfinished Red Oak Kitchen Cabinets

**Unfinished red oak base cabinets.** Red oak face frames and flat panel. Picture frame doors. 34-1/2" high, 24" deep. Ready to stain. With hardware.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| 12" wide, 1 door            | BC@.640 | Ea | 84.90  | 26.30 | 111.20 | 189.00 |
| 15" wide, 1 door            | BC@.640 | Ea | 90.60  | 26.30 | 116.90 | 199.00 |
| 18" wide, 1 door            | BC@.770 | Ea | 108.00 | 31.60 | 139.60 | 237.00 |
| 18" wide 3-drawer base      | BC@.770 | Ea | 172.00 | 31.60 | 203.60 | 346.00 |
| 24" wide, 2 doors           | BC@.770 | Ea | 123.00 | 31.60 | 154.60 | 263.00 |
| 24" wide 3-drawer base      | BC@.770 | Ea | 191.00 | 31.60 | 222.60 | 378.00 |
| 30" wide, 2 doors           | BC@.910 | Ea | 170.00 | 37.40 | 207.40 | 353.00 |
| 36" Lazy Susan corner base  | BC@.910 | Ea | 273.00 | 37.40 | 310.40 | 528.00 |
| 36" wide, 2 doors           | BC@.910 | Ea | 186.00 | 37.40 | 223.40 | 380.00 |
| 36" wide blind base         | BC@.910 | Ea | 178.00 | 37.40 | 215.40 | 366.00 |
| 36" wide corner base        | BC@.910 | Ea | 220.00 | 37.40 | 257.40 | 438.00 |
| 36" wide sink base, 1 door  | BC@.770 | Ea | 144.00 | 31.60 | 175.60 | 299.00 |
| 60" wide sink base, 2 doors | BC@.910 | Ea | 221.00 | 37.40 | 258.40 | 439.00 |

**Unfinished red oak wall cabinets.** Red oak face frames and flat panel. 12" deep. Ready to stain. With hardware.

|                                       |         |    |        |       |        |        |
|---------------------------------------|---------|----|--------|-------|--------|--------|
| 12" wide x 30" high, 1 door           | BC@.640 | Ea | 67.60  | 26.30 | 93.90  | 160.00 |
| 15" wide x 30" high, 1 door           | BC@.640 | Ea | 78.10  | 26.30 | 104.40 | 177.00 |
| 18" wide x 30" high, 1 door           | BC@.770 | Ea | 77.30  | 31.60 | 108.90 | 185.00 |
| 21" wide x 30" high, 1 door           | BC@.770 | Ea | 103.00 | 31.60 | 134.60 | 229.00 |
| 24" wide x 30" high, 2 doors          | BC@.770 | Ea | 120.00 | 31.60 | 151.60 | 258.00 |
| 24" wide x 30" high, diagonal corner  | BC@.770 | Ea | 165.00 | 31.60 | 196.60 | 334.00 |
| 30" wide x 30" high, 2 doors          | BC@.910 | Ea | 136.00 | 37.40 | 173.40 | 295.00 |
| 36" wide x 30" high, 2 doors          | BC@.910 | Ea | 168.00 | 37.40 | 205.40 | 349.00 |
| 30" wide x 15" high, 2 doors          | BC@.770 | Ea | 88.70  | 31.60 | 120.30 | 205.00 |
| 33" wide x 15" high, 2 doors          | BC@.770 | Ea | 100.00 | 31.60 | 131.60 | 224.00 |
| 36" wide x 15" high, 2 doors          | BC@.770 | Ea | 107.00 | 31.60 | 138.60 | 236.00 |
| 54" wide x 24" high, 2 doors, laundry | BC@.910 | Ea | 168.00 | 37.40 | 205.40 | 349.00 |

**Unfinished red oak utility cabinet.** Red oak face frames and flat panel. Ready to stain. With hardware.

|                                       |         |    |        |       |        |        |
|---------------------------------------|---------|----|--------|-------|--------|--------|
| 18" wide x 84" high, 24" deep, 1 door | BC@.910 | Ea | 280.00 | 37.40 | 317.40 | 540.00 |
| 24" wide x 84" high, 18" deep, 1 door | BC@.910 | Ea | 299.00 | 37.40 | 336.40 | 572.00 |

**Unfinished red oak cabinet end panel.** Ready to stain.

|                         |         |    |       |      |       |       |
|-------------------------|---------|----|-------|------|-------|-------|
| 11-3/8" wide x 30" high | BC@.200 | Ea | 20.70 | 8.21 | 28.91 | 49.10 |
| 23" wide x 34-1/2" high | BC@.200 | Ea | 31.10 | 8.21 | 39.31 | 66.80 |

**Unfinished red oak filler strip.** Ready to stain.

|          |         |    |       |       |       |       |
|----------|---------|----|-------|-------|-------|-------|
| 3" x 32" | BC@.500 | Ea | 15.60 | 20.50 | 36.10 | 61.40 |
| 6" x 32" | BC@.500 | Ea | 23.00 | 20.50 | 43.50 | 74.00 |

## Unfinished Natural Oak Kitchen Cabinets

**Unfinished natural oak base cabinets.** 34-1/2" high, 24" deep. Solid oak face frame and door frame. Ready to stain. With hardware.

|                         |         |    |        |       |        |        |
|-------------------------|---------|----|--------|-------|--------|--------|
| 12" wide, 1 door        | BC@.640 | Ea | 60.00  | 26.30 | 86.30  | 147.00 |
| 15" wide, 1 door        | BC@.640 | Ea | 103.00 | 26.30 | 129.30 | 220.00 |
| 15" wide, 3-drawer base | BC@.770 | Ea | 149.00 | 31.60 | 180.60 | 307.00 |
| 18" wide, 1 door        | BC@.770 | Ea | 108.00 | 31.60 | 139.60 | 237.00 |
| 18" wide, 3-drawer base | BC@.770 | Ea | 167.00 | 31.60 | 198.60 | 338.00 |
| 21" wide, 1 door        | BC@.770 | Ea | 138.00 | 31.60 | 169.60 | 288.00 |
| 24" wide, 2 doors       | BC@.770 | Ea | 137.00 | 31.60 | 168.60 | 287.00 |
| 24" wide, 3-drawer base | BC@.910 | Ea | 158.00 | 37.40 | 195.40 | 332.00 |
| 30" wide, 2 doors       | BC@.910 | Ea | 189.00 | 37.40 | 226.40 | 385.00 |

|                                  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|----------------------------------|------------------|-------------|-----------------|--------------|--------------|-------------|
| 36" wide, 2 doors                | BC@.910          | Ea          | 104.00          | 37.40        | 141.40       | 240.00      |
| 36" wide, Lazy Susan base        | BC@.910          | Ea          | 330.00          | 37.40        | 367.40       | 625.00      |
| 36" wide sink base, 1 door       | BC@.770          | Ea          | 153.00          | 31.60        | 184.60       | 314.00      |
| 48" wide sink base, 2 doors, oak | BC@.910          | Ea          | 250.00          | 37.40        | 287.40       | 489.00      |
| 60" wide sink base, 2 doors, oak | BC@.910          | Ea          | 292.00          | 37.40        | 329.40       | 560.00      |
| Corner sink base                 | BC@.770          | Ea          | 98.30           | 31.60        | 129.90       | 221.00      |

**Unfinished natural oak wall cabinets.** 12" deep. Solid oak face frame and door frame. Ready to stain. With hardware.

|                                     |         |    |        |       |        |        |
|-------------------------------------|---------|----|--------|-------|--------|--------|
| 12" wide x 30" high, 1 door         | BC@.640 | Ea | 61.20  | 26.30 | 87.50  | 149.00 |
| 15" wide x 30" high, 1 door         | BC@.640 | Ea | 74.00  | 26.30 | 100.30 | 171.00 |
| 18" wide x 30" high, 1 door         | BC@.770 | Ea | 82.40  | 31.60 | 114.00 | 194.00 |
| 18" wide x 36" high, 1 door         | BC@.910 | Ea | 130.00 | 37.40 | 167.40 | 285.00 |
| 24" wide x 30" high diagonal corner | BC@.770 | Ea | 150.00 | 31.60 | 181.60 | 309.00 |
| 24" wide x 36" high, 2 doors        | BC@.910 | Ea | 131.00 | 37.40 | 168.40 | 286.00 |
| 30" wide x 36" high, 2 doors        | BC@.910 | Ea | 120.00 | 37.40 | 157.40 | 268.00 |
| 24" wide x 15" high, 2 doors        | BC@.640 | Ea | 103.00 | 26.30 | 129.30 | 220.00 |
| 30" wide x 15" high, 2 doors        | BC@.770 | Ea | 94.00  | 31.60 | 125.60 | 214.00 |
| 33" wide x 15" high, 2 doors        | BC@.770 | Ea | 95.10  | 31.60 | 126.70 | 215.00 |
| 36" wide x 15" high, 2 doors        | BC@.770 | Ea | 105.00 | 31.60 | 136.60 | 232.00 |
| 36" wide blind corner               | BC@.910 | Ea | 161.00 | 37.40 | 198.40 | 337.00 |

**Unfinished natural oak utility cabinet.** 2 doors and 2 drawers. 24" deep. Solid oak face frame and door frame.

Ready to stain. With hardware.

|                     |         |    |        |       |        |        |
|---------------------|---------|----|--------|-------|--------|--------|
| 18" wide x 84" high | BC@.910 | Ea | 172.00 | 37.40 | 209.40 | 356.00 |
|---------------------|---------|----|--------|-------|--------|--------|

**Unfinished natural oak washer-dryer wall cabinet.** Oak face frame and door frame. Ready to stain. With hardware. 12" deep.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 24" high x 54" wide, 2 doors | BC@.910 | Ea | 166.00 | 37.40 | 203.40 | 346.00 |
|------------------------------|---------|----|--------|-------|--------|--------|

**Unfinished natural oak cabinet end panel.** Ready to stain.

|                     |         |    |       |      |       |       |
|---------------------|---------|----|-------|------|-------|-------|
| 12" wide x 15" high | BC@.200 | Ea | 9.09  | 8.21 | 17.30 | 29.40 |
| 12" wide x 24" high | BC@.200 | Ea | 13.70 | 8.21 | 21.91 | 37.20 |
| 12" wide x 30" high | BC@.200 | Ea | 16.40 | 8.21 | 24.61 | 41.80 |
| 23" wide x 84" high | BC@.200 | Ea | 43.80 | 8.21 | 52.01 | 88.40 |

**Unfinished natural oak trim.** Ready to stain.

|                       |         |    |       |       |       |        |
|-----------------------|---------|----|-------|-------|-------|--------|
| 3" x 32" filler strip | BC@.500 | Ea | 10.90 | 20.50 | 31.40 | 53.40  |
| 6" x 32" filler strip | BC@.500 | Ea | 21.80 | 20.50 | 42.30 | 71.90  |
| 36" x 4" valance      | BC@.250 | Ea | 24.80 | 10.30 | 35.10 | 59.70  |
| 36" x 8" valance      | BC@.250 | Ea | 49.70 | 10.30 | 60.00 | 102.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Finished Kitchen Cabinets

For detailed coverage of finished custom-built cabinets, see *National Framing & Finish Carpentry Estimator*, <https://craftsman-book.com/national-estimator-cloud>.

**Arctic white finished base cabinets.** Pre-assembled. 3/4"-thick medium-density fiberboard. Door face and drawer fronts vacuum-formed with white thermofoil. Door back is white melamine laminate. 34-1/2" high x 24" deep. With hardware.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| 12" wide, 1 door            | BC@.640 | Ea | 180.00 | 26.30 | 206.30 | 351.00 |
| 15" wide, 1 door            | BC@.640 | Ea | 183.00 | 26.30 | 209.30 | 356.00 |
| 15" wide, 3-drawer base     | BC@.770 | Ea | 290.00 | 31.60 | 321.60 | 547.00 |
| 18" wide, 1 door            | BC@.770 | Ea | 198.00 | 31.60 | 229.60 | 390.00 |
| 18" wide, 3-drawer base     | BC@.770 | Ea | 334.00 | 31.60 | 365.60 | 622.00 |
| 24" wide, 2 doors           | BC@.770 | Ea | 234.00 | 31.60 | 265.60 | 452.00 |
| 30" wide, 2 doors           | BC@.910 | Ea | 300.00 | 37.40 | 337.40 | 574.00 |
| 36" wide, 2 doors           | BC@.910 | Ea | 367.00 | 37.40 | 404.40 | 687.00 |
| 36" wide, easy reach corner | BC@.910 | Ea | 266.00 | 37.40 | 303.40 | 516.00 |
| 45" wide, blind corner base | BC@.910 | Ea | 330.00 | 37.40 | 367.40 | 625.00 |

**Arctic white finished wall cabinets.** Pre-assembled. 3/4"-thick medium-density fiberboard. Door face vacuum formed with white thermofoil. Door back is white melamine laminate. 12" deep. With hardware.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| 12" wide x 30" high                       | BC@.640 | Ea | 134.00 | 26.30 | 160.30 | 273.00 |
| 15" wide x 30" high                       | BC@.640 | Ea | 147.00 | 26.30 | 173.30 | 295.00 |
| 18" wide x 30" high                       | BC@.770 | Ea | 154.00 | 31.60 | 185.60 | 316.00 |
| 24" wide x 30" high                       | BC@.770 | Ea | 179.00 | 31.60 | 210.60 | 358.00 |
| 24" wide x 30" high, corner angle cabinet | BC@.770 | Ea | 286.00 | 31.60 | 317.60 | 540.00 |
| 27" wide x 30" high, blind corner cabinet | BC@.910 | Ea | 232.00 | 37.40 | 269.40 | 458.00 |
| 30" wide x 15" high                       | BC@.770 | Ea | 149.00 | 31.60 | 180.60 | 307.00 |
| 30" wide x 18" high                       | BC@.770 | Ea | 179.00 | 31.60 | 210.60 | 358.00 |
| 30" wide x 30" high                       | BC@.910 | Ea | 220.00 | 37.40 | 257.40 | 438.00 |
| 36" wide x 15" high                       | BC@.910 | Ea | 166.00 | 37.40 | 203.40 | 346.00 |
| 36" wide x 30" high                       | BC@.910 | Ea | 246.00 | 37.40 | 283.40 | 482.00 |

**Arctic white finished utility cabinet.** Pre-assembled. 3/4"-thick medium-density fiberboard. Door face vacuum formed with white thermofoil. Door back is white melamine laminate. With hardware.

|                                |         |    |        |       |        |        |
|--------------------------------|---------|----|--------|-------|--------|--------|
| 18" wide x 48" high x 24" deep | BC@.910 | Ea | 278.00 | 37.40 | 315.40 | 536.00 |
|--------------------------------|---------|----|--------|-------|--------|--------|

## Arctic white cabinet trim.

|                        |         |    |       |       |        |        |
|------------------------|---------|----|-------|-------|--------|--------|
| Crown mold, 8' long    | BC@.750 | Ea | 71.80 | 30.80 | 102.60 | 174.00 |
| Filler strip, 3" x 30" | BC@.500 | Ea | 24.60 | 20.50 | 45.10  | 76.70  |
| Toe kick, 8' long      | BC@.750 | Ea | 31.60 | 30.80 | 62.40  | 106.00 |

**Oak finished base cabinets.** Pre-assembled. Raised veneer center panel framed with 3/4"-thick solid oak. Arched top rail. Drawer fronts are 3/4"-thick solid oak. 34-1/2" high, 24" deep. With hardware.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| 12" wide, 1 door            | BC@.640 | Ea | 196.00 | 26.30 | 222.30 | 378.00 |
| 15" wide, 1 door            | BC@.640 | Ea | 209.00 | 26.30 | 235.30 | 400.00 |
| 15" wide, 3-drawer base     | BC@.640 | Ea | 298.00 | 26.30 | 324.30 | 551.00 |
| 18" wide, 1 door            | BC@.770 | Ea | 214.00 | 31.60 | 245.60 | 418.00 |
| 18" wide, 3-drawer base     | BC@.770 | Ea | 354.00 | 31.60 | 385.60 | 656.00 |
| 24" wide, 2 doors           | BC@.770 | Ea | 258.00 | 31.60 | 289.60 | 492.00 |
| 30" wide, 2 doors           | BC@.910 | Ea | 326.00 | 37.40 | 363.40 | 618.00 |
| 36" wide, 2 doors           | BC@.910 | Ea | 387.00 | 37.40 | 424.40 | 721.00 |
| 36" wide, corner base       | BC@.770 | Ea | 278.00 | 31.60 | 309.60 | 526.00 |
| 36" wide, easy-reach base   | BC@.910 | Ea | 412.00 | 37.40 | 449.40 | 764.00 |
| 45" wide, blind corner base | BC@.910 | Ea | 351.00 | 37.40 | 388.40 | 660.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Oak finished wall cabinets.</b> Pre-assembled. Raised veneer center panel framed with 3/4"-thick solid oak. 12" deep. Arched top rail. With hardware.   |           |      |          |       |        |        |
| 12" wide x 30" high, 1 door  | BC@.640   | Ea   | 145.00   | 26.30 | 171.30 | 291.00 |
| 15" wide x 30" high, 1 door  | BC@.640   | Ea   | 202.00   | 26.30 | 228.30 | 388.00 |
| 27" wide x 30" high, corner  | BC@.770   | Ea   | 227.00   | 31.60 | 258.60 | 440.00 |
| 30" wide x 15" high, 2 doors   | BC@.770   | Ea   | 155.00   | 31.60 | 186.60 | 317.00 |
| 30" wide x 18" high, 2 doors   | BC@.770   | Ea   | 183.00   | 31.60 | 214.60 | 365.00 |
| 30" wide x 30" high, 2 doors   | BC@.910   | Ea   | 233.00   | 37.40 | 270.40 | 460.00 |
| 36" wide x 15" high, 2 doors   | BC@.910   | Ea   | 187.00   | 37.40 | 224.40 | 381.00 |
| 36" wide x 30" high, 2 doors   | BC@.910   | Ea   | 264.00   | 37.40 | 301.40 | 512.00 |
| <b>Oak finished utility top cabinet.</b> Pre-assembled. Raised veneer center panel framed with 3/4"-thick solid oak. 24" deep. Two doors. Arched top rail. With hardware.  |           |      |          |       |        |        |
| 18" wide x 48" high  | BC@.910   | Ea   | 310.00   | 37.40 | 347.40 | 591.00 |
| <b>Finished oak cabinet trim.</b>  |           |      |          |       |        |        |
| Crown mold, 8' long  | BC@.750   | Ea   | 80.20    | 30.80 | 111.00 | 189.00 |
| Toe kick, 8' long  | BC@.750   | Ea   | 31.00    | 30.80 | 61.80  | 105.00 |
| Universal fill strip, 3" x 30"   | BC@.500   | Ea   | 24.50    | 20.50 | 45.00  | 76.50  |
| <b>Maple finished base cabinets.</b> Pre-assembled. Veneer arched raised center panel framed with 2"-wide, 3/4"-thick solid maple. Base cabinet doors have a square raised center panel. Drawer fronts are 3/4"-thick solid maple. 34-1/2" high x 24" deep. With hardware. |           |      |          |       |        |        |
| 12" wide, 1 door   | BC@.640   | Ea   | 209.00   | 26.30 | 235.30 | 400.00 |
| 15" wide, 1 door   | BC@.640   | Ea   | 220.00   | 26.30 | 246.30 | 419.00 |
| 15" wide, 3-drawer base  | BC@.640   | Ea   | 312.00   | 26.30 | 338.30 | 575.00 |
| 18" wide, 1 door   | BC@.770   | Ea   | 235.00   | 31.60 | 266.60 | 453.00 |
| 18" wide, 3-drawer base  | BC@.770   | Ea   | 332.00   | 31.60 | 363.60 | 618.00 |
| 24" wide, 2 doors  | BC@.770   | Ea   | 280.00   | 31.60 | 311.60 | 530.00 |
| 30" wide, 2 doors  | BC@.910   | Ea   | 335.00   | 37.40 | 372.40 | 633.00 |
| 36" sink base  | BC@.770   | Ea   | 335.00   | 37.40 | 372.40 | 633.00 |
| 36" wide, 2 doors  | BC@.910   | Ea   | 363.00   | 37.40 | 400.40 | 681.00 |
| 45" wide blind base  | BC@.910   | Ea   | 371.00   | 37.40 | 408.40 | 694.00 |
| <b>Maple finished wall cabinets.</b> Pre-assembled. Veneer arched raised center panel framed with 2"-wide, 3/4"-thick solid maple. The top rail has a gentle arch. 12" deep. With hardware.  |           |      |          |       |        |        |
| 12" wide x 30" high, 1 door  | BC@.640   | Ea   | 152.00   | 26.30 | 178.30 | 303.00 |
| 15" wide x 30" high, 1 door  | BC@.640   | Ea   | 165.00   | 26.30 | 191.30 | 325.00 |
| 18" wide x 30" high, 1 door  | BC@.770   | Ea   | 180.00   | 31.60 | 211.60 | 360.00 |
| 24" wide x 30" high, 1 door  | BC@.770   | Ea   | 218.00   | 31.60 | 249.60 | 424.00 |
| 24" wide x 30" high, angle corner  | BC@.770   | Ea   | 279.00   | 31.60 | 310.60 | 528.00 |
| 27" wide x 30" high, blind corner  | BC@.770   | Ea   | 233.00   | 31.60 | 264.60 | 450.00 |
| 30" wide x 30" high, 2 doors   | BC@.910   | Ea   | 244.00   | 37.40 | 281.40 | 478.00 |
| 36" wide x 30" high, 2 doors   | BC@.910   | Ea   | 283.00   | 37.40 | 320.40 | 545.00 |
| 36" wide x 30" high, easy reach corner   | BC@.910   | Ea   | 422.00   | 37.40 | 459.40 | 781.00 |
| 30" wide x 15" high, 2 doors   | BC@.770   | Ea   | 169.00   | 31.60 | 200.60 | 341.00 |
| 36" wide x 15" high, 2 doors   | BC@.770   | Ea   | 207.00   | 31.60 | 238.60 | 406.00 |
| 30" wide x 18" high, 2 doors   | BC@.770   | Ea   | 192.00   | 31.60 | 223.60 | 380.00 |
| <b>Maple finished utility top cabinet.</b> Pre-assembled. Veneer arched raised center panel framed with 2"-wide, 3/4"-thick solid maple. 24" deep. With hardware.  |           |      |          |       |        |        |
| 18" x 48" high   | BC@.910   | Ea   | 329.00   | 37.40 | 366.40 | 623.00 |

|                                     | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|-------------------------------------|-----------|------|----------|-------|--------|--------|
| <b>Maple finished cabinet trim.</b> |           |      |          |       |        |        |
| Crown molding, 8' long              | BC@.750   | Ea   | 80.40    | 30.80 | 111.20 | 189.00 |
| Toe kick, 8' long                   | BC@.750   | Ea   | 31.70    | 30.80 | 62.50  | 106.00 |
| Universal filler, 3" x 30"          | BC@.500   | Ea   | 24.70    | 20.50 | 45.20  | 76.80  |

## Custom Countertops

**Laminated plastic countertops.** Custom-fabricated straight, U- or L-shaped tops (such as Formica, Textolite or Wilsonart) on a particleboard base. 22" to 25" wide. Cost per LF of longest edge (either back or front) in solid colors with 3-1/2" to 4" backsplash.

|  |         |    |       |      |       |       |
|--|---------|----|-------|------|-------|-------|
| Accent color front edge                    | B1@.181 | LF | 37.00 | 6.73 | 43.73 | 74.30 |
| Full wrap (180 degree) front edge          | B1@.181 | LF | 29.00 | 6.73 | 35.73 | 60.70 |
| Inlaid front and back edge                 | B1@.181 | LF | 46.70 | 6.73 | 53.43 | 90.80 |
| Rolled drip edge (post formed)             | B1@.181 | LF | 29.00 | 6.73 | 35.73 | 60.70 |
| Square edge, separate backsplash           | B1@.181 | LF | 20.60 | 6.73 | 27.33 | 46.50 |
| Additional costs for laminated countertops |         |    |       |      |       |       |
| Add for contour end splash                 | —       | Ea | 32.90 | —    | 32.90 | —     |
| Add for drilling 3 plumbing fixture holes  | —       | LS | 13.70 | —    | 13.70 | —     |
| Add for half round corner                  | —       | Ea | 39.50 | —    | 39.50 | —     |
| Add for mitered corners                    | —       | Ea | 28.90 | —    | 28.90 | —     |
| Add for quarter round corner               | —       | Ea | 27.60 | —    | 27.60 | —     |
| Add for seamless tops                      | —       | Ea | 39.70 | —    | 39.70 | —     |
| Add for sink, range or chop block cutout   | —       | Ea | 10.50 | —    | 10.50 | —     |
| Add for square end splash                  | —       | Ea | 23.40 | —    | 23.40 | —     |
| Add for textures, patterns                 | —       | %  | 20.0  | —    | —     | —     |

**Solid surface countertops.** Many brands available, including Corian, Wilsonart and Avenite. Tops are cut from acrylic or polyester-acrylic sheets measuring 1/2" or 3/4" thick, 30" to 36" wide and 12' long. The estimates below include cutting, polishing, sink and range cutouts and a flat polish edge. Color groups are usually offered with distinct edge treatments. Group 1 colors are light shades with little texture and a matte finish. Group 2 colors include darker colors and stone textures. Group 3 colors are extra dark or bright and include high-gloss surfaces. Solid surface countertops are set directly on cabinets with silicone adhesive.

|                                   |         |    |        |      |        |        |
|-----------------------------------|---------|----|--------|------|--------|--------|
| Color Group 1, Basic edge         | B1@.128 | SF | 64.80  | 4.76 | 69.56  | 118.00 |
| Color Group 1, Custom edge        | B1@.128 | SF | 70.00  | 4.76 | 74.76  | 127.00 |
| Color Group 1, Premium edge       | B1@.128 | SF | 75.30  | 4.76 | 80.06  | 136.00 |
| Color Group 2, Basic edge         | B1@.128 | SF | 72.70  | 4.76 | 77.46  | 132.00 |
| Color Group 2, Custom edge        | B1@.128 | SF | 84.60  | 4.76 | 89.36  | 152.00 |
| Color Group 2, Premium edge       | B1@.128 | SF | 79.50  | 4.76 | 84.26  | 143.00 |
| Color Group 3, Basic edge         | B1@.128 | SF | 83.00  | 4.76 | 87.76  | 149.00 |
| Color Group 3, Custom edge        | B1@.128 | SF | 96.40  | 4.76 | 101.16 | 172.00 |
| Color Group 3, Premium edge       | B1@.128 | SF | 91.30  | 4.76 | 96.06  | 163.00 |
| Add for delivery (typical)        | —       | Ea | 207.00 | —    | 207.00 | —      |
| Add for integral sink, one basin  | —       | Ea | 463.00 | —    | 463.00 | —      |
| Add for integral sink, two basins | —       | Ea | 600.00 | —    | 600.00 | —      |
| Add for radius or beveled edge    | —       | LF | 9.09   | —    | 9.09   | —      |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Granite countertops.** Granite countertop work is generally done by a specialist. Custom made to order from a template. 22" to 25" wide. Per square foot of top and backsplash overall dimension, including measuring, cutting, and flat-edge polishing. Add the cost of edge detail as itemized below and jobsite delivery. 3/4" granite weighs about 30 pounds per square foot. 1-1/4" granite weighs about 45 pounds per square foot. 3/4" tops should be set on 3/4" plywood and set in silicone adhesive every two feet. 1-1/4" granite tops can be set directly on base cabinets with silicone adhesive.

|   |         |    |        |      |        |        |
|---|---------|----|--------|------|--------|--------|
| Most 3/4" (2cm) granite tops            | B1@.128 | SF | 50.60  | 4.76 | 55.36  | 94.10  |
| Most 1-1/4" (3cm) granite tops          | B1@.128 | SF | 67.30  | 4.76 | 72.06  | 123.00 |
| Add for 1/2" beveled edge               | —       | LF | 9.20   | —    | 9.20   | —      |
| Add for backsplash seaming and edging   | —       | LF | 16.50  | —    | 16.50  | —      |
| Add for cooktop overmount cutout        | —       | Ea | 164.00 | —    | 164.00 | —      |
| Add for delivery (typical)              | —       | Ea | 207.00 | —    | 207.00 | —      |
| Add for eased edge                      | —       | LF | 6.72   | —    | 6.72   | —      |
| Add for electrical outlet cutout        | —       | Ea | 45.50  | —    | 45.50  | —      |
| Add for faucet holes                    | —       | Ea | 33.10  | —    | 33.10  | —      |
| Add for full bullnose edge              | —       | LF | 26.50  | —    | 26.50  | —      |
| Add for half bullnose edge              | —       | LF | 12.60  | —    | 12.60  | —      |
| Add to remove existing non-ceramic top  | BL@.135 | SF | —      | 4.50 | 4.50   | 7.65   |
| Add to remove existing ceramic tile top | BL@.230 | SF | —      | 7.66 | 7.66   | 13.00  |
| Add for rounded corners                 | —       | Ea | 40.30  | —    | 40.30  | —      |
| Add for undermount sink, polished       | —       | Ea | 382.00 | —    | 382.00 | —      |

**Engineered stone countertops.** Custom made from a template. Quartz particles with acrylic or epoxy binder.

Trade names include Crystalite, Silestone and Cambria. Per square foot of top and backsplash surface.

|                                      |         |    |        |      |        |        |
|--------------------------------------|---------|----|--------|------|--------|--------|
| Small light chips, 3/4" square edge  | B1@.128 | SF | 64.80  | 4.76 | 69.56  | 118.00 |
| Large dark chips, 3/4" square edge   | B1@.128 | SF | 69.10  | 4.76 | 73.86  | 126.00 |
| Add for 1-1/2" bullnose edge         | —       | LF | 63.50  | —    | 63.50  | —      |
| Add for 1-1/2" ogee edge             | —       | LF | 75.30  | —    | 75.30  | —      |
| Add for 3/4" bullnose edge           | —       | LF | 32.90  | —    | 32.90  | —      |
| Add for 3/4" ogee edge               | —       | LF | 43.60  | —    | 43.60  | —      |
| Add for delivery (typical)           | —       | Ea | 207.00 | —    | 207.00 | —      |
| Add for electrical outlet cutout     | —       | Ea | 37.20  | —    | 37.20  | —      |
| Add for radius corner or end         | —       | Ea | 223.00 | —    | 223.00 | —      |
| Add to remove existing laminated top | BL@.135 | SF | —      | 4.50 | 4.50   | 7.65   |
| Add for sink cutout                  | —       | Ea | 307.00 | —    | 307.00 | —      |

## Stock Kitchen Countertops

**Post-formed double-radius plastic laminate countertop.** Standard laminate. 3" backsplash. 25" width. Substrate is 3/4" industrial grade particleboard.

|                            |         |    |        |       |        |        |
|----------------------------|---------|----|--------|-------|--------|--------|
| 5' long                    | BC@1.00 | Ea | 78.60  | 41.10 | 119.70 | 203.00 |
| 6' long                    | BC@1.20 | Ea | 92.30  | 49.30 | 141.60 | 241.00 |
| 6' long, left-hand miter   | BC@1.20 | Ea | 92.30  | 49.30 | 141.60 | 241.00 |
| 6' long, right-hand miter  | BC@1.20 | Ea | 92.30  | 49.30 | 141.60 | 241.00 |
| 8' long                    | BC@1.60 | Ea | 121.00 | 65.70 | 186.70 | 317.00 |
| 10' long                   | BC@2.00 | Ea | 154.00 | 82.10 | 236.10 | 401.00 |
| 10' long, left-hand miter  | BC@1.60 | Ea | 154.00 | 65.70 | 219.70 | 373.00 |
| 10' long, right-hand miter | BC@1.60 | Ea | 154.00 | 65.70 | 219.70 | 373.00 |
| End cap kit                | BC@.250 | Ea | 16.80  | 10.30 | 27.10  | 46.10  |
| End splash                 | BC@.250 | Ea | 19.10  | 10.30 | 29.40  | 50.00  |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Post-formed double-radius premium plastic laminate countertop.</b> 3" backsplash. 25" width. Substrate is 3/4" industrial grade particleboard. Exceeds ANSI A161.2 standard for countertops. |           |      |          |       |        |        |
| 5' long   | BC@1.00   | Ea   | 78.00    | 41.10 | 119.10 | 202.00 |
| 6' long   | BC@1.20   | Ea   | 93.00    | 49.30 | 142.30 | 242.00 |
| 6' long, left-hand miter  | BC@1.20   | Ea   | 102.00   | 49.30 | 151.30 | 257.00 |
| 6' long, right-hand miter   | BC@1.20   | Ea   | 102.00   | 49.30 | 151.30 | 257.00 |
| 8' long   | BC@1.60   | Ea   | 126.00   | 65.70 | 191.70 | 326.00 |
| 10' long  | BC@2.00   | Ea   | 162.00   | 82.10 | 244.10 | 415.00 |
| 10' long, left-hand miter   | BC@2.00   | Ea   | 162.00   | 82.10 | 244.10 | 415.00 |
| 10' long, right-hand miter  | BC@2.00   | Ea   | 162.00   | 82.10 | 244.10 | 415.00 |
| End cap kit   | BC@.250   | Ea   | 16.80    | 10.30 | 27.10  | 46.10  |
| End splash  | BC@.250   | Ea   | 19.10    | 10.30 | 29.40  | 50.00  |

**Miter bolt kit.** Joins 2 mitered tops. Includes 4 miter bolts, packet of glue, and instructions.

|     |   |    |       |   |       |   |
|-----|---|----|-------|---|-------|---|
| Kit | — | Ea | 11.00 | — | 11.00 | — |
|-----|---|----|-------|---|-------|---|

## Cabinet Knobs, Pulls and Hinges

**Standard cabinet knobs and pulls.** Classic styles. Fasteners included.

|                       |         |    |      |      |      |      |
|-----------------------|---------|----|------|------|------|------|
| Wood                  | BC@.060 | Ea | 1.31 | 2.46 | 3.77 | 6.41 |
| Brass                 | BC@.060 | Ea | 1.31 | 2.46 | 3.77 | 6.41 |
| Antique Pewter        | BC@.060 | Ea | 1.31 | 2.46 | 3.77 | 6.41 |
| Satin Nickel          | BC@.060 | Ea | 1.31 | 2.46 | 3.77 | 6.41 |
| Center to Center pull | BC@.060 | Ea | 1.31 | 2.46 | 3.77 | 6.41 |

## Standard Plus cabinet knobs and pulls.

|                       |         |    |      |      |      |      |
|-----------------------|---------|----|------|------|------|------|
| Ceramic               | BC@.060 | Ea | 2.63 | 2.46 | 5.09 | 8.65 |
| Wood                  | BC@.060 | Ea | 2.63 | 2.46 | 5.09 | 8.65 |
| Brass                 | BC@.060 | Ea | 2.63 | 2.46 | 5.09 | 8.65 |
| Antique Pewter        | BC@.060 | Ea | 2.63 | 2.46 | 5.09 | 8.65 |
| Satin Nickel          | BC@.060 | Ea | 2.63 | 2.46 | 5.09 | 8.65 |
| Polished Chrome       | BC@.060 | Ea | 2.63 | 2.46 | 5.09 | 8.65 |
| Center to Center pull | BC@.060 | Ea | 2.63 | 2.46 | 5.09 | 8.65 |

## Designer cabinet knobs and pulls.

|                       |         |    |      |      |      |       |
|-----------------------|---------|----|------|------|------|-------|
| Ceramic               | BC@.060 | Ea | 4.20 | 2.46 | 6.66 | 11.30 |
| Wood                  | BC@.060 | Ea | 4.20 | 2.46 | 6.66 | 11.30 |
| Brass                 | BC@.060 | Ea | 4.20 | 2.46 | 6.66 | 11.30 |
| Antique Pewter        | BC@.060 | Ea | 4.20 | 2.46 | 6.66 | 11.30 |
| Satin Nickel          | BC@.060 | Ea | 4.20 | 2.46 | 6.66 | 11.30 |
| Polished Chrome       | BC@.060 | Ea | 4.20 | 2.46 | 6.66 | 11.30 |
| Center to Center pull | BC@.060 | Ea | 4.20 | 2.46 | 6.66 | 11.30 |

## Drawer pulls. Center to Center

|          |         |    |      |      |       |       |
|----------|---------|----|------|------|-------|-------|
| Standard | BC@.060 | Ea | 4.73 | 2.46 | 7.19  | 12.20 |
| Deluxe   | BC@.060 | Ea | 6.30 | 2.46 | 8.76  | 14.90 |
| Designer | BC@.060 | Ea | 7.88 | 2.46 | 10.34 | 17.60 |

**35mm Euro face frame overlay cabinet hinge.** For face frame cabinets with 5/8" overlay cabinet doors. Nickel-plated stamped steel cup and zinc die-cast mounting plate. Three-way adjustable. Door opening angle 100 degrees. Fasteners included. Labor assumes cabinet is already cut for this type of hinge.

|            |         |    |       |       |       |        |
|------------|---------|----|-------|-------|-------|--------|
| Per hinge  | BC@.250 | Ea | 4.62  | 10.30 | 14.92 | 25.40  |
| Pack of 10 | BC@1.25 | Ea | 46.20 | 51.30 | 97.50 | 166.00 |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Semi-concealed cabinet hinge.</b> For face frame cabinets using 3/8" inset doors. Fasteners included. Pack of two.   |           |      |          |        |        |        |
| Antique brass   | BC@.250   | Pr   | 3.23     | 10.30  | 13.53  | 23.00  |
| Chrome  | BC@.250   | Pr   | 3.27     | 10.30  | 13.57  | 23.10  |
| Polished brass  | BC@.250   | Pr   | 3.26     | 10.30  | 13.56  | 23.10  |
| <b>Semi-concealed self-closing cabinet hinge.</b> For face frame cabinets using 3/8" inset doors. Wrought steel. Self-closing spring. Fasteners included.   |           |      |          |        |        |        |
| Antique brass   | BC@.250   | Pr   | 3.98     | 10.30  | 14.28  | 24.30  |
| Black nickel  | BC@.250   | Pr   | 4.17     | 10.30  | 14.47  | 24.60  |
| Chrome  | BC@.250   | Pr   | 3.98     | 10.30  | 14.28  | 24.30  |
| Polished brass  | BC@.250   | Pr   | 3.65     | 9.85   | 13.50  | 23.00  |
| White   | BC@.250   | Pr   | 4.76     | 10.30  | 15.06  | 25.60  |
| White, pack 10 pair   | BC@2.50   | Ea   | 27.80    | 103.00 | 130.80 | 222.00 |
| <b>Stainless Steel Sinks</b>  |           |      |          |        |        |        |
| <b>Stainless steel single bowl sink, Neptune Series, Elkay.</b> Heavy-gauge stainless steel. Four-hole faucet drilling. Faucet and accessories sold separately. Bright satin finish. 25" long x 22" wide.   |           |      |          |        |        |        |
| 5-1/2" deep   | P1@.600   | Ea   | 54.70    | 24.40  | 79.10  | 134.00 |
| 6" deep   | P1@.600   | Ea   | 60.60    | 24.40  | 85.00  | 145.00 |
| 7" deep   | P1@.600   | Ea   | 91.50    | 24.40  | 115.90 | 197.00 |
| 8" deep   | P1@.600   | Ea   | 139.00   | 24.40  | 163.40 | 278.00 |
| <b>Stainless steel double bowl sink, Neptune Series, Elkay.</b> Heavy-gauge nickel bearing stainless steel. Full undercoating to deaden sound and prevent condensation. Exclusive hand-mounting fasteners. 3-1/2" drain openings. Brilliant finish with highlights. 33" x 22". Four-hole faucet drilling. Faucet and accessories sold separately.   |           |      |          |        |        |        |
| 5-1/2" deep, double bowl  | P1@.600   | Ea   | 55.90    | 24.40  | 80.30  | 137.00 |
| 6" deep, double bowl  | P1@.600   | Ea   | 97.70    | 24.40  | 122.10 | 208.00 |
| 8" deep, double bowl  | P1@.600   | Ea   | 179.00   | 24.40  | 203.40 | 346.00 |
| 7" deep, small and large bowls  | P1@.600   | Ea   | 171.00   | 24.40  | 195.40 | 332.00 |
| <b>Stainless steel single bowl sink, Signature Series, Elkay.</b> Drop-in single bowl sink. Made from nickel bearing type 302 stainless steel. 3" radius vertical corners. 8-1/4"-deep bowl with mirror-finished interior deck. Machine-ground satin-finished bowls with satin highlighted outer rim edge and bowl radius. Fully undercoated for sound deadening. Self-rimming installation. Four holes. Drain openings are 3-1/2". |           |      |          |        |        |        |
| 25" x 22", 20 gauge   | P1@.600   | Ea   | 135.00   | 24.40  | 159.40 | 271.00 |
| 25" x 22", 18 gauge   | P1@.600   | Ea   | 211.00   | 24.40  | 235.40 | 400.00 |
| 33" x 22", 18 gauge   | P1@.600   | Ea   | 152.00   | 24.40  | 176.40 | 300.00 |
| <b>Stainless steel double bowl sink, Signature Series, Elkay.</b> Drop-in double bowl sink. Self-rimming installation. 3" radius vertical coved corners. Machine-ground satin-finished bowls and satin highlighted outer rim edge and bowl radius. Mirror-finished interior deck. Sound Guard undercoat prevents condensation and ensures quiet operation. Four holes. 3-1/2" drain openings, 33" long x 22" wide, 8-1/4" deep.     |           |      |          |        |        |        |
| 20 gauge  | P1@.600   | Ea   | 260.00   | 24.40  | 284.40 | 483.00 |
| 18 gauge  | P1@.600   | Ea   | 327.00   | 24.40  | 351.40 | 597.00 |
| Offset appearance   | P1@.600   | Ea   | 287.00   | 24.40  | 311.40 | 529.00 |
| Dual level, 7-1/2" deep   | P1@.600   | Ea   | 291.00   | 24.40  | 315.40 | 536.00 |
| <b>Stainless steel kitchen sink, Kohler.</b> 20 gauge with sound deadening. Undercoating reduces disposal noise, minimizes condensation and maintains water temperature. Stain- and corrosion-resistant. Self-rimming, four-hole installation. Faucet sold separately.  |           |      |          |        |        |        |
| 25" x 22", single bowl  | P1@.600   | Ea   | 212.00   | 24.40  | 236.40 | 402.00 |
| 33" x 22", double bowl  | P1@.600   | Ea   | 243.00   | 24.40  | 267.40 | 455.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|---|-----------|------|----------|-------|--------|----------|
| <b>Stainless steel double bowl sink, Staccato, Kohler.</b> 8" basin depth. Double equal basins. Four-hole punched. 18 gauge. Faucet sold separately.  |           |      |          |       |        |          |
| 33" x 22"   | P1@.600   | Ea   | 306.00   | 24.40 | 330.40 | 562.00   |
| <b>Stainless steel kitchen sink, Banner.</b> Standard-gauge stainless steel. Rounded corners. Self-rimming design. Includes sink clips. Faucet, sprayer, and strainers sold separately. Five-year limited warranty. |           |      |          |       |        |          |
| 25" x 22", 7" depth,<br>single bowl   | P1@.600   | Ea   | 319.00   | 24.40 | 343.40 | 584.00   |
| 33" x 22", 6" depth,<br>double buffed bowl  | P1@.600   | Ea   | 208.00   | 24.40 | 232.40 | 395.00   |
| 33" x 22", 7" depth,<br>double bowl   | P1@.600   | Ea   | 288.00   | 24.40 | 312.40 | 531.00   |
| 33" x 22", 8" depth,<br>double bowl   | P1@.600   | Ea   | 411.00   | 24.40 | 435.40 | 740.00   |
| <b>Sink mounting clips and screws,</b> U-channel. For use with Elkay Signature and Neptune sinks.   |           |      |          |       |        |          |
| Clips   | —         | Ea   | 13.60    | —     | 13.60  | —        |
| <b>Enameled Steel Sinks</b>   |           |      |          |       |        |          |
| <b>Double bowl kitchen sink.</b> White enameled steel with four faucet holes. Self-rimming installation.  |           |      |          |       |        |          |
| 33" x 22" x 7-1/2",<br>White  | P1@.750   | Ea   | 363.00   | 30.50 | 393.50 | 669.00   |
| <b>Cast Iron Sinks</b>  |           |      |          |       |        |          |
| <b>Dumont double bowl cast iron sink, Eljer.</b> White enameled cast iron. 33" x 22" x 8" deep.   |           |      |          |       |        |          |
| Self-rimming  | P1@.750   | Ea   | 658.00   | 30.50 | 688.50 | 1,170.00 |
| Tile-in installation  | P1@.750   | Ea   | 513.00   | 30.50 | 543.50 | 924.00   |
| <b>Mayfield cast iron single bowl sink, Kohler.</b> Self-rimming. 25" x 22" x 8". Four-hole drilling.   |           |      |          |       |        |          |
| Almond  | P1@.750   | Ea   | 425.00   | 30.50 | 455.50 | 774.00   |
| White   | P1@.750   | Ea   | 375.00   | 30.50 | 405.50 | 689.00   |
| <b>Double bowl cast iron sink, Kohler.</b> Self-rimming installation. Offset faucet ledge to maximize basin area.   |           |      |          |       |        |          |
| 33" x 22" x 6-3/4",<br>White  | P1@.750   | Ea   | 670.00   | 30.50 | 700.50 | 1,190.00 |
| <b>Cast iron double bowl sink, Kohler.</b> 33" x 22". Four-hole faucet drilling. Large and medium double basins. Self-rimming.  |           |      |          |       |        |          |
| White, 7" deep  | P1@.750   | Ea   | 875.00   | 30.50 | 905.50 | 1,540.00 |
| <b>Casement Front Farmhouse.</b> Four-hole faucet drilling.   |           |      |          |       |        |          |
| Matte Stone   | P1@.750   | Ea   | 799.00   | 30.50 | 829.50 | 1,410.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Double bowl cast iron sink, Kohler.** Unique design lines. Four-hole. Self-rimming. Deep, glossy color. 33" long x 22" wide x 9-5/8" deep.

|        |         |    |        |       |        |          |
|--------|---------|----|--------|-------|--------|----------|
| Almond | P1@.750 | Ea | 499.00 | 30.50 | 529.50 | 900.00   |
| Bisque | P1@.750 | Ea | 648.00 | 30.50 | 678.50 | 1,150.00 |
| White  | P1@.750 | Ea | 524.00 | 30.50 | 554.50 | 943.00   |

**Brookfield™ double bowl cast iron sink, Kohler.** Deep, glossy color. 33" long x 22" wide. Faucet, sprayer, and strainers sold separately. Self-rimming. Four holes.

|                    |         |    |        |       |        |        |
|--------------------|---------|----|--------|-------|--------|--------|
| White, 6-3/4" deep | P1@.750 | Ea | 528.00 | 30.50 | 558.50 | 949.00 |
| White, 8" deep     | P1@.750 | Ea | 542.00 | 30.50 | 572.50 | 973.00 |

**Cast iron double bowl sink.** 33" x 22". Four-hole faucet drilling. 9" deep. Interior corners are nearly square. Large and medium bowls.

|                      |         |    |        |       |        |          |
|----------------------|---------|----|--------|-------|--------|----------|
| White, tile-in       | P1@.750 | Ea | 653.00 | 30.50 | 683.50 | 1,160.00 |
| White, under counter | P1@.750 | Ea | 617.00 | 30.50 | 647.50 | 1,100.00 |

## Composite Sinks

**Silhouette polycast single bowl sink, American Standard.** Porcelain enameled Americast. Lighter than cast iron. Silicone sealant supplied. Four faucet holes. Faucet, sprayer, and strainer sold separately. Self-rimming, tile edge or under-the-counter installation. 25" x 22" x 9-1/2" deep.

|            |         |    |        |       |        |        |
|------------|---------|----|--------|-------|--------|--------|
| Bisque     | P1@.750 | Ea | 359.00 | 30.50 | 389.50 | 662.00 |
| Black      | P1@.750 | Ea | 449.00 | 30.50 | 479.50 | 815.00 |
| Bone       | P1@.750 | Ea | 347.00 | 30.50 | 377.50 | 642.00 |
| White heat | P1@.750 | Ea | 286.00 | 30.50 | 316.50 | 538.00 |

**Silhouette polycast double bowl sink, American Standard.** Porcelain enameled Americast. Lighter than cast iron. Silicone sealant supplied. Four faucet holes. Faucet, sprayer, and strainer sold separately. Self-rimming, tile edge or under-the-counter installation. 33" x 22" x 9-1/2" deep. Insulating material holds water temperature and reduces noise of running water and garbage disposal. Lead-free porcelain enamel finish and scratch-resistant. Faucets, sprayers and strainers sold separately.

|            |         |    |        |       |        |        |
|------------|---------|----|--------|-------|--------|--------|
| Bisque     | P1@.750 | Ea | 428.00 | 30.50 | 458.50 | 779.00 |
| Bone       | P1@.750 | Ea | 484.00 | 30.50 | 514.50 | 875.00 |
| White heat | P1@.750 | Ea | 369.00 | 30.50 | 399.50 | 679.00 |

**Single bowl composite sink.** Four-hole faucet drilling. Scratch- and stain-resistant. Acrylic, self-rimming design. Faucets, drains and accessories sold separately.

|                  |         |    |        |       |        |        |
|------------------|---------|----|--------|-------|--------|--------|
| 25" x 22", black | P1@.600 | Ea | 263.00 | 24.40 | 287.40 | 489.00 |
|------------------|---------|----|--------|-------|--------|--------|

**Double bowl composite sink, CorStone.** Large bowl stretches from the front of the sink to the back rim. A large, 8-1/2"-deep offset bowl in front of the faucet deck is separated by a lowered dam that helps avoid chipping and banging of dishes. For 33" x 22" sink cut-out. Faucets, drains and accessories sold separately. Equal bowls.

|                   |         |    |        |       |        |        |
|-------------------|---------|----|--------|-------|--------|--------|
| Kendall, white    | P1@.750 | Ea | 186.00 | 30.50 | 216.50 | 368.00 |
| Kennesaw, biscuit | P1@.750 | Ea | 293.00 | 30.50 | 323.50 | 550.00 |

**Hi/lo double bowl composite sink.** 33" x 22" x 8-1/2" deep. Four-hole faucet drilling. Scratch- and stain-resistant. Acrylic, self-rimming design. Faucets, drains and accessories sold separately.

|       |         |    |        |       |        |        |
|-------|---------|----|--------|-------|--------|--------|
| White | P1@.750 | Ea | 355.00 | 30.50 | 385.50 | 655.00 |
|-------|---------|----|--------|-------|--------|--------|

**Greenwich double bowl composite sink, CorStone.** 33" x 22" x 8-1/2" deep. Four-hole faucet drilling. Scratch- and stain-resistant. Acrylic, self-rimming design. Faucets, drains and accessories sold separately. Equal bowls.

|       |         |    |        |       |        |        |
|-------|---------|----|--------|-------|--------|--------|
| White | P1@.750 | Ea | 245.00 | 30.50 | 275.50 | 468.00 |
|-------|---------|----|--------|-------|--------|--------|

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Providence 60/40 bowl composite sink, CorStone.</b> 10" main bowl depth. 33" x 22" sink for use with disposals.   |           |      |          |       |        |        |
| Easy installation and easy cleaning.   |           |      |          |       |        |        |
| Royston white  | P1@.750   | Ea   | 390.00   | 30.50 | 420.50 | 715.00 |
| Toccoa black   | P1@.750   | Ea   | 477.00   | 30.50 | 507.50 | 863.00 |
| <b>Inverness single bowl composite sink, International Thermocast.</b> 25" x 22" x 9" deep. Cutout dimensions 23" x 20" with 1" radius corners. Rich, high gloss finish that's easy to clean with non-abrasive cleaners. The beauty of porcelain with the strength of cast iron, yet lighter weight. Insulated construction to absorb waste disposal noise. Large basins for more workspace. Resists stain, rust, oxidation, chipping, and scratches. Surface can be polished with ordinary liquid sink, countertop, or auto polish. Drop-in ready. Faucets, drains and accessories sold separately. |           |      |          |       |        |        |
| Inverness, white, 4" deck  | P1@.750   | Ea   | 261.00   | 30.50 | 291.50 | 496.00 |
| Inverness, bone, 4" deck   | P1@.750   | Ea   | 321.00   | 30.50 | 351.50 | 598.00 |
| Wellington, white, 5" deck   | P1@.750   | Ea   | 269.00   | 30.50 | 299.50 | 509.00 |
| <b>Beaumont double bowl composite kitchen sink, International Thermocast.</b> Equal bowls. The beauty of porcelain with the strength of cast iron, yet lighter weight. Insulated construction to absorb waste disposal noise. Large basins for more workspace. Resists stain, rust, oxidation, chipping, and scratches. Surface can be polished with ordinary liquid sink, countertop, or auto polish. Drop-in ready. No mounting clips required. Certified by the National Association of Home Builders Research Center. 33" x 22" x 8-1/4" deep.   |           |      |          |       |        |        |
| Bone   | P1@.750   | Ea   | 350.00   | 30.50 | 380.50 | 647.00 |
| White  | P1@.750   | Ea   | 266.00   | 30.50 | 296.50 | 504.00 |
| <b>Breckenridge double bowl composite sink, International Thermocast.</b> 33" x 22". Large bowl, 9" deep. Small bowl, 7" deep. Cutout dimensions 31" x 20" with 1" radius corners. Drains positioned to maximize workspace. Insulated construction to absorb waste disposal noise. Resists stain, rust, oxidation, chipping, and scratches. Drop-in ready. No mounting clips required.   |           |      |          |       |        |        |
| Black  | P1@.750   | Ea   | 305.00   | 30.50 | 335.50 | 570.00 |
| White  | P1@.750   | Ea   | 265.00   | 30.50 | 295.50 | 502.00 |
| <b>Newport double bowl composite sink, International Thermocast.</b> 33" x 22" x 9" deep. Equal bowls. 4-1/4" deck. Four-hole faucet drilling. Self-rimming. Faucets, drains and accessories sold separately.  |           |      |          |       |        |        |
| Biscuit  | P1@.750   | Ea   | 307.00   | 30.50 | 337.50 | 574.00 |
| Bone   | P1@.750   | Ea   | 387.00   | 30.50 | 417.50 | 710.00 |
| White  | P1@.750   | Ea   | 350.00   | 30.50 | 380.50 | 647.00 |
| <b>Cambridge offset double bowl composite sink, International Thermocast.</b> 33" x 22". Large bowl 10-1/2" deep. Small bowl 8-1/2" deep. Self-rimming. Four-hole faucet drilling. Cutout dimensions 31" x 20" with 1" radius corners. Insulated construction to absorb waste disposal noise. Faucets, drains and accessories sold separately.   |           |      |          |       |        |        |
| Black  | P1@.750   | Ea   | 332.00   | 30.50 | 362.50 | 616.00 |
| White  | P1@.750   | Ea   | 307.00   | 30.50 | 337.50 | 574.00 |
| <b>Pull-Out Kitchen Faucets</b>  |           |      |          |       |        |        |
| <b>Kitchen faucet, single-handle, pull-out spout.</b> Deck mount. One- or three-hole installation. Loop handle. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required. With soap dispenser.  |           |      |          |       |        |        |
| Chrome finish  | P1@1.10   | Ea   | 194.00   | 44.70 | 238.70 | 406.00 |
| <b>Kitchen faucet, single-handle, pull-out spout.</b> Deck mount. One- or three-hole installation. Loop handle. Ceramic disc cartridge. 20-year warranty. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Polished chrome finish   | P1@1.00   | Ea   | 265.00   | 40.70 | 305.70 | 520.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Kitchen faucet, single-handle, pull-out spout.** Deck mount. One- or three-hole installation. Lever handle. Ceramic disc cartridge. Spray or aerated stream. 4-1/2" spout. ADA compliant. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| Bone finish     | P1@1.00 | Ea | 244.00 | 40.70 | 284.70 | 484.00 |
| Polished Chrome | P1@1.00 | Ea | 223.00 | 40.70 | 263.70 | 448.00 |
| Stainless steel | P1@1.00 | Ea | 347.00 | 40.70 | 387.70 | 659.00 |
| Velvet finish   | P1@1.00 | Ea | 296.00 | 40.70 | 336.70 | 572.00 |
| White finish    | P1@1.00 | Ea | 215.00 | 40.70 | 255.70 | 435.00 |

**Kitchen faucet, single-handle, pull-out spout.** Deck mount. One- or three-hole installation. Lever handle. Spray or aerated stream. Arched spout provides 9" of reach and 6-1/2" of height. Touch-Clean® wand makes it easy to wipe away residue and mineral deposits, ensuring proper spraying. Lifetime limited warranty. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                 |         |    |        |       |        |          |
|-----------------|---------|----|--------|-------|--------|----------|
| Chrome          | P1@1.00 | Ea | 364.00 | 40.70 | 404.70 | 688.00   |
| Stainless steel | P1@1.00 | Ea | 554.00 | 40.70 | 594.70 | 1,010.00 |
| White           | P1@1.00 | Ea | 510.00 | 40.70 | 550.70 | 936.00   |

**Kitchen faucet, single-handle, pull-out hi-arc spout.** Deck mount. One- or three-hole installation. Lever handle. Spray or aerated stream. Washerless cartridge. IntuiTouch™ wand. Lifetime limited warranty. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                        |         |    |        |       |        |          |
|------------------------|---------|----|--------|-------|--------|----------|
| Chrome finish          | P1@1.00 | Ea | 459.00 | 40.70 | 499.70 | 849.00   |
| Matte black finish     | P1@1.00 | Ea | 627.00 | 40.70 | 667.70 | 1,140.00 |
| Sand finish            | P1@1.00 | Ea | 492.00 | 40.70 | 532.70 | 906.00   |
| Stainless steel finish | P1@1.00 | Ea | 470.00 | 40.70 | 510.70 | 868.00   |
| White finish           | P1@1.00 | Ea | 621.00 | 40.70 | 661.70 | 1,120.00 |

**Kitchen faucet, single-handle, pull-out spout.** Deck mount. One- or three-hole installation. Lever handle. Integral vacuum breaker. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| Chrome finish   | P1@1.00 | Ea | 286.00 | 40.70 | 326.70 | 555.00 |
| Stainless Steel | P1@1.00 | Ea | 369.00 | 40.70 | 409.70 | 696.00 |

**Kitchen faucet, single-handle, pull-out spout, Price Pfister.** Deck mount. One- or three-hole installation. Loop handle. Spray or aerated stream. Ceramic disc cartridge. Pforever Pfaucet™ limited lifetime warranty. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| Stainless steel | P1@1.00 | Ea | 345.00 | 40.70 | 385.70 | 656.00 |
| White finish    | P1@1.00 | Ea | 196.00 | 40.70 | 236.70 | 402.00 |

**Kitchen faucet, single-handle, pull-out spout, Forte®, Kohler.** Labor includes fasten in place only and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| Polished chrome | P1@1.00 | Ea | 252.00 | 40.70 | 292.70 | 498.00 |
| Stainless steel | P1@1.00 | Ea | 290.00 | 40.70 | 330.70 | 562.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Kitchen faucet, high arch single-handle, Forte®, Kohler.</b> Remote valve and matching deck-mounted spray head. Labor includes fasten in place only and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required. |           |      |          |       |        |        |
| Polished chrome  | P1@1.10   | Ea   | 405.00   | 44.70 | 449.70 | 764.00 |
| Brushed nickel   | P1@1.10   | Ea   | 427.00   | 44.70 | 471.70 | 802.00 |
| Polished chrome with soap dispenser  | P1@1.20   | Ea   | 341.00   | 48.80 | 389.80 | 663.00 |
| Brushed nickel with soap dispenser   | P1@1.20   | Ea   | 415.00   | 48.80 | 463.80 | 788.00 |

## Two-Handle Kitchen Faucets

**Wall-mount kitchen faucet, two-handle, American Standard.** 8" center set. Porcelain lever handles. Lifetime limited warranty on function and finish. Labor includes fasten in place only. Add the cost of plumbing rough-in as required.

|               |         |    |        |       |        |        |
|---------------|---------|----|--------|-------|--------|--------|
| Chrome finish | P1@1.00 | Ea | 312.00 | 40.70 | 352.70 | 600.00 |
|---------------|---------|----|--------|-------|--------|--------|

**Kitchen faucet, two-handle.** Deck mount. 8" center set. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|               |         |    |        |       |        |        |
|---------------|---------|----|--------|-------|--------|--------|
| Chrome finish | P1@1.00 | Ea | 141.00 | 40.70 | 181.70 | 309.00 |
|---------------|---------|----|--------|-------|--------|--------|

**Kitchen faucet, two-handle, Savannah, Price Pfister.** Solid brass construction. Ceramic disc valving. High-arc spout. Dual porcelain handles. Lifetime warranty. Labor assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| With spray, stainless steel | P1@1.10 | Ea | 201.00 | 44.70 | 245.70 | 418.00 |
|-----------------------------|---------|----|--------|-------|--------|--------|

**Kitchen faucet, two-handle, deck spray, Waterfall, Delta.** Deck-mount. Chrome finish. 3-hole installation. Washerless design. Lifetime function and finish warranty. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|        |         |    |        |       |        |        |
|--------|---------|----|--------|-------|--------|--------|
| Chrome | P1@1.10 | Ea | 338.00 | 44.70 | 382.70 | 651.00 |
| White  | P1@1.10 | Ea | 378.00 | 44.70 | 422.70 | 719.00 |

**Kitchen faucet, two-handle, deck spray, Fairfax, Kohler.** Deck mount. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                        |         |    |        |       |        |        |
|------------------------|---------|----|--------|-------|--------|--------|
| Polished chrome finish | P1@1.10 | Ea | 333.00 | 44.70 | 377.70 | 642.00 |
|------------------------|---------|----|--------|-------|--------|--------|

**Kitchen faucet, two-handle, Glacier Bay.** Deck mount. 8" center set. Four-hole installation. Acrylic handles. 12-year warranty. Chrome finish. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| With deck spray | P1@1.10 | Ea | 165.00 | 44.70 | 209.70 | 356.00 |
| Without spray   | P1@1.00 | Ea | 147.00 | 40.70 | 187.70 | 319.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Kitchen faucet, two-handle, with spray, Stanadyne.** Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required. Chrome finish.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| Acrylic handles | P1@1.10 | Ea | 183.00 | 44.70 | 227.70 | 387.00 |
| Chrome handles  | P1@1.10 | Ea | 183.00 | 44.70 | 227.70 | 387.00 |
| High arc        | P1@1.10 | Ea | 252.00 | 44.70 | 296.70 | 504.00 |
| Brass accent    | P1@1.10 | Ea | 271.00 | 44.70 | 315.70 | 537.00 |

**Kitchen faucet, two-handle, J A Manufacturing.** Deck-mount. 8" center set. Builder's grade. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|  |         |    |       |       |        |        |
|--|---------|----|-------|-------|--------|--------|
| Brushed nickel, 8" hi-rise, with spray | P1@1.10 | Ea | 99.00 | 44.70 | 143.70 | 244.00 |
| Chrome finish                          | P1@1.00 | Ea | 69.00 | 40.70 | 109.70 | 186.00 |

**Kitchen faucet, two-handle, Brass Craft.** Deck mount. 8" center set. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|               |         |    |       |       |       |        |
|---------------|---------|----|-------|-------|-------|--------|
| Chrome finish | P1@1.00 | Ea | 23.60 | 40.70 | 64.30 | 109.00 |
|---------------|---------|----|-------|-------|-------|--------|

**Kitchen faucet, two-handle, American Standard.** Deck-mount. 8" center set. Four-hole installation. Ceramic disc cartridge. Matching handles and deck spray. Cast brass waterways. 1/2" brass supply shanks. Labor includes fasten in place only, and assumes sink is already in place. Installation times will be reduced by half if installing faucet before sink is in place. Add the cost of plumbing rough-in as required.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| Without spray, chrome       | P1@1.00 | Ea | 137.00 | 40.70 | 177.70 | 302.00 |
| Without spray, satin nickel | P1@1.00 | Ea | 171.00 | 40.70 | 211.70 | 360.00 |
| With spray, chrome          | P1@1.10 | Ea | 162.00 | 44.70 | 206.70 | 351.00 |
| With spray, satin nickel    | P1@1.10 | Ea | 206.00 | 44.70 | 250.70 | 426.00 |

## Kitchen Sink Accessories

### Kitchen sink accessories, American Standard.

|                                 |         |    |       |      |       |       |
|---------------------------------|---------|----|-------|------|-------|-------|
| Undercounter mounting kit       | —       | Ea | 20.70 | —    | 20.70 | —     |
| Faucet lift block               | —       | Ea | 9.98  | —    | 9.98  | —     |
| Sink mount clips, pack of 14    | P1@.050 | Ea | 10.90 | 2.03 | 12.93 | 22.00 |
| Extra-long sink clip set        | P1@.050 | Ea | 4.55  | 2.03 | 6.58  | 11.20 |
| J-channel installation clip set | P1@.050 | Ea | 11.80 | 2.03 | 13.83 | 23.50 |

**Sink frame.** Watertight seal. No caulk bead. Prevents edge of sink from chipping, cracking or dimpling. 32" long x 21" wide.

|                     |   |    |       |   |       |   |
|---------------------|---|----|-------|---|-------|---|
| Stainless steel     | — | Ea | 79.00 | — | 79.00 | — |
| Stainless steel, S4 | — | Ea | 90.40 | — | 90.40 | — |
| White               | — | Ea | 57.60 | — | 57.60 | — |

### Air gap.

|                       |         |    |       |       |       |       |
|-----------------------|---------|----|-------|-------|-------|-------|
| Body only, stainless  | P1@.400 | Ea | 21.00 | 16.30 | 37.30 | 63.40 |
| Cover only, stainless | P1@.400 | Ea | 26.40 | 16.30 | 42.70 | 72.60 |
| Chrome                | P1@.400 | Ea | 19.10 | 16.30 | 35.40 | 60.20 |
| White finish          | P1@.400 | Ea | 19.10 | 16.30 | 35.40 | 60.20 |

### Air gap cover.

|               |         |    |       |      |       |       |
|---------------|---------|----|-------|------|-------|-------|
| Almond finish | P1@.090 | Ea | 23.60 | 3.66 | 27.26 | 46.30 |
| Chrome finish | P1@.090 | Ea | 20.30 | 3.66 | 23.96 | 40.70 |
| White finish  | P1@.090 | Ea | 13.90 | 3.66 | 17.56 | 29.90 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Faucet hole cover.</b> Blanks off deck faucet sink holes not being used.  |           |      |          |       |        |        |
| Almond finish  | P1@.090   | Ea   | 5.34     | 3.66  | 9.00   | 15.30  |
| Chrome finish  | P1@.090   | Ea   | 2.70     | 3.66  | 6.36   | 10.80  |
| Chrome finish, nipple type   | P1@.090   | Ea   | 5.10     | 3.66  | 8.76   | 14.90  |
| Stainless steel, bolt down   | P1@.090   | Ea   | 7.31     | 3.66  | 10.97  | 18.60  |
| White finish   | P1@.090   | Ea   | 4.51     | 3.66  | 8.17   | 13.90  |
| <b>Sink-top soap dispenser.</b> Liquid soap or lotion dispenser. Pump action.  |           |      |          |       |        |        |
| Nickel finish  | P1@.250   | Ea   | 65.90    | 10.20 | 76.10  | 129.00 |
| Black finish   | P1@.250   | Ea   | 98.50    | 10.20 | 108.70 | 185.00 |
| Chrome finish  | P1@.250   | Ea   | 57.00    | 10.20 | 67.20  | 114.00 |
| Stainless steel finish   | P1@.250   | Ea   | 57.00    | 10.20 | 67.20  | 114.00 |
| <b>Plastic sink-top soap dispenser.</b> Plastic. Liquid soap or lotion dispenser. Pump action. Can be refilled from above the sink.  |           |      |          |       |        |        |
| Almond finish  | P1@.250   | Ea   | 45.60    | 10.20 | 55.80  | 94.90  |
| Chrome finish  | P1@.250   | Ea   | 48.50    | 10.20 | 58.70  | 99.80  |
| White finish   | P1@.250   | Ea   | 54.30    | 10.20 | 64.50  | 110.00 |
| <b>Sink Baskets and Strainer Inserts</b>   |           |      |          |       |        |        |
| <b>Kitchen sink strainer insert.</b>   |           |      |          |       |        |        |
| Clip on, stainless steel   | P1@.070   | Ea   | 9.99     | 2.85  | 12.84  | 21.80  |
| Lock spin, stainless steel   | P1@.070   | Ea   | 21.40    | 2.85  | 24.25  | 41.20  |
| Long clip, stainless steel   | P1@.070   | Ea   | 10.80    | 2.85  | 13.65  | 23.20  |
| Plastic  | P1@.070   | Ea   | 6.62     | 2.85  | 9.47   | 16.10  |
| <b>Plastic basket and strainer insert, LDR Industries.</b> Designer finish. Fits all standard kitchen sinks.   |           |      |          |       |        |        |
| Almond   | P1@.250   | Ea   | 5.90     | 10.20 | 16.10  | 27.40  |
| Almond, garbage disposal   | P1@.250   | Ea   | 8.64     | 10.20 | 18.84  | 32.00  |
| Stainless steel  | P1@.250   | Ea   | 9.79     | 10.20 | 19.99  | 34.00  |
| White  | P1@.250   | Ea   | 7.34     | 10.20 | 17.54  | 29.80  |
| White, garbage disposal  | P1@.250   | Ea   | 8.56     | 10.20 | 18.76  | 31.90  |
| <b>Kitchen sink basket and strainer insert.</b> Premium grade stainless steel. Positive lock-spin metal seal basket closure.   |           |      |          |       |        |        |
| Stainless steel  | P1@.250   | Ea   | 75.10    | 10.20 | 85.30  | 145.00 |
| <b>Decorative kitchen sink basket and strainer insert, Jameco.</b> Chip- and stain-resistant Celcon insert and basket. Stainless steel double cup one-piece underbody. Recommended for cast iron, stainless steel and composite sinks. Watertight ball-lok mechanism basket closure. |           |      |          |       |        |        |
| White  | P1@.250   | Ea   | 20.00    | 10.20 | 30.20  | 51.30  |
| <b>Kitchen sink basket and strainer insert.</b> Ball-lok basket closure for a watertight seal. Metal underbody double-cup construction. Chip- and stain-resistant. Celcon basket and strainer insert. Threaded bushing allows color insert to be changed easily.                     |           |      |          |       |        |        |
| Bone finish  | P1@.250   | Ea   | 24.40    | 10.20 | 34.60  | 58.80  |
| <b>Kitchen sink basket and strainer insert.</b> Polished brass finish. Heavy-duty chrome-plated solid brass body. Short clip basket closure.   |           |      |          |       |        |        |
| Polished brass   | P1@.250   | Ea   | 36.40    | 10.20 | 46.60  | 79.20  |
| Satin nickel   | P1@.250   | Ea   | 36.40    | 10.20 | 46.60  | 79.20  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Kitchen sink basket and strainer insert, Plumb Shop.</b> Brass locknut and slip nut. Stainless steel basket. Solid cast brass body. Recommended for Corian sinks. |           |      |          |       |       |       |
| Chrome rim   | P1@.250   | Ea   | 30.90    | 10.20 | 41.10 | 5.00  |
| <b>Kitchen sink basket strainer nut and washer washer, Danco.</b> 1/8" thick rubber.   |           |      |          |       |       |       |
| 1-3/4" x 1-3/8"  | P1@.070   | Ea   | 3.66     | 2.85  | 6.51  | 11.10 |
| 4-3/8" x 3-7/16"   | P1@.070   | Ea   | 3.66     | 2.85  | 6.51  | 11.10 |
| <b>Sink strainer shank nut.</b> 4-3/8" outside diameter. Die cast.   |           |      |          |       |       |       |
| Shank nut, 3-11/32" inside diameter  | P1@.070   | Ea   | 2.05     | 2.85  | 4.90  | 8.33  |
| Strainer nut, 3-3/8" inside diameter   | P1@.070   | Ea   | 1.47     | 2.85  | 4.32  | 7.34  |
| <b>Flat sink drain stopper.</b> Universal fit. Rubber.   |           |      |          |       |       |       |
| Stopper  | —         | Ea   | 2.27     | —     | 2.27  | —     |
| <b>New style drain stopper, Danco.</b> 5/16" stud fits Rapid Fit drains. For old style plastic and brass drain assemblies. Polished brass. 1-11/16" long             |           |      |          |       |       |       |
| 3/8" diameter thread   | —         | Ea   | 8.65     | —     | 8.65  | —     |

## Sink-Mounted Hot Water Dispensers

**Hot water dispenser, In-Sink-Erator.** Non-swivel high-spout design. 2/3 gallon capacity. 60 cups per hour. Self-closing valve. Adjustable thermostat. Rugged, low-profile stainless steel spout features an integral copper valve body and tank for dependable performance and easy installation. One-year in-home warranty.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| Dispenser | P1@1.25 | Ea | 253.00 | 50.80 | 303.80 | 516.00 |
|-----------|---------|----|--------|-------|--------|--------|

**Deluxe instant hot water dispenser, In-Sink-Erator.** Near-boiling 190-degree Fahrenheit water instantly. Chrome-plated faucet completely insulated from 190-degree water. Provides 60 cups of 190-degree water per hour. Snap-action adjustable from 140 to 200 degrees, factory preset to 190 degrees. Die-molded, high-efficiency, expanded polystyrene thermal barrier surrounds tank for low heat loss. Adjustable thermostat. Convenient drain, thermally fused to prevent tank damage from dry start-up or loss of water. Tank is always open to atmospheric pressure and requires no relief valve. Instant self-closing valve. Traditional twist-handle actuation. One-year full parts and labor warranty.

|                         |         |    |        |       |        |          |
|-------------------------|---------|----|--------|-------|--------|----------|
| European design, chrome | P1@1.25 | Ea | 561.00 | 50.80 | 611.80 | 1,040.00 |
| Standard                | P1@1.25 | Ea | 657.00 | 50.80 | 707.80 | 1,200.00 |
| White                   | P1@1.25 | Ea | 729.00 | 50.80 | 779.80 | 1,330.00 |

## Utility Sinks, Laundry Tubs

**All-in-one standard utility tub kit.** Made of polypropylene. Includes one standard utility tub, two 3/8" OD x 20" long faucet risers, one drain installation kit, one drain stopper, one faucet assembly, four leg levelers and Teflon® tape. Limited one-year warranty.

|                    |         |    |        |       |        |        |
|--------------------|---------|----|--------|-------|--------|--------|
| 20-gallon capacity | P1@1.75 | Ea | 159.00 | 71.20 | 230.20 | 391.00 |
|--------------------|---------|----|--------|-------|--------|--------|

**Heavy-duty utility laundry tub kit.** Made of extra-strength structural foam. Includes ASB® heavy-duty utility tub, 2 Brass Craft® B1-20A SpeediPlumb Plus® connectors. 3/8" OD x 20" long PEX faucet risers. ASB® drain installation kit. Drain stopper. ASB® faucet assembly, 4 leg levelers and Teflon® tape. Limited one-year warranty.

|             |         |    |        |       |        |        |
|-------------|---------|----|--------|-------|--------|--------|
| Laundry tub | P1@1.75 | Ea | 197.00 | 71.20 | 268.20 | 456.00 |
|-------------|---------|----|--------|-------|--------|--------|

**Utilatub® polypropylene single bowl laundry tub, E.L. Mustee.** Sturdy, one-piece molded tub. Smooth white satin finish. Easy to clean and stain-resistant. Self-draining soap and storage shelves. Includes leakproof 1-1/2" integral molded drain assembly and floor mounting hardware. Ribbed underbody for extra strength. 13" deep, 20-gallon capacity, 23" wide.

|             |         |    |       |       |        |        |
|-------------|---------|----|-------|-------|--------|--------|
| Laundry tub | P1@1.75 | Ea | 85.80 | 71.20 | 157.00 | 267.00 |
|-------------|---------|----|-------|-------|--------|--------|

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Double bowl laundry tub.</b> Sturdy, one-piece molded tub. Smooth white surface. Heavy gauge steel legs include levelers. 13" deep, 19-gallon capacity per tub, 40" wide. Leakproof 1-1/2" integral molded drain, hooks up to standard 1-1/2" S- or P-trap. Accommodates single- or dual-handle faucet with 4" or 8" centers. Meets or exceeds codes ANSI Z124.6, IAPMO listed |           |      |          |       |        |        |
| Laundry tub   | P1@1.75   | Ea   | 194.00   | 71.20 | 265.20 | 451.00 |
| <b>Drop-in utility sink.</b> 14.5-gallon capacity ABS utility sink. Countertop installation with self-rimming design. Built-in self-draining storage shelf and soap dish. High-gloss stain-resistant finish. Easy to clean.   |           |      |          |       |        |        |
| Utility sink  | P1@1.75   | Ea   | 109.00   | 71.20 | 180.20 | 306.00 |
| <b>Stainless steel utility bowl sink.</b> 20 gauge, stainless steel. 3 faucet hole drillings. 10" extra deep bowl. 15" x 15"  |           |      |          |       |        |        |
| Utility or island top sink  | P1@.600   | Ea   | 187.00   | 24.40 | 211.40 | 359.00 |
| <b>Laundry tub hose.</b> Dispenses water from washing machine discharge hose into laundry tub. Eliminates draping washing machine hose over back/side wall of laundry tub and conceals washer hose. Mounts to back or side wall of laundry tub, includes mounting hardware.   |           |      |          |       |        |        |
| Hose  | —         | Ea   | 20.80    | —     | 20.80  | —      |
| <b>Laundry tub overflow tube.</b> Maintains water level in laundry tub and prevents overflows. Replaces drain plug and eliminates reaching into water. 12-3/8" high; may be cut to alter height. Fits all drain openings.   |           |      |          |       |        |        |
| Overflow tube   | —         | Ea   | 8.28     | —     | 8.28   | —      |
| <b>Laundry Tub Faucets</b>  |           |      |          |       |        |        |
| <b>Laundry faucet, two-handle.</b> Deck-mount. 4" center set. Labor includes fasten in place only. Add the cost of connections and plumbing rough-in as required.   |           |      |          |       |        |        |
| Rough brass finish  | P1@.900   | Ea   | 86.80    | 36.60 | 123.40 | 210.00 |
| <b>Laundry faucet, two-handle.</b> Deck-mount. 4" center set. Drip-free washerless cartridge. Standard 3/4" hose thread on end of spout. 12-year limited warranty. Labor includes fasten in place only. Add the cost of connections and plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome finish   | P1@.900   | Ea   | 46.30    | 36.60 | 82.90  | 141.00 |
| <b>Laundry faucet, two-handle.</b> 1/2" connections. Mini lever handles. Labor includes fasten in place only. Add the cost of connections and plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome  | P1@.900   | Ea   | 97.20    | 36.60 | 133.80 | 227.00 |
| <b>Laundry faucet, two-handle, wall mount, Price Pfister.</b> Oakland blade handles with flanges. Handicap accessible. Labor includes fasten in place only. Add the cost of connections and plumbing rough-in as required.  |           |      |          |       |        |        |
| Satin chrome finish   | P1@.900   | Ea   | 104.00   | 36.60 | 140.60 | 239.00 |
| <b>Bar Sinks</b>  |           |      |          |       |        |        |
| <b>Stainless steel bar sink.</b> Single bowl. Standard-gauge stainless steel. Self-rimming design. Buffed finish. 2" drain. Faucet and strainer sold separately.  |           |      |          |       |        |        |
| 15" x 15" x 5-1/2" deep   | P1@.600   | Ea   | 99.00    | 24.40 | 123.40 | 210.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Stainless steel bar sink, Neptune Series, Elkay.</b> Deep hospitality drop-in single bowl. Medium thickness, 23 gauge nickel-bearing stainless steel. Buffed finish with machine-ground satin-finished bowl. Sound deadened with pads. Self-rimming installation. Square corners. Two faucet holes with 4" spacing. One-hand mounting fasteners. Includes strainer.   |           |      |          |       |        |        |
| 15" x 15", 5" deep   | P1@.600   | Ea   | 74.40    | 24.40 | 98.80  | 168.00 |
| <b>Stainless steel bar sink.</b> Drop-in single bowl. Self-rimming installation. Made from nickel bearing Type 302 20-gauge stainless steel. Mirror-finished interior deck. Machine-ground satin-finished bowl. Highlighted outer-rim edge and bowl radius. Satin highlighted sink rim. Fully undercoated for sound deadening. Medium thickness. 3" radius vertical coved corners. Two faucet holes with 4" spacing. Complete with strainer. |           |      |          |       |        |        |
| 15" x 15" x 7-1/2" deep  | P1@.600   | Ea   | 132.00   | 24.40 | 156.40 | 266.00 |
| <b>Silhouette polycast island or bar sink, American Standard.</b> 18" x 18" x 9" deep. Porcelain enameled Americast. Lighter than cast iron. Silicone sealant supplied.  |           |      |          |       |        |        |
| White Heat   | P1@.750   | Ea   | 201.00   | 30.50 | 231.50 | 394.00 |
| <b>Composite bar sink.</b> Replaces 15" x 15" bar sinks. Large enough bowl to use as a kitchen, prep or utility sink. Full 3-1/2" drain accepts standard kitchen sized basket strainers. Faucet and drain sold separately.   |           |      |          |       |        |        |
| White  | P1@.750   | Ea   | 141.00   | 30.50 | 171.50 | 292.00 |
| <b>Composite entertainment sink.</b> Serves as a prep, bar or island sink. Accommodates all garbage disposals in its full depth of 8". Use as a stand-alone or as a "point-of-use" sink in a multi-sink kitchen.   |           |      |          |       |        |        |
| 18" x 18" x 8", white  | P1@.750   | Ea   | 207.00   | 30.50 | 237.50 | 404.00 |
| <b>Manchester composite bar sink, International Thermocast.</b> 16" x 16" x 7" deep. Cutout dimensions 14.5" x 14.5" with 1" radius corners. Rich high-gloss finish. Resists stain, rust, oxidation, chipping, and scratches. Drop-in ready for quick and easy installation. No mounting clips required. Faucets, drains and accessories sold separately.  |           |      |          |       |        |        |
| White  | P1@.750   | Ea   | 141.00   | 30.50 | 171.50 | 292.00 |
| <b>Junior basket strainer insert.</b> For laundry tubs, bar sinks and mobile homes. Includes junior basket strainer, flat grid strainer and wash tray plug.  |           |      |          |       |        |        |
| Stainless steel  | P1@.070   | Ea   | 14.20    | 2.85  | 17.05  | 29.00  |
| <b>Bar Faucets</b>   |           |      |          |       |        |        |
| <b>Bar faucet, single-handle, Waterfall.</b> Deck-mount. 4" center set. Two-hole application. Solid brass and stainless steel construction. Designed to work on bar, preparation and laundry sinks. Labor includes fasten in place only. Add the cost of plumbing rough-in and connection as required.   |           |      |          |       |        |        |
| Chrome finish  | P1@1.00   | Ea   | 180.00   | 40.70 | 220.70 | 375.00 |
| Stainless steel  | P1@1.00   | Ea   | 276.00   | 40.70 | 316.70 | 538.00 |
| <b>Bar faucet, two-handle.</b> Deck-mount. 4" center set. Porcelain handles. Labor includes fasten in place only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Brass finish   | P1@.906   | Ea   | 275.00   | 36.80 | 311.80 | 530.00 |
| Chrome finish  | P1@.906   | Ea   | 185.00   | 36.80 | 221.80 | 377.00 |
| <b>Bar faucet, Cadet Series, American Standard.</b> Deck-mount. Labor includes fasten in place only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome finish  | P1@.906   | Ea   | 82.90    | 36.80 | 119.70 | 203.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Bar faucet, two-handle.</b> Deck-mount. 4" center set. Drip-free washerless cartridge. Solid brass waterways. 12-year limited warranty. Labor includes fasten in place only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Chrome finish  | P1@.906   | Ea   | 74.10    | 36.80 | 110.90 | 189.00 |
| <b>Bar faucet, two-handle, J A Manufacturing.</b> Deck-mount. 4" center set. Builder's Grade. Labor includes fasten in place only. Add the cost of connections and plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome finish, kit   | P1@.906   | Ea   | 90.60    | 36.80 | 127.40 | 217.00 |
| Chrome finish, lever handles   | P1@.906   | Ea   | 74.10    | 36.80 | 110.90 | 189.00 |
| <b>Garbage Disposers</b>   |           |      |          |       |        |        |
| <b>1/3-horsepower food waste disposer, In-Sink-Erator.</b> Plastic 26-ounce grind chamber. Galvanized steel grinding elements with two stainless steel 360-degree swivel lugs. Stainless steel sink flange with positive seal one-piece plastic stopper. Overload protector manual reset. Permanently lubricated upper and lower bearings. Quick Lock™ mounting for fast, easy installation. Cushioned anti-splash baffle. Dishwasher drain connection. One-year parts and in-home service warranty.   |           |      |          |       |        |        |
| Badger 1®  | P1@1.00   | Ea   | 119.00   | 40.70 | 159.70 | 271.00 |
| <b>1/2-horsepower food waste disposer, In-Sink-Erator.</b> Galvanized steel grinding elements with two stainless steel 360-degree swivel lugs. Plastic grind chamber. Permanently lubricated upper and lower bearings. Quick Lock™ mounting for fast, easy installation. Stainless steel sink flange with positive seal one-piece plastic stopper. Cushioned anti-splash baffle. Overload protector manual reset. Two-year parts and in-home service warranty.   |           |      |          |       |        |        |
| Badger 5®  | P1@1.00   | Ea   | 139.00   | 40.70 | 179.70 | 305.00 |
| <b>5/8-horsepower food waste disposer.</b> Plastic 26-ounce grinding chamber. Insulated outer shell. Galvanized steel grinding elements with two stainless steel 360-degree swivel legs. Stainless steel sink flange with positive seal one-piece plastic stopper. Dishwasher drain connection. Permanently lubricated upper and lower bearings. Heavy-duty induction motor. Overload protector manual reset. Stainless steel mounting. Three-year parts and in-home service warranty. Cushioned anti-splash baffle. Quick Lock™ mounting for fast, easy installation. |           |      |          |       |        |        |
| Badger 5® Plus   | P1@1.00   | Ea   | 250.00   | 40.70 | 290.70 | 494.00 |
| <b>3/4-horsepower heavy-duty food waste disposer, In-Sink-Erator.</b> 26-ounce plastic grind chamber. Insulated outer shell. Stainless steel grinding elements with two stainless steel 360-degree swivel lugs. Stainless steel sink flange with positive seal one-piece stainless steel stopper. Dishwasher drain connection. Permanently lubricated upper and lower bearings. Overload protector manual reset. Cushioned anti-splash baffle. Quick Lock™ mounting for fast, easy installation. Four-year parts and in-home service warranty.                         |           |      |          |       |        |        |
| Disposer   | P1@1.00   | Ea   | 249.00   | 40.70 | 289.70 | 492.00 |
| <b>3/4-horsepower septic system food waste disposer, In-Sink-Erator.</b> Corrosion-proof grind chamber. Stainless steel grinding elements with two stainless steel 360-degree swivel lugs. Permanently lubricated upper and lower bearings. Quick Lock™ mounting for fast, easy installation. Stainless steel sink flange with positive seal one-piece plastic stopper. Overload protector manual reset. Dishwasher drain connection. Replaceable Bio-Charge™ additive cartridge. 26-ounce grind chamber capacity. Three-year parts and in-home service warranty.      |           |      |          |       |        |        |
| Disposer   | P1@1.00   | Ea   | 269.00   | 40.70 | 309.70 | 526.00 |
| <b>3/4-horsepower batch feed disposer, In-Sink-Erator.</b> Extra-large capacity. Locking stopper controls operation. Five-year in-home warranty. Full stainless steel construction. Labor does not include electrical connection or switch.  |           |      |          |       |        |        |
| Disposer   | P1@1.00   | Ea   | 314.00   | 40.70 | 354.70 | 603.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>1-horsepower food waste disposer, In-Sink-Erator.</b> Auto-reverse grind system helps prevent jams, extends product life and provides extra sanitation. Secondary sound baffle. Stainless steel 50-ounce grind chamber. Stainless steel grinding elements with two stainless steel 360-degree swivel lugs. Corrosion protection shield. One-piece polished stainless steel stopper. Dishwasher drain connection. Permanently lubricated upper and lower bearings. Overload protector manual reset. Cushioned anti-splash baffle. Quick Lock™ mounting for fast, easy installation. Seven-year parts and in-home service warranty. |           |      |          |       |        |        |
| Disposer   | P1@1.00   | Ea   | 442.00   | 40.70 | 482.70 | 821.00 |
| <b>Garbage disposer sink stopper, In-Sink-Erator.</b> Economy-style sink stopper. Fits all disposers made by In-Sink-Erator. Genuine In-Sink-Erator replacement part.  |           |      |          |       |        |        |
| Plastic  | —         | Ea   | 9.98     | —     | 9.98   | —      |
| Polished brass   | —         | Ea   | 41.00    | —     | 41.00  | —      |
| Stainless steel  | —         | Ea   | 13.00    | —     | 13.00  | —      |
| Stainless steel, almond  | —         | Ea   | 21.60    | —     | 21.60  | —      |
| Stainless steel, white   | —         | Ea   | 21.60    | —     | 21.60  | —      |
| <b>Garbage disposer cord kit, In-Sink-Erator.</b> Power cord UL-approved to resist moisture and safely connect disposer to a plug-in outlet. Includes wire nuts and retaining clamp.   |           |      |          |       |        |        |
| Kit  | —         | Ea   | 16.00    | —     | 16.00  | —      |
| <b>Disposer mounting assembly, In-Sink-Erator.</b> Replaces existing disposer mounts. Quick Lock™ mounting assembly.   |           |      |          |       |        |        |
| Kit  | —         | Ea   | 20.00    | —     | 20.00  | —      |
| <b>Dishwasher connector, In-Sink-Erator.</b> Connects dishwasher drain to the disposer. Standard size.   |           |      |          |       |        |        |
| Hose   | —         | Ea   | 12.00    | —     | 12.00  | —      |
| <b>Sink disposer control switch, In-Sink-Erator.</b> Convenient and stylish new way to control disposer. Can be installed on sink or countertop. Wall-mount power module. 3' grounded power cord and 6' of air tubing.   |           |      |          |       |        |        |
| Chrome or white  | —         | Ea   | 80.30    | —     | 80.30  | —      |
| <b>Deluxe disposer mounting gasket, In-Sink-Erator.</b>  |           |      |          |       |        |        |
| Deluxe gasket A  | —         | Ea   | 13.40    | —     | 13.40  | —      |
| Standard gasket B  | —         | Ea   | 10.20    | —     | 10.20  | —      |
| <b>Removable disposer sound baffle, In-Sink-Erator.</b> Muffles disposer noise. Prevents food from splashing up in sink.   |           |      |          |       |        |        |
| Baffle   | —         | Ea   | 9.36     | —     | 9.36   | —      |
| <b>Septic disposer replacement cartridge, In-Sink-Erator.</b> Bio-charge 16-ounce enzyme replacement cartridge for septic disposer system. Accelerates digesting action in the septic tank. Lasts up to 4 months.  |           |      |          |       |        |        |
| Cartridge  | —         | Ea   | 19.70    | —     | 19.70  | —      |
| <b>Disposer sink flange, In-Sink-Erator.</b> Adds a custom flair.  |           |      |          |       |        |        |
| Almond   | P1@.185   | Ea   | 19.80    | 7.52  | 27.32  | 46.40  |
| Polished brass   | P1@.185   | Ea   | 34.60    | 7.52  | 42.12  | 71.60  |
| Stainless steel  | P1@.185   | Ea   | 34.60    | 7.52  | 42.12  | 71.60  |
| White  | P1@.185   | Ea   | 21.00    | 7.52  | 28.52  | 48.50  |

|  | Craft@Hrs | Unit | Material | Labor | Total    | Sell     |
|--|-----------|------|----------|-------|----------|----------|
| <b>Dishwashers</b>   |           |      |          |       |          |          |
| <b>2-cycle dishwasher.</b> Two wash levels with normal wash cycle (dial). Heated dry (rocker switch). Hot pre-wash option. Standard upper rack. Deluxe lower rack.   |           |      |          |       |          |          |
| Black  | P1@2.40   | Ea   | 549.00   | 97.60 | 646.60   | 1,100.00 |
| <b>4-cycle dishwasher.</b> Space for 12 place settings. High-pressure, high-water-flow wash system. Three wash arms for spray action above and below each rack. Energy Star® rated. Exceeds federal energy-efficiency standards. Microprocessor controls with angled touch pad. Sound-silencing package.   |           |      |          |       |          |          |
| Bisque   | P1@2.40   | Ea   | 829.00   | 97.60 | 926.60   | 1,580.00 |
| White  | P1@2.40   | Ea   | 829.00   | 97.60 | 926.60   | 1,580.00 |
| <b>2-level dishwasher, GE.</b> Nautilus dishwasher with the PowerScrub wash system and two wash arms. Touchpad controls. HotStart™ GE QuietPower™ motor.   |           |      |          |       |          |          |
| White or black   | P1@2.40   | Ea   | 409.00   | 97.60 | 506.60   | 861.00   |
| <b>5-cycle, 11-key touch pad dishwasher.</b> Tall tub for higher capacity. Space for 14 place settings. Adjustable upper rack allows custom configurations. High-pressure, high-water-flow wash system. Three wash arms. Finer filtration. Energy Star® rated. Exceeds federal energy-efficiency standards. Microprocessor controls with angled touch pad. |           |      |          |       |          |          |
| Black or white   | P1@2.40   | Ea   | 829.00   | 97.60 | 926.60   | 1,580.00 |
| <b>13-cycle stainless steel interior dishwasher.</b> Tall-tub design.  |           |      |          |       |          |          |
| Dishwasher   | P1@2.40   | Ea   | 1,400.00 | 97.60 | 1,497.60 | 2,550.00 |
| <b>Dishwasher Accessories</b>  |           |      |          |       |          |          |
| <b>Dishwasher connector.</b>   |           |      |          |       |          |          |
| 60" long, stainless steel braid  | P1@.185   | Ea   | 26.70    | 7.52  | 34.22    | 58.20    |
| 3/8" x 3/8" x 60", poly braid  | P1@.150   | Ea   | 20.40    | 6.10  | 26.50    | 45.10    |
| 72" long, stainless steel braid  | P1@.185   | Ea   | 30.80    | 7.52  | 38.32    | 65.10    |
| <b>Dishwasher connector, compression inlet, Speedi-Plumb™, Plumb Shop.</b> 125 PSI maximum operating pressure. 40 to 140 degree Fahrenheit temperature range. CSA, UL and IAPMO listed.  |           |      |          |       |          |          |
| 3/8" x 3/8" x 48" compression  | P1@.200   | Ea   | 18.70    | 8.13  | 26.83    | 45.60    |
| <b>Garbage-disposal-to-dishwasher drain connector, Fernco.</b> Connects dishwasher hose to sink drains and garbage disposals. Engineered for years of leak-free and trouble-free service.  |           |      |          |       |          |          |
| Model No. PDWC-100   | P1@.250   | Ea   | 3.86     | 10.20 | 14.06    | 23.90    |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---|-----------|------|----------|-------|-------|------|
| <b>Cooktops</b>   |           |      |          |       |       |      |
| <b>30" electric cooktop.</b> Four Insta-Heat™ radiant elements. Element-in-use and hot surface indicator lights. Frameless glass-ceramic surface. Dual-Choice™ element provides a large and small element in one location. Color-coordinated knobs with metallic accents pull off for cleaning. Overall dimensions 21" deep x 29-15/16" wide x 4-1/8" high. Frameless smooth black top. Labor cost assumes countertop is cut correctly and electrical rough-in is complete. |           |      |          |       |       |      |

White BE@.903 Ea 819.00 40.50 859.50 1,460.00

**30" gas cooktop.** Four sealed surface gas burners. Two 9,200/9,100 BTU burners, one 12,500/10,500 BTU power boost burner, one 5,000/4,000 BTU simmer burner. Porcelain-on-steel surface. Pilotless electronic ignition with flame chamber. Color coordinated easy-grasp pull-off control knobs with metallic accents. Four Duraclean lift-off burner caps. Continuous Duraclean cast-iron burner grates. Labor cost assumes countertop is cut correctly and gas rough-in is complete.

White P1@1.25 Ea 1,310.00 50.80 1,360.80 2,310.00  
Black P1@1.25 Ea 1,310.00 50.80 1,360.80 2,310.00

**30" electric ceramic glass cooktop.** Five tri-ring (12", 9" and 6") and ribbon heating elements. Frameless design with upfront controls. Overall dimensions: 20-7/8" deep x 29-3/4" wide x 3-1/4" high. Labor cost assumes countertop is cut correctly and electrical rough-in is complete.

Stainless BE@.903 Ea 2,110.00 40.50 2,150.50 3,660.00

## Wall Ovens

**30" electric double wall oven.** Two self-cleaning ovens with adjustable cleaning levels. Precision electronic controls. Favorite setting, cook and hold setting, adjustable keep warm setting. Delayed cook/clean options.

Choice of finishes BE@1.67 Ea 2,800.00 74.90 2,874.90 4,890.00

**27" single wall oven.** Preheat signal, auto oven shut-off, self-cleaning, control lock, delay bake option and TrueTemp System. Clear view window pattern.

Black BE@1.67 Ea 2,000.00 74.90 2,074.90 3,530.00

## Mounted Microwave Ovens

**1.5 cubic foot over-the-range microwave oven.** 950 watts. Cooking complete reminder, defrost, delay start, extend cook function, interior light, one-touch cooking, popcorn feature, vent/exhaust fan. 29.75" wide x 29.75" high x 15" deep. Labor cost assumes the opening has been cut and electrical rough-in is complete.

White BE@.903 Ea 550.00 40.50 590.50 1,000.00  
Black BE@.903 Ea 550.00 40.50 590.50 1,000.00  
Stainless BE@.903 Ea 550.00 40.50 590.50 1,000.00

**1.3 cubic foot microwave oven.** Can be installed over a countertop, range, or cooktop and plugs into a standard 120-volt/15-amp outlet. Halogen cooktop lighting. Microhood two-speed, 300 CFM venting system. 15.75" deep x 16.4" high x 29.88" wide. 900 watts. Labor cost assumes the opening has been cut and electrical rough-in is complete.

Stainless and black BE@.903 Ea 699.00 40.50 739.50 1,260.00

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Range Hoods

**Economy ducted range hood.** Under-cabinet mounted 190 CFM (cubic feet per minute) exhaust. 6.0 sones. 7" duct connector. 18" deep x 6" high. Washable charcoal filter with replaceable charcoal filter pad. Uses 75-watt incandescent lamp. Polymeric lens. Add the cost of ducting and electrical connection.

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| 24" or 30" wide, enamel finish         | SW@1.42 | Ea | 108.00 | 66.10 | 174.10 | 296.00 |
| 24" or 30" wide, stainless steel       | SW@1.42 | Ea | 159.00 | 66.10 | 225.10 | 383.00 |
| 36" wide, enamel finish                | SW@1.42 | Ea | 108.00 | 66.10 | 174.10 | 296.00 |
| 36" wide, stainless steel              | SW@1.42 | Ea | 159.00 | 66.10 | 225.10 | 383.00 |
| 42" wide, enamel finish                | SW@1.42 | Ea | 112.00 | 66.10 | 178.10 | 303.00 |
| 42" wide, stainless steel              | SW@1.42 | Ea | 162.00 | 66.10 | 228.10 | 388.00 |
| Add for ducted hood with a duct damper | —       | Ea | 18.00  | —     | 18.00  | —      |

**Standard quality ducted range hood.** Under-cabinet mounted 190 CFM (cubic feet per minute) 3-speed blower. 3.5 sones. Either vertical or horizontal 3-1/4" x 10" duct, 7" round duct. Powder-coated 22 gauge steel. 18" deep x 6" high. Uses one 40-watt incandescent lamp. Add the cost of ducting and electrical connection.

|                                    |         |    |        |       |        |        |
|------------------------------------|---------|----|--------|-------|--------|--------|
| 24" or 30" wide, ducted, black     | SW@1.42 | Ea | 156.00 | 66.10 | 222.10 | 378.00 |
| 24" or 30" wide, ducted, almond    | SW@1.42 | Ea | 156.00 | 66.10 | 222.10 | 378.00 |
| 24" or 30" wide, ducted, stainless | SW@1.42 | Ea | 274.00 | 66.10 | 340.10 | 578.00 |
| 36" wide, ducted, black            | SW@1.42 | Ea | 172.00 | 66.10 | 238.10 | 405.00 |
| 36" wide, ducted, almond           | SW@1.42 | Ea | 172.00 | 66.10 | 238.10 | 405.00 |
| 36" wide, ducted, stainless        | SW@1.42 | Ea | 251.00 | 66.10 | 317.10 | 539.00 |
| 42" wide, ducted, black            | SW@1.42 | Ea | 185.00 | 66.10 | 251.10 | 427.00 |
| 42" wide, ducted, almond           | SW@1.42 | Ea | 185.00 | 66.10 | 251.10 | 427.00 |
| 42" wide, ducted, stainless        | SW@1.42 | Ea | 288.00 | 66.10 | 354.10 | 602.00 |
| Add for ductless range hood        | —       | Ea | 59.70  | —     | 59.70  | —      |

**Better quality range hood, Allure III NuTone.** Under-cabinet mounted 400 CFM (cubic feet per minute). 0.4 sones at 100 CFM. Teflon-coated bottom pan. Dual halogen lamps. Sensor detects excessive heat and adjusts vent speed. 20" deep x 7-1/4" high. Four ducting options: 3 1/4" X 10" horizontal or vertical vent, 7" round vertical vent or non-ducted. Add the cost of ducting and electrical connection.

|   |         |    |        |       |        |          |
|---|---------|----|--------|-------|--------|----------|
| 30" wide, polyester finish                | SW@1.42 | Ea | 584.00 | 66.10 | 650.10 | 1,110.00 |
| 30" wide, stainless steel finish          | SW@1.42 | Ea | 636.00 | 66.10 | 702.10 | 1,190.00 |
| 36" wide, polyester finish                | SW@1.42 | Ea | 594.00 | 66.10 | 660.10 | 1,120.00 |
| 36" wide, stainless steel finish          | SW@1.42 | Ea | 654.00 | 66.10 | 720.10 | 1,220.00 |
| 42" wide, polyester finish                | SW@1.42 | Ea | 581.00 | 66.10 | 647.10 | 1,100.00 |
| 42" wide, stainless steel finish          | SW@1.42 | Ea | 673.00 | 66.10 | 739.10 | 1,260.00 |
| Add for filter for ducted application     | —       | Ea | 58.60  | —     | 58.60  | —        |
| Add for filter for non-ducted application | —       | Ea | 31.20  | —     | 31.20  | —        |

**Wall-mount range hood, Ballista NuTone.** Stainless steel finish with hood-mounted blower. Three-speed control. Dual 20-watt halogen bulbs. Adjusts to fit under 8' to 10' ceiling. Stainless steel grease filter. Built-in backdraft damper. 20" deep, 33" to 54" high. Add the cost of ducting and electrical connection.

|                   |         |    |          |        |          |          |
|-------------------|---------|----|----------|--------|----------|----------|
| 30" wide, 450 CFM | SW@2.50 | Ea | 1,930.00 | 116.00 | 2,046.00 | 3,480.00 |
| 36" wide, 450 CFM | SW@2.50 | Ea | 1,950.00 | 116.00 | 2,066.00 | 3,510.00 |
| 48" wide, 900 CFM | SW@2.50 | Ea | 2,170.00 | 116.00 | 2,286.00 | 3,890.00 |

**Ceiling-hung range hood, Provisa NuTone.** Stainless steel finish with hood-mounted blower. Three-speed control. Four 20-watt halogen bulbs. Telescopic flue adjusts to fit under 8' to 9' ceiling. Stainless steel grease filter. Built-in backdraft damper. 27" deep, 33" high. Add the cost of ducting and electrical connection.

|                   |         |    |          |        |          |          |
|-------------------|---------|----|----------|--------|----------|----------|
| 40" wide, 900 CFM | SW@3.50 | Ea | 3,730.00 | 163.00 | 3,893.00 | 6,620.00 |
|-------------------|---------|----|----------|--------|----------|----------|

|   | Craft@Hrs | Unit | Material | Labor | Total    | Sell     |
|---|-----------|------|----------|-------|----------|----------|
| <b>Custom range hood power package.</b> Exhaust system components installed in a custom-built range hood 24" to 30" above the cooling surface. Stainless steel. With variable speed control, filters and halogen or incandescent lighting. Bulbs not included. No ductwork included. Add the cost of a decorative enclosure, ducting and electrical connection. |           |      |          |       |          |          |
| 700 CFM, dual blowers, 7" duct, 1.5 to 4.6 sones  |           |      |          |       |          |          |
| 30" wide x 22" deep   | SW@1.42   | Ea   | 618.00   | 66.10 | 684.10   | 1,160.00 |
| 32" wide x 22" deep   | SW@1.42   | Ea   | 672.00   | 66.10 | 738.10   | 1,250.00 |
| 36" wide x 28" deep   | SW@1.42   | Ea   | 764.00   | 66.10 | 830.10   | 1,410.00 |
| 42" wide x 28" deep   | SW@1.42   | Ea   | 841.00   | 66.10 | 907.10   | 1,540.00 |
| 48" wide x 28" deep   | SW@1.42   | Ea   | 952.00   | 66.10 | 1,018.10 | 1,730.00 |
| 1,300 CFM, dual blowers, twin 7" ducts, 1.5 to 4.6 sones  |           |      |          |       |          |          |
| 30" wide x 22" deep   | SW@1.42   | Ea   | 1,000.00 | 66.10 | 1,066.10 | 1,810.00 |
| 32" wide x 22" deep   | SW@1.42   | Ea   | 1,090.00 | 66.10 | 1,156.10 | 1,970.00 |
| 36" wide x 28" deep   | SW@1.42   | Ea   | 1,250.00 | 66.10 | 1,316.10 | 2,240.00 |
| 42" wide x 28" deep   | SW@1.42   | Ea   | 1,370.00 | 66.10 | 1,436.10 | 2,440.00 |
| 48" wide x 28" deep   | SW@1.42   | Ea   | 1,550.00 | 66.10 | 1,616.10 | 2,750.00 |
| <b>Range splash plate, Broan.</b> Easy to install. Mounts behind range with screws. Keeps kitchen walls clean.  |           |      |          |       |          |          |
| 30" x 24", reversible white or almond   | SW@.165   | Ea   | 28.50    | 7.68  | 36.18    | 61.50    |
| 30" x 24", stainless steel  | SW@.165   | Ea   | 43.80    | 7.68  | 51.48    | 87.50    |
| 36" x 24", reversible white or almond   | SW@.165   | Ea   | 30.90    | 7.68  | 38.58    | 65.60    |
| 36" x 24", stainless steel  | SW@.165   | Ea   | 49.90    | 7.68  | 57.58    | 97.90    |

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There are two types of bathroom jobs. The first simply makes better use of the available space. The second is adding space, either by enlarging an existing bathroom or by adding an entirely new bathroom. Both types will be expensive when calculated on the basis of cost per square foot of floor. But real estate professionals agree that money invested in bathrooms is generally money wisely spent. A home with three or four bedrooms and only one and a half bathrooms has a major defect worth fixing. That's especially true when the home is in a neighborhood where most homes have two or more bathrooms.

## Adding a Bathroom

Older homes seldom have enough bathrooms. But the bathrooms in those homes are often much larger than the modern 5' by 7' standard for a three-fixture bath (toilet, lavatory and tub). With a large bathroom, remodeling options will be obvious: extra storage cabinets, a double-bowl vanity, more mirrors, a lighted dressing table, separate tub and shower units, or even a bathroom divided into compartments. If an entirely new bathroom is needed, the most obvious issue will be where to find the space. Keep in mind that a bathroom addition outside the existing perimeter wall is seldom a good choice of location.

Generally, bedrooms and bathrooms go together. Access to any new bathroom should be directly off either a bedroom or a central hall connecting bedrooms. Avoid any floor plan that requires walking through another room to get to the new bathroom. An exception would be if the new bathroom is a two-fixture half-bath (powder room) designed to serve a relaxation area. A good bathroom plan minimizes plumbing and electrical runs and locates plumbing fixtures on one wall. This arrangement allows the fixtures to share a common waste line and roof vent.

### **Counting and Naming Bathrooms**

Here's an explanation of what determines a bath type, if you're not familiar with bathroom naming conventions.

*Full bath* — Three or more fixtures including at least one lavatory, toilet and bathtub. Expect to see a showerhead over the tub.

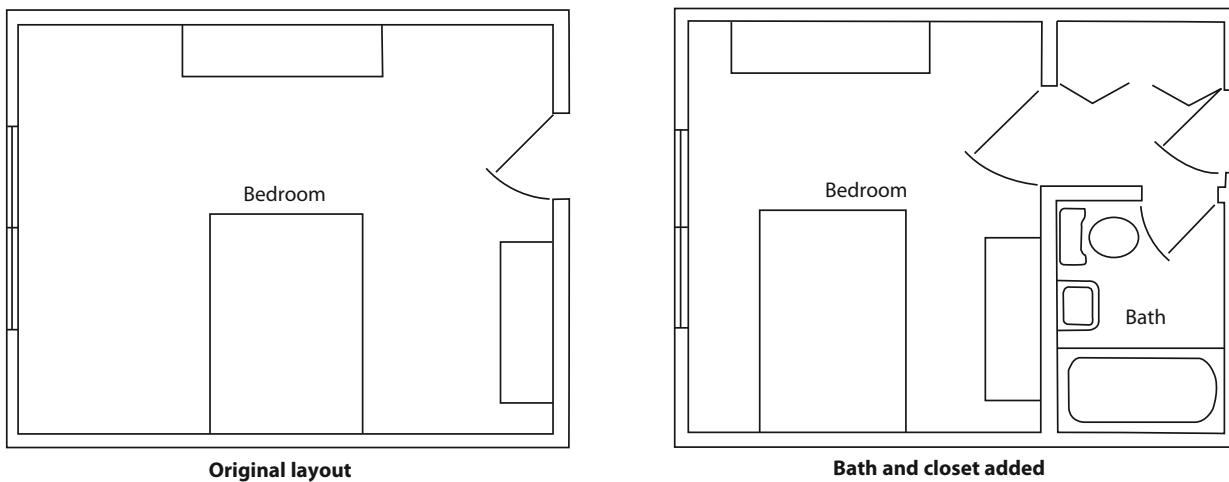
*Three-quarter bath* — Three fixtures including a lavatory, toilet and stall shower (but no tub).

*Half bath* — Two fixtures: a lavatory and toilet.

*Powder room* — A two-fixture bathroom located near the front entrance.

*Mud room* — Same as a powder room but located by a back door or laundry.

*Notes:* When adding up the bathrooms in a house, round three-quarter baths up to a full bath if there are other partial bathrooms. You're sure to confuse someone if you claim a house has two and a quarter baths (full bath, three-quarter bath and half-bath). Instead, call it two and a half baths. Likewise, ignore the benefit of a second lavatory or a bidet in a bathroom. Those fixtures get no extra credit when it comes to what counts in a bathroom.

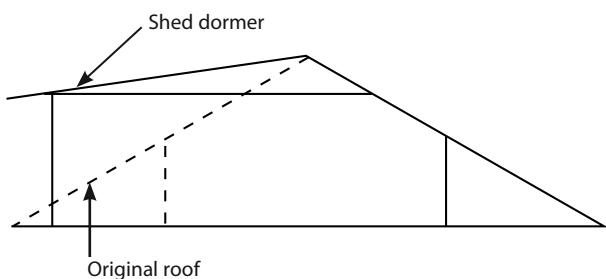
**Figure 13-1**

Portion of a large bedroom used for a bath addition

Sometimes you'll see homes where a pantry, large closet or open area under a stairway has been converted to a bathroom. Depending on the location, converting space like this into a bathroom can be either a good choice or a poor choice. Don't convert a space into a bathroom simply because two fixtures happen to fit there. A bathroom in an entry or off the kitchen, totally removed from the bedroom area, is only good for a half bath or powder room. There's little practical advantage to a three-fixture bath that's remote from bedrooms.

### Finding Space for a Bathroom

You may find bedrooms in older homes that have a walk-in closet that's at least 5' by 7'. If a wall below that closet includes a plumbing drain, waste and vent lines, that closet is an ideal candidate for conversion to a three-fixture bathroom. Any bedroom that measures at least 16' in one direction is a good candidate to be partitioned for a new bathroom addition. See Figure 13-1. If all the bedrooms are small, consider converting the smallest bedroom into a bathroom and adding a new bedroom outside a perimeter wall.

**Figure 13-2**

Shed dormer used for additional space

In a one-and-one-half-story house, there's sometimes enough space under the shed dormer for another bathroom. See Figure 13-2. If you choose this area, remember that the plumbing wall in the new bathroom requires a wall directly below for pipe runs. Water supply lines to the new bathroom can be copper or poly and will snake through nearly any wall or ceiling cavity. Vent stack and waste lines aren't so flexible and may be 4" in diameter. Hiding a 4" drain pipe in an existing wall isn't easy. Any line that can't be enclosed in an existing wall will need to be framed into an enclosure within a room.

Other options may be converting the basement or garage into living space, or building on an exterior addition to the home. Each comes with its own challenges.

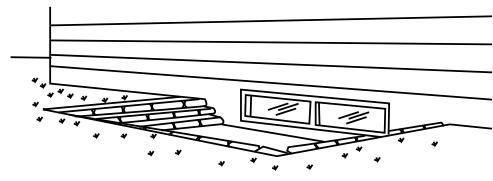
**Basements:** An unfinished basement offers good potential for expansion. It could include the bathroom you're adding, or be converted into a bedroom to replace the one you converted into the new bathroom. Building codes allow basements to be converted into habitable rooms if certain conditions are met. A habitable room is any space used for living, sleeping, eating, or cooking. To qualify as a habitable room, most codes require that the ground level outside the basement be no more than 48" above the basement floor, and the average ceiling height inside has to be at least 7'6". But bathrooms aren't considered habitable rooms under the code. So the ground level outside presents no obstacle, and the minimum ceiling height for a bathroom or other non-habitable room can usually be as low as 6'9". Your local building department will have the exact requirements for your location.

Although basements offer good space for conversions, they come with potential problems. The basement can be a difficult area in which to work. Many modifications will involve either tearing up the basement floor, or cutting through the concrete basement wall.

One obvious problem when adding a bathroom in the basement is handling sewage waste lines. If a basement floor is below the sewer main, install a sewage sump with a pump controlled by a float switch.

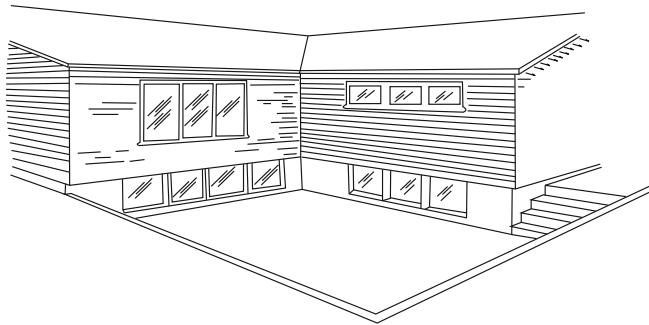
Another big disadvantage for living space is the lack of natural light and a view to the outside. You can add natural light with area walls or an areaway sloped so sunlight can reach basement windows. See Figure 13-3. If the slope of the lot offers an opportunity for drainage, consider creating a small sunken garden adjacent to one basement wall, as shown in Figure 13-4.

Your building code may require a fire exit in a converted basement. A basement window large enough to serve as a fire exit may meet the code requirements. Otherwise, add an areaway basement door like the one in Figure 13-5. An exterior



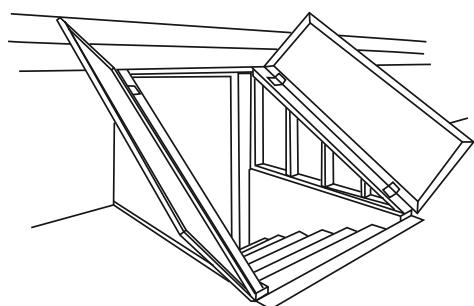
**Figure 13-3**

*Basement window areaway with sloped sides*



**Figure 13-4**

*Sunken garden forming large basement window areaway*



**Figure 13-5**

*Areaway type basement entrance*

entrance makes the basement a convenient place for storing lawn furniture and garden equipment. If possible, locate the basement door under the cover of a breezeway or porch roof to protect it from rain or snow.

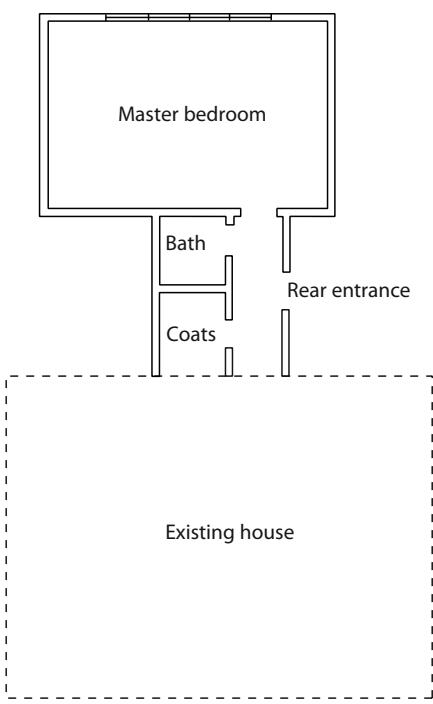
**Garage:** If local building codes and zoning ordinances permit garage conversions, a garage attached to the house is another obvious candidate for expansion, especially if the garage is under the main roof. Considerations for the job include adding partition walls and an interior wall finish, and running ductwork for heating and air conditioning. Weigh the gain in living area against the loss of garage space and its convenience. Garages are usually close to the kitchen to save steps when unloading groceries. Even if you only use part of the garage for your addition, you may still lose that direct-access convenience.

Cutting chases in a garage floor for the plumbing drain and supply lines seldom presents a serious problem. But get expert advice on recompacting the soil once access lines are in place. Fill that isn't properly compacted will have expansion characteristics different from the undisturbed soil. The result can be heaving or settling of the subsoil and an uneven floor in the converted garage.

**Exterior Additions:** Most communities have minimum setback requirements. No construction is allowed within a certain distance of lot lines and the street. The setback may be different on the two sides of the house. For example, the setback could be 5' on one side of the house and 10' on the other. If all the homes in a community have a similar setback, it's safe to assume those homes are built on the setback line. A hundred years ago, builders weren't so careful about their use of space. By modern standards, they squandered available land. You may have more possibilities for expansion when you're dealing with an older home. However, if setbacks restrict you from adding onto the front or side of a house, the only alternative may be to encroach on the back yard.

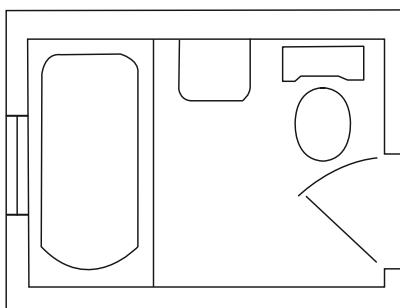
When planning exterior additions, carefully consider how to meet the needs of the owner while maintaining the overall design of the home. If the owner wants a larger bathroom, you could, as mentioned earlier, convert an existing small bedroom into a bathroom and make the exterior addition a larger new bedroom. Or partition off part of the existing living room for use as bedroom and bathroom. Then make the addition a new family room or a larger living room. In any case, the addition should be constructed to maintain the style of the house. Roofing, siding and windows should match the existing materials to preserve continuity.

The addition won't have a common foundation with the original structure. That puts stress on the point where the existing roof, wall, floor and ceiling join the addition. Cracking along the joint between the original house and the addition can be managed with control joints that allow for independent movement on each side of the joint. To minimize the length of that joint, consider building the addition as a satellite to the main house. See Figure 13-6. Connect the main house to the addition with a corridor that includes the bathroom, a new entry and a closet. Notice that satellite additions have a large perimeter in proportion to the enclosed space. Heating and cooling

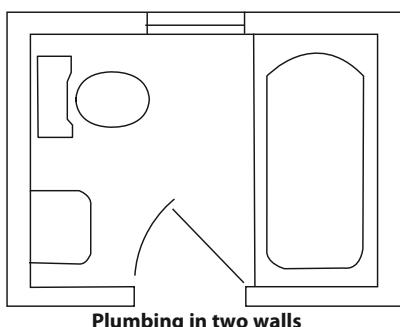


**Figure 13-6**

Addition using the satellite concept



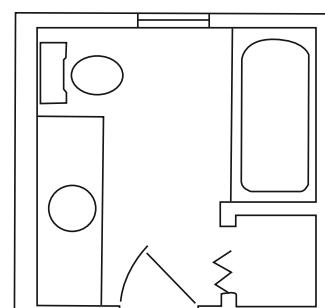
Common  
plumbing wall



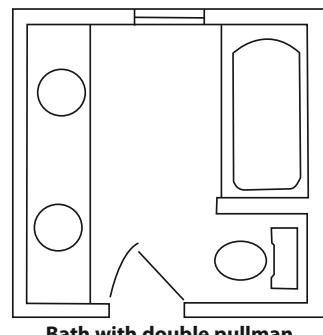
Plumbing in two walls

**Figure 13-7**

Minimum size bathroom (5' by 7')



Bath with closet



Bath with double pullman

**Figure 13-8**

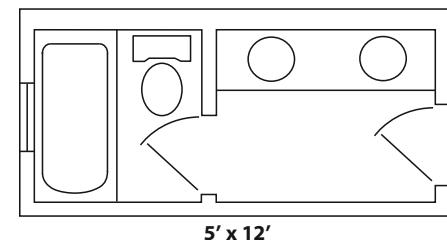
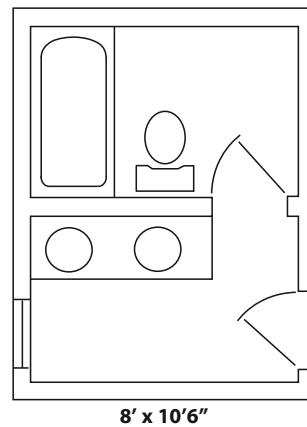
Moderate size bathroom (8' by 8')

this type of addition can be a problem. Be sure to provide good insulation and energy-efficient windows. Chapter 3 includes costs for framing the tie-in between the existing structure and the addition.

## Bathroom Floor Plans

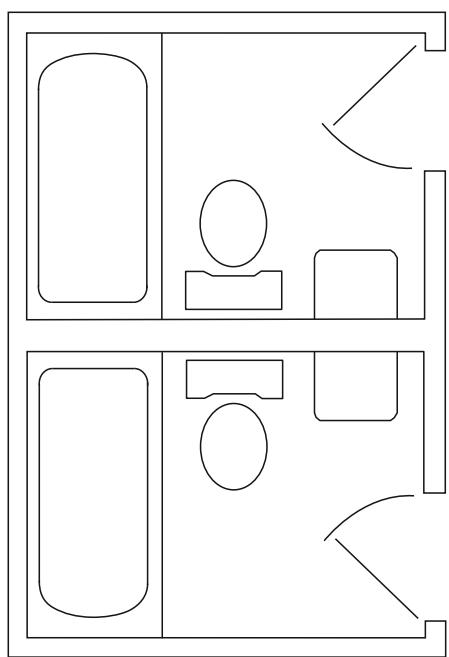
Whether adding a new bathroom or just restyling an existing bathroom, it's important to observe some basic design rules. The minimum size for a three-fixture bathroom is 5' by 7' (Figure 13-7). Increasing that to 8' by 8' allows space for linen storage, cleaning equipment and supplies (Figure 13-8).

Figure 13-9 shows a bath divided into two compartments. That makes the bathroom suitable for use by two people, while preserving privacy. The minimum floor space for the toilet portion of a two-compartment bath is 3' by 5', assuming no tub. If a tub is included, you'll need a minimum of 5' by 5'. The lavatory compartment can be 4' x 5'. The interior dimensions of a compact two-compartment bathroom could be as little as 5' by 9' if you have a connecting door that slides or folds rather than swings. If a swinging door is planned, as in Figure 13-9, a floor area measuring 8' by 10'6" or 5' by 12' creates a more comfortable bathroom.



**Figure 13-9**

Compartmented bathroom



**Figure 13-10**

*Two bathrooms with economical back-to-back arrangement*

If two new bathrooms are needed on the same floor, install the plumbing fixtures back to back, as in Figure 13-10, to minimize plumbing runs. Bathrooms built on both floors of a two-story house are most economical when plumbing stacks are aligned vertically in the same wall.

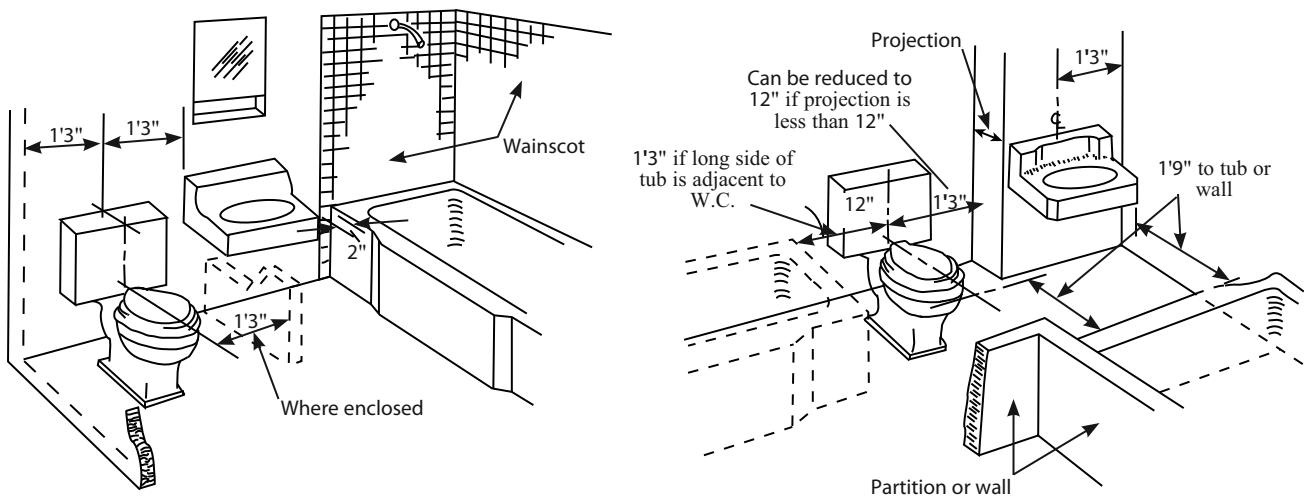
Notice that all bathroom doors in Figures 13-7, 13-8, 13-9 and 13-10 open *into* the bathroom. True, that robs the bathroom of otherwise usable space, but it's better than opening a bathroom door into a hallway or bedroom. Bathroom doors are among the most used in the house and tend to open at unexpected times. A bathroom door that opens into a hallway is a constant hazard. Also, bathroom doors are generally closed when the bathroom is in use. That reclaims some of the space a swinging door would otherwise obstruct in a bathroom. Be sure to consider the swing area of the door when placing fixtures.

Every bathroom needs ventilation to prevent the accumulation of moisture and mold. If the bathroom is on an exterior wall, you should provide a window with an opening equivalent to 10 percent of the bathroom floor area. If the bathroom has only interior walls, the building code requires a fan with ducting to the exterior. Putting both the fan and light on the same switch guarantees the fan will be running when the bathroom is in use, although your customer may prefer independent switches. Don't put any switches or fixtures within arm's reach of someone using the tub or shower.

Cast iron and steel bathtubs are heavy, even when they're not filled with water. Fifty gallons of water in a tub adds another 400 pounds to the floor load. Floor joists in older homes are seldom designed to take such a concentrated load. When adding a tub, reinforce the floor joists and add cross bridging between joists. You may also need to double the studs. Even a shower stall can stress floor joists that weren't designed to support bathroom fixtures. If you plan to install ceramic tile on walls, floors or vanity tops, add extra framing to the floor and wall to support the additional weight. Ceramic tile is heavy and requires rock-solid support to resist cracking.

### **Bathroom Space Minimums**

- ❖ 5' x 4' — smallest two-fixture bathroom
- ❖ 5' x 7' — smallest three-fixture bathroom
- ❖ 12" — from the center of a toilet to the end of a tub
- ❖ 15" — from the center of a toilet to the side of a tub
- ❖ 15" — from the center of a toilet to an adjacent wall or shower stall
- ❖ 15" — from the center of a toilet to the center of an adjacent lavatory



**Figure 13-11**  
Recommended dimensions for fixture spacing

- ❖ 15" — from the center of a lavatory to an adjacent wall or shower stall
- ❖ 30" — distance between two lavatories mounted in the same countertop
- ❖ 32" to 34" — usual height for the top of vanities and lavatories
- ❖ 32" x 32" — width and depth of a square shower stall
- ❖ 30" x 60" — width and length of standard tubs
- ❖ 26" — height of the toilet paper roll holder above the floor
- ❖ 21" — depth of standing space while washing hands at a lavatory
- ❖ 36" — depth of standing space to open a sliding shower door
- ❖ 44" — depth of standing space to open a hinged shower door

Some building codes set minimum bathroom dimensions. As usual, the code is the last word. Figure 13-11 shows recommended minimum distances between and around bathroom fixtures. Remember that these are *minimums*, and more space is usually better.

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

## Plumbing Repairs

**Repair a compression faucet.** Turn valves off. Remove packing nut. Remove valve stem and cap. Remove seat washer from stem. Pry out old washer. Install new washer. Install stem. Tighten main gland valves if necessary. Turn valve on. Test faucet.

|                    |         |    |   |       |       |      |
|--------------------|---------|----|---|-------|-------|------|
| Per valve repaired | P1@.350 | Ea | — | 14.20 | 14.20 | 5.00 |
|--------------------|---------|----|---|-------|-------|------|

**Remove and replace fixture gasket.** Turn valve off. Loosen locknut. Remove spud connection. Remove gasket or washer. Clean spud seat. Install new gasket or washer. Assemble spud connection. Tighten locknut. Reassemble fixture and inspect connection.

|                     |         |    |   |      |      |      |
|---------------------|---------|----|---|------|------|------|
| Per gasket replaced | P1@.120 | Ea | — | 4.88 | 4.88 | 8.30 |
|---------------------|---------|----|---|------|------|------|

**Remove and replace toilet fill valve.** Turn water off. Empty tank. Remove valve nut and disconnect supply tube. Install new toilet fill valve. Tighten nut. Attach supply tube. Turn water on. Check operation.

|                |         |    |   |       |       |       |
|----------------|---------|----|---|-------|-------|-------|
| Per fill valve | P1@.300 | Ea | — | 12.20 | 12.20 | 20.70 |
|----------------|---------|----|---|-------|-------|-------|

**Remove and replace lavatory trap.** Unscrew trap plug from drain. Disconnect union. Remove and inspect trap. Replace trap. Reconnect union and tighten plug. Test operation.

|          |         |    |   |      |      |       |
|----------|---------|----|---|------|------|-------|
| Per trap | P1@.155 | Ea | — | 6.30 | 6.30 | 10.70 |
|----------|---------|----|---|------|------|-------|

**Remove and replace basin strainer and P-trap.** Disconnect strainer from wall nipple and packing nut. Remove strainer lock nut. Remove strainer washer and trap. Clean out trap and strainer. Install strainer nut, packing nut and connect trap to wall nipple. Test operation.

|                       |         |    |   |       |       |       |
|-----------------------|---------|----|---|-------|-------|-------|
| Per strainer and trap | P1@.446 | Ea | — | 18.10 | 18.10 | 30.80 |
|-----------------------|---------|----|---|-------|-------|-------|

**Remove and replace showerhead.** Remove showerhead from 1/2" threaded pipe. Inspect as necessary. Replace and test showerhead.

|                |         |    |   |      |      |      |
|----------------|---------|----|---|------|------|------|
| Per showerhead | P1@.108 | Ea | — | 4.39 | 4.39 | 7.46 |
|----------------|---------|----|---|------|------|------|

**Reset toilet bowl.** Turn off angle valve. Remove packing nuts. Remove flange bolts. Remove bowl from flange. Replace gasket or ring. Clean bowl foundation. Reset bowl and connect flange nuts. Replace packing nuts. Turn on water and check operation.

|                |         |    |   |       |       |       |
|----------------|---------|----|---|-------|-------|-------|
| Per bowl reset | P1@1.27 | Ea | — | 51.60 | 51.60 | 87.70 |
|----------------|---------|----|---|-------|-------|-------|

## Bathtubs

**Remove bathtub.** No salvage of materials assumed. Add for repairs to wall and floor surfaces. Debris piled on site. Labor cost does not include clearing of area or removal of wall finish.

|            |         |    |   |       |       |       |
|------------|---------|----|---|-------|-------|-------|
| Remove tub | P1@.722 | Ea | — | 29.40 | 29.40 | 50.00 |
|------------|---------|----|---|-------|-------|-------|

**Alcove bathtub.** One-piece construction for recess installations. Labor includes setting and fastening in place only. Add for water supply and drain connections as required.

|                                      |         |    |          |        |          |          |
|--------------------------------------|---------|----|----------|--------|----------|----------|
| Enamelled Steel L/R drain            | P1@2.50 | Ea | 319.00   | 102.00 | 421.00   | 716.00   |
| Porcelain Enamelled Steel            | P1@2.50 | Ea | 399.00   | 102.00 | 501.00   | 852.00   |
| Acrylic                              | P1@2.50 | Ea | 639.00   | 102.00 | 741.00   | 1,260.00 |
| Polyresin and Fiberglass soaking tub | P1@2.50 | Ea | 664.00   | 102.00 | 766.00   | 1,300.00 |
| Acrylic Air Bath                     | P1@4.00 | Ea | 1,080.00 | 163.00 | 1,243.00 | 2,110.00 |
| Acrylic Whirlpool Tub                | P1@4.00 | Ea | 1,460.00 | 163.00 | 1,623.00 | 2,760.00 |

## Freestanding bathtub.

|                           |         |    |          |        |          |          |
|---------------------------|---------|----|----------|--------|----------|----------|
| Acrylic Oval center drain | P1@2.50 | Ea | 1,430.00 | 102.00 | 1,532.00 | 2,600.00 |
| Acrylic Oval L/R drain    | P1@2.50 | Ea | 2,000.00 | 102.00 | 2,102.00 | 3,570.00 |
| Acrylic Air Bath          | P1@4.00 | Ea | 3,540.00 | 163.00 | 3,703.00 | 6,300.00 |

|   | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|---|-----------|------|----------|--------|----------|----------|
| <b>Drop-in bathtub.</b>   |           |      |          |        |          |          |
| Acrylic   | P1@2.50   | Ea   | 414.00   | 102.00 | 516.00   | 877.00   |
| Acrylic soaking   | P1@2.50   | Ea   | 584.00   | 102.00 | 686.00   | 1,170.00 |
| Acrylic Air Bath  | P1@4.00   | Ea   | 1,160.00 | 163.00 | 1,323.00 | 2,250.00 |
| Acrylic Whirlpool Tub   | P1@4.00   | Ea   | 1,530.00 | 163.00 | 1,693.00 | 2,880.00 |
| <b>Walk-in bathtub.</b> Faucet included   |           |      |          |        |          |          |
| Gel-coated Fiberglass   | P1@2.50   | Ea   | 2,880.00 | 102.00 | 2,982.00 | 5,070.00 |
| Gel-coated Fiberglass soaking   | P1@2.50   | Ea   | 3,560.00 | 102.00 | 3,662.00 | 6,230.00 |
| Gel-coated Fiberglass Whirlpool Tub   | P1@4.00   | Ea   | 4,510.00 | 163.00 | 4,673.00 | 7,940.00 |
| <b>Whirlpool bath heater.</b> Pre-plumbed for easy installation. Maintains constant water temperature. Labor includes setting and fastening in place only. Add for electrical service and connection.                                 |           |      |          |        |          |          |
| 110 Volt heater   | P1@1.00   | Ea   | 344.00   | 40.70  | 384.70   | 654.00   |
| <b>Whirlpool tub apron</b> Labor includes setting and fastening in place only.  |           |      |          |        |          |          |
| 5', White   | P1@.500   | Ea   | 301.00   | 20.30  | 321.30   | 546.00   |
| White   | P1@.500   | Ea   | 326.00   | 20.30  | 346.30   | 589.00   |
| <b>J-spout Roman tub deck-mount tub filler.</b> Lifetime finish. Will not tarnish. Ceramic disc valving. Mounts on 8" to 12" centers. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |           |      |          |        |          |          |
| Brushed satin nickel finish   | P1@1.00   | Ea   | 131.00   | 40.70  | 171.70   | 292.00   |
| Polished Chrome   | P1@1.00   | Ea   | 326.00   | 40.70  | 366.70   | 623.00   |
| Satin chrome finish   | P1@1.00   | Ea   | 548.00   | 40.70  | 588.70   | 1,000.00 |
| <b>Tub Enclosure Walls</b>  |           |      |          |        |          |          |
| <b>One-piece tile finish tub wall.</b> Wall surround. High-gloss finish.  |           |      |          |        |          |          |
| Subway tile design  | B1@3.00   | Ea   | 689.00   | 112.00 | 801.00   | 1,360.00 |
| Contemporary design with shelves  | B1@3.00   | Ea   | 1,350.00 | 112.00 | 1,462.00 | 2,490.00 |
| <b>Three-piece bathtub wall kit</b> Heavy-gauge, high-impact co-polymer plastic. Permanent, waterproof, colorfast panels are easy to clean. Resistant to mold and mildew.   |           |      |          |        |          |          |
| white   | B1@3.00   | Ea   | 216.00   | 112.00 | 328.00   | 558.00   |
| With shelves  | B1@3.00   | Ea   | 271.00   | 112.00 | 383.00   | 651.00   |
| Polystyrene   | B1@3.00   | Ea   | 359.00   | 112.00 | 471.00   | 801.00   |
| Fiberglass/Plastic composite  | B1@3.00   | Ea   | 505.00   | 112.00 | 617.00   | 1,050.00 |
| <b>Five-piece tub wall surround kit.</b>  |           |      |          |        |          |          |
| Polystyrene bathtub wall  | B1@3.00   | Ea   | 117.00   | 112.00 | 229.00   | 389.00   |
| Thermoplastic   | B1@3.00   | Ea   | 192.00   | 112.00 | 304.00   | 517.00   |
| <b>Fiberglass bath wall window trim.</b>  |           |      |          |        |          |          |
| Small window  | B1@1.00   | Ea   | 94.20    | 37.20  | 131.40   | 223.00   |
| Large window  | B1@1.00   | Ea   | 149.00   | 37.20  | 186.20   | 317.00   |
| <b>Bypass Door Tub Enclosures</b>   |           |      |          |        |          |          |
| <b>Bypass door tub enclosure.</b> 60" wide opening. With track.   |           |      |          |        |          |          |
| Chrome/Clear Glass  | BC@1.20   | Ea   | 289.00   | 49.30  | 338.30   | 575.00   |
| Frameless   | BC@1.20   | Ea   | 332.00   | 49.30  | 381.30   | 648.00   |
| Simi Frameless  | BC@1.20   | Ea   | 431.00   | 49.30  | 480.30   | 817.00   |
| Simi Frameless Oil-rubbed bronze  | BC@1.20   | Ea   | 474.00   | 49.30  | 523.30   | 890.00   |
| Deluxe Brushed Nickel   | BC@1.20   | Ea   | 502.00   | 49.30  | 551.30   | 937.00   |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

### Fiberglass Tub and Shower Combinations

**Tub and shower unit.** Integral toiletry shelves. Installed acrylic grab bar. Slip-resistant textured bottom. 60" x 30" x 72". White. Smooth wall. Labor includes setting and fastening in place only. Add for water supply and drain connections as required. Be sure any tub and shower unit you select for replacement purposes will fit through existing doorways.

|                        |         |    |        |        |          |          |
|------------------------|---------|----|--------|--------|----------|----------|
| Subway tile design     | P1@4.75 | Ea | 689.00 | 193.00 | 882.00   | 1,500.00 |
| Composite with shelves | P1@4.75 | Ea | 911.00 | 193.00 | 1,104.00 | 1,880.00 |
| Smooth wall            | P1@4.75 | Ea | 911.00 | 193.00 | 1,104.00 | 1,880.00 |

**Two-piece tub and shower.** Smooth wall tile design. Front installation system. Leak-proof right-angle joint flanges. Integral soap shelves. Specially designed to hide seam. 60" x 30" x 72". White. Labor includes setting and fastening in place only. Add for water supply and drain connections as required.

|                  |         |    |          |        |          |          |
|------------------|---------|----|----------|--------|----------|----------|
| Acrylic-finished | P1@4.75 | Ea | 474.00   | 193.00 | 667.00   | 1,130.00 |
| With shelves     | P1@4.75 | Ea | 889.00   | 193.00 | 1,082.00 | 1,840.00 |
| Delux            | P1@4.75 | Ea | 2,000.00 | 193.00 | 2,193.00 | 3,730.00 |

**Three-piece molded fiberglass sectional tub and shower.** 60" x 30" x 72". Smooth wall design. Front installation system. Leak-proof right-angle joint flanges. Integral toiletry shelves. Acrylic grab bar. Slip-resistant textured bottom. Labor includes setting and fastening in place only. Add for water supply and drain connections as required.

|             |         |    |          |        |          |          |
|-------------|---------|----|----------|--------|----------|----------|
| Classic     | P1@4.75 | Ea | 679.00   | 193.00 | 872.00   | 1,480.00 |
| Smooth tile | P1@4.75 | Ea | 1,010.00 | 193.00 | 1,203.00 | 2,050.00 |

### Shower Stalls

**Demolish stall shower.** Remove 3 walls and receptor. Remove supply pipe and insulation. Remove drain with a cutting torch. Stack debris on site.

|                  |         |    |   |       |       |       |
|------------------|---------|----|---|-------|-------|-------|
| Per shower stall | BL@1.55 | Ea | — | 51.60 | 51.60 | 87.70 |
|------------------|---------|----|---|-------|-------|-------|

**Shower stall kit.** Free-standing shower stall. Includes heavy-gauge walls in one-piece design. Molded soap dish and shampoo holder. Add the cost of water supply and drain connection.

|                                    |         |    |        |        |          |          |
|------------------------------------|---------|----|--------|--------|----------|----------|
| Alcove installation                | P1@2.90 | Ea | 599.00 | 118.00 | 717.00   | 1,220.00 |
| Modern Subway tile design          | P1@2.90 | Ea | 749.00 | 118.00 | 867.00   | 1,470.00 |
| Corner install with base and doors | P1@2.90 | Ea | 599.00 | 118.00 | 717.00   | 1,220.00 |
| Curved corner install              | P1@2.90 | Ea | 737.00 | 118.00 | 855.00   | 1,450.00 |
| Neo-Angle corner install           | P1@2.90 | Ea | 698.00 | 118.00 | 816.00   | 1,390.00 |
| Curved corner install              | P1@2.90 | Ea | 889.00 | 118.00 | 1,007.00 | 1,710.00 |

**Shower pan.** Slip-resistant textured bottom. Labor includes setting and fastening in place only. Add for drain connections as required.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| 32" X 32"                   | P1@.600 | Ea | 130.00 | 24.40 | 154.40 | 262.00 |
| 34" X 36"                   | P1@.800 | Ea | 189.00 | 32.50 | 221.50 | 377.00 |
| 34" X 48"                   | P1@.800 | Ea | 178.00 | 32.50 | 210.50 | 358.00 |
| 36"X 36" corner             | P1@.800 | Ea | 163.00 | 32.50 | 195.50 | 332.00 |
| 38"X 38" Neo-Angle corner   | P1@.800 | Ea | 185.00 | 32.50 | 217.50 | 370.00 |
| 60"X 38" Curved designed    | P1@.800 | Ea | 269.00 | 32.50 | 301.50 | 513.00 |
| 32" X 60" high-gloss finish | P1@.800 | Ea | 249.00 | 32.50 | 281.50 | 479.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

### Shower Enclosure Doors

**Pivot shower enclosure door.** Reversible for left- or right-hand opening. Factory-installed handle. No exposed screws.

|                               |         |    |        |       |        |        |
|-------------------------------|---------|----|--------|-------|--------|--------|
| 65" Patterned glass           | BG@1.20 | Ea | 179.00 | 47.80 | 226.80 | 386.00 |
| 65.5" Frosted/Patterned Glass | BG@1.20 | Ea | 229.00 | 47.80 | 276.80 | 471.00 |
| 67" Frameless                 | BG@1.20 | Ea | 269.00 | 47.80 | 316.80 | 539.00 |
| 70" Chrome                    | BG@1.20 | Ea | 310.00 | 47.80 | 357.80 | 608.00 |
| 63.5" Framed Chrome           | BG@1.20 | Ea | 469.00 | 47.80 | 516.80 | 879.00 |

**Hinged shower enclosure door.** Standard hinged. Use in either right- or left-handed opening. Self-draining, easy-to-clean bottom track. Fits most fiberglass surround units.

|                                     |         |    |        |       |        |        |
|-------------------------------------|---------|----|--------|-------|--------|--------|
| 67" frameless nickel clear glass    | BG@1.20 | Ea | 249.00 | 47.80 | 296.80 | 505.00 |
| 67" polished-chrome patterned glass | BG@1.20 | Ea | 287.00 | 47.80 | 334.80 | 569.00 |
| 70.5" polished-chrome clear glass   | BG@1.20 | Ea | 320.00 | 47.80 | 367.80 | 625.00 |
| 72" frameless nickel clear glass    | BG@1.20 | Ea | 479.00 | 47.80 | 526.80 | 896.00 |

**Sliding shower and tub door.** Use in either right- or left-handed opening. Self-draining, easy-to-clean bottom track.

|                                 |         |    |        |       |        |        |
|---------------------------------|---------|----|--------|-------|--------|--------|
| 78" framed clear tempered glass | BG@1.20 | Ea | 339.00 | 47.80 | 386.80 | 658.00 |
| 56.25" Framed Patterned Glass   | BG@1.20 | Ea | 290.00 | 47.80 | 337.80 | 574.00 |
| 70" frameless clear glass       | BG@1.20 | Ea | 299.00 | 47.80 | 346.80 | 590.00 |
| 55" frameless clear glass       | BG@1.20 | Ea | 299.00 | 47.80 | 346.80 | 590.00 |

**Fixed Shower Door.** Use in either right- or left-handed opening.

|                                 |         |    |        |       |        |        |
|---------------------------------|---------|----|--------|-------|--------|--------|
| 76"x 11.5"clear glass           | BG@.900 | Ea | 174.00 | 35.80 | 209.80 | 357.00 |
| 78" X 20" Frameless Clear Glass | BG@.900 | Ea | 215.00 | 35.80 | 250.80 | 426.00 |
| 58" X 34" Frameless Clear Glass | BG@.900 | Ea | 219.00 | 35.80 | 254.80 | 433.00 |

### Single-Control Tub and Shower Faucets

**Single-control tub and shower faucet.** Includes Valve and shower head. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|                               |         |    |        |       |        |        |
|-------------------------------|---------|----|--------|-------|--------|--------|
| Standard in Chrome            | P1@1.40 | Ea | 70.00  | 56.90 | 126.90 | 216.00 |
| Designer in metal finishes    | P1@1.40 | Ea | 139.00 | 56.90 | 195.90 | 333.00 |
| Designer with rain style head | P1@1.40 | Ea | 249.00 | 56.90 | 305.90 | 520.00 |
| Deluxe with Rain style head   | P1@1.40 | Ea | 350.00 | 56.90 | 406.90 | 692.00 |

**Lever-handle tub and shower faucet set.** Pressure balanced. Metal lever handle. Ceramic disc valving resists hard and sandy water. 1/2" direct sweat or IPS FPT. High-temperature limit helps prevent scalding. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| Chrome, shower only                     | P1@1.00 | Ea | 134.00 | 40.70 | 174.70 | 297.00 |
| Designer in metal finishes              | P1@1.40 | Ea | 249.00 | 56.90 | 305.90 | 520.00 |
| Deluxe with rain style head & hand wand | P1@1.40 | Ea | 415.00 | 56.90 | 471.90 | 802.00 |

**Two-handle tub and shower faucet.** Knob handles. Includes showerhead, flange, and arm. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|                |         |    |        |       |        |        |
|----------------|---------|----|--------|-------|--------|--------|
| Brushed Nickel | P1@1.40 | Ea | 75.00  | 56.90 | 131.90 | 224.00 |
| Metal finishes | P1@1.40 | Ea | 119.00 | 56.90 | 175.90 | 299.00 |
| Designer       | P1@1.40 | Ea | 161.00 | 56.90 | 217.90 | 370.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Three-handle tub and shower faucet set.** Includes showerhead, arm, flanges and tub spout and valve. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|                |         |    |        |       |        |        |
|----------------|---------|----|--------|-------|--------|--------|
| Chrome handles | P1@1.40 | Ea | 79.00  | 56.90 | 135.90 | 231.00 |
| Brushed Nickel | P1@1.40 | Ea | 120.00 | 56.90 | 176.90 | 301.00 |
| Brushed Brass  | P1@1.40 | Ea | 199.00 | 56.90 | 255.90 | 435.00 |
| Designer       | P1@1.50 | Ea | 257.00 | 61.00 | 318.00 | 541.00 |

**Add-on shower kit for built-in tub.** Includes water-saver showerhead, diverter spout, adjustable risers, and wall bracket. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|     |         |    |        |       |        |        |
|-----|---------|----|--------|-------|--------|--------|
| Kit | P1@1.00 | Ea | 105.00 | 61.00 | 166.00 | 282.00 |
|-----|---------|----|--------|-------|--------|--------|

## Bath and Shower Accessories

**Power massage showerhead.** 3 massage settings: pulsating, gentle and combination. Great for low pressure. Self-cleaning, water-saving showerhead for continuous flow.

|                |         |    |       |      |       |        |
|----------------|---------|----|-------|------|-------|--------|
| Chrome         | P1@.200 | Ea | 45.00 | 8.13 | 53.13 | 90.30  |
| Brushed Nickel | P1@.200 | Ea | 60.00 | 8.13 | 68.13 | 116.00 |

### Sunflower showerhead.

|                |         |    |        |      |        |        |
|----------------|---------|----|--------|------|--------|--------|
| 8", easy clean | P1@.200 | Ea | 170.00 | 8.13 | 178.13 | 303.00 |
|----------------|---------|----|--------|------|--------|--------|

## Toilets (Water Closets)

**Hot and cold bidet.** Drilled for hot and cold valves. Labor includes setting and connection only. Add the cost of valves and piping.

|       |         |    |          |       |          |          |
|-------|---------|----|----------|-------|----------|----------|
| Bidet | P1@1.50 | Ea | 833.00   | 61.00 | 894.00   | 1,520.00 |
| Delux | P1@1.50 | Ea | 1,420.00 | 61.00 | 1,481.00 | 2,520.00 |

**Bidet faucet set, three-handle.** Fits 5" to 9" center holes. Ceramic disc valves. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|        |         |    |        |       |        |          |
|--------|---------|----|--------|-------|--------|----------|
| Chrome | P1@1.10 | Ea | 362.00 | 44.70 | 406.70 | 691.00   |
| Bronze | P1@1.10 | Ea | 576.00 | 44.70 | 620.70 | 1,060.00 |

**One-piece toilet.** 1.6-gallon flush. Seat included. Labor includes setting and connection only. Add the cost of wall stop valve and piping.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| Round     | P1@1.10 | Ea | 188.00 | 44.70 | 232.70 | 396.00 |
| Elongated | P1@1.10 | Ea | 259.00 | 44.70 | 303.70 | 516.00 |
| Designer  | P1@1.10 | Ea | 276.00 | 44.70 | 320.70 | 545.00 |
| Delux     | P1@1.10 | Ea | 515.00 | 44.70 | 559.70 | 951.00 |

**Two-piece toilet.** 1.6-gallon flush. Seat included. Labor includes setting and connection only. Add the cost of wall stop valve and piping

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| Round     | P1@1.10 | Ea | 109.00 | 44.70 | 153.70 | 261.00 |
| Elongated | P1@1.10 | Ea | 199.00 | 44.70 | 243.70 | 414.00 |
| Designer  | P1@1.10 | Ea | 219.00 | 44.70 | 263.70 | 448.00 |
| Delux     | P1@1.10 | Ea | 370.00 | 44.70 | 414.70 | 705.00 |

**Dual Flush toilet.** Labor includes setting and connection only. Add the cost of wall stop valve, piping and the seat.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| One piece | P1@.550 | Ea | 382.00 | 22.40 | 404.40 | 687.00 |
| Two piece | P1@.550 | Ea | 430.00 | 22.40 | 452.40 | 769.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|---|-----------|------|----------|-------|--------|----------|
| <b>Comfort Height toilet.</b> Contemporary look and superior flush. Rim height of 16-1/8" is consistent with standard height of chair. Vigorous flush is a result of siphon-jet flushing technology and 2" fully glazed trapway. 10" x 9" water surface, which maintains a cleaner bowl. Ingenium™ flushing system. Labor includes setting and connection only. Add the cost of wall stop valve and piping. |           |      |          |       |        |          |
| Two Piece   | P1@1.10   | Ea   | 249.00   | 44.70 | 293.70 | 499.00   |
| One Piece   | P1@1.10   | Ea   | 449.00   | 44.70 | 493.70 | 839.00   |
| <b>One-piece wall-mount toilet.</b> Vitreous china. Full glazed trapway. Condensation channel. Flush valve. Direct-fed siphon jet action. 10" x 12" water surface area. 25" x 14-3/4" x 15". Labor includes setting and connection only. Add the cost of a flush valve, carrier and piping.   |           |      |          |       |        |          |
| White, dual flush   | P1@1.10   | Ea   | 208.00   | 44.70 | 252.70 | 430.00   |
| Delux   | P1@1.10   | Ea   | 565.00   | 44.70 | 609.70 | 1,040.00 |
| <b>Urinal.</b> One-gallon flush. Labor includes setting and connection only. Add the cost of a flush valve, hanger and piping.  |           |      |          |       |        |          |
| 3/4"Rear spud, white  | P1@1.50   | Ea   | 174.00   | 61.00 | 235.00 | 400.00   |
| 3/4" Top spud   | P1@1.50   | Ea   | 256.00   | 61.00 | 317.00 | 539.00   |
| <b>Sloan Royal flush valve.</b> Water saver. For floor or wall-hung top spud bowls.   |           |      |          |       |        |          |
| Sloan No. 110   | P1@.600   | Ea   | 166.00   | 24.40 | 190.40 | 324.00   |
| Sloan No. 186   | P1@.600   | Ea   | 150.00   | 24.40 | 174.40 | 296.00   |
| <b>Toilet Installation and Repair</b>   |           |      |          |       |        |          |
| <b>Low-Boy toilet supply hook-up kit.</b> For iron pipe or copper tube stub-outs. Kit includes 1-1/2" female pipe thread by 3/8" OD tube compression by 1/2" male pipe thread union adapter, and Teflon® tape. Includes 9" braided Speedi-Plumb water supply connector.   |           |      |          |       |        |          |
| Kit   | P1@.250   | Ea   | 32.30    | 10.20 | 42.50  | 72.30    |
| <b>Angle valve.</b>   |           |      |          |       |        |          |
| 1/2" with 3/8" x 12" supply tube kit  | P1@.250   | Ea   | 11.40    | 10.20 | 21.60  | 36.70    |
| <b>Toilet Supply Line.</b> Braided stainless steel.   |           |      |          |       |        |          |
| 3/8" x 7/8" x 12" supply line   | P1@.150   | Ea   | 6.45     | 6.10  | 12.55  | 21.30    |
| <b>Decorative flexible supply stop.</b> 1/2" iron pipe size by 3/8" outside diameter.   |           |      |          |       |        |          |
| Angle valve, polished brass   | P1@.250   | Ea   | 16.40    | 10.20 | 26.60  | 45.20    |
| <b>No-Seep wax toilet bowl gasket.</b> Wax gasket with polyethylene flange fits 3" and 4" lines, closet bowls only. Includes 1/4" x 2-1/4" brass bolt kit with stainless washers and brass nuts.  |           |      |          |       |        |          |
| With brass bolt kit   | P1@.100   | Ea   | 5.98     | 4.07  | 10.05  | 17.10    |
| <b>Cast iron water closet flange.</b> Use on heavyweight plastic or soil pipe. Complete with body, brass ring, bolts and gasket.  |           |      |          |       |        |          |
| 4" diameter, compression  | P1@.250   | Ea   | 42.80    | 10.20 | 53.00  | 90.10    |
| <b>Toilet base plate cover.</b> For toilet replacement. Conceals ring around smaller base of new toilet. Plastic. Plates can be stacked to raise toilet. 11" wide.  |           |      |          |       |        |          |
| Round nose, 22-1/2" long  | P1@.080   | Ea   | 16.70    | 3.25  | 19.95  | 33.90    |
| Square nose, 18-3/4" long   | P1@.080   | Ea   | 14.30    | 3.25  | 17.55  | 29.80    |
| <b>Leak Sentry™ anti-siphon toilet fill valve, Fluidmaster.</b> Prevents automatic refill of a leaky tank. At most, only one tank of water can escape a toilet. Toilet always remains operational. Bowl refill adjustment prevents wasteful overfilling. Fits most toilets, including 1.6 gallon-per-flush models. Corrosion-resistant plastic and stainless steel.   |           |      |          |       |        |          |
| 1.6 gallon flush  | P1@.300   | Ea   | 15.00    | 12.20 | 27.20  | 46.20    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Complete toilet tank repair kit, Fluidmaster.</b> Includes flush valve with Adjust-Flush™ flapper, anti-siphon fill valve, Sure-Fit® tank lever, 3 bolts and gasket. Flapper dial regulates volume. Valve height adjusts 9" to 14". Lever trims and bends to fit. Universal gasket. |           |      |          |       |        |        |
| Kit  | P1@.850   | Ea   | 27.30    | 34.60 | 61.90  | 105.00 |
| <b>One-piece toilet repair kit, Fluidmaster.</b> Replaces many one-piece toilet assemblies. Fewer parts. Ideal for wet or dry inlet tubes.   |           |      |          |       |        |        |
| Kit  | P1@.850   | Ea   | 61.00    | 34.60 | 95.60  | 163.00 |
| <b>Tank-to-bowl bolt kit, Fluidmaster.</b> Two 5/16" x 3" brass bolts with washers and wing nuts.  |           |      |          |       |        |        |
| Kit  | P1@.275   | Ea   | 10.00    | 11.20 | 21.20  | 36.00  |
| <b>Toilet Seats</b>  |           |      |          |       |        |        |
| <b>Molded wood toilet seat.</b> Multi-coat enamel finish. Closed front and cover to fit a regular bowl. Color-matched bumpers and hinges. hinges with non-corrosive, top-tightening bolts and wing nuts. 1" ring thickness including bumper. Includes lid.                             |           |      |          |       |        |        |
| Round, white   | P1@.250   | Ea   | 17.00    | 10.20 | 27.20  | 46.20  |
| Round, colors  | P1@.250   | Ea   | 23.10    | 10.20 | 33.30  | 56.60  |
| Round, chrome hinge  | P1@.250   | Ea   | 42.00    | 10.20 | 52.20  | 88.70  |
| Designer   | P1@.250   | Ea   | 64.80    | 10.20 | 75.00  | 128.00 |
| Maple, Round/Elongated   | P1@.250   | Ea   | 85.20    | 10.20 | 95.40  | 162.00 |
| <b>Molded wood open-front toilet seat.</b> Multi-coat enamel finish. Color-matched bumpers and hinges. hinges with non-corrosive, top-tightening bolts and wing nuts. 1" ring thickness including bumper. Includes lid.  |           |      |          |       |        |        |
| Elongated, colors  | P1@.250   | Ea   | 27.90    | 10.20 | 38.10  | 64.80  |
| Elongated, white   | P1@.250   | Ea   | 20.70    | 10.20 | 30.90  | 52.50  |
| Round  | P1@.250   | Ea   | 24.50    | 10.20 | 34.70  | 59.00  |
| <b>Plastic open-front toilet seat.</b> Open-front with cover. Easy to install top-tightening hinges. White.  |           |      |          |       |        |        |
| Elongated  | P1@.250   | Ea   | 62.90    | 10.20 | 73.10  | 124.00 |
| Round  | P1@.250   | Ea   | 39.20    | 10.20 | 49.40  | 84.00  |
| <b>Pedestal Lavatories</b>   |           |      |          |       |        |        |
| <b>Pedestal lavatory.</b> Labor includes setting and connecting only. Add the cost of faucet and accessories.  |           |      |          |       |        |        |
| 33.6" White vitreous china combo   | P1@.800   | Ea   | 99.50    | 32.50 | 132.00 | 224.00 |
| 34.25" White vitreous china combo  | P1@.800   | Ea   | 149.00   | 32.50 | 181.50 | 309.00 |
| 35.5" Bisque vitreous china combo  | P1@.800   | Ea   | 364.00   | 32.50 | 396.50 | 674.00 |
| 34.5" Designer vitreous china combo  | P1@.800   | Ea   | 402.00   | 32.50 | 434.50 | 739.00 |
| <b>Pedestal lavatory base.</b>   |           |      |          |       |        |        |
| 31" White vitreous china   | P1@.350   | Ea   | 59.00    | 14.20 | 73.20  | 124.00 |
| 30.5" White fire clay  | P1@.350   | Ea   | 79.00    | 14.20 | 93.20  | 158.00 |
| Beveled edges and curved base  | P1@.350   | Ea   | 84.90    | 14.20 | 99.10  | 168.00 |
| <b>Lavatory leg set.</b>   |           |      |          |       |        |        |
| Chrome stainless steel   | P1@.350   | Ea   | 454.00   | 14.20 | 468.20 | 796.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Lavatory Sinks</b>  |           |      |          |       |        |        |
| <b>Remove pedestal, counter- or wall-mounted lavatory.</b> Turn off water. Disconnect hot and cold supply lines from the wall valves. Unscrew trap plug to the drain. Disconnect trap unions. Remove trap. Remove basin retaining screws or wall hangers. Remove wash basin. |           |      |          |       |        |        |
| Per lavatory basin   | P1@.630   | Ea   | —        | 25.60 | 25.60  | 43.50  |
| <b>Pedestal Sink Top.</b> , Labor includes setting only. Add the cost of connection, faucet and accessories.   |           |      |          |       |        |        |
| 4" Centers, white vitreous china   | P1@.850   | Ea   | 174.00   | 34.60 | 208.60 | 355.00 |
| 4" Centers, white vitreous china   | P1@.850   | Ea   | 184.00   | 34.60 | 218.60 | 372.00 |
| 8" Centers fire clay   | P1@.850   | Ea   | 291.00   | 34.60 | 325.60 | 554.00 |
| <b>Drop-in lavatory sink.</b> Self-rimming installation. Labor includes setting only. Add the cost of connection, faucet and accessories.  |           |      |          |       |        |        |
| Bisque porcelain oval  | P1@.850   | Ea   | 39.80    | 34.60 | 74.40  | 126.00 |
| Enameled steel oval  | P1@.850   | Ea   | 57.90    | 34.60 | 92.50  | 157.00 |
| White rectangular  | P1@.850   | Ea   | 96.90    | 34.60 | 131.50 | 224.00 |
| Farmhouse white rectangular  | P1@.850   | Ea   | 101.00   | 34.60 | 135.60 | 231.00 |
| Copper round   | P1@.850   | Ea   | 207.00   | 34.60 | 241.60 | 411.00 |
| <b>Undermount lavatory sink.</b> Labor includes setting only. Add the cost of connection, faucet and accessories.  |           |      |          |       |        |        |
| Oval porcelain bowl  | P1@.850   | Ea   | 49.00    | 34.60 | 83.60  | 142.00 |
| White porcelain rectangular  | P1@.850   | Ea   | 63.20    | 34.60 | 97.80  | 166.00 |
| White ceramic rectangular  | P1@.850   | Ea   | 109.00   | 34.60 | 143.60 | 244.00 |
| Porcelain rectangular  | P1@.850   | Ea   | 148.00   | 34.60 | 182.60 | 310.00 |
| Ceramic round  | P1@.850   | Ea   | 139.00   | 34.60 | 173.60 | 295.00 |
| <b>Wall-mount lavatory sink.</b> Labor includes setting only. Add the cost of connection, faucet and accessories.  |           |      |          |       |        |        |
| Vitreous china square  | P1@.850   | Ea   | 51.70    | 34.60 | 86.30  | 147.00 |
| White porcelain rectangular  | P1@.850   | Ea   | 79.60    | 34.60 | 114.20 | 194.00 |
| Petite corner basin oval   | P1@.850   | Ea   | 102.00   | 34.60 | 136.60 | 232.00 |
| White ceramic semi-circle  | P1@.850   | Ea   | 126.00   | 34.60 | 160.60 | 273.00 |
| <b>Lavatory hanger bracket.</b> Supports wall hung lavatory basin.   |           |      |          |       |        |        |
| Lavatory hanger bracket  | P1@.250   | Pr   | 7.80     | 10.20 | 18.00  | 30.60  |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Single-Handle Bath Faucets, 4" Center Set</b>   |           |      |          |       |        |        |
| <b>Single-handle lavatory faucet, Glacier Bay.</b> Deck-mount. 4" center set. Chrome finish. Lever handle. Washerless cartridge. Includes mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome with brass accents  | P1@.900   | Ea   | 109.00   | 36.60 | 145.60 | 248.00 |
| Polished chrome finish   | P1@.900   | Ea   | 44.50    | 36.60 | 81.10  | 138.00 |
| <b>Zinc single-handle lavatory faucet.</b> Deck-mount. 4" center set. Lever handle. Washerless cartridge. With mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Chrome finish, zinc  | P1@.900   | Ea   | 78.40    | 36.60 | 115.00 | 196.00 |
| <b>Acrylic knob single-control lavatory faucet.</b> Includes pop-up plug and waste assembly. Washerless cartridge. 4" center set. Water- and energy-saving aerator. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome   | P1@.900   | Ea   | 98.70    | 36.60 | 135.30 | 230.00 |
| <b>Reliant single-handle lavatory faucet, American Standard.</b> Deck-mount. Lever handle. All-metal construction. Ceramic disc valve cartridge with adjustable hot temperature limit safety stop. Includes mechanical pop-up assembly. 2.5-gallons-per-minute flow-restricted aerator. 1/2" male threaded copper connector and nuts. 4" center set. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |           |      |          |       |        |        |
| Polished chrome  | P1@.900   | Ea   | 87.20    | 36.60 | 123.80 | 210.00 |
| <b>Classic single-handle lavatory faucet.</b> Deck-mount. 4" center set. Lever handle. Washerless cartridge. Lifetime warranty. Includes mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Chrome finish  | P1@.900   | Ea   | 116.00   | 36.60 | 152.60 | 259.00 |
| <b>Single-handle lavatory faucet.</b> Lever handle. 4" center set. Metal poppet. ADA compliant. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome   | P1@.900   | Ea   | 93.60    | 36.60 | 130.20 | 221.00 |
| <b>Villeta single-handle lavatory faucet.</b> Deck-mount. 4" center set. Lever handle. Includes mechanical pop-up assembly. Lifetime limited warranties against leaks, drips and finish defects. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Chrome finish  | P1@.900   | Ea   | 102.00   | 36.60 | 138.60 | 236.00 |
| <b>Chateau single-control lavatory faucet, Moen.</b> With waste assembly. ADA approved. Washerless cartridge. 4" center set. Includes pop-up assembly. Chrome finish. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Acrylic knob control   | P1@.900   | Ea   | 114.00   | 36.60 | 150.60 | 256.00 |
| Handle control   | P1@.900   | Ea   | 59.00    | 36.60 | 95.60  | 163.00 |
| <b>Single-handle lavatory faucet, Delta.</b> 4" center set. Deck-mount. 3-hole installation. Lifetime warranty. ADA compliant. Includes mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome finish  | P1@.900   | Ea   | 122.00   | 36.60 | 158.60 | 270.00 |
| Chrome finish, brass accents   | P1@.900   | Ea   | 152.00   | 36.60 | 188.60 | 321.00 |
| Polished brass, brass accents  | P1@.900   | Ea   | 197.00   | 36.60 | 233.60 | 397.00 |
| <b>Parisa single-handle lavatory faucet, Price Pfister.</b> Solid brass. 4" center set. Single-control ceramic disc cartridge with temperature memory. High arc spout. Use with or without the deckplate for single-hole mounting. ADA approved. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Brushed nickel finish  | P1@.900   | Ea   | 90.30    | 36.60 | 126.90 | 216.00 |
| Chrome finish  | P1@.900   | Ea   | 70.90    | 36.60 | 107.50 | 183.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Lavatory single-handle faucet, Kohler.</b> Deck-mount. 4" center set. Chrome finish. Latch handle. 5" spout. Ceramic disc valve cartridge. Includes mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |           |      |          |       |        |        |
| Polished chrome  | P1@.900   | Ea   | 136.00   | 36.60 | 172.60 | 293.00 |

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| <b>Infrared-operated hands-free lavatory faucet.</b> 4" center set. Deck-mount. Infrared sensor automatically activates solenoid mixing valve to dispense tempered water. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |         |    |        |       |        |        |
| Battery operated  | P1@.900 | Ea | 483.00 | 36.60 | 519.60 | 883.00 |

## Two-Handle Bath Faucets

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| <b>Two-handle lavatory faucet.</b> Deck-mount. Includes mechanical pop-up assembly, except where noted. 4" center set. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |         |    |        |       |        |        |
| Cleo, satin chrome and brass   | P1@.900 | Ea | 125.00 | 36.60 | 161.60 | 275.00 |
| Leonardo   | P1@.900 | Ea | 60.70  | 36.60 | 97.30  | 165.00 |
| Lotus, chrome and porcelain  | P1@.900 | Ea | 102.00 | 36.60 | 138.60 | 236.00 |
| Modern, chrome finish  | P1@.900 | Ea | 59.10  | 36.60 | 95.70  | 163.00 |
| Porcelain lever handles  | P1@.900 | Ea | 61.90  | 36.60 | 98.50  | 167.00 |
| Teapot, brushed nickel   | P1@.900 | Ea | 93.30  | 36.60 | 129.90 | 221.00 |
| Without mechanical pop-up  | P1@.900 | Ea | 15.00  | 36.60 | 51.60  | 87.70  |

|   |         |    |       |       |       |        |
|---|---------|----|-------|-------|-------|--------|
| <b>Acrylic two-handle lavatory faucet, Glacier Bay.</b> Deck-mount. 4" center set. Chrome finish. Solid brass waterways. Drip-free washerless cartridge design. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |         |    |       |       |       |        |
| With pop-up drain   | P1@.900 | Ea | 46.90 | 36.60 | 83.50 | 142.00 |
| Without pop-up drain  | P1@.900 | Ea | 32.10 | 36.60 | 68.70 | 117.00 |

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| <b>Two-handle lavatory faucet, American Standard.</b> Deck-mount. 4" center set. Chrome finish. Includes mechanical pop-up assembly. Ceramic disc cartridge. 1/2" brass supply shanks for easy installation. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |         |    |        |       |        |        |
| Acrylic handles  | P1@.900 | Ea | 36.30  | 36.60 | 72.90  | 124.00 |
| Contemporary design  | P1@.900 | Ea | 36.70  | 36.60 | 73.30  | 125.00 |
| Ravenna design   | P1@.900 | Ea | 118.00 | 36.60 | 154.60 | 263.00 |

|   |         |    |       |       |        |        |
|---|---------|----|-------|-------|--------|--------|
| <b>Bedford two-handle lavatory faucet, Price Pfister.</b> Deck-mount. 4" center set. Chrome finish. Metal verve handle. Includes brass mechanical pop-up assembly. Metal knobs. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |         |    |       |       |        |        |
| With mechanical pop-up drain  | P1@.900 | Ea | 65.90 | 36.60 | 102.50 | 174.00 |
| Without pop-up drain  | P1@.900 | Ea | 52.30 | 36.60 | 88.90  | 151.00 |

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| <b>Two-lever French handle lavatory faucet.</b> Deck-mount. 4" center set. Drip-free ceramic disc cartridge. Solid brass waterways. Includes brass mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |         |    |        |       |        |        |
| Chrome finish  | P1@.900 | Ea | 65.80  | 36.60 | 102.40 | 174.00 |
| Polished brass   | P1@.900 | Ea | 105.00 | 36.60 | 141.60 | 241.00 |

|  |         |    |       |       |        |        |
|--|---------|----|-------|-------|--------|--------|
| <b>Touch-control two-handle lavatory faucet.</b> Deck-mount. 4" center set. Chrome finish. Acrylic handles. Limited lifetime function and finish warranty. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |         |    |       |       |        |        |
| No drain rod hole  | P1@.900 | Ea | 47.50 | 36.60 | 84.10  | 143.00 |
| With mechanical pop-up drain   | P1@.900 | Ea | 63.40 | 36.60 | 100.00 | 170.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Acrylic two-handle lavatory faucet, Delta.</b> Deck-mount. Fits 3-hole sinks with 4" centers. Includes mechanical pop-up assembly. Machined brass cartridges. Washerless design. Lifetime warranty. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome finish   | P1@.900   | Ea   | 65.80    | 36.60 | 102.40 | 174.00 |
| <b>Teapot two-handle lavatory faucet, Glacier Bay.</b> Deck-mount. 4" center set. Teapot style. White ceramic handles. Includes mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Brass finish  | P1@.900   | Ea   | 52.30    | 36.60 | 88.90  | 151.00 |
| Chrome finish   | P1@.900   | Ea   | 44.70    | 36.60 | 81.30  | 138.00 |
| <b>Two-handle lavatory faucet, Masco.</b> Deck-mount. 4" center set. No pop-up included. Lifetime faucet and finish warranty. Solid brass and stainless steel construction. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Chrome finish   | P1@.900   | Ea   | 97.80    | 36.60 | 134.40 | 228.00 |
| Chrome finish, brass accents  | P1@.900   | Ea   | 141.00   | 36.60 | 177.60 | 302.00 |
| <b>Bathroom décor kit with two-handle lavatory faucet.</b> Includes chrome finish deck-mount teapot faucet, 24" towel bar, towel ring, toilet paper holder, robe hook and mounting hardware. Titanium PVD polished brass finish. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Faucet and bath accessory kit   | P1@1.90   | Ea   | 95.70    | 77.30 | 173.00 | 294.00 |
| <b>Gerber two-handle lavatory faucet.</b> Deck-mount. 4" center set. Includes mechanical pop-up drain assembly. Traditional styling. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Cast brass body   | P1@.900   | Ea   | 57.10    | 36.60 | 93.70  | 159.00 |
| <b>Williamsburg two-handle lavatory faucet, American Standard.</b> Deck-mount. 1/4-turn ceramic disc cartridge. 4" center set. Solid brass construction with mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Brass and chrome  | P1@.900   | Ea   | 137.00   | 36.60 | 173.60 | 295.00 |
| Chrome with brass accents   | P1@.900   | Ea   | 134.00   | 36.60 | 170.60 | 290.00 |
| Chrome, porcelain handles   | P1@.900   | Ea   | 107.00   | 36.60 | 143.60 | 244.00 |
| Satin brass finish  | P1@.900   | Ea   | 164.00   | 36.60 | 200.60 | 341.00 |
| Satin chrome finish   | P1@.900   | Ea   | 164.00   | 36.60 | 200.60 | 341.00 |
| Velvet and chrome finish  | P1@.900   | Ea   | 171.00   | 36.60 | 207.60 | 353.00 |
| <b>Williamsburg two-handle lavatory faucet, American Standard.</b> Deck-mount. 8" center set. Chrome finish except as noted. J-spout. 1/4-turn ceramic disc cartridge resists hard and sandy water. Complete with both metal and porcelain lever handles. Solid brass construction with metal pop-up drain. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |           |      |          |       |        |        |
| Brass accents   | P1@.900   | Ea   | 195.00   | 36.60 | 231.60 | 394.00 |
| Brass, porcelain handles  | P1@.900   | Ea   | 168.00   | 36.60 | 204.60 | 348.00 |
| Brass, two sets of handles  | P1@.900   | Ea   | 132.00   | 36.60 | 168.60 | 287.00 |
| Porcelain lever handles   | P1@.900   | Ea   | 134.00   | 36.60 | 170.60 | 290.00 |
| Satin chrome finish   | P1@.900   | Ea   | 199.00   | 36.60 | 235.60 | 401.00 |
| Two sets of lever handles   | P1@.900   | Ea   | 170.00   | 36.60 | 206.60 | 351.00 |
| <b>J-spout two-handle lavatory faucet, American Standard.</b> Deck-mount. 4" center set. 1/4-turn ceramic disc cartridge. Mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Brass, porcelain handles  | P1@.900   | Ea   | 173.00   | 36.60 | 209.60 | 356.00 |
| Chrome, porcelain handles   | P1@.900   | Ea   | 114.00   | 36.60 | 150.60 | 256.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Savannah two-handle lavatory faucet, Price Pfister.</b> Deck-mount. 4" center set. High-arc swivel spout. Porcelain lever handles. Includes mechanical pop-up assembly. ADA compliant. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |           |      |          |       |        |        |
| Chrome finish   | P1@.900   | Ea   | 118.00   | 36.60 | 154.60 | 263.00 |
| <b>Georgetown two-handle lavatory faucet, Price Pfister.</b> Deck-mount. 4" center set. Chrome finish. Includes mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Brass accents   | P1@.900   | Ea   | 85.10    | 36.60 | 121.70 | 207.00 |
| Nickel, brass accent  | P1@.900   | Ea   | 177.00   | 36.60 | 213.60 | 363.00 |
| Porcelain cross handles   | P1@.900   | Ea   | 129.00   | 36.60 | 165.60 | 282.00 |
| Porcelain lever handles   | P1@.900   | Ea   | 116.00   | 36.60 | 152.60 | 259.00 |
| <b>Georgetown two-handle lavatory faucet, Price Pfister.</b> Deck-mount. 8" center set. Includes mechanical pop-up assembly. TwistPfit™ installation. Pforever Pfaucet™. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.                  |           |      |          |       |        |        |
| Chrome, porcelain cross handle  | P1@.900   | Ea   | 204.00   | 36.60 | 240.60 | 409.00 |
| Chrome, porcelain lever handle  | P1@.900   | Ea   | 205.00   | 36.60 | 241.60 | 411.00 |
| Nickel, brass accent  | P1@.900   | Ea   | 247.00   | 36.60 | 283.60 | 482.00 |
| <b>Two-handle lavatory faucet, Delta.</b> Deck-mount. Includes mechanical pop-up assembly. 4" center set. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Brass   | P1@.900   | Ea   | 221.00   | 36.60 | 257.60 | 438.00 |
| Chrome, brass accents   | P1@.900   | Ea   | 181.00   | 36.60 | 217.60 | 370.00 |
| Chrome, porcelain handles   | P1@.900   | Ea   | 121.00   | 36.60 | 157.60 | 268.00 |
| <b>Traditional two-handle lavatory faucet, Delta.</b> Deck-mount. Brilliance lifetime anti-tarnish chrome finish. Fits 3-hole sinks with 4" centers. Lifetime faucet and finish warranty. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required. |           |      |          |       |        |        |
| Brass accents   | P1@.900   | Ea   | 143.00   | 36.60 | 179.60 | 305.00 |
| <b>Victorian two-handle lavatory faucet, Masco.</b> Deck-mount. Metal lever handle. 4" center 3-hole installation. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Chrome finish   | P1@.900   | Ea   | 155.00   | 36.60 | 191.60 | 326.00 |
| Satin nickel finish   | P1@.900   | Ea   | 296.00   | 36.60 | 332.60 | 565.00 |
| Venetian bronze finish  | P1@.900   | Ea   | 202.00   | 36.60 | 238.60 | 406.00 |
| <b>Monticello two-handle lavatory faucet, Moen.</b> Deck-mount. 4" center set. Chrome finish. Includes mechanical pop-up assembly. Reliable washerless cartridge. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.                         |           |      |          |       |        |        |
| Chrome  | P1@.900   | Ea   | 109.00   | 36.60 | 145.60 | 248.00 |
| Chrome, brass handles   | P1@.900   | Ea   | 121.00   | 36.60 | 157.60 | 268.00 |
| <b>Platinum two-handle lavatory faucet, Moen.</b> Deck-mount. 4" center set. Includes mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.   |           |      |          |       |        |        |
| Platinum finish, chrome accents   | P1@.900   | Ea   | 170.00   | 36.60 | 206.60 | 351.00 |
| <b>Decorator two-handle lavatory faucet, Moen.</b> Metal lever handles. 4" center set. With waste assembly. ADA compliant. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.  |           |      |          |       |        |        |
| Polished brass  | P1@.900   | Ea   | 248.00   | 36.60 | 284.60 | 484.00 |
| <b>Asceri Hi-Arc lavatory faucet, Moen.</b> Deck-mount. 4" center set. Includes mechanical pop-up assembly. Lifetime limited warranty against leaks, drips and finish defects. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.            |           |      |          |       |        |        |
| Chrome with brass accents   | P1@.900   | Ea   | 242.00   | 36.60 | 278.60 | 474.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Monticello adjustable-center two-handle lavatory faucet, Moen.** Deck-mount. Adjustable center fits 8" to 16" centers. Includes mechanical pop-up assembly. Finish will not scratch or tarnish. Metal construction. Washerless cartridge. Comes with 1/2"-high IPS connections. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|                           |         |    |        |       |        |        |
|---------------------------|---------|----|--------|-------|--------|--------|
| Chrome with brass accents | P1@.900 | Ea | 201.00 | 36.60 | 237.60 | 404.00 |
| Polished brass            | P1@.900 | Ea | 324.00 | 36.60 | 360.60 | 613.00 |

**Adjustable-center two-handle lavatory faucet, Moen.** Deck-mount. Fits 8" to 16" centers. LifeShine™ non-tarnish finish. Lever handles. Includes mechanical pop-up assembly. ADA compliant. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|        |         |    |        |       |        |        |
|--------|---------|----|--------|-------|--------|--------|
| Chrome | P1@.900 | Ea | 188.00 | 36.60 | 224.60 | 382.00 |
|--------|---------|----|--------|-------|--------|--------|

**Adjustable-center two-handle lavatory faucet, J A Manufacturing.** Deck-mount. Fits 6" to 12" centers. Energy-saving aerator. Drip-free ceramic disc cartridge. Double set screws strengthen handles. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|                           |         |    |        |       |        |        |
|---------------------------|---------|----|--------|-------|--------|--------|
| Bronze finish             | P1@.900 | Ea | 226.00 | 36.60 | 262.60 | 446.00 |
| Brushed nickel and chrome | P1@.900 | Ea | 267.00 | 36.60 | 303.60 | 516.00 |

**Fairfax two-handle lavatory faucet, Kohler.** Deck-mount. 8" center set. Lever handles. Includes mechanical pop-up assembly. Labor includes set in place and connection only. Add the cost of plumbing rough-in as required.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| Polished chrome | P1@.900 | Ea | 201.00 | 36.60 | 237.60 | 404.00 |
|-----------------|---------|----|--------|-------|--------|--------|

**Fixture valve and supply lines.** Flexible hose. Cone washer for universal fit.

|   |         |    |      |       |       |       |
|---|---------|----|------|-------|-------|-------|
| 3/8" C x 7/8" BC x 12",<br>PVC faucet supply    | P1@.250 | Ea | 7.44 | 10.20 | 17.64 | 30.00 |
| 1/2" FIP x 1/2" FIP x 16",<br>PVC faucet supply | P1@.250 | Ea | 8.60 | 10.20 | 18.80 | 32.00 |
| 1/2" FIP x 1/2" FIP x 20",<br>PVC faucet supply | P1@.250 | Ea | 7.73 | 10.20 | 17.93 | 30.50 |

## Vanity Cabinets Without Top

**Springfield vanity.** White finish. No assembly required. Maple finished interior with concealed hinges. Add the cost of countertop, basin and plumbing. 32" high.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 18" wide x 16" deep, 1 door  | BC@.400 | Ea | 84.50  | 16.40 | 100.90 | 172.00 |
| 24" wide x 18" deep, 2 doors | BC@.400 | Ea | 117.00 | 16.40 | 133.40 | 227.00 |
| 30" wide x 18" deep, 3 doors | BC@.400 | Ea | 128.00 | 16.40 | 144.40 | 245.00 |

**Charleston oak vanity.** Fully assembled. Maple finished interior with concealed hinges. Includes chrome knobs.

Add the cost of countertop, basin and plumbing. 32" high.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 24" wide x 18" deep, 2 doors | BC@.400 | Ea | 108.00 | 16.40 | 124.40 | 211.00 |
| 30" wide x 18" deep, 2 doors | BC@.400 | Ea | 123.00 | 16.40 | 139.40 | 237.00 |

**Kingston vanity.** White finish. Fully assembled. Maple finished interior with concealed hinges. Includes decorative door hardware. Add the cost of countertop, basin and plumbing. 18" deep. 34" high.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 24" wide, 1 door, 2 drawers  | BC@.400 | Ea | 184.00 | 16.40 | 200.40 | 341.00 |
| 30" wide, 1 door, 2 drawers  | BC@.400 | Ea | 206.00 | 16.40 | 222.40 | 378.00 |
| 36" wide, 2 doors, 2 drawers | BC@.400 | Ea | 222.00 | 16.40 | 238.40 | 405.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Arkansas white vanity cabinet.** Fully assembled, ready to install. Front surfaced in rigid thermofoil vinyl. Deluxe raised-panel doors match drawer fronts. Extra deep drawers. Concealed and adjustable steel European-style hinges. Chrome hardware included. Add the cost of countertop, basin and plumbing. 18" deep. 34" high.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 24" wide, 1 door, 2 drawers  | BC@.400 | Ea | 172.00 | 16.40 | 188.40 | 320.00 |
| 30" wide, 1 door, 2 drawers  | BC@.400 | Ea | 218.00 | 16.40 | 234.40 | 398.00 |
| 36" wide, 2 doors, 2 drawers | BC@.400 | Ea | 237.00 | 16.40 | 253.40 | 431.00 |

**Monterey vanity.** White. Fully assembled. Maple-finished interior with fully-adjustable concealed hinges. Extra-durable, thick plywood drawer box. Countertop, faucet and basin sold separately. 21" deep. 32" high. Add the cost of countertop, basin and plumbing.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 24" wide, 1 door, 2 drawers  | BC@.400 | Ea | 242.00 | 16.40 | 258.40 | 439.00 |
| 30" wide, 1 door, 2 drawers  | BC@.400 | Ea | 255.00 | 16.40 | 271.40 | 461.00 |
| 36" wide, 1 door, 2 drawers  | BC@.400 | Ea | 304.00 | 16.40 | 320.40 | 545.00 |
| 48" wide, 2 doors, 4 drawers | BC@.500 | Ea | 391.00 | 20.50 | 411.50 | 700.00 |
| 60" wide, 2 doors, 4 drawers | BC@.500 | Ea | 489.00 | 20.50 | 509.50 | 866.00 |

**Monterey oak vanity.** Fully assembled. Maple-finished interior with fully-adjustable concealed hinges. Extra-durable, thick plywood drawer box. Add the cost of countertop, basin and plumbing. 21" deep. 32" high.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| 24" wide, 1 door, 2 drawers | BC@.400 | Ea | 250.00 | 16.40 | 266.40 | 453.00 |
| 30" wide, 1 door, 2 drawers | BC@.400 | Ea | 263.00 | 16.40 | 279.40 | 475.00 |
| 36" wide, 1 door, 2 drawers | BC@.400 | Ea | 310.00 | 16.40 | 326.40 | 555.00 |
| 48" wide, 1 door, 4 drawers | BC@.500 | Ea | 400.00 | 20.50 | 420.50 | 715.00 |
| 60" wide, 1 door, 4 drawers | BC@.500 | Ea | 505.00 | 20.50 | 525.50 | 893.00 |

**Monterey maple vanity.** Fully assembled, ready to install. Solid maple and veneer door drawers and header. Large-capacity drawers. Solid maple face frame. Concealed adjustable hinges. Add the cost of countertop, basin and plumbing. 21" deep. 32" high.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| 24" wide, 1 door, 2 drawers | BC@.400 | Ea | 278.00 | 16.40 | 294.40 | 500.00 |
| 30" wide, 1 door, 2 drawers | BC@.400 | Ea | 349.00 | 16.40 | 365.40 | 621.00 |
| 36" wide, 1 door, 2 drawers | BC@.400 | Ea | 358.00 | 16.40 | 374.40 | 636.00 |
| 48" wide, 1 door, 4 drawers | BC@.500 | Ea | 416.00 | 20.50 | 436.50 | 742.00 |
| 60" wide, 1 door, 4 drawers | BC@.500 | Ea | 543.00 | 20.50 | 563.50 | 958.00 |

**Danville vanity with bottom drawer.** Fully assembled. Durable white finish. Raised arch panel door. Patented deep-storage bottom drawer. Concealed adjustable hinges. 21" deep. 32" high. Add the cost of countertop, basin and plumbing.

|                         |         |    |        |       |        |        |
|-------------------------|---------|----|--------|-------|--------|--------|
| 24", 2 doors, 1 drawer  | BC@.400 | Ea | 264.00 | 16.40 | 280.40 | 477.00 |
| 30", 1 door, 4 drawers  | BC@.400 | Ea | 321.00 | 16.40 | 337.40 | 574.00 |
| 36", 2 doors, 4 drawers | BC@.400 | Ea | 360.00 | 16.40 | 376.40 | 640.00 |
| 48", 2 doors, 7 drawers | BC@.500 | Ea | 482.00 | 20.50 | 502.50 | 854.00 |

**Virginia bottom drawer oak vanity.** Solid oak and oak veneer. No assembly required. Maple-finished interior with concealed hinges. Ball bearing glides on bottom drawer. Add the cost of countertop, basin and plumbing. 21" deep. 32" high.

|                              |         |    |        |       |        |        |
|------------------------------|---------|----|--------|-------|--------|--------|
| 24" wide, 1 door, 2 drawers  | BC@.400 | Ea | 268.00 | 16.40 | 284.40 | 483.00 |
| 30" wide, 1 door, 3 drawers  | BC@.400 | Ea | 322.00 | 16.40 | 338.40 | 575.00 |
| 36" wide, 2 doors, 3 drawers | BC@.400 | Ea | 348.00 | 16.40 | 364.40 | 619.00 |
| 48" wide, 2 doors, 7 drawers | BC@.500 | Ea | 434.00 | 20.50 | 454.50 | 773.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

### Cultured Marble Vanity Tops

**Recessed eclipse oval bowl cultured marble vanity top.** Radius edge detail. Includes overflow. Labor includes connecting the top to the drain. Dove white.

|                                |         |    |        |       |        |        |
|--------------------------------|---------|----|--------|-------|--------|--------|
| 25" wide x 22" deep            | P1@.654 | Ea | 154.00 | 26.60 | 180.60 | 307.00 |
| 31" wide x 22" deep            | P1@.654 | Ea | 171.00 | 26.60 | 197.60 | 336.00 |
| 37" wide x 22" deep            | P1@.654 | Ea | 201.00 | 26.60 | 227.60 | 387.00 |
| 49" wide x 22" deep            | P1@.654 | Ea | 262.00 | 26.60 | 288.60 | 491.00 |
| 61" wide x 22" deep, two bowls | P1@1.25 | Ea | 349.00 | 50.80 | 399.80 | 680.00 |
| 22" long side splash           | P1@.200 | Ea | 40.80  | 8.13  | 48.93  | 83.20  |

**Neptune shell marble countertop.** Traditional scalloped shell bowl. 3-step edge detail. Includes overflow. Labor includes connecting the top to the drain. Glacier white.

|                      |         |    |        |       |        |        |
|----------------------|---------|----|--------|-------|--------|--------|
| 25" wide x 22" deep  | P1@.654 | Ea | 170.00 | 26.60 | 196.60 | 334.00 |
| 31" wide x 22" deep  | P1@.654 | Ea | 185.00 | 26.60 | 211.60 | 360.00 |
| 37" wide x 22" deep  | P1@.654 | Ea | 226.00 | 26.60 | 252.60 | 429.00 |
| 49" wide x 22" deep  | P1@.654 | Ea | 257.00 | 26.60 | 283.60 | 482.00 |
| 22" long side splash | P1@.200 | Ea | 31.00  | 8.13  | 39.13  | 66.50  |

**Newport cultured marble vanity top.** White. Labor includes connecting the top to the drain.

|                      |         |    |        |       |        |        |
|----------------------|---------|----|--------|-------|--------|--------|
| 19" wide x 17" deep  | P1@.654 | Ea | 70.70  | 26.60 | 97.30  | 165.00 |
| 25" wide x 19" deep  | P1@.654 | Ea | 102.00 | 26.60 | 128.60 | 219.00 |
| 31" wide x 19" deep  | P1@.654 | Ea | 118.00 | 26.60 | 144.60 | 246.00 |
| 37" wide x 19" deep  | P1@.654 | Ea | 160.00 | 26.60 | 186.60 | 317.00 |
| 19" long side splash | P1@.200 | Ea | 28.20  | 8.13  | 36.33  | 61.80  |

**Rectangular cultured marble vanity top.** Solid cultured marble. Heat- and stain-resistant. Labor includes connecting the top to the drain. Faucet sold separately. 19" deep.

|                             |         |    |        |       |        |        |
|-----------------------------|---------|----|--------|-------|--------|--------|
| 25" wide, dove white        | P1@.654 | Ea | 102.00 | 26.60 | 128.60 | 219.00 |
| 31" wide, dove white        | P1@.654 | Ea | 121.00 | 26.60 | 147.60 | 251.00 |
| 37" wide, dove white        | P1@.654 | Ea | 148.00 | 26.60 | 174.60 | 297.00 |
| 19" side splash, dove white | P1@.200 | Ea | 25.10  | 8.13  | 33.23  | 56.50  |
| 25" wide, pearl onyx        | P1@.654 | Ea | 185.00 | 26.60 | 211.60 | 360.00 |
| 31" wide, pearl onyx        | P1@.654 | Ea | 205.00 | 26.60 | 231.60 | 394.00 |
| 37" wide, pearl onyx        | P1@.654 | Ea | 222.00 | 26.60 | 248.60 | 423.00 |
| 19" side splash, pearl onyx | P1@.200 | Ea | 15.10  | 8.13  | 23.23  | 39.50  |

**Rectangular premium cultured marble vanity top.** 4" backsplash. Overflow drain. 1" lip on three sides to guard against drips. Labor includes connecting the top to the drain. Solid white. Faucet sold separately.

|                      |         |    |        |       |        |        |
|----------------------|---------|----|--------|-------|--------|--------|
| 25" wide x 22" deep  | P1@.654 | Ea | 151.00 | 26.60 | 177.60 | 302.00 |
| 31" wide x 22" deep  | P1@.654 | Ea | 168.00 | 26.60 | 194.60 | 331.00 |
| 49" wide x 22" deep  | P1@.654 | Ea | 275.00 | 26.60 | 301.60 | 513.00 |
| 22" long side splash | P1@.200 | Ea | 35.40  | 8.13  | 43.53  | 74.00  |

**Shell bowl cultured marble vanity top.** White. Labor includes connecting the top to the drain.

|                                  |         |    |        |       |        |        |
|----------------------------------|---------|----|--------|-------|--------|--------|
| 25" wide x 19" deep              | P1@.654 | Ea | 120.00 | 26.60 | 146.60 | 249.00 |
| 31" wide x 19" deep              | P1@.654 | Ea | 141.00 | 26.60 | 167.60 | 285.00 |
| 37" wide x 19" deep              | P1@.654 | Ea | 114.00 | 26.60 | 140.60 | 239.00 |
| 37" wide x 22" deep, offset left | P1@.654 | Ea | 224.00 | 26.60 | 250.60 | 426.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Shell bowl cultured marble vanity top.</b> White. Labor includes connecting the top to the drain.   |           |      |          |       |        |        |
| 31" wide x 22" deep  | P1@.654   | Ea   | 185.00   | 26.60 | 211.60 | 360.00 |
| 37" wide x 22" deep  | P1@.654   | Ea   | 200.00   | 26.60 | 226.60 | 385.00 |
| 49" wide x 22" deep  | P1@.654   | Ea   | 254.00   | 26.60 | 280.60 | 477.00 |
| 22" long side splash   | P1@.200   | Ea   | 28.00    | 8.13  | 36.13  | 61.40  |
| <b>Aspen cultured marble vanity top and bowl.</b> Swirl finish. Labor includes connecting the top to the drain.  |           |      |          |       |        |        |
| 31" wide x 22" deep  | P1@.654   | Ea   | 205.00   | 26.60 | 231.60 | 394.00 |
| 37" wide x 22" deep  | P1@.654   | Ea   | 239.00   | 26.60 | 265.60 | 452.00 |
| 49" wide x 22" deep  | P1@.654   | Ea   | 305.00   | 26.60 | 331.60 | 564.00 |
| 22" long side splash   | P1@.200   | Ea   | 34.00    | 8.13  | 42.13  | 71.60  |
| <b>Recessed oval bowl cultured marble vanity top.</b> Pearl onyx. Labor includes connecting the top to the drain.  |           |      |          |       |        |        |
| 31" wide x 22" deep  | P1@.654   | Ea   | 252.00   | 26.60 | 278.60 | 474.00 |
| 37" wide x 22" deep  | P1@.654   | Ea   | 288.00   | 26.60 | 314.60 | 535.00 |
| 49" wide x 22" deep  | P1@.654   | Ea   | 390.00   | 26.60 | 416.60 | 708.00 |
| 22" long side splash   | P1@.200   | Ea   | 56.50    | 8.13  | 64.63  | 110.00 |
| <b>Solid Surface Vanity Tops</b>   |           |      |          |       |        |        |
| <b>Solid surface vanity sink top.</b> 22" deep. Oval halo bowl. 1-1/4" premium edge detail.  |           |      |          |       |        |        |
| 25" wide, saddle   | BC@.377   | Ea   | 260.00   | 15.50 | 275.50 | 468.00 |
| 31" wide, saddle   | BC@.468   | Ea   | 267.00   | 19.20 | 286.20 | 487.00 |
| 37" wide, saddle   | BC@.558   | Ea   | 318.00   | 22.90 | 340.90 | 580.00 |
| 49" wide, saddle   | BC@.740   | Ea   | 381.00   | 30.40 | 411.40 | 699.00 |
| 61" wide, saddle, double bowl  | B1@.920   | Ea   | 538.00   | 34.20 | 572.20 | 973.00 |
| 22" long side splash, saddle   | BC@.332   | Ea   | 38.70    | 13.60 | 52.30  | 88.90  |
| 31" wide, wheat  | BC@.468   | Ea   | 267.00   | 19.20 | 286.20 | 487.00 |
| 37" wide, wheat  | BC@.558   | Ea   | 318.00   | 22.90 | 340.90 | 580.00 |
| 49" wide, wheat  | BC@.740   | Ea   | 381.00   | 30.40 | 411.40 | 699.00 |
| 22" long side splash, wheat  | BC@.332   | Ea   | 38.70    | 13.60 | 52.30  | 88.90  |
| <b>Granite vanity top.</b> 4" center.  |           |      |          |       |        |        |
| 31" wide, beige  | BC@.400   | Ea   | 314.00   | 16.40 | 330.40 | 562.00 |
| 37" wide, beige  | BC@.400   | Ea   | 353.00   | 16.40 | 369.40 | 628.00 |
| <b>Vanity Cabinets with Countertop and Basin</b>   |           |      |          |       |        |        |
| <b>Raised panel vanity with white marble top.</b> Berkeley series. Solid oak and veneer raised panel doors. 31" high. Frameless construction with no exposed hinges. Maple-finish vanity interior. Assembled. Includes decorative hardware. Faucet sold separately. Labor cost includes setting in place only.             |           |      |          |       |        |        |
| 18" wide x 16" deep  | BC@.400   | Ea   | 138.00   | 16.40 | 154.40 | 262.00 |
| 24" wide x 18" deep  | BC@.400   | Ea   | 171.00   | 16.40 | 187.40 | 319.00 |
| 30" wide x 18" deep  | BC@.400   | Ea   | 222.00   | 16.40 | 238.40 | 405.00 |
| <b>Raised panel vanity with white marble top.</b> Del Mar series. White rigid thermofoil raised panel doors. 31" high. Frameless construction with no exposed hinges. Maple-finish vanity interior. Fully assembled. Includes decorative door hardware. Faucet sold separately. Labor cost includes setting in place only. |           |      |          |       |        |        |
| 18" wide x 16" deep  | BC@.400   | Ea   | 160.00   | 16.40 | 176.40 | 300.00 |
| 24" wide x 18" deep  | BC@.400   | Ea   | 204.00   | 16.40 | 220.40 | 375.00 |
| 30" wide x 18" deep  | BC@.400   | Ea   | 263.00   | 16.40 | 279.40 | 475.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Vanity and cultured marble top.** Colorado style. Fully assembled. Faucet sold separately. 31" high. Oak finish.

Labor cost includes setting in place only.

|                        |         |    |        |       |        |        |
|------------------------|---------|----|--------|-------|--------|--------|
| 18" wide x 16" deep    | BC@.400 | Ea | 121.00 | 16.40 | 137.40 | 234.00 |
| 24" wide x 18" deep    | BC@.400 | Ea | 161.00 | 16.40 | 177.40 | 302.00 |
| 30" wide x 18" deep    | BC@.400 | Ea | 216.00 | 16.40 | 232.40 | 395.00 |
| 30" wide, slide drawer | BC@.400 | Ea | 257.00 | 16.40 | 273.40 | 465.00 |
| 36" wide, slide drawer | BC@.400 | Ea | 291.00 | 16.40 | 307.40 | 523.00 |

**White vanity with cultured marble top.** Arkansas style. Rigid thermofoil front. Raised square panel door.

Concealed 35mm European hinges. Glue and dowel construction. Full overlay frameless doors. Fully assembled.

Faucet sold separately. Labor cost includes setting in place only.

|                     |         |    |        |       |        |        |
|---------------------|---------|----|--------|-------|--------|--------|
| 18" wide x 16" deep | BC@.400 | Ea | 121.00 | 16.40 | 137.40 | 234.00 |
| 24" wide x 18" deep | BC@.400 | Ea | 161.00 | 16.40 | 177.40 | 302.00 |
| 30" wide x 18" deep | BC@.400 | Ea | 216.00 | 16.40 | 232.40 | 395.00 |
| 36" wide x 18" deep | BC@.400 | Ea | 281.00 | 16.40 | 297.40 | 506.00 |

**Vanity cabinet with top.** Cultured marble top. Solid doors and face frame. Brass hardware. Faucet sold separately.

Labor cost includes setting in place only.

|                                       |         |    |        |       |        |        |
|---------------------------------------|---------|----|--------|-------|--------|--------|
| 24" wide x 18" deep x 31" high, oak   | BC@.400 | Ea | 186.00 | 16.40 | 202.40 | 344.00 |
| 24" wide x 18" deep x 31" high, white | BC@.400 | Ea | 186.00 | 16.40 | 202.40 | 344.00 |

**Vanity cabinet with cultured marble top and mirror.** 2-door, 1-drawer vanity cabinet. White melamine finish. Fully assembled bottom drawer vanity cabinet. Matching decorative Heritage-style vanity and mirror. Durable European-style cultured marble top. Extended Euro top provides extra surface area for accessories. 21-1/2" wide x 23-1/2" high mirror. Faucet sold separately. Labor cost includes setting in place only.

|                                |         |    |        |       |        |        |
|--------------------------------|---------|----|--------|-------|--------|--------|
| 24" wide x 13" deep x 31" high | BC@.400 | Ea | 320.00 | 16.40 | 336.40 | 572.00 |
|--------------------------------|---------|----|--------|-------|--------|--------|

**Bath Exhaust Fans**

**ValueTest™ economy ceiling and wall exhaust fan, NuTone.** For baths, utility, and recreation rooms. Non-ducted. For baths up to 45 square feet; other rooms up to 60 square feet. Installs in ceiling or in wall. Plastic duct collar. White polymeric grille. UL listed for use in tub and shower enclosure with GFCI branch circuit wiring. Housing dimensions: 8-1/16" length, 7-3/16" width, 3-7/8" depth. Grille size, 8-11/16" x 9-1/2". 3" duct. 0.75 amp. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).

|                   |         |    |       |       |       |        |
|-------------------|---------|----|-------|-------|-------|--------|
| 50 CFM, 2.5 sones | BE@1.00 | Ea | 22.60 | 44.90 | 67.50 | 115.00 |
| 70 CFM, 4.0 sones | BE@1.00 | Ea | 37.30 | 44.90 | 82.20 | 140.00 |

**Economy ceiling or wall bath fan.** Steel housing, with permanently lubricated motor and built-in damper. Torsion spring-mounted white polymeric grille. Built-in mounting ears. Housing dimensions: 7-1/4" length, 7-1/2" width, 3-5/8" depth. UL listed to use over bathtubs and showers when connected to a GFCI-protected branch circuit. For bathrooms up to 45 square feet. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).

|                   |         |    |       |       |       |        |
|-------------------|---------|----|-------|-------|-------|--------|
| 50 CFM, 2.0 sones | BE@1.00 | Ea | 22.60 | 44.90 | 67.50 | 115.00 |
|-------------------|---------|----|-------|-------|-------|--------|

**Ceiling or wall bath fan, Broan Manufacturing.** Steel housing, with permanently lubricated motor and built-in damper. Centrifugal blower wheel. Torsion spring-mounted white polymeric grille. Built-in double steel mounting ears with keyhole slots. Fits 3" round ducts. Housing dimensions: 7-1/4" length, 7-1/2" width, 3-5/8" depth. UL listed for use over bathtubs and showers when connected to a GFCI-protected branch circuit. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).

|                   |         |    |       |       |       |        |
|-------------------|---------|----|-------|-------|-------|--------|
| 50 CFM, 2.0 sones | BE@1.00 | Ea | 22.60 | 44.90 | 67.50 | 115.00 |
| 70 CFM, 3.0 sones | BE@1.00 | Ea | 37.30 | 44.90 | 82.20 | 140.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Vertical discharge bath fan.</b> Galvanized steel housing, with built-in damper and spin-on white polymeric grille. Polymeric fan blade and duct connectors. Built-in double steel mounting ears with keyhole slots. Fits 8" ducts. UL listed. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).  |           |      |          |       |        |        |
| 180 CFM, 4.0 sones<br>350 CFM, 5.0 sones   |           |      |          |       |        |        |
|  | BE@1.00   | Ea   | 81.80    | 44.90 | 126.70 | 215.00 |
|  | BE@1.00   | Ea   | 197.00   | 44.90 | 241.90 | 411.00 |
| <b>Vertical discharge bath fan, NuTone.</b> For 75-square-foot bath. Mounts in ceiling, discharges through duct to roof or wall. White polymeric grille. Fits 7" round ducts. Housing dimensions: 6-15/16" diameter x 6-1/2" length. Grille size, 8-11/16" x 9-1/2". UL listed for use in tub/shower when used with GFI branch circuit wiring. Not recommended for kitchen use. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).  |           |      |          |       |        |        |
| 70 CFM, 2.5 sones  | BE@1.00   | Ea   | 84.40    | 44.90 | 129.30 | 220.00 |
| <b>Vertical discharge utility fan, NuTone.</b> Mounts in ceiling. Discharges through duct to roof or wall. Pre-wired motor with plug-in receptacle. Adjustable hanger bars for 16" or 24" on-center joists. Silver anodized aluminum grille. Fits 7" round ducts. Housing dimensions: 11" diameter x 5-5/8" deep. UL listed. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).   |           |      |          |       |        |        |
| 210 CFM, 6.5 sones   | BE@1.00   | Ea   | 139.00   | 44.90 | 183.90 | 313.00 |
| <b>Ceiling or wall bath exhaust fan, NuTone.</b> White polymeric grille. Torsion spring grille mounting requires no tools. Plug-in, permanently lubricated motor. Centrifugal blower wheel. Rugged, 26 gauge galvanized steel housing. Keyhole mounting brackets for quick, accurate installation. Tapered, polymeric duct fitting with built-in backdraft damper. UL listed for use over bathtubs and showers when connected to a GFCI-protected branch circuit. 120 volts, 0.5 amps, 2.5 sones, 80 CFM (HVI-2100 certified) and 4" round duct. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute). |           |      |          |       |        |        |
| 80 CFM, 2.5 sones  | BE@1.00   | Ea   | 79.70    | 44.90 | 124.60 | 212.00 |
| <b>Bath exhaust fan, Broan Manufacturing.</b> Aluminum centrifugal blower wheel powered by 4-pole 1,500-RPM low-sound motor. Fits 4" ducts. White polymeric designer grille, torsion spring-mounted. Housing dimensions: 8" length, 8-1/4" width, 5-3/4" depth. UL listed for use over bathtubs and showers when connected to a GFCI-protected branch circuit. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).   |           |      |          |       |        |        |
| 110 CFM, 4.0 sones   | BE@1.00   | Ea   | 133.00   | 44.90 | 177.90 | 302.00 |
| <b>Bath exhaust fan.</b> Pre-wired outlet box for plug-in motor plate, torsion spring-mounted low-profile grille. Steel housing, damper to eliminate backdrafts. Housing: 9-1/4" x 9-1/2" x 7-5/8". AMCA licensed for air and sound. UL listed to use over tub or shower enclosure with GFCI-protected branch circuit. HVI Certified. 4" duct. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).   |           |      |          |       |        |        |
| 80 CFM, 2.5 sones  | BE@1.00   | Ea   | 136.00   | 44.90 | 180.90 | 308.00 |
| 80 CFM, 3.5 sones  | BE@1.00   | Ea   | 149.00   | 44.90 | 193.90 | 330.00 |
| 90 CFM, 1.5 sones  | BE@1.00   | Ea   | 176.00   | 44.90 | 220.90 | 376.00 |
| 120 CFM, 2.5 sones   | BE@1.00   | Ea   | 217.00   | 44.90 | 261.90 | 445.00 |
| 130 CFM, 2.5 sones   | BE@1.00   | Ea   | 231.00   | 44.90 | 275.90 | 469.00 |
| <b>Ultra Silent® low-sound bath fan, Broan Manufacturing.</b> Centrifugal blower. 7-5/8" high housing. UL listed for use over bathtubs and showers when connected to a GFCI-protected branch circuit. AMCA licensed for both air and sound. 4" duct. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).   |           |      |          |       |        |        |
| 80 CFM, 0.6 sones  | BE@1.00   | Ea   | 189.00   | 44.90 | 233.90 | 398.00 |
| 110 CFM, 1.5 sones   | BE@1.00   | Ea   | 242.00   | 44.90 | 286.90 | 488.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Thru-the-wall utility fan, Broan Manufacturing.</b> Steel housing with built-in damper and white polymeric grille. Permanently lubricated motor. Rotary on and off switch. Housing dimensions: 14-1/4" long, 14-1/4" wide, 4-1/2" deep. UL listed. Labor includes setting and connecting only. Add the cost of wiring and exterior finish. CFM (cubic feet of air per minute).   |           |      |          |       |        |        |
| 180 CFM, 5.0 sones  | BE@1.00   | Ea   | 92.20    | 44.90 | 137.10 | 233.00 |
| <b>Chain-operated wall exhaust fan.</b> Steel housing. Low-profile white polymeric grille. Permanently lubricated motor. Pull-chain opens door and turns on fan. Fits walls from 4-1/2" to 9-1/2" thick. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).  |           |      |          |       |        |        |
| 8", 250 CFM, 4.5 sones  | BE@.850   | Ea   | 46.80    | 38.10 | 84.90  | 144.00 |
| <b>QuieTTTest® low-sound bath fan, NuTone.</b> For 105-square-foot bath. Pre-wired outlet box with plug-in receptacle. Adjustable hanger brackets. Fits 4" round ducts. Low-profile white polymeric grille, torsion spring-mounted. Housing dimensions: 9-3/8" length, 11-1/4" width, 7-7/8" depth. Grille size, 14-1/4" x 12-1/16". UL listed for use in tub and shower when used with GFI branch circuit wiring. Not recommended for kitchen use. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute). |           |      |          |       |        |        |
| 100 CFM, 2.0 sones  | BE@1.00   | Ea   | 173.00   | 44.90 | 217.90 | 370.00 |
| <b>QuieTTTest® low-sound ceiling blower, NuTone.</b> For 375-square-foot room. Pre-wired outlet box with plug-in receptacle. Rounded, low-profile white polymeric grille with silver anodized trim at each end. Housing dimensions: 14-1/4" length, 10" width, 9" depth. Grille size, 16-1/2" x 12-3/32". Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).   |           |      |          |       |        |        |
| 300 CFM, 4.5 sones  | BE@1.00   | Ea   | 204.00   | 44.90 | 248.90 | 423.00 |
| <b>Lighted Bath Exhaust Fans</b>  |           |      |          |       |        |        |
| <b>ValueTest™ economy bath fan and light, NuTone.</b> Fan and light operate separately or together. Fits 4" ducts. White polymeric grille with break-resistant lens. Uses 100-watt lamp (not included). Housing dimensions: 9" length, 9" width, 5-1/2" depth. Grille size, 10-3/4" x 12-1/8". UL listed for use in tub and shower when used with GFI branch circuit wiring. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).  |           |      |          |       |        |        |
| 50 CFM, 2.5 Sones, 45 SF bath   | BE@1.00   | Ea   | 49.30    | 44.90 | 94.20  | 160.00 |
| 70 CFM, 4.5 Sones, 65 SF bath   | BE@1.00   | Ea   | 147.00   | 44.90 | 191.90 | 326.00 |
| <b>Decorative globe bath fan and light, NuTone.</b> Decorative glass fixture with a powerful exhaust fan. The fan exhausts through inconspicuous openings in the base. Corrosion-resistant gloss-white finish base with frosted melon glass globe. Can be installed throughout the house in bathrooms, bedrooms or hallways. Uses two standard 60-watt bulbs (sold separately). Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).   |           |      |          |       |        |        |
| 70 CFM, 3.5 sones, white  | BE@.850   | Ea   | 127.00   | 38.10 | 165.10 | 281.00 |
| <b>Exhaust Air deluxe bath fan with light, NuTone.</b> Ventilation for baths up to 95 square feet, other rooms up to 125 square feet. 100-watt ceiling and 7-watt night light or energy-saving fluorescent light (lamps not included). Snap-on grille assembly. Housing dimensions: 9" length, 9" width, 6" depth. Polymeric white grille, 15" diameter. UL listed for use in tub and shower when used with GFI branch circuit wiring. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).              |           |      |          |       |        |        |
| 100 CFM, 3.5 sones  | BE@1.00   | Ea   | 123.00   | 44.90 | 167.90 | 285.00 |
| <b>Economy bath exhaust fan and light, Broan Manufacturing.</b> Type IC. Polymeric impeller. Plug-in permanently lubricated motor. 13-watt double twin tube compact fluorescent bulb provides equivalent of 60 watts of incandescent light (bulb not included). White polymeric grille. UL listed for use over bathtubs and showers when connected to GFCI-protected branch circuit. 4" duct. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).   |           |      |          |       |        |        |
| 50 CFM, 3.5 sones   | BE@1.00   | Ea   | 65.90    | 44.90 | 110.80 | 188.00 |
| 70 CFM, 3.5 sones   | BE@1.00   | Ea   | 102.00   | 44.90 | 146.90 | 250.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Decorative bath exhaust fan with light, Broan Manufacturing.</b> Corrosion-resistant finish. Frosted melon glass globe. 60 watt max. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute). |           |      |          |       |        |        |
| 70 CFM, round globe, white  | BE@1.00   | Ea   | 149.00   | 44.90 | 193.90 | 330.00 |

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| <b>Designer Series bath fan with light, Broan Manufacturing.</b> With light and 7-watt night light. Bulbs not included. Type IC permanently lubricated motor. Centrifugal blower for high performance at low sound levels. Quiet damper prevents cold backdrafts. Oak frame with multi-layer moisture protection. Steel housing with adjustable brackets that span to 24". 100-watt light with glass lens and low-profile polished brass finished grille assembly. Housing dimensions: 8" x 8-1/4" x 5-3/4". Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute). |         |    |        |       |        |        |
| 80 CFM, 0.6 sones  | BE@1.00 | Ea | 204.00 | 44.90 | 248.90 | 423.00 |
| 100 CFM, 3.5 sones   | BE@1.00 | Ea | 209.00 | 44.90 | 253.90 | 432.00 |

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| <b>Bath fan with light, Broan Manufacturing.</b> 18-watt twin-tube fluorescent bulb, built-in 7-watt night light (bulbs not included). Type IC balanced centrifugal blower. Permanently lubricated motor. 7-5/8"-high housing. Mounts directly to ceiling joists or spans up to 24" with slide bar brackets. 4" duct. Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute). |         |    |        |       |        |        |
| 110 CFM, 1.5 sones  | BE@1.00 | Ea | 185.00 | 44.90 | 229.90 | 391.00 |
| 120 CFM, 2.5 sones  | BE@1.00 | Ea | 338.00 | 44.90 | 382.90 | 651.00 |

## Bath Exhaust Fans with Heater

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| <b>Infrared bulb heater and fan, Broan Manufacturing.</b> 4-point adjustable mounting brackets span up to 24". Uses 250-watt, 120-volt R-40 infrared bulbs (not included). Heater and fan units include 70 CFM (cubic feet of air per minute), 3.5 sones ventilator fan. Damper and duct connector included. Plastic matte-white molded grille and compact housings. Labor includes setting and connecting only. Add the cost of wiring and ducting. |         |    |        |       |        |        |
| 1-bulb heater, 4" duct   | BE@1.00 | Ea | 80.20  | 44.90 | 125.10 | 213.00 |
| 2-bulb heater, 7" duct   | BE@1.10 | Ea | 116.00 | 49.40 | 165.40 | 281.00 |

|  |         |    |       |       |        |        |
|--|---------|----|-------|-------|--------|--------|
| <b>Surface-mount ceiling bath heater and fan, Broan Manufacturing.</b> 1,250 watts. 4,266 Btus (British thermal units). 120 volts. Chrome alloy wire element for instant heat. Built-in fan. Automatic overheat protection. Low-profile housing. Permanently lubricated motor. Mounts to standard 3-1/4" round or 4" octagonal ceiling electrical box. Satin-finish aluminum grille extends 2-3/4" from ceiling. 11" diameter x 2-3/4" deep. Labor includes setting and connecting only. Add the cost of wiring and ducting. |         |    |       |       |        |        |
| 10.7 amp   | BE@.750 | Ea | 99.70 | 33.70 | 133.40 | 227.00 |

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| <b>Designer Series bath heater and exhaust fan, Broan Manufacturing.</b> 1,500-watt fan-forced heater. 120-watt light capacity, 7-watt night light (bulbs not included). Permanently lubricated motor. Polymeric damper prevents cold backdrafts. 4-point adjustable mounting brackets with keyhole slots. Torsion spring grille mounting, no tools needed. Non-glare, light diffusing glass lenses. Fits single gang opening. Suitable for use with insulation. Includes 4-function control unit. 70 CFM (cubic feet of air per minute), 3.5 sones. Labor includes setting and connecting only. Add the cost of wiring and ducting. |         |    |        |       |        |        |
| 4" duct, 100-watt lamp   | BE@1.00 | Ea | 162.00 | 44.90 | 206.90 | 352.00 |

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| <b>Heat-A-Lamp® bulb heater and fan, NuTone.</b> Non-IC. Swivel-mount. Torsion spring holds plates firmly to ceiling. 250-watt radiant heat from one R-40 infrared heat lamp. Uses 4" duct. Adjustable socket for ceilings up to 1" thick. Adjustable hanger bars. Automatic reset for thermal protection. White polymeric finish. UL listed. 6-7/8" high. Labor includes setting and connecting only. Add the cost of wiring and ducting. |         |    |        |       |        |        |
| 2.6 amp, 1 lamp, 12-1/2" x 10"   | BE@1.50 | Ea | 79.60  | 67.30 | 146.90 | 250.00 |
| 5.0 amp, 2 lamp, 15-3/8" x 11"   | BE@1.50 | Ea | 127.00 | 67.30 | 194.30 | 330.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Deluxe Heat-A-Ventlite® heater and ventilator, NuTone.** With light and night light. Type IC. 1,500-watt fan-forced heat with 55-watt exhaust motor. White enamel grille. Includes wall switch with separate on-off controls for all functions. Housing dimensions: 13-1/4" diameter x 7-1/2". Frame size, 15-3/8" diameter. 5,118-Btu (British thermal unit) heater. 100-watt light capacity, 7-watt night light (lamps not included). Labor includes setting and connecting only. Add the cost of wiring and ducting. CFM (cubic feet of air per minute).

|                   |         |    |        |       |        |        |
|-------------------|---------|----|--------|-------|--------|--------|
| 70 CFM, 3.5 sones | BE@1.50 | Ea | 341.00 | 67.30 | 408.30 | 694.00 |
| 70 CFM, 4.0 sones | BE@1.50 | Ea | 286.00 | 67.30 | 353.30 | 601.00 |

## Bath Exhaust Fan Accessories

### Timer switch.

|                 |         |    |       |       |       |       |
|-----------------|---------|----|-------|-------|-------|-------|
| 60-minute timer | BE@.250 | Ea | 24.30 | 11.20 | 35.50 | 60.40 |
|-----------------|---------|----|-------|-------|-------|-------|

**SensAire® 3-function wall control switch, Broan Manufacturing.** Fits single gang opening. Top switch for on-auto-off. Other switches for light and night light. Use with SensAire® fans and lights.

|       |         |    |       |       |       |       |
|-------|---------|----|-------|-------|-------|-------|
| White | BE@.250 | Ea | 26.30 | 11.20 | 37.50 | 63.80 |
|-------|---------|----|-------|-------|-------|-------|

**Bath vent kit, Deflect-O.** UL listed. Supurr-Flex® duct, aluminum roof vent, 3" to 4" increaser and 2 clamps. Fire resistant. Labor includes working around existing drywall, feeding the duct through existing attic space, and cutting through existing roofing.

|                       |         |    |       |       |        |        |
|-----------------------|---------|----|-------|-------|--------|--------|
| 4" x 8' flexible duct | BC@2.00 | Ea | 26.20 | 82.10 | 108.30 | 184.00 |
|-----------------------|---------|----|-------|-------|--------|--------|

**Roof vent kit, NuTone.** For venting kitchen or bath exhaust fan through slanted roof. Works with both 3" and 4" ducted units. Labor includes working around existing drywall, feeding the duct through existing attic space, and cutting through existing roofing.

|           |         |    |       |       |        |        |
|-----------|---------|----|-------|-------|--------|--------|
| 8' length | BC@2.00 | Ea | 32.20 | 82.10 | 114.30 | 194.00 |
|-----------|---------|----|-------|-------|--------|--------|

## Mirrors

### Vanity mirror. Polished edges.

|                     |         |    |       |       |        |        |
|---------------------|---------|----|-------|-------|--------|--------|
| 24" wide x 36" high | BC@.331 | Ea | 41.30 | 13.60 | 54.90  | 93.30  |
| 36" wide x 36" high | BC@.331 | Ea | 57.60 | 13.60 | 71.20  | 121.00 |
| 36" wide x 42" high | BC@.331 | Ea | 66.10 | 13.60 | 79.70  | 135.00 |
| 48" wide x 36" high | BC@.331 | Ea | 74.30 | 13.60 | 87.90  | 149.00 |
| 60" wide x 36" high | BC@.331 | Ea | 97.60 | 13.60 | 111.20 | 189.00 |

**Frosted oval mirror.** Clear etched border accents the color of wall behind it. Ready to hang vertically or horizontally.

|                     |         |    |        |       |        |        |
|---------------------|---------|----|--------|-------|--------|--------|
| 23" wide x 29" high | BC@.331 | Ea | 130.00 | 13.60 | 143.60 | 244.00 |
| 24" wide x 36" high | BC@.331 | Ea | 183.00 | 13.60 | 196.60 | 334.00 |

## Medicine Cabinets

### Stainless steel framed bath cabinet, mirrored swing door.

Polystyrene body. Recess- or surface-mount. Magnetic catch. 3 fixed shelves. Fits 14" x 18" wall opening. 4-3/4" deep.

|                     |         |    |       |       |        |        |
|---------------------|---------|----|-------|-------|--------|--------|
| 16" wide x 20" high | BC@.950 | Ea | 63.10 | 39.00 | 102.10 | 174.00 |
|---------------------|---------|----|-------|-------|--------|--------|

**Stainless steel framed door medicine cabinet.** Plastic cabinet. Stainless steel door frame. Surface- or recess-mount. 2 adjustable shelves. Fits 13-1/2" x 23-1/2" wall opening. 4-1/2" deep.

|                             |         |    |       |       |       |        |
|-----------------------------|---------|----|-------|-------|-------|--------|
| 16-1/8" wide x 26-1/8" high | BC@.950 | Ea | 35.00 | 39.00 | 74.00 | 126.00 |
|-----------------------------|---------|----|-------|-------|-------|--------|

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Frameless swing door medicine cabinet.</b> Polystyrene body. Frameless beveled swing door. Recess- or surface-mount. 1/2" beveled mirror. Magnetic catch. 2 adjustable shelves. Reversible left- or right-hand opening. 4-3/4" deep. |           |      |          |       |        |        |
| 16" wide x 24" high   | BC@.950   | Ea   | 45.00    | 39.00 | 84.00  | 143.00 |
| <b>Frameless beveled swing door medicine cabinet.</b> Polystyrene body with beveled mirror edges. 2 adjustable shelves. Recess- or surface-mount. 4-1/2" deep.  |           |      |          |       |        |        |
| 16" wide x 26" high   | BC@.950   | Ea   | 46.50    | 39.00 | 85.50  | 145.00 |
| <b>Swing door medicine cabinet, double frame.</b> 2 fixed shelves. Recess- or surface-mount. All wood construction.   |           |      |          |       |        |        |
| 16" x 26" high, oak   | BC@.950   | Ea   | 73.90    | 39.00 | 112.90 | 192.00 |
| 16" x 26" high, white   | BC@.950   | Ea   | 73.90    | 39.00 | 112.90 | 192.00 |
| <b>Chrome framed lighted sliding door cabinet.</b> White stainless steel cabinet. 2 fixed shelves. Surface-mount. Includes on/off light switch and electrical outlet. Bulbs sold separately. 7-3/4" deep.                               |           |      |          |       |        |        |
| 24" wide x 20" high   | BC@.900   | Ea   | 109.00   | 37.00 | 146.00 | 248.00 |
| <b>Frameless octagonal swing door medicine cabinet.</b> Polystyrene body.   |           |      |          |       |        |        |
| 16" wide x 24" high   | BC@.950   | Ea   | 64.00    | 39.00 | 103.00 | 175.00 |
| <b>Etched glass medicine cabinet.</b> Etched mirror panel. Adjustable shelves.  |           |      |          |       |        |        |
| 24" x 25" high, oak   | BC@.950   | Ea   | 124.00   | 39.00 | 163.00 | 277.00 |
| 24" x 25" high, white   | BC@.950   | Ea   | 124.00   | 39.00 | 163.00 | 277.00 |
| <b>Frameless corner cabinet.</b> 4 fixed shelves. Surface-mount.  |           |      |          |       |        |        |
| 14" wide x 36" high   | BC@.950   | Ea   | 280.00   | 39.00 | 319.00 | 542.00 |
| <b>Etched glass bath storage cabinet.</b>   |           |      |          |       |        |        |
| 24" wide x 28" high, oak  | BC@.950   | Ea   | 178.00   | 39.00 | 217.00 | 369.00 |
| 24" wide x 28" high, white  | BC@.950   | Ea   | 178.00   | 39.00 | 217.00 | 369.00 |
| <b>Frameless beveled tri-view mirror medicine cabinet.</b> Wood body. Surface-mount. 2 adjustable shelves. Concealed adjustable hinges.   |           |      |          |       |        |        |
| 24-1/4" wide x 26" high   | BC@.950   | Ea   | 131.00   | 39.00 | 170.00 | 289.00 |
| 29-1/2" wide x 25-3/8" high   | BC@.950   | Ea   | 146.00   | 39.00 | 185.00 | 315.00 |
| 36" wide x 29-7/8" high   | BC@.950   | Ea   | 190.00   | 39.00 | 229.00 | 389.00 |
| <b>Frameless beveled edge mirrored medicine cabinet.</b> Recess- or surface-mount.  |           |      |          |       |        |        |
| 20" x 26" high  | BC@.950   | Ea   | 230.00   | 39.00 | 269.00 | 457.00 |
| 24" x 30" high, aluminum  | BC@.950   | Ea   | 220.00   | 39.00 | 259.00 | 440.00 |
| <b>Top lighted swing door bath cabinet.</b> Solid hardwood frame. Concealed adjustable hinges. 3 adjustable shelves. 3 bulbs, not included. 24" wide x 36" high.  |           |      |          |       |        |        |
| Maple, nickel-plated top light  | BC@1.25   | Ea   | 231.00   | 51.30 | 282.30 | 480.00 |
| Oak, brass-plated top light   | BC@1.25   | Ea   | 209.00   | 51.30 | 260.30 | 443.00 |
| White, chrome-plated top light  | BC@1.25   | Ea   | 199.00   | 51.30 | 250.30 | 426.00 |
| <b>Single door hinged medicine cabinet.</b> Beveled front mirror. White aluminum interior. Surface-mounted or recessed.   |           |      |          |       |        |        |
| 24" x 30" high, white   | BC@.950   | Ea   | 216.00   | 39.00 | 255.00 | 434.00 |
| <b>Oval beveled edge medicine cabinet.</b> Aluminum body. Surface- or recess-mount. Labor cost for recess mounting includes installation into an existing, correctly framed opening.  |           |      |          |       |        |        |
| 24" x 36" high  | BC@.950   | Ea   | 199.00   | 39.00 | 238.00 | 405.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Frameless beveled edge bi-view medicine cabinet.** Recess- or surface-mount. Adjustable glass shelves.

Aluminum body. Labor cost for recess mounting includes installation into an existing, correctly framed opening.

|                                   |         |    |        |       |        |        |
|-----------------------------------|---------|----|--------|-------|--------|--------|
| 30" x 26" high, mirrored interior | BC@.950 | Ea | 153.00 | 39.00 | 192.00 | 326.00 |
| 30" x 26" high, white interior    | BC@.950 | Ea | 170.00 | 39.00 | 209.00 | 355.00 |
| 36" x 26" high, mirrored interior | BC@.950 | Ea | 270.00 | 39.00 | 309.00 | 525.00 |
| 36" x 26" high, white Interior    | BC@.950 | Ea | 157.00 | 39.00 | 196.00 | 333.00 |
| 48" x 26" high, mirrored interior | B1@.950 | Ea | 273.00 | 35.30 | 308.30 | 524.00 |

**Frameless bi-view medicine cabinet.** Recess- or surface-mount. Labor cost for recess mounting includes installation into an existing, correctly framed opening.

|                        |         |    |        |       |        |        |
|------------------------|---------|----|--------|-------|--------|--------|
| 30" x 30" high, silver | BC@.950 | Ea | 176.00 | 39.00 | 215.00 | 366.00 |
|------------------------|---------|----|--------|-------|--------|--------|

**Tri-view medicine cabinet.** 36" high. Decorative crown molding and beveled mirrors. Adjustable shelves. Surface-mount.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| 30" wide, maple | BC@.950 | Ea | 229.00 | 39.00 | 268.00 | 456.00 |
| 30" wide, oak   | BC@.950 | Ea | 186.00 | 39.00 | 225.00 | 383.00 |
| 30" wide, white | BC@.950 | Ea | 194.00 | 39.00 | 233.00 | 396.00 |
| 36" wide, maple | BC@.950 | Ea | 276.00 | 39.00 | 315.00 | 536.00 |
| 36" wide, oak   | BC@.950 | Ea | 244.00 | 39.00 | 283.00 | 481.00 |
| 36" wide, white | BC@.950 | Ea | 215.00 | 39.00 | 254.00 | 432.00 |
| 48" wide, maple | B1@.950 | Ea | 302.00 | 35.30 | 337.30 | 573.00 |
| 48" wide, oak   | B1@.950 | Ea | 254.00 | 35.30 | 289.30 | 492.00 |
| 48" wide, white | B1@.950 | Ea | 255.00 | 35.30 | 290.30 | 494.00 |

**Tri-view medicine cabinet.** 3 beveled front mirrors. White aluminum interior. Surface-mount or recessed. Labor cost for recess mounting includes installation into an existing, correctly framed opening.

|                       |         |    |        |       |        |        |
|-----------------------|---------|----|--------|-------|--------|--------|
| 30" x 31" high, white | BC@.950 | Ea | 278.00 | 39.00 | 317.00 | 539.00 |
| 36" x 31" high, white | BC@.950 | Ea | 329.00 | 39.00 | 368.00 | 626.00 |
| 48" x 31" high, white | B1@.950 | Ea | 401.00 | 35.30 | 436.30 | 742.00 |

**Tri-view medicine cabinet with light bar.** Recess-or surface-mount. Built-in top light bar. Adjustable shelves. 36" high. Labor cost for recess mounting includes installation into an existing, correctly framed opening.

|                 |         |    |        |       |        |        |
|-----------------|---------|----|--------|-------|--------|--------|
| 30" wide, maple | BC@.950 | Ea | 466.00 | 39.00 | 505.00 | 859.00 |
| 30" wide, oak   | BC@.950 | Ea | 401.00 | 39.00 | 440.00 | 748.00 |
| 30" wide, white | BC@.950 | Ea | 361.00 | 39.00 | 400.00 | 680.00 |
| 36" wide, maple | BC@.950 | Ea | 518.00 | 39.00 | 557.00 | 947.00 |
| 36" wide, oak   | BC@.950 | Ea | 352.00 | 39.00 | 391.00 | 665.00 |
| 36" wide, white | BC@.950 | Ea | 452.00 | 39.00 | 491.00 | 835.00 |
| 48" wide, oak   | B1@.950 | Ea | 433.00 | 35.30 | 468.30 | 796.00 |
| 48" wide, white | B1@.950 | Ea | 514.00 | 35.30 | 549.30 | 934.00 |

## Medicine Cabinet Light Bars

**Light bar for beveled tri-view cabinet.** Frameless. Beveled mirror edges. Bulbs not included. Labor cost does not include electrical rough-in.

|             |         |    |        |       |        |        |
|-------------|---------|----|--------|-------|--------|--------|
| 24", 4 bulb | BE@.600 | Ea | 101.00 | 26.90 | 127.90 | 217.00 |
| 30", 5 bulb | BE@.600 | Ea | 111.00 | 26.90 | 137.90 | 234.00 |
| 36", 8 bulb | BE@.600 | Ea | 140.00 | 26.90 | 166.90 | 284.00 |
| 48", 8 bulb | BE@.600 | Ea | 185.00 | 26.90 | 211.90 | 360.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Medicine cabinet light bar.** Surface-mount. UL and CSA listed. Bulbs not included. Labor cost does not include electrical rough-in.

|                    |         |    |        |       |        |        |
|--------------------|---------|----|--------|-------|--------|--------|
| 24", oak, 4 bulb   | BE@.600 | Ea | 92.70  | 26.90 | 119.60 | 203.00 |
| 24", white, 4 bulb | BE@.600 | Ea | 92.70  | 26.90 | 119.60 | 203.00 |
| 30", oak, 5 bulb   | BE@.600 | Ea | 121.00 | 26.90 | 147.90 | 251.00 |
| 30", white, 5 bulb | BE@.600 | Ea | 121.00 | 26.90 | 147.90 | 251.00 |
| 36", oak, 6 bulb   | BE@.600 | Ea | 139.00 | 26.90 | 165.90 | 282.00 |
| 36", white, 5 bulb | BE@.600 | Ea | 139.00 | 26.90 | 165.90 | 282.00 |

## Bathroom Accessories

**Standard bath accessories** Easy installation on tile, wood, plaster or drywall. Concealed mounting with no exposed hardware.

|                           |         |    |       |       |       |       |
|---------------------------|---------|----|-------|-------|-------|-------|
| Robe hook                 | BC@.280 | Ea | 4.83  | 11.50 | 16.33 | 27.80 |
| 24" Shelf with glass      | BC@.280 | Ea | 38.70 | 11.50 | 50.20 | 85.30 |
| Toilet paper holder       | BC@.280 | Ea | 5.80  | 11.50 | 17.30 | 29.40 |
| 18" Towel bar             | BC@.280 | Ea | 9.67  | 11.50 | 21.17 | 36.00 |
| 24" Towel bar             | BC@.280 | Ea | 14.50 | 11.50 | 26.00 | 44.20 |
| Towel ring                | BC@.280 | Ea | 7.73  | 11.50 | 19.23 | 32.70 |
| Soap dish                 | BC@.280 | Ea | 11.60 | 11.50 | 23.10 | 39.30 |
| Tumbler/toothbrush holder | BC@.280 | Ea | 7.73  | 11.50 | 19.23 | 32.70 |

**Standard Plus bath accessories,** Durable solid brass with satin chrome finish. Easy installation on tile, wood, plaster or drywall. Concealed mounting with no exposed hardware.

|                           |         |    |       |       |       |        |
|---------------------------|---------|----|-------|-------|-------|--------|
| Robe hook                 | BC@.280 | Ea | 9.67  | 11.50 | 21.17 | 36.00  |
| 24" Shelf with glass      | BC@.280 | Ea | 77.30 | 11.50 | 88.80 | 151.00 |
| Toilet paper holder       | BC@.280 | Ea | 12.60 | 11.50 | 24.10 | 41.00  |
| 18" Towel bar             | BC@.280 | Ea | 19.30 | 11.50 | 30.80 | 52.40  |
| 24" Towel bar             | BC@.280 | Ea | 24.20 | 11.50 | 35.70 | 60.70  |
| Towel ring                | BC@.280 | Ea | 14.50 | 11.50 | 26.00 | 44.20  |
| Soap dish                 | BC@.280 | Ea | 24.20 | 11.50 | 35.70 | 60.70  |
| Tumbler/toothbrush holder | BC@.280 | Ea | 19.30 | 11.50 | 30.80 | 52.40  |

**Delux bath accessories,** Satin finish with optional chrome accent pieces included. Solid brass construction.

Lifetime warranty. Easy installation. Drill-free anchors. Concealed mounting hardware.

|                           |         |    |        |       |        |        |
|---------------------------|---------|----|--------|-------|--------|--------|
| Robe hook                 | BC@.280 | Ea | 19.30  | 11.50 | 30.80  | 52.40  |
| 24" Shelf with glass      | BC@.280 | Ea | 116.00 | 11.50 | 127.50 | 217.00 |
| Toilet paper holder       | BC@.280 | Ea | 24.20  | 11.50 | 35.70  | 60.70  |
| 18" Towel bar             | BC@.280 | Ea | 33.80  | 11.50 | 45.30  | 77.00  |
| 24" Towel bar             | BC@.280 | Ea | 33.80  | 11.50 | 45.30  | 77.00  |
| Towel ring                | BC@.280 | Ea | 29.00  | 11.50 | 40.50  | 68.90  |
| Soap dish                 | BC@.280 | Ea | 38.70  | 11.50 | 50.20  | 85.30  |
| Tumbler/toothbrush holder | BC@.280 | Ea | 29.00  | 11.50 | 40.50  | 68.90  |

**Luxury bath accessories.** Chrome finish with optional brass accent pieces included. Solid brass construction. Easy installation. Drill-free anchors. Concealed mounting hardware.

|                           |         |    |        |       |        |        |
|---------------------------|---------|----|--------|-------|--------|--------|
| Robe hook                 | BC@.280 | Ea | 29.00  | 11.50 | 40.50  | 68.90  |
| 24" Shelf with glass      | BC@.280 | Ea | 126.00 | 11.50 | 137.50 | 234.00 |
| Toilet paper holder       | BC@.280 | Ea | 48.30  | 11.50 | 59.80  | 102.00 |
| 18" Towel bar             | BC@.280 | Ea | 48.30  | 11.50 | 59.80  | 102.00 |
| 24" Towel bar             | BC@.280 | Ea | 48.30  | 11.50 | 59.80  | 102.00 |
| Towel ring                | BC@.280 | Ea | 48.30  | 11.50 | 59.80  | 102.00 |
| Soap dish                 | BC@.280 | Ea | 58.00  | 11.50 | 69.50  | 118.00 |
| Tumbler/toothbrush holder | BC@.280 | Ea | 48.30  | 11.50 | 59.80  | 102.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Permanent shower rod.</b> 72" long. |           |      |          |       |       |       |
| Antique brass                          | P1@.250   | Ea   | 22.90    | 10.20 | 33.10 | 56.30 |
| Bone                                   | P1@.250   | Ea   | 18.60    | 10.20 | 28.80 | 49.00 |
| Chrome                                 | P1@.250   | Ea   | 15.50    | 10.20 | 25.70 | 43.70 |
| Decor rod with brass ends              | P1@.250   | Ea   | 23.70    | 10.20 | 33.90 | 57.60 |
| Platinum                               | P1@.250   | Ea   | 23.70    | 10.20 | 33.90 | 57.60 |
| White                                  | P1@.250   | Ea   | 15.80    | 10.20 | 26.00 | 44.20 |

### Bathroom Conversion Costs

**Sump pumping systems for residential wastes.** Including fiberglass sump basin, pump, 40' pipe run to septic tank or sewer line and automatic float switch. Add the cost of electrical work and excavation.

|  |         |    |          |        |          |          |
|--|---------|----|----------|--------|----------|----------|
| To 15' head                              | P1@8.00 | Ea | 2,860.00 | 325.00 | 3,185.00 | 5,410.00 |
| To 25' head                              | P1@8.00 | Ea | 3,360.00 | 325.00 | 3,685.00 | 6,260.00 |
| To 30' head                              | P1@8.00 | Ea | 5,230.00 | 325.00 | 5,555.00 | 9,440.00 |
| Add for high water or pump failure alarm | P1@.500 | Ea | 848.00   | 20.30  | 868.30   | 1,480.00 |

**Sheet metal area wall.** Provides light well for basement windows. Galvanized corrugated steel. Labor includes the cost of setting in place only. Add the cost of excavation.

|                                   |         |    |       |       |        |        |
|-----------------------------------|---------|----|-------|-------|--------|--------|
| 12" deep, 6" projection, 37" wide | SW@.410 | Ea | 42.30 | 19.10 | 61.40  | 104.00 |
| 18" deep, 6" projection, 37" wide | SW@.410 | Ea | 56.50 | 19.10 | 75.60  | 129.00 |
| 24" deep, 6" projection, 37" wide | SW@.410 | Ea | 72.20 | 19.10 | 91.30  | 155.00 |
| 30" deep, 6" projection, 37" wide | SW@.410 | Ea | 87.00 | 19.10 | 106.10 | 180.00 |
| Add for steel grille cover        | —       | Ea | 77.70 | —     | 77.70  | —      |

**Extend plumbing vent through roof.** Usually required when fixtures have been installed in a dormer addition. Add the cost of refinishing the wall interior and exterior, ceiling and roof.

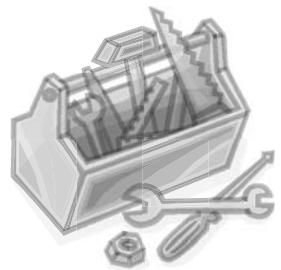
|               |         |    |       |        |        |        |
|---------------|---------|----|-------|--------|--------|--------|
| Per roof vent | BC@5.50 | Ea | 90.60 | 226.00 | 316.60 | 538.00 |
|---------------|---------|----|-------|--------|--------|--------|

**Relocate sink vent stack.** Usually required after a wall breakthrough. Add the cost of refinishing the wall interior and exterior, ceiling and roof.

|                |         |    |        |        |        |        |
|----------------|---------|----|--------|--------|--------|--------|
| Per vent stack | BC@9.50 | Ea | 107.00 | 390.00 | 497.00 | 845.00 |
|----------------|---------|----|--------|--------|--------|--------|

# *Plumbing and HVAC*

# 14



Not every older home needs an extra bathroom or a larger kitchen, but nearly every older home needs plumbing, heating and cooling systems brought up to modern standards. No home is truly comfortable without effective plumbing, heating and cooling. In a very old house, the entire mechanical system may have to be replaced.

## **Warm Air Heating**

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Many old houses still have gravity heating systems. The main difference between these and a modern forced-air system is that there's no fan to move the air. It depends on the physical property of heated air to rise, drawing in unheated air to fill the vacuum. This simple circulation system moves the warm air through the house. Gravity heating has its advantages: it's quiet, and there are no fan motors to repair. But they are very big units, with so many large ducts needed to funnel air to each room in the downstairs of the house that they almost fill the basement. They also tend to be heavy gas users. That may not have been a problem 50 years ago when gas was cheap, but fuel cost is something we have to consider today.

A new high-efficiency forced air furnace will recoup the replacement cost in just a few years. And since modern furnaces are small and use smaller ducts, eliminating the gravity system's octopus-like duct arms leaves most of the basement space available for conversion into living space. Forced-air heating has the added advantage of being able to bring the house up to a comfortable temperature in a matter of minutes, rather than the hour or two a gravity system takes.

The Btu capacity of a residential heating system depends on climate, window size and orientation, insulation and square footage to be heated. For cost estimating purposes, there's an easy way to calculate the Btu capacity of the furnace needed. Multiply the square feet of heated floor area by 53; then round up to the next larger furnace size. For example, to size a furnace for a 2,000 square foot home:

2,000 times 53 equals 106,000. The next larger furnace size is 125,000 Btu.

Altitude also affects the size of the furnace needed. Reduce the stated Btu rating of a furnace by 4 percent for each 1,000 feet above sea level. For example, the capacity of a 100,000 Btu furnace installed 5,000 feet above sea level would be 20 percent less, or 80,000 Btu.

When adding a room, enclosing a porch, expanding attic space or converting a garage, the existing furnace may not have capacity to serve the addition. Even if the existing furnace has enough capacity, a long duct run may reduce the volume of heat delivered at the register to below acceptable levels. The correct way to serve a remote room addition is to install a new trunk line directly to the furnace plenum. Talk to your heating subcontractor about installing a booster fan in the existing duct run to increase the flow of warm air.

If tapping into the existing HVAC system doesn't make sense, and there are no other practical options, install a floor or wall furnace in the new room addition. Direct-venting thru-wall furnaces are usually an acceptable alternative.

## Hot Water Heating

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One-pipe gravity steam heating systems are common in older homes. Radiators are fed by a single pipe on the entry (warm) side. The other side of the radiator has only an exhaust valve on the pipe. Once steam has cooled and condensed to water, it flows by gravity back to the boiler. This is an extremely simple system and, if properly installed and maintained, can be a reliable heat source. But again, one-pipe steam heating systems respond very slowly to requests for temperature change, and they offer far less control than modern hydronic systems. It may be possible to modernize a one-pipe system by replacing old radiators with baseboard heaters. Discuss it with your HVAC contractor.

There's a lot that can go wrong when modifying an old steam or hot water heating system. Results may not be what the owner expected. Include in your contract some language that limits both the scope of your work and your liability. For example: *Contractor makes no warranty on the condition, size or capacity of the existing boiler, radiators, or distribution piping.*

Radiant heating systems are less common, but tend to be trouble-free. Heated water flows through coils embedded in either a concrete slab or the plastered ceiling. Expert repair is required when a radiant heating system's piping develops leaks or becomes air locked. Breaks in ceiling coils can be repaired fairly easily. But repairing breaks in a floor is both difficult and expensive.

## Ductless Mini-Split Cooling/Heating

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Mini-split systems are a good choice for older homes that don't have existing ductwork or when adding a room to the home. Mini-splits have an exterior compressor mounted on a concrete pad and an air handler hung at ceiling height in the home interior. The compressor is a heat pump, circulating refrigerant one direction during warm weather when cooling is needed and reversing the flow during cold weather when heating is required. Warmed or cooled air exits directly to the room through a wall-mounted air handler. Larger mini-splits can include zoned heating and cooling for several rooms. One outdoor unit can support multiple indoor air handlers, each with their own thermostat.

Mini-splits use electricity as the sole energy source and require no ductwork. That makes mini-splits faster, easier, and cheaper to install than traditional HVAC equipment. Mini-splits don't block the view like a window AC unit would and avoid losses in efficiency due to leaky ductwork.

Modern mini-splits are a good choice when cooling is the major energy load. In the coldest weather, mini-splits, like all heat pumps, struggle to maintain comfortable room temperatures. Your HVAC contractor will recommend a configuration that meets site requirements.

## Electric Space Heaters

Assuming the home has sufficient capacity at the service panel, it's easy to add electric space heaters in a home if you need to extend heat to a room addition. However, electric heating is expensive and may not be practical in colder climates. Also, insulation standards are much higher for a home heated with electricity, so you must take that into consideration if you plan on this type of heat for your addition.

## Water Supply

Low water pressure is usually due to an accumulation of lime or corrosion in supply lines, though it may also be that supply lines are too small. Main distribution pipes should be  $\frac{3}{4}$ " inside diameter. Branch lines serving a single fixture may be  $\frac{1}{2}$ " inside diameter.

If the house is served by a well on the premises, check the gauge on the pressure tank. A good operating pressure is 40 or 50 psi. If pressure is less than 20 psi, the pump isn't operating properly or the pressure setting is too low.

### Water Hammer

Water hammer is a loud banging noise in supply lines caused when water is shut off abruptly. Over a period of time, water hammer can seriously damage valves and fixtures throughout the supply system. An air chamber placed on a supply line can absorb enough shock to prevent water hammer. If there's already an air chamber on the line, the air may have escaped. A waterlogged air chamber offers no protection against water hammer. To restore air to the chamber, turn off the water at the source. Open the air chamber to drain out any excess water, then reseal the chamber and restore the water pressure.

## Plumbing Drain, Waste and Vent Lines

The drainage system consists of sewer laterals, drainage pipes and vents. It's common for pipes in older homes to break or become clogged. Most older homes have cast iron drain lines, which rust out after about 70 years. In some cases, the pipe diameter will be less than required by current codes. This is especially true for vent piping.

### Checking Pipe Sizes

The nominal (*name*) size of pipe refers to the inside diameter.

#### Copper pipe

$\frac{1}{2}$ " inside diameter pipe has  $\frac{5}{8}$ " outside diameter

$\frac{3}{4}$ " inside diameter pipe has  $\frac{7}{8}$ " outside diameter

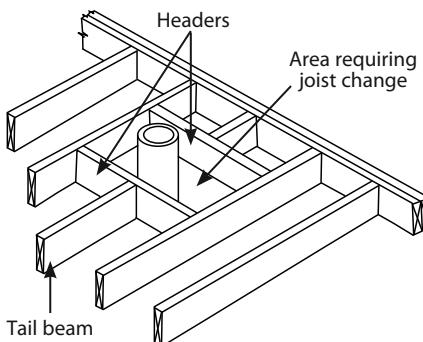
#### Galvanized pipe

$\frac{1}{2}$ " inside diameter pipe has  $\frac{7}{8}$ " outside diameter

$\frac{3}{4}$ " inside diameter pipe has  $1\frac{1}{8}$ " outside diameter

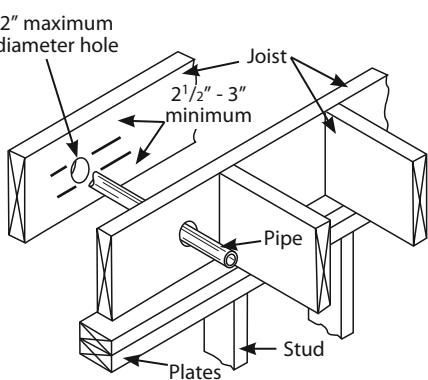
Sewer drain pipe in older homes may be bell-joint vitreous tile. Joints can break under pressure as the soil settles or heaves, and a broken pipe is an invitation for tree roots. Even if pipes aren't broken, tree roots can enter through the pipe joints and obstruct the flow of sewage. When this happens, remove the roots with a power-driven snake. If the system has to be snaked out every few months, you can assume there's a break or an open joint somewhere that needs repair. Tile or steel drainage pipe should last as long as the house. But these lines can accumulate sediment and need flushing out occasionally.

If you notice the smell of sewer gas, a vent stack is probably obstructed. The vent stacks you see running through the roof are designed to equalize air pressure in the drainage system. If a vent is obstructed, waste flowing through the system can create a vacuum that sucks water out of fixture traps, allowing sewer gas to enter the home. All fixtures should drain by gravity, not through suction. If you notice that water is being sucked out of the trap when a toilet is flushed, you can assume the roof vent is obstructed.



**Figure 14-1**

Header placement to accommodate plumbing lines



**Figure 14-2**

Dimensions required for passing pipe through joists

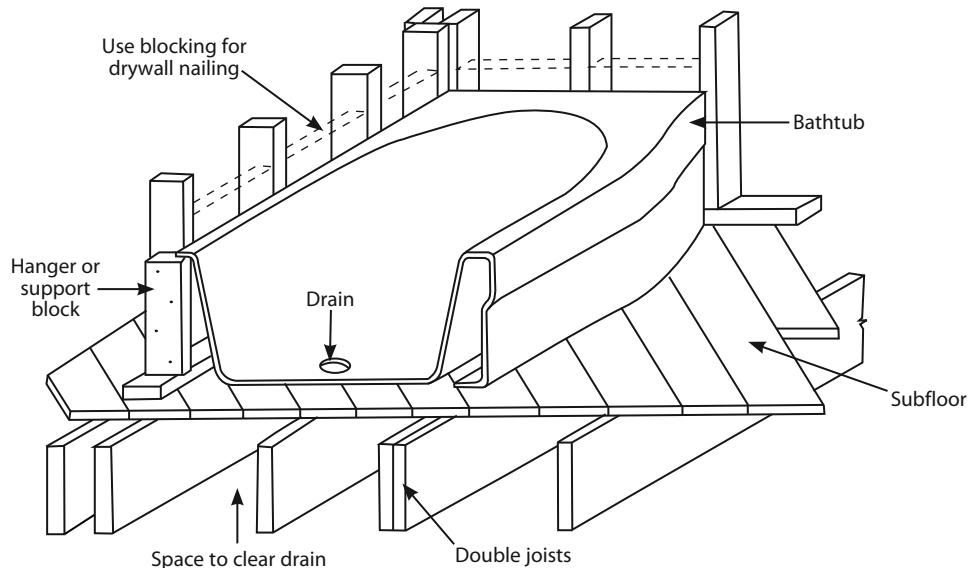
## Water Heaters

Some older homes may still have domestic water coil systems in the furnace. That may provide enough hot water for cooking and bathing during the heating season. During summer months, when the furnace isn't running, a regular water heater will be required. A gas water heater for a three-bedroom home should have at least a 30-gallon capacity, though 40 is the current standard. An electric water heater for the same home should have a 50-gallon capacity.

## Cutting Floor Joists

When a floor joist has to make way for the passage of a stack or vent, install headers and tail beams (as in Figure 14-1) to reinforce the area around the joist that has been cut.

Figure 14-2 shows how to pass water pipe or conduit through a joist. The hole can't be any larger than 2" in diameter. Edges of the hole must be at least 2 1/2" to 3" from the top and bottom of the joist. You can also cut a notch at the top or bottom edge of the joist. But the notch should be in the last quarter of the span and not more than 1/16th the depth of the joist. If a joist has to be cut and you can't comply with these rules, add an additional joist next to the cut joist or reinforce the cut joist by nailing scabs to each side.



**Figure 14-3**  
Framing for bathtub

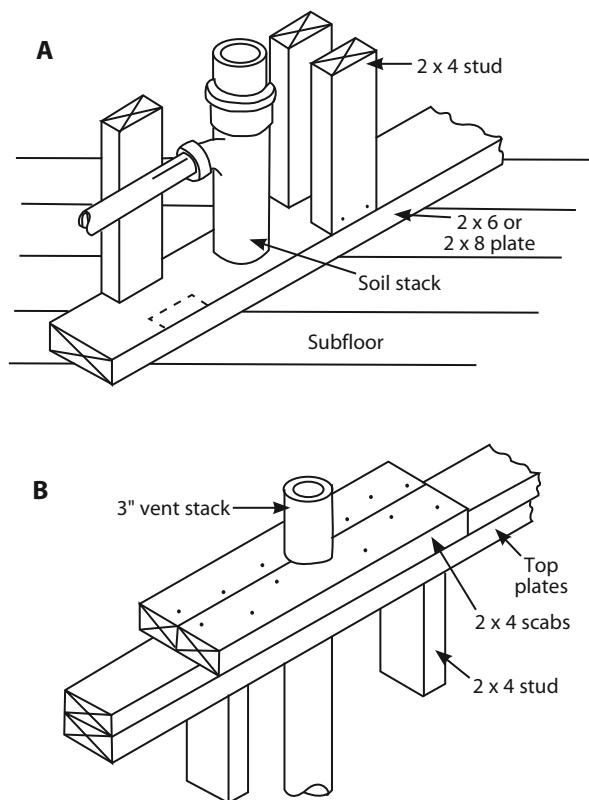
## Bathtub Framing

When adding a bathtub, more framing may be needed to support the heavy weight of a tub filled with water. Where joists are parallel to the length of the tub, use double joists under the outer edge of the tub. The inner edge is usually supported by wall framing. Use hangers or wood blocks as supports where the tub meets enclosing walls. See Figure 14-3.

## Utility Walls

Walls that enclose new plumbing stacks or venting may require special framing. A 4" soil stack won't fit in a standard 2 x 4 stud wall. If a thicker wall is needed, frame it with 2 x 6 top and bottom plates and 2 x 4 studs placed flatwise at the edge of the plates. See Figure 14-4A. This leaves the center of the wall open for running both supply and drain pipes.

A 3" vent stack will fit in a 2 x 4 stud wall. But the hole for the vent will require cutting away most of the top plate. To repair the top plate, nail scabs cut from 2 x 4s on each side of the vent. See Figure 14-4B.



**Figure 14-4**  
Framing around a stack

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Heating System Renovations

**Remove residential heating system components.** Includes hauling components from the site. No salvage value assumed. Costs will be higher if components include detectable friable asbestos or if access to the site is limited. If the furnace or ductwork is wrapped in asbestos, you may be legally required to follow asbestos abatement procedures. This may require the services of a specialized asbestos abatement contractor.

|                                   |         |    |        |        |        |        |
|-----------------------------------|---------|----|--------|--------|--------|--------|
| Gravity feed furnace and plenum   | P1@5.30 | Ea | 133.00 | 215.00 | 348.00 | 592.00 |
| Forced air furnace and plenum     | P1@2.50 | Ea | 82.20  | 102.00 | 184.20 | 313.00 |
| Residential fuel oil storage tank | P1@2.50 | Ea | 82.20  | 102.00 | 184.20 | 313.00 |
| Steam or hot water boiler         | P1@2.50 | Ea | 132.00 | 102.00 | 234.00 | 398.00 |

**Remove residential heating duct.** Includes hauling components from the site. No salvage value assumed. Costs will be higher if components include detectable friable asbestos or if access to the site is limited. If the furnace or ductwork is wrapped in asbestos, you may be legally required to follow asbestos abatement procedures. This may require the services of a specialized asbestos abatement contractor. Add the cost of patching wall, floor or ceiling surfaces and the cost of closing openings after duct is removed. Large register openings in a gravity system can be converted to cold air returns in a forced air system. This avoids closing and patching large wall openings.

|                               |         |    |       |       |        |        |
|-------------------------------|---------|----|-------|-------|--------|--------|
| Duct runs to 30 feet, per run | P1@1.50 | Ea | 31.80 | 61.00 | 92.80  | 158.00 |
| Duct runs 30 feet to 40 feet  | P1@1.75 | Ea | 40.00 | 71.20 | 111.20 | 189.00 |
| Duct runs over 40 feet        | P1@2.00 | Ea | 47.70 | 81.30 | 129.00 | 219.00 |

**Gas-fired forced air furnace — duct on interior walls.** Includes a humidifier, filter, 5 to 8 galvanized sheet metal duct runs, registers and grilles, thermostat and electrical hookup, connection to gas line and gas piping, chimney vent and vent accessories, supply and return air plenums, system start-up and balancing. Installed in a one- or two-story home with conventional ducting. Add for wall, floor and ceiling patching as required.

|                                      |         |    |          |          |          |          |
|--------------------------------------|---------|----|----------|----------|----------|----------|
| 80,000 Btu                           | P1@42.0 | Ea | 2,740.00 | 1,710.00 | 4,450.00 | 7,570.00 |
| 100,000 Btu                          | P1@43.5 | Ea | 2,970.00 | 1,770.00 | 4,740.00 | 8,060.00 |
| 125,000 Btu                          | P1@45.0 | Ea | 3,390.00 | 1,830.00 | 5,220.00 | 8,870.00 |
| 150,000 Btu                          | P1@47.0 | Ea | 3,670.00 | 1,910.00 | 5,580.00 | 9,490.00 |
| 175,000 Btu                          | P1@49.0 | Ea | 3,680.00 | 1,990.00 | 5,670.00 | 9,640.00 |
| Add for each second floor duct run   | P1@1.50 | Ea | 57.20    | 61.00    | 118.20   | 201.00   |
| Add for trunk run to a room addition | P1@4.00 | Ea | 575.00   | 163.00   | 738.00   | 1,250.00 |

**Gas-fired forced air furnace — duct on exterior walls (perimeter system).** Includes a humidifier, filter, 5 to 8 galvanized sheet metal duct runs, registers and grilles, thermostat and electrical hookup, connection to gas line and gas piping, chimney vent and vent accessories, supply and return air plenums, system start-up and balancing. Installed in a one- or two-story home with perimeter ducting. Add for wall, floor and ceiling patching as required.

|                                      |         |    |          |          |          |          |
|--------------------------------------|---------|----|----------|----------|----------|----------|
| 80,000 Btu                           | P1@46.0 | Ea | 2,910.00 | 1,870.00 | 4,780.00 | 8,130.00 |
| 100,000 Btu                          | P1@47.5 | Ea | 3,260.00 | 1,930.00 | 5,190.00 | 8,820.00 |
| 125,000 Btu                          | P1@49.0 | Ea | 3,490.00 | 1,990.00 | 5,480.00 | 9,320.00 |
| 150,000 Btu                          | P1@51.0 | Ea | 3,570.00 | 2,070.00 | 5,640.00 | 9,590.00 |
| 175,000 Btu                          | P1@53.0 | Ea | 3,600.00 | 2,150.00 | 5,750.00 | 9,780.00 |
| Add for each second floor duct run   | P1@2.00 | Ea | 57.60    | 81.30    | 138.90   | 236.00   |
| Add for trunk run to a room addition | P1@4.00 | Ea | 579.00   | 163.00   | 742.00   | 1,260.00 |

**Low-boy style gas-fired forced air furnace.** When vertical space is limited, install a low-headroom gas furnace. Specs are the same as for a conventional gas furnace, but the furnace cost will be higher. Add the following to either conventional or perimeter gas furnace costs.

|                                     |         |    |        |        |        |          |
|-------------------------------------|---------|----|--------|--------|--------|----------|
| Add for low-boy 80,000 Btu furnace  | P1@1.00 | Ea | 165.00 | 40.70  | 205.70 | 350.00   |
| Add for low-boy 100,000 Btu furnace | P1@2.00 | Ea | 199.00 | 81.30  | 280.30 | 477.00   |
| Add for low-boy 125,000 Btu furnace | P1@2.00 | Ea | 219.00 | 81.30  | 300.30 | 511.00   |
| Add for low-boy 150,000 Btu furnace | P1@4.00 | Ea | 291.00 | 163.00 | 454.00 | 772.00   |
| Add for low-boy 175,000 Btu furnace | P1@4.75 | Ea | 727.00 | 193.00 | 920.00 | 1,560.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Counterflow gas-fired forced air furnace.** When ducting is run under the floor and below the level of the furnace, a counterflow circulation furnace is required. Specs are the same as for a conventional gas furnace, but the furnace cost will be higher. Add the following to either conventional or perimeter gas furnace costs.

|  |         |    |        |        |          |          |
|--|---------|----|--------|--------|----------|----------|
| Add for counterflow furnace to 125,000 Btu   | P1@3.50 | Ea | 257.00 | 142.00 | 399.00   | 678.00   |
| Add for counterflow furnace over 125,000 Btu | P1@6.00 | Ea | 766.00 | 244.00 | 1,010.00 | 1,720.00 |

**Horizontal flow gas-fired forced air furnace.** When space is restricted, a horizontal flow furnace may be the best option available. Specs are the same as for a conventional gas furnace, but the furnace cost will be higher. Add the following to either conventional or perimeter gas furnace costs.

|   |         |    |        |        |        |          |
|---|---------|----|--------|--------|--------|----------|
| Add for horizontal furnace to 125,000 Btu   | P1@2.50 | Ea | 200.00 | 102.00 | 302.00 | 513.00   |
| Add for horizontal furnace over 125,000 Btu | P1@4.75 | Ea | 695.00 | 193.00 | 888.00 | 1,510.00 |

**Oil-fired forced air furnace.** Furnace and duct costs will be the same as for a gas-fired furnace. But add the following costs, which include storage tanks, gauge filter, vent and oil supply piping to the furnace. Add the cost of excavation for buried tanks or sight-screen fencing for above-ground tanks.

|                                 |         |    |          |        |          |          |
|---------------------------------|---------|----|----------|--------|----------|----------|
| 275 gallon basement fuel tank   | P1@3.75 | Ea | 1,280.00 | 152.00 | 1,432.00 | 2,430.00 |
| Twin 275 gallon basement tanks  | P1@5.25 | LS | 3,040.00 | 213.00 | 3,253.00 | 5,530.00 |
| Concrete block foundation       | P1@2.00 | Ea | 57.00    | 81.30  | 138.30   | 235.00   |
| Exterior 550 gallon fuel tank   | P1@8.00 | Ea | 2,220.00 | 325.00 | 2,545.00 | 4,330.00 |
| Exterior 1,000 gallon fuel tank | P1@14.0 | Ea | 3,040.00 | 569.00 | 3,609.00 | 6,140.00 |

**Remove and replace a gas-fired furnace.** Using existing duct runs. Includes removal of the existing furnace and disposal, a new furnace with an A.G.A. certified ignition system, supply and return air plenums, filters and humidifier, connection to existing duct runs, new chimney pipe, and a new thermostat.

|                                      |         |    |          |          |          |          |
|--------------------------------------|---------|----|----------|----------|----------|----------|
| 80,000 Btu                           | P1@22.0 | Ea | 2,780.00 | 895.00   | 3,675.00 | 6,250.00 |
| 100,000 Btu                          | P1@22.8 | Ea | 2,950.00 | 927.00   | 3,877.00 | 6,590.00 |
| 125,000 Btu                          | P1@24.0 | Ea | 3,190.00 | 976.00   | 4,166.00 | 7,080.00 |
| 150,000 Btu                          | P1@25.0 | Ea | 3,480.00 | 1,020.00 | 4,500.00 | 7,650.00 |
| 175,000 Btu                          | P1@25.8 | Ea | 3,950.00 | 1,050.00 | 5,000.00 | 8,500.00 |
| Add when replacing a gravity furnace | P1@2.00 | Ea | 110.00   | 81.30    | 191.30   | 325.00   |

**Install duct runs.** New work, such as for a room addition. Including diffusers and floor or wall registers. Duct suitable for either cold or warm air. Add the cost of wall, floor or ceiling refinishing, as required.

|                                       |         |    |        |        |        |        |
|---------------------------------------|---------|----|--------|--------|--------|--------|
| Inside or outside wall, per run       | P1@2.00 | Ea | 146.00 | 81.30  | 227.30 | 386.00 |
| Cold air central return duct          | P1@3.00 | Ea | 136.00 | 122.00 | 258.00 | 439.00 |
| Add per run for second floor ducting  | P1@1.50 | Ea | 50.00  | 61.00  | 111.00 | 189.00 |
| Add for insulation, per SF of surface | P1@.030 | SF | 0.99   | 1.22   | 2.21   | 3.76   |

**Central humidifier.** Added to an existing furnace or installed with a new furnace. Based on evaporation capacity. A 1,500-square-foot house (6 rooms) needs a 10-gallon-per-day humidifier. A 2,000-square-foot house (7 rooms) needs a 12-gallon-per-day humidifier. A 3,500-square-foot house (8 to 10 rooms) needs a 20-gallon-per-day humidifier.

|                                      |         |    |        |        |        |          |
|--------------------------------------|---------|----|--------|--------|--------|----------|
| 10 gallons per day, with new furnace | P1@3.75 | Ea | 302.00 | 152.00 | 454.00 | 772.00   |
| 10 gallons per day, existing furnace | P1@4.00 | Ea | 345.00 | 163.00 | 508.00 | 864.00   |
| 12 gallons per day, with new furnace | P1@4.00 | Ea | 343.00 | 163.00 | 506.00 | 860.00   |
| 12 gallons per day, existing furnace | P1@4.25 | Ea | 366.00 | 173.00 | 539.00 | 916.00   |
| 20 gallons per day, with new furnace | P1@4.50 | Ea | 436.00 | 183.00 | 619.00 | 1,050.00 |
| 20 gallons per day, existing furnace | P1@4.75 | Ea | 474.00 | 193.00 | 667.00 | 1,130.00 |

**Central air conditioning.** Added to an existing forced air furnace. Includes remote condenser and pad, coils and cabinet, refrigeration tubing, new thermostat, electric wiring and connection.

|                               |         |    |          |        |          |           |
|-------------------------------|---------|----|----------|--------|----------|-----------|
| 2 ton, to 1,000 square feet   | P1@16.0 | Ea | 3,770.00 | 651.00 | 4,421.00 | 7,520.00  |
| 3 ton, to 1,600 square feet   | P1@18.0 | Ea | 5,360.00 | 732.00 | 6,092.00 | 10,400.00 |
| 5 ton, over 2,000 square feet | P1@20.0 | Ea | 7,070.00 | 813.00 | 7,883.00 | 13,400.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Remove and replace split system central air conditioner and gas furnace.** Remove and dispose existing units. Install a pad-mounted 13 SEER compressor, 80% efficiency gas furnace and fan coil unit. Includes emergency condensate shut off, connection to the existing supply and return duct and vent, refrigeration tubing, electric disconnect and programmable thermostat.

|   |         |    |          |        |          |           |
|---|---------|----|----------|--------|----------|-----------|
| 2 ton cooling, 71 MBtu heating                | P1@12.0 | Ea | 4,750.00 | 488.00 | 5,238.00 | 8,900.00  |
| 3 ton cooling, 89 MBtu heating                | P1@14.0 | Ea | 6,000.00 | 569.00 | 6,569.00 | 11,200.00 |
| 5 ton cooling, 107 MBtu heating               | P1@14.0 | Ea | 7,730.00 | 569.00 | 8,299.00 | 14,100.00 |
| Add for SEER 16 rated compressor              | —       | %  | 30.0     | —      | —        | —         |
| Add for SEER 16 to 20 rating, variable speed  | —       | %  | 50.0     | —      | —        | —         |
| Add for attic-mounted horizontal flow furnace | P1@2.00 | Ea | 139.00   | 81.30  | 220.30   | 375.00    |
| Add a new bedroom radiator                    | P1@8.50 | Ea | 384.00   | 346.00 | 730.00   | 1,240.00  |
| Add a new dining room radiator                | P1@7.50 | Ea | 479.00   | 305.00 | 784.00   | 1,330.00  |
| Add a new kitchen radiator                    | P1@8.50 | Ea | 617.00   | 346.00 | 963.00   | 1,640.00  |
| Add a new living room radiator                | P1@9.00 | Ea | 670.00   | 366.00 | 1,036.00 | 1,760.00  |
| Relocate an existing radiator                 | P1@6.50 | Ea | 120.00   | 264.00 | 384.00   | 653.00    |
| Add for second floor installations            | —       | %  | 20.0     | —      | —        | —         |

**Hydronic heating for room additions.** Install up to 8 feet of baseboard convection unit with necessary supply and return lines. Based on an average-size single room.

|                             |         |    |          |        |          |          |
|-----------------------------|---------|----|----------|--------|----------|----------|
| First floor work, per room  | P1@9.00 | Ea | 1,100.00 | 366.00 | 1,466.00 | 2,490.00 |
| Second floor work, per room | P1@11.0 | Ea | 1,270.00 | 447.00 | 1,717.00 | 2,920.00 |

**Remove and replace a cast iron radiator.** Replaced on the same wall using exposed piping. Add the cost of refinishing floor and wall surfaces if required.

|                                   |         |    |          |        |          |          |
|-----------------------------------|---------|----|----------|--------|----------|----------|
| Replace with a baseboard radiator | P1@8.00 | Ea | 1,020.00 | 325.00 | 1,345.00 | 2,290.00 |
| Replace with thin-line radiator   | P1@8.00 | Ea | 1,000.00 | 325.00 | 1,325.00 | 2,250.00 |

**Remove and replace a hydronic heating system.** In an existing home. Remove and haul away the existing heating plant. Install a new gas- or propane-fired hydronic heating boiler with insulated steel jacket, new wall thermostat, electrical connections and wiring. Connect to existing gas, propane or oil supply lines and existing hydronic distribution piping. Includes electric or spark ignition, power vent controls, standard valves, gauges, and drain valves. Add the cost of radiators and refinishing floor, ceiling and wall surfaces as required.

|   |         |    |          |          |          |           |
|---|---------|----|----------|----------|----------|-----------|
| Gas-fired, 100,000 Btu                    | P1@26.0 | Ea | 4,410.00 | 1,060.00 | 5,470.00 | 9,300.00  |
| Gas-fired, 125,000 Btu                    | P1@27.5 | Ea | 4,490.00 | 1,120.00 | 5,610.00 | 9,540.00  |
| Oil-fired, 100,000 Btu                    | P1@27.0 | Ea | 4,950.00 | 1,100.00 | 6,050.00 | 10,300.00 |
| Oil-fired, 125,000 Btu                    | P1@28.0 | Ea | 6,020.00 | 1,140.00 | 7,160.00 | 12,200.00 |
| Add per bathroom radiator, copper pipe    | P1@7.50 | Ea | 639.00   | 305.00   | 944.00   | 1,600.00  |
| Add per bedroom radiator, copper pipe     | P1@5.00 | Ea | 737.00   | 203.00   | 940.00   | 1,600.00  |
| Add per dining room radiator, copper pipe | P1@8.50 | Ea | 776.00   | 346.00   | 1,122.00 | 1,910.00  |
| Add per kitchen radiator, copper pipe     | P1@6.00 | Ea | 845.00   | 244.00   | 1,089.00 | 1,850.00  |
| Add per living room radiator, copper pipe | P1@7.50 | Ea | 694.00   | 305.00   | 999.00   | 1,700.00  |
| Add per bathroom radiator, iron pipe      | P1@5.00 | Ea | 558.00   | 203.00   | 761.00   | 1,290.00  |
| Add per bedroom radiator, iron pipe       | P1@8.50 | Ea | 647.00   | 346.00   | 993.00   | 1,690.00  |
| Add per dining room radiator, iron pipe   | P1@6.50 | Ea | 799.00   | 264.00   | 1,063.00 | 1,810.00  |
| Add per kitchen radiator, iron pipe       | P1@9.00 | Ea | 706.00   | 366.00   | 1,072.00 | 1,820.00  |
| Add per living room radiator, iron pipe   | P1@7.00 | Ea | 768.00   | 285.00   | 1,053.00 | 1,790.00  |
| Add for second floor radiators            | —       | %  | 20.0     | —        | —        | —         |
| Add for circulating pump                  | P1@5.00 | Ea | 792.00   | 203.00   | 995.00   | 1,690.00  |

**HEPA central air filtration retrofit.** 240 CFM, 0.5 inches of water column pressure differential, with pre-filter and activated carbon filter. 2' x 8' duct collar, gasket and hanger assembly. Add the cost of control and electric wiring.

|  |         |    |        |       |        |          |
|--|---------|----|--------|-------|--------|----------|
| HEPA filtration module, test and balance | SW@2.00 | Ea | 709.00 | 93.10 | 802.10 | 1,360.00 |
| Cut hole in wall or roof                 | SW@1.00 | Ea | 57.90  | 46.50 | 104.40 | 177.00   |
| Mount duct hangers                       | SW@0.25 | Ea | 5.79   | 11.60 | 17.39  | 29.60    |
| Sheet metal duct, coated                 | SW@0.50 | LF | 8.92   | 23.30 | 32.22  | 54.80    |

|  | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|--|-----------|------|----------|--------|----------|----------|
| <b>Ductless mini-split heating and cooling units</b> Includes pad-mounted compressor-condenser, 15' of insulated copper refrigerant lines, PVC condensate drain, control wiring, PVC wall chase, clamps, brackets, interior wall-mounted evaporator and wireless control. Add the cost of an exterior mounting slab, electrical connection and a NEC-approved safety switch. |           |      |          |        |          |          |
| Single zone units  |           |      |          |        |          |          |
| 9,000 BTU, 3/4 ton, 230V   | PM@3.59   | Ea   | 1,110.00 | 172.00 | 1,282.00 | 2,180.00 |
| 9,000 BTU, 3/4 ton, 115V   | PM@3.59   | Ea   | 1,130.00 | 172.00 | 1,302.00 | 2,210.00 |
| 12,000 BTU, 1 ton, 230V  | PM@3.84   | Ea   | 1,650.00 | 184.00 | 1,834.00 | 3,120.00 |
| 18,000 BTU, 1-1/2 ton, 230V  | PM@3.84   | Ea   | 1,430.00 | 184.00 | 1,614.00 | 2,740.00 |
| 24,000 BTU, 2 ton, 230V  | PM@3.84   | Ea   | 2,220.00 | 184.00 | 2,404.00 | 4,090.00 |
| 36,000 BTU, 3 ton, 230V  | PM@4.09   | Ea   | 2,400.00 | 196.00 | 2,596.00 | 4,410.00 |
| 42,000 BTU, 3-1/2 ton, 230V, ceiling mount   | PM@7.18   | Ea   | 3,880.00 | 345.00 | 4,225.00 | 7,180.00 |
| Multi zone units   |           |      |          |        |          |          |
| 24,000 BTU, 2 ton, 230V, 2 zones   | PM@4.67   | Ea   | 3,160.00 | 224.00 | 3,384.00 | 5,750.00 |
| 24,000 BTU, 2 ton, 230V, 3 zones   | PM@5.60   | Ea   | 3,570.00 | 269.00 | 3,839.00 | 6,530.00 |
| 36,000 BTU, 3 ton, 230V, 3 zones   | PM@5.60   | Ea   | 2,990.00 | 269.00 | 3,259.00 | 5,540.00 |
| 36,000 BTU, 3 ton, 230V, 4 zones   | PM@7.00   | Ea   | 4,780.00 | 336.00 | 5,116.00 | 8,700.00 |
| 42,000 BTU, 3-1/2 ton, 230V, 5 zones   | PM@8.17   | Ea   | 4,950.00 | 392.00 | 5,342.00 | 9,080.00 |
| Add for 4" concrete slab, to 3' x 3'   | B1@1.40   | LS   | 31.00    | 52.10  | 83.10    | 141.00   |
| Add for electrical connection and safety switch  | BE@3.25   | LS   | 82.40    | 146.00 | 228.40   | 388.00   |
| <b>Chimney liner (flue), aluminum.</b> Prefabricated, 2-ply single-wall flexible aluminum gas or propane fuel chimney liner. Approved for installation in an existing masonry chimney. Maximum flue temperature of 270 degrees F. Check local codes for regulations regarding acceptable installation requirements.  |           |      |          |        |          |          |
| 4" flexible chimney liner  | P1@.090   | LF   | 4.50     | 3.66   | 8.16     | 13.90    |
| 5" flexible chimney liner  | P1@.095   | LF   | 3.82     | 3.86   | 7.68     | 13.10    |
| 6" flexible chimney liner  | P1@.100   | LF   | 6.46     | 4.07   | 10.53    | 17.90    |
| 7" flexible chimney liner  | P1@.115   | LF   | 7.09     | 4.68   | 11.77    | 20.00    |
| 8" flexible chimney liner  | P1@.120   | LF   | 7.89     | 4.88   | 12.77    | 21.70    |
| <b>Chimney liner rain cap assembly, aluminum.</b> Approved for installation in an existing masonry chimney. Maximum flue temperature of 270 degrees F. Check local codes for regulations regarding acceptable installation requirements.   |           |      |          |        |          |          |
| 4" chimney liner cap assembly  | P1@.450   | Ea   | 70.10    | 18.30  | 88.40    | 150.00   |
| 5" chimney liner cap assembly  | P1@.450   | Ea   | 81.10    | 18.30  | 99.40    | 169.00   |
| 6" chimney liner cap assembly  | P1@.450   | Ea   | 92.40    | 18.30  | 110.70   | 188.00   |
| 7" chimney liner cap assembly  | P1@.500   | Ea   | 104.00   | 20.30  | 124.30   | 211.00   |
| 8" chimney liner cap assembly  | P1@.500   | Ea   | 109.00   | 20.30  | 129.30   | 220.00   |
| <b>Chimney liner (flue), stainless steel.</b> Prefabricated, 304/316 stainless steel single-wall flexible chimney liner. Approved for installation in an existing masonry chimney. Maximum flue temperature of 2,100 degrees F. Check local codes for regulations regarding acceptable installation requirements.  |           |      |          |        |          |          |
| 4" flexible chimney liner  | P1@.115   | LF   | 22.80    | 4.68   | 27.48    | 46.70    |
| 5" flexible chimney liner  | P1@.120   | LF   | 27.90    | 4.88   | 32.78    | 55.70    |
| 6" flexible chimney liner  | P1@.125   | LF   | 31.40    | 5.08   | 36.48    | 62.00    |
| 7" flexible chimney liner  | P1@.130   | LF   | 46.50    | 5.29   | 51.79    | 88.00    |
| 8" flexible chimney liner  | P1@.135   | LF   | 46.40    | 5.49   | 51.89    | 88.20    |
| <b>Chimney (flue), C vent.</b> Prefabricated single-wall 24-gauge galvanized steel snap lock gas or propane fuel chimney. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.  |           |      |          |        |          |          |
| 5" single wall   | P1@.110   | LF   | 2.11     | 4.47   | 6.58     | 11.20    |
| 6" single wall   | P1@.115   | LF   | 2.44     | 4.68   | 7.12     | 12.10    |
| 7" single wall   | P1@.130   | LF   | 2.71     | 5.29   | 8.00     | 13.60    |
| 8" single wall   | P1@.135   | LF   | 2.90     | 5.49   | 8.39     | 14.30    |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Chimney (flue), C vent, aluminum.** Prefabricated .020" thickness, 24-gauge single-wall, aluminum snap lock gas or propane fuel chimney. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                |         |    |      |      |      |       |
|----------------|---------|----|------|------|------|-------|
| 4" single wall | P1@.100 | LF | 1.58 | 4.07 | 5.65 | 9.61  |
| 5" single wall | P1@.110 | LF | 2.02 | 4.47 | 6.49 | 11.00 |
| 6" single wall | P1@.115 | LF | 2.38 | 4.68 | 7.06 | 12.00 |
| 7" single wall | P1@.130 | LF | 2.86 | 5.29 | 8.15 | 13.90 |
| 8" single wall | P1@.135 | LF | 3.31 | 5.49 | 8.80 | 15.00 |

**Chimney (flue) base tee, C vent.** Prefabricated single-wall galvanized steel gas or propane fuel chimney base tee, including cap. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                |         |    |       |      |       |        |
|----------------|---------|----|-------|------|-------|--------|
| 4" single wall | P1@.155 | Ea | 31.90 | 6.30 | 38.20 | 64.90  |
| 5" single wall | P1@.165 | Ea | 39.10 | 6.71 | 45.81 | 77.90  |
| 6" single wall | P1@.180 | Ea | 44.30 | 7.32 | 51.62 | 87.80  |
| 7" single wall | P1@.195 | Ea | 52.30 | 7.93 | 60.23 | 102.00 |
| 8" single wall | P1@.220 | Ea | 72.10 | 8.95 | 81.05 | 138.00 |

**Chimney (flue) base tee, C vent, aluminum.** Prefabricated single-wall aluminum gas or propane fuel chimney base tee, including cap. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                |         |    |       |      |       |        |
|----------------|---------|----|-------|------|-------|--------|
| 4" single wall | P1@.155 | Ea | 37.60 | 6.30 | 43.90 | 74.60  |
| 5" single wall | P1@.165 | Ea | 39.50 | 6.71 | 46.21 | 78.60  |
| 6" single wall | P1@.180 | Ea | 48.50 | 7.32 | 55.82 | 94.90  |
| 7" single wall | P1@.195 | Ea | 56.40 | 7.93 | 64.33 | 109.00 |
| 8" single wall | P1@.220 | Ea | 75.10 | 8.95 | 84.05 | 143.00 |

**Chimney (flue) elbow, C vent.** Prefabricated single-wall galvanized steel gas or propane fuel chimney adjustable elbow. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                                  |         |    |       |      |       |       |
|----------------------------------|---------|----|-------|------|-------|-------|
| 4" single wall, adjustable elbow | P1@.155 | Ea | 7.01  | 6.30 | 13.31 | 22.60 |
| 5" single wall, adjustable elbow | P1@.165 | Ea | 7.55  | 6.71 | 14.26 | 24.20 |
| 6" single wall, adjustable elbow | P1@.180 | Ea | 8.38  | 7.32 | 15.70 | 26.70 |
| 7" single wall, adjustable elbow | P1@.195 | Ea | 9.70  | 7.93 | 17.63 | 30.00 |
| 8" single wall, adjustable elbow | P1@.220 | Ea | 12.50 | 8.95 | 21.45 | 36.50 |

**Chimney (flue) elbow, C vent, aluminum.** Prefabricated single-wall aluminum gas or propane fuel chimney adjustable elbow. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                                  |         |    |       |      |       |       |
|----------------------------------|---------|----|-------|------|-------|-------|
| 4" single wall, adjustable elbow | P1@.155 | Ea | 7.68  | 6.30 | 13.98 | 23.80 |
| 5" single wall, adjustable elbow | P1@.165 | Ea | 8.71  | 6.71 | 15.42 | 26.20 |
| 6" single wall, adjustable elbow | P1@.180 | Ea | 11.00 | 7.32 | 18.32 | 31.10 |
| 7" single wall, adjustable elbow | P1@.195 | Ea | 16.20 | 7.93 | 24.13 | 41.00 |
| 8" single wall, adjustable elbow | P1@.220 | Ea | 22.70 | 8.95 | 31.65 | 53.80 |

**Chimney (flue) storm collar, rain cap and roof flashing assembly, C vent.** Prefabricated single-wall galvanized steel gas or propane fuel chimney termination assembly. Add for cutting new holes in ceiling and roof, and patching if required. Check local codes for regulations regarding acceptable installation requirements.

|                                      |         |    |        |       |        |        |
|--------------------------------------|---------|----|--------|-------|--------|--------|
| 4" single wall, termination assembly | P1@.650 | Ea | 55.80  | 26.40 | 82.20  | 140.00 |
| 5" single wall, termination assembly | P1@.700 | Ea | 61.00  | 28.50 | 89.50  | 152.00 |
| 6" single wall, termination assembly | P1@.750 | Ea | 70.30  | 30.50 | 100.80 | 171.00 |
| 7" single wall, termination assembly | P1@.900 | Ea | 83.70  | 36.60 | 120.30 | 205.00 |
| 8" single wall, termination assembly | P1@1.15 | Ea | 102.00 | 46.80 | 148.80 | 253.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Chimney (flue), B vent.** Prefabricated double-wall metal gas or propane fuel chimney. Aluminum inner liner with extruded aluminum outer jacket. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                |         |    |       |      |       |       |
|----------------|---------|----|-------|------|-------|-------|
| 4" double wall | P1@.100 | LF | 8.77  | 4.07 | 12.84 | 21.80 |
| 5" double wall | P1@.115 | LF | 10.00 | 4.68 | 14.68 | 25.00 |
| 6" double wall | P1@.120 | LF | 10.60 | 4.88 | 15.48 | 26.30 |
| 7" double wall | P1@.135 | LF | 13.60 | 5.49 | 19.09 | 32.50 |
| 8" double wall | P1@.140 | LF | 15.80 | 5.69 | 21.49 | 36.50 |

**Chimney (flue) base tee, B vent.** Prefabricated double-wall metal gas or propane fuel chimney base tee with cap. Aluminum inner liner with extruded aluminum outer jacket. Check local codes for regulations regarding acceptable installation requirements.

|                |         |    |        |      |        |        |
|----------------|---------|----|--------|------|--------|--------|
| 4" double wall | P1@.155 | Ea | 61.80  | 6.30 | 68.10  | 116.00 |
| 5" double wall | P1@.165 | Ea | 70.50  | 6.71 | 77.21  | 131.00 |
| 6" double wall | P1@.180 | Ea | 77.10  | 7.32 | 84.42  | 144.00 |
| 7" double wall | P1@.195 | Ea | 88.20  | 7.93 | 96.13  | 163.00 |
| 8" double wall | P1@.220 | Ea | 102.00 | 8.95 | 110.95 | 189.00 |

**Chimney (flue) elbow, B vent.** Prefabricated double-wall metal gas or propane fuel chimney base tee with cap. Aluminum inner liner with extruded aluminum outer jacket. Check local codes for regulations regarding acceptable installation requirements.

|                                 |         |    |       |      |       |        |
|---------------------------------|---------|----|-------|------|-------|--------|
| 4" double wall, 45-degree elbow | P1@.155 | Ea | 29.00 | 6.30 | 35.30 | 60.00  |
| 4" double wall, 90-degree elbow | P1@.155 | Ea | 37.60 | 6.30 | 43.90 | 74.60  |
| 5" double wall, 45-degree elbow | P1@.165 | Ea | 29.50 | 6.71 | 36.21 | 61.60  |
| 5" double wall, 90-degree elbow | P1@.165 | Ea | 38.70 | 6.71 | 45.41 | 77.20  |
| 6" double wall, 45-degree elbow | P1@.180 | Ea | 33.80 | 7.32 | 41.12 | 69.90  |
| 6" double wall, 90-degree elbow | P1@.180 | Ea | 41.50 | 7.32 | 48.82 | 83.00  |
| 7" double wall, 45-degree elbow | P1@.195 | Ea | 40.90 | 7.93 | 48.83 | 83.00  |
| 7" double wall, 90-degree elbow | P1@.195 | Ea | 47.60 | 7.93 | 55.53 | 94.40  |
| 8" double wall, 45-degree elbow | P1@.220 | Ea | 50.20 | 8.95 | 59.15 | 101.00 |
| 8" double wall, 90-degree elbow | P1@.220 | Ea | 59.00 | 8.95 | 67.95 | 116.00 |

**Chimney (flue) storm collar, rain cap and roof flashing assembly, B vent.** Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                                      |         |    |        |       |        |        |
|--------------------------------------|---------|----|--------|-------|--------|--------|
| 4" double wall, termination assembly | P1@.650 | Ea | 55.80  | 26.40 | 82.20  | 140.00 |
| 5" double wall, termination assembly | P1@.700 | Ea | 59.60  | 28.50 | 88.10  | 150.00 |
| 6" double wall, termination assembly | P1@.750 | Ea | 63.20  | 30.50 | 93.70  | 159.00 |
| 7" double wall, termination assembly | P1@.900 | Ea | 83.80  | 36.60 | 120.40 | 205.00 |
| 8" double wall, termination assembly | P1@1.15 | Ea | 102.00 | 46.80 | 148.80 | 253.00 |

**Chimney (flue), L vent.** Prefabricated double-wall metal gas or propane fuel chimney. Stainless steel inner liner with extruded aluminum outer jacket. High temperature and condensing boiler or furnace applications. Maximum flue temperature of 750 degrees F. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                |         |    |       |      |       |       |
|----------------|---------|----|-------|------|-------|-------|
| 5" double wall | P1@.115 | LF | 31.20 | 4.68 | 35.88 | 61.00 |
| 6" double wall | P1@.120 | LF | 33.70 | 4.88 | 38.58 | 65.60 |
| 7" double wall | P1@.135 | LF | 39.60 | 5.49 | 45.09 | 76.70 |
| 8" double wall | P1@.140 | LF | 42.50 | 5.69 | 48.19 | 81.90 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Chimney (flue) base tee, L vent.** Prefabricated double-wall metal gas or propane fuel chimney base tee with cap. Stainless steel inner liner with extruded aluminum outer jacket. High temperature and condensing boiler or furnace applications. Maximum flue temperature of 750 degrees F. Check local codes for regulations regarding acceptable installation requirements.

|                |         |    |        |      |        |        |
|----------------|---------|----|--------|------|--------|--------|
| 5" double wall | P1@.165 | Ea | 116.00 | 6.71 | 122.71 | 209.00 |
| 6" double wall | P1@.180 | Ea | 124.00 | 7.32 | 131.32 | 223.00 |
| 7" double wall | P1@.195 | Ea | 149.00 | 7.93 | 156.93 | 267.00 |
| 8" double wall | P1@.220 | Ea | 164.00 | 8.95 | 172.95 | 294.00 |

**Chimney (flue) elbow, L vent.** Prefabricated double-wall metal gas or propane fuel chimney. Stainless steel inner liner with extruded aluminum outer jacket. High temperature and condensing boiler or furnace applications. Maximum flue temperature of 750 degrees F. Check local codes for regulations regarding acceptable installation requirements.

|                                 |         |    |        |      |        |        |
|---------------------------------|---------|----|--------|------|--------|--------|
| 5" double wall, 45-degree elbow | P1@.165 | Ea | 90.30  | 6.71 | 97.01  | 165.00 |
| 5" double wall, 90-degree elbow | P1@.165 | Ea | 132.00 | 6.71 | 138.71 | 236.00 |
| 6" double wall, 45-degree elbow | P1@.180 | Ea | 97.20  | 7.32 | 104.52 | 178.00 |
| 6" double wall, 90-degree elbow | P1@.180 | Ea | 136.00 | 7.32 | 143.32 | 244.00 |
| 7" double wall, 45-degree elbow | P1@.195 | Ea | 136.00 | 7.93 | 143.93 | 245.00 |
| 7" double wall, 90-degree elbow | P1@.195 | Ea | 88.70  | 7.93 | 96.63  | 164.00 |
| 8" double wall, 45-degree elbow | P1@.220 | Ea | 109.00 | 8.95 | 117.95 | 201.00 |
| 8" double wall, 90-degree elbow | P1@.220 | Ea | 158.00 | 8.95 | 166.95 | 284.00 |

**Chimney (flue) storm collar, rain cap and roof flashing assembly, L vent.** Prefabricated double-wall metal gas or propane fuel chimney. Stainless steel inner liner with extruded aluminum outer jacket. High temperature and condensing boiler or furnace applications. Maximum flue temperature of 750 degrees F. Check local codes for regulations regarding acceptable installation requirements.

|                                      |         |    |        |       |        |        |
|--------------------------------------|---------|----|--------|-------|--------|--------|
| 5" double wall, termination assembly | P1@.700 | Ea | 136.00 | 28.50 | 164.50 | 280.00 |
| 6" double wall, termination assembly | P1@.750 | Ea | 159.00 | 30.50 | 189.50 | 322.00 |
| 7" double wall, termination assembly | P1@.900 | Ea | 177.00 | 36.60 | 213.60 | 363.00 |
| 8" double wall, termination assembly | P1@1.15 | Ea | 212.00 | 46.80 | 258.80 | 440.00 |

**Chimney (flue), A vent.** Prefabricated double-wall insulated stainless steel all-fuels chimney. Maximum flue temperature of 1,700 degrees F. Stainless steel inner liner and outer jacket. Twist-lock connection. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|  |         |    |        |      |        |        |
|--|---------|----|--------|------|--------|--------|
| 5" double wall                           | P1@.120 | LF | 59.10  | 4.88 | 63.98  | 109.00 |
| 6" double wall                           | P1@.125 | LF | 63.30  | 5.08 | 68.38  | 116.00 |
| 7" double wall                           | P1@.140 | LF | 66.10  | 5.69 | 71.79  | 122.00 |
| 8" double wall                           | P1@.145 | LF | 70.80  | 5.90 | 76.70  | 130.00 |
| 10" double wall                          | P1@.160 | LF | 115.00 | 6.51 | 121.51 | 207.00 |
| Add for 2,100 degree maximum temp rating | —       | %  | 45.0   | —    | —      | —      |

**Chimney (flue) base tee, A vent.** Prefabricated double-wall insulated all-fuels chimney base tee including cap. Maximum flue temperature of 1,700 degrees F. Stainless steel inner liner and outer jacket. Twist-lock connection. Add for cutting new holes in ceiling and roof and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| 5" double wall                              | P1@.170 | Ea | 259.00 | 6.91  | 265.91 | 452.00 |
| 6" double wall                              | P1@.185 | Ea | 276.00 | 7.52  | 283.52 | 482.00 |
| 7" double wall                              | P1@.200 | Ea | 291.00 | 8.13  | 299.13 | 509.00 |
| 8" double wall                              | P1@.225 | Ea | 307.00 | 9.15  | 316.15 | 537.00 |
| 10" double wall                             | P1@.260 | Ea | 365.00 | 10.60 | 375.60 | 639.00 |
| Add for 2,100 degree F. maximum temp rating | —       | %  | 25.0   | —     | —      | —      |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Chimney (flue) elbow, A vent.** Prefabricated double-wall insulated all-fuels chimney elbow. Maximum flue temperature of 1,700 degrees F. Stainless steel inner liner and outer jacket. Twist-lock connection. Add for cutting new holes in ceiling and roof and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| 5" double wall, 15-degree elbow          | P1@.170 | Ea | 95.90  | 6.91  | 102.81 | 175.00 |
| 5" double wall, 30-degree elbow          | P1@.170 | Ea | 101.00 | 6.91  | 107.91 | 183.00 |
| 5" double wall, 45-degree elbow          | P1@.170 | Ea | 144.00 | 6.91  | 150.91 | 257.00 |
| 6" double wall, 15-degree elbow          | P1@.190 | Ea | 99.20  | 7.73  | 106.93 | 182.00 |
| 6" double wall, 30-degree elbow          | P1@.190 | Ea | 104.00 | 7.73  | 111.73 | 190.00 |
| 6" double wall, 45-degree elbow          | P1@.190 | Ea | 133.00 | 7.73  | 140.73 | 239.00 |
| 7" double wall, 15-degree elbow          | P1@.225 | Ea | 113.00 | 9.15  | 122.15 | 208.00 |
| 7" double wall, 30-degree elbow          | P1@.225 | Ea | 124.00 | 9.15  | 133.15 | 226.00 |
| 7" double wall, 45-degree elbow          | P1@.225 | Ea | 159.00 | 9.15  | 168.15 | 286.00 |
| 8" double wall, 15-degree elbow          | P1@.260 | Ea | 135.00 | 10.60 | 145.60 | 248.00 |
| 8" double wall, 30-degree elbow          | P1@.260 | Ea | 147.00 | 10.60 | 157.60 | 268.00 |
| 8" double wall, 45-degree elbow          | P1@.260 | Ea | 177.00 | 10.60 | 187.60 | 319.00 |
| 10" double wall, 15-degree elbow         | P1@.330 | Ea | 162.00 | 13.40 | 175.40 | 298.00 |
| 10" double wall, 30-degree elbow         | P1@.330 | Ea | 186.00 | 13.40 | 199.40 | 339.00 |
| 10" double wall, 45-degree elbow         | P1@.330 | Ea | 227.00 | 13.40 | 240.40 | 409.00 |
| Add for 2,100 degree maximum temp rating | —       | %  | 25.0   | —     | —      | —      |

**Chimney (flue) storm collar, rain cap and roof flashing assembly, A vent.** Prefabricated double-wall insulated all-fuels chimney. Maximum flue temperature of 1,700 degrees F. Twist-lock connection. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|                                       |         |    |        |       |        |        |
|---------------------------------------|---------|----|--------|-------|--------|--------|
| 5" double wall, termination assembly  | P1@.750 | Ea | 162.00 | 30.50 | 192.50 | 327.00 |
| 6" double wall, termination assembly  | P1@.800 | Ea | 181.00 | 32.50 | 213.50 | 363.00 |
| 7" double wall, termination assembly  | P1@.950 | Ea | 191.00 | 38.60 | 229.60 | 390.00 |
| 8" double wall, termination assembly  | P1@1.20 | Ea | 212.00 | 48.80 | 260.80 | 443.00 |
| 10" double wall, termination assembly | P1@1.30 | Ea | 249.00 | 52.90 | 301.90 | 513.00 |

**Chimney (flue) supports and brackets, A vent.** Prefabricated double-wall insulated all-fuels chimney. Maximum flue temperature of 1,700 degrees F. Twist-lock connection. Add for cutting new holes in ceiling and roof, and patching, if required. Check local codes for regulations regarding acceptable installation requirements.

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| 5" double wall, anchor plate             | P1@.200 | Ea | 55.20  | 8.13  | 63.33  | 108.00 |
| 5" double wall, adjustable wall support  | P1@.300 | Ea | 88.80  | 12.20 | 101.00 | 172.00 |
| 5" double wall, wall or floor support    | P1@.400 | Ea | 61.80  | 16.30 | 78.10  | 133.00 |
| 6" double wall, anchor plate             | P1@.225 | Ea | 60.00  | 9.15  | 69.15  | 118.00 |
| 6" double wall, adjustable wall support  | P1@.325 | Ea | 112.00 | 13.20 | 125.20 | 213.00 |
| 6" double wall, wall or floor support    | P1@.425 | Ea | 93.00  | 17.30 | 110.30 | 188.00 |
| 7" double wall, anchor plate             | P1@.230 | Ea | 63.70  | 9.35  | 73.05  | 124.00 |
| 7" double wall, adjustable wall support  | P1@.330 | Ea | 126.00 | 13.40 | 139.40 | 237.00 |
| 7" double wall, wall or floor support    | P1@.430 | Ea | 82.80  | 17.50 | 100.30 | 171.00 |
| 8" double wall, anchor plate             | P1@.240 | Ea | 67.50  | 9.76  | 77.26  | 131.00 |
| 8" double wall, adjustable wall support  | P1@.350 | Ea | 144.00 | 14.20 | 158.20 | 269.00 |
| 8" double wall, wall or floor support    | P1@.450 | Ea | 98.70  | 18.30 | 117.00 | 199.00 |
| 10" double wall, anchor plate            | P1@.260 | Ea | 113.00 | 10.60 | 123.60 | 210.00 |
| 10" double wall, adjustable wall support | P1@.400 | Ea | 173.00 | 16.30 | 189.30 | 322.00 |
| 10" double wall, wall or floor support   | P1@.550 | Ea | 138.00 | 22.40 | 160.40 | 273.00 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Electric baseboard heaters.** Includes a remote thermostat, a separate circuit run to the point of use and connection. Each foot of electric baseboard heater delivers approximately 925 Btu of heating capacity.

|                                |         |    |        |        |        |          |
|--------------------------------|---------|----|--------|--------|--------|----------|
| 1,850 Btu, 540-watt, 2' heater | P1@4.00 | Ea | 219.00 | 163.00 | 382.00 | 649.00   |
| 2,775 Btu, 660-watt, 3' heater | P1@4.50 | Ea | 253.00 | 183.00 | 436.00 | 741.00   |
| 3,700 Btu, 1.0kW, 4' heater    | P1@4.65 | Ea | 292.00 | 189.00 | 481.00 | 818.00   |
| 4,600 Btu, 1.35kW, 5' heater   | P1@4.75 | Ea | 331.00 | 193.00 | 524.00 | 891.00   |
| 5,350 Btu, 1.55kW, 6' heater   | P1@5.00 | Ea | 376.00 | 203.00 | 579.00 | 984.00   |
| 7,200 Btu, 2.0kW, 8' heater    | P1@5.25 | Ea | 469.00 | 213.00 | 682.00 | 1,160.00 |
| 9,050 Btu, 2.65kW, 9' heater   | P1@5.50 | Ea | 503.00 | 224.00 | 727.00 | 1,240.00 |
| 11,900 Btu, 3.5kW, 10' heater  | P1@5.75 | Ea | 577.00 | 234.00 | 811.00 | 1,380.00 |

**Central coal- or wood-burning furnace.** Connected to existing ductwork and chimney flue. Triple flue heat exchanger, refractory lined chamber holds logs from 22" to 32" in diameter. Includes fan lift switch, blower system, cast iron grate, automatic controlled damper and removal of the existing furnace.

|         |         |    |          |          |          |          |
|---------|---------|----|----------|----------|----------|----------|
| Furnace | P1@25.8 | Ea | 3,750.00 | 1,050.00 | 4,800.00 | 8,160.00 |
|---------|---------|----|----------|----------|----------|----------|

**Gas floor furnace.** Includes thermostat, electrical connection, gas piping, flue and valve. Add the cost of interior and exterior patching.

|                            |         |    |          |        |          |          |
|----------------------------|---------|----|----------|--------|----------|----------|
| 35,000 Btu, pilot ignition | P1@9.00 | Ea | 864.00   | 366.00 | 1,230.00 | 2,090.00 |
| 35,000 Btu, spark ignition | P1@9.00 | Ea | 1,030.00 | 366.00 | 1,396.00 | 2,370.00 |
| 50,000 Btu, pilot ignition | P1@9.50 | Ea | 963.00   | 386.00 | 1,349.00 | 2,290.00 |
| 50,000 Btu, spark ignition | P1@9.50 | Ea | 1,150.00 | 386.00 | 1,536.00 | 2,610.00 |
| 65,000 Btu, pilot ignition | P1@10.0 | Ea | 1,110.00 | 407.00 | 1,517.00 | 2,580.00 |
| 65,000 Btu, spark ignition | P1@10.0 | Ea | 1,320.00 | 407.00 | 1,727.00 | 2,940.00 |

**Gas wall furnace.** Includes thermostat, electrical connection, gas piping, valve, blower and debris removal. Add the cost of wall, ceiling and roof patching. Two room (rear grille) units have one thermostat and control the temperature in one room only. For a room under 300 square feet, a 25,000 Btu furnace usually has enough capacity if ceiling height is 8' or less.

|                                  |         |    |          |        |          |          |
|----------------------------------|---------|----|----------|--------|----------|----------|
| 25,000 Btu, pilot ignition       | P1@9.00 | Ea | 730.00   | 366.00 | 1,096.00 | 1,860.00 |
| 25,000 Btu, spark ignition       | P1@9.00 | Ea | 730.00   | 366.00 | 1,096.00 | 1,860.00 |
| 40,000 Btu, pilot ignition       | P1@9.50 | Ea | 905.00   | 386.00 | 1,291.00 | 2,190.00 |
| 40,000 Btu, spark ignition       | P1@9.50 | Ea | 1,120.00 | 386.00 | 1,506.00 | 2,560.00 |
| 50,000 Btu, pilot ignition       | P1@9.50 | Ea | 942.00   | 386.00 | 1,328.00 | 2,260.00 |
| 50,000 Btu, spark ignition       | P1@9.50 | Ea | 1,160.00 | 386.00 | 1,546.00 | 2,630.00 |
| 60,000 Btu, pilot ignition       | P1@10.0 | Ea | 1,030.00 | 407.00 | 1,437.00 | 2,440.00 |
| 60,000 Btu, spark ignition       | P1@10.0 | Ea | 1,260.00 | 407.00 | 1,667.00 | 2,830.00 |
| Add for dual wall unit (2 rooms) | P1@6.00 | Ea | 867.00   | 244.00 | 1,111.00 | 1,890.00 |

**Thru-the-wall gas furnace.** Includes thermostat, electrical connection, gas piping, valve, direct exterior wall vent and debris removal. Pilot ignition. Add the cost of interior and exterior wall patching if needed.

|                                  |         |    |          |        |          |          |
|----------------------------------|---------|----|----------|--------|----------|----------|
| 100 square foot room, 14,000 Btu | P1@8.00 | Ea | 745.00   | 325.00 | 1,070.00 | 1,820.00 |
| 150 square foot room, 22,000 Btu | P1@8.50 | Ea | 806.00   | 346.00 | 1,152.00 | 1,960.00 |
| 200 square foot room, 25,000 Btu | P1@9.00 | Ea | 846.00   | 366.00 | 1,212.00 | 2,060.00 |
| 250 square foot room, 30,000 Btu | P1@9.00 | Ea | 889.00   | 366.00 | 1,255.00 | 2,130.00 |
| 300 square foot room, 40,000 Btu | P1@9.50 | Ea | 971.00   | 386.00 | 1,357.00 | 2,310.00 |
| 400 square foot room, 65,000 Btu | P1@10.0 | Ea | 1,190.00 | 407.00 | 1,597.00 | 2,710.00 |

|  | Craft@Hrs | Unit | Material | Labor  | Total    | Sell      |
|--|-----------|------|----------|--------|----------|-----------|
| <b>Gas Water Heaters</b>   |           |      |          |        |          |           |
| <b>30-gallon gas water heater.</b> 6-year warranty. Includes temperature and pressure relief valve. Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.  |           |      |          |        |          |           |
| 30 gallon  | P1@2.50   | Ea   | 569.00   | 102.00 | 671.00   | 1,140.00  |
| <b>40-gallon gas-fired water heater.</b> 6-year warranty. Flammable Vapor Ignition Resistant (FVIR). Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.   |           |      |          |        |          |           |
| 36,000 Btu   | P1@2.75   | Ea   | 579.00   | 112.00 | 691.00   | 1,170.00  |
| <b>50-gallon gas-fired water heater.</b> 6-year warranty. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.  |           |      |          |        |          |           |
| 40,000 Btu   | P1@2.75   | Ea   | 789.00   | 112.00 | 901.00   | 1,530.00  |
| <b>60-gallon gas water heater.</b> 12-year warranty. Tall boy. Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.   |           |      |          |        |          |           |
| 50,000 Btu   | P1@2.75   | Ea   | 988.00   | 112.00 | 1,100.00 | 1,870.00  |
| <b>75-gallon gas water heater.</b> 6-year warranty. Tall boy. Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.  |           |      |          |        |          |           |
| 76,000 Btu, Low-NOx  | P1@2.75   | Ea   | 1,600.00 | 112.00 | 1,712.00 | 2,910.00  |
| <b>100-gallon commercial gas water heater.</b> Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.   |           |      |          |        |          |           |
| 77,000 Btu, 3-year warranty  | P1@3.75   | Ea   | 5,070.00 | 152.00 | 5,222.00 | 8,880.00  |
| 199,000 Btu, 3-year warranty   | P1@3.75   | Ea   | 9,170.00 | 152.00 | 9,322.00 | 15,800.00 |
| <b>40-gallon high-altitude gas water heater.</b> Tall boy. Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.   |           |      |          |        |          |           |
| 40,000 Btu   | P1@2.75   | Ea   | 877.00   | 112.00 | 989.00   | 1,680.00  |
| <b>55-gallon high-altitude gas water heater.</b> 6-year warranty. For installations above 2,000 feet. Self-cleaning. Labor includes set in place only. Add for the cost of pipe and vent. Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.  |           |      |          |        |          |           |
| 28,000 Btu   | P1@3.50   | Ea   | 1,520.00 | 142.00 | 1,662.00 | 2,830.00  |
| <b>Propane-fired tall boy water heater.</b> 6-year warranty. Flammable Vapor Ignition Resistant (FVIR) water heater. Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.   |           |      |          |        |          |           |
| 30 gallon, 27,000 Btu  | P1@2.50   | Ea   | 856.00   | 102.00 | 958.00   | 1,630.00  |
| 40 gallon, 36,000 Btu  | P1@2.50   | Ea   | 908.00   | 102.00 | 1,010.00 | 1,720.00  |
| 50 gallon, 36,000 Btu  | P1@2.75   | Ea   | 1,180.00 | 112.00 | 1,292.00 | 2,200.00  |
| <b>40-gallon power-vent propane water heater.</b> 6-year warranty. Fan-assisted flue venting. Requires positive seal chimney vent. Power-assist permits combined horizontal and vertical venting. Air intake runs can be up to 80' (including one 90-degree elbow) using 3" Schedule 40 PVC, CPVC or ABS pipe. Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required. |           |      |          |        |          |           |
| 42,000 Btu   | P1@2.75   | Ea   | 1,370.00 | 112.00 | 1,482.00 | 2,520.00  |
| <b>Oil-fired water heater.</b> Labor includes setting and connecting only. Includes pipe connection labor. Add for flue, water and gas pipe, fitting materials and gas permit costs if required.   |           |      |          |        |          |           |
| 30 gallon, TF, tank only   | P1@2.25   | Ea   | 1,390.00 | 91.50  | 1,481.50 | 2,520.00  |
| 30 gallon, TF, with burner assembly  | P1@2.25   | Ea   | 1,860.00 | 91.50  | 1,951.50 | 3,320.00  |
| 50 gallon, TF, tank only   | P1@2.75   | Ea   | 2,190.00 | 112.00 | 2,302.00 | 3,910.00  |
| 50 gallon, TF, with burner assembly  | P1@2.75   | Ea   | 2,740.00 | 112.00 | 2,852.00 | 4,850.00  |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Electric Water Heaters

**30-gallon electric water heater.** 6-year warranty. Includes temperature and pressure relief valve. Includes pipe connection labor. Add for water pipe, fitting materials and electrical permit costs if required.

|                                  |         |    |        |       |        |          |
|----------------------------------|---------|----|--------|-------|--------|----------|
| Two 3,800-watt elements          | P1@2.00 | Ea | 554.00 | 81.30 | 635.30 | 1,080.00 |
| Two 3,800-watt elements, low boy | P1@2.00 | Ea | 634.00 | 81.30 | 715.30 | 1,220.00 |

**40-gallon electric water heater.** 6-year warranty. Includes temperature and pressure relief valve. 42-gallon-per-hour recovery rate. 23" diameter, 32" height. \$410 estimated annual operating costs. 0.90 energy factor. 11.5 R-factor on insulated jacket. Patented resistor-design heating elements prolong anode and tank life. Includes pipe connection labor. Add for water pipe, fitting materials and electrical permit costs if required.

|                                  |         |    |        |       |        |          |
|----------------------------------|---------|----|--------|-------|--------|----------|
| Two 4,500-watt elements, low boy | P1@2.25 | Ea | 567.00 | 91.50 | 658.50 | 1,120.00 |
|----------------------------------|---------|----|--------|-------|--------|----------|

**40-gallon electric water heater.** 6-year warranty. Includes temperature and pressure relief valve. 49-gallon-per-hour recovery rate. 17" diameter, 59" height. \$420 estimated annual operating costs. 0.88 energy factor. 11.5 R-factor on insulated jacket. Patented resistor-design heating elements prolong anode and tank life. Includes pipe connection labor. Add for water pipe, fitting materials and electrical permit costs if required.

|                                   |         |    |        |       |        |          |
|-----------------------------------|---------|----|--------|-------|--------|----------|
| Two 4,500-watt elements, tall boy | P1@2.25 | Ea | 693.00 | 91.50 | 784.50 | 1,330.00 |
|-----------------------------------|---------|----|--------|-------|--------|----------|

**47-gallon electric water heater.** 6-year warranty. Includes temperature and pressure relief valve. 48-gallon-per-hour recovery rate. 27" diameter, 32" height. \$425 estimated annual operating costs. 0.87 energy factor. 11.5 R-factor on insulated jacket. Patented resistor-design heating elements prolong anode and tank life. Includes pipe connection labor. Add for water pipe, fitting materials and electrical permit costs if required.

|                                  |         |    |        |        |        |          |
|----------------------------------|---------|----|--------|--------|--------|----------|
| Two 4,500-watt elements, low boy | P1@2.50 | Ea | 724.00 | 102.00 | 826.00 | 1,400.00 |
|----------------------------------|---------|----|--------|--------|--------|----------|

**50-gallon electric water heater.** 6-year warranty. Includes temperature and pressure relief valve. Includes pipe connection labor. Add for water pipe, fitting materials and electrical permit costs if required.

|                                   |         |    |        |        |        |          |
|-----------------------------------|---------|----|--------|--------|--------|----------|
| Two 4,500-watt elements, low boy  | P1@2.50 | Ea | 801.00 | 102.00 | 903.00 | 1,540.00 |
| Two 4,500-watt elements, tall boy | P1@2.50 | Ea | 868.00 | 102.00 | 970.00 | 1,650.00 |

**80-gallon electric water heater.** 6-year warranty. Includes temperature and pressure relief valve. 23" diameter, 59" height. \$425 estimated annual operating costs. 0.82 energy factor. 11.5 R-factor on insulated jacket. Includes pipe connection labor. Add for water pipe, fitting materials and electrical permit costs if required.

|                         |         |    |          |        |          |          |
|-------------------------|---------|----|----------|--------|----------|----------|
| Two 4,500-watt elements | P1@3.25 | Ea | 1,890.00 | 132.00 | 2,022.00 | 3,440.00 |
|-------------------------|---------|----|----------|--------|----------|----------|

**Small electric water heater.** 6-year warranty. Labor includes set in place only. Add for the cost of piping and electrical runs. Includes pipe connection labor. Add for water pipe, fitting materials and electrical permit costs if required.

|           |         |    |        |       |        |        |
|-----------|---------|----|--------|-------|--------|--------|
| 4 gallons | P1@1.25 | Ea | 173.00 | 50.80 | 223.80 | 380.00 |
|-----------|---------|----|--------|-------|--------|--------|

**Thermal expansion tank.** Control thermal expansion of water in domestic hot water systems. Absorbs the increased volume of water generated by the hot water heating source keeping system pressure relief setting of the T&P relief valve.

|                                 |         |    |        |       |        |        |
|---------------------------------|---------|----|--------|-------|--------|--------|
| Thermal Expansion Tank 2.1 Gal. | P1@.300 | Ea | 65.30  | 12.20 | 77.50  | 132.00 |
| Thermal Expansion Tank 4.5 Gal. | P1@.300 | Ea | 104.00 | 12.20 | 116.20 | 198.00 |
| Add for retrofit installation   | P1@1.00 | Ea | —      | 40.70 | 40.70  | 69.20  |

**Heat recovery ventilator central system retrofit.** Fits onto an existing central air handler. Includes cabinet, twin ducts, duct collars, gaskets, mount plates, fasteners, air-to-air plate heat exchanger, temperature regulator sensor, damper, damper actuator and remote controller module. Add the cost of duct and wiring.

|                              |         |    |          |       |          |          |
|------------------------------|---------|----|----------|-------|----------|----------|
| Central heat recovery module | SW@1.50 | Ea | 3,280.00 | 69.80 | 3,349.80 | 5,690.00 |
| Install unit controls        | BE@0.50 | Ea | —        | 22.40 | 22.40    | 38.10    |
| Air balance and test         | SW@1.50 | Ea | —        | 69.80 | 69.80    | 119.00   |

|   | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|---|-----------|------|----------|--------|----------|----------|
| <b>Tankless Water Heaters</b>   |           |      |          |        |          |          |
| <b>Tankless gas water heater.</b> Gas tankless water heater with standing pilot. Hangs on the wall to save floor space. Provides endless hot water for one major application at a time. Made of high-quality plastic, brass, and copper. 18" wide x 30" high x 9" deep. 15-year warranty on heat exchanger. Replaces 40-gallon tank-style water heater. Natural gas or propane. Requires electric connection for ignition. Includes pipe connection labor. Add for water pipe, fitting materials and permit costs if required |           |      |          |        |          |          |
| 150,000 Btu   | P1@3.25   | Ea   | 1,070.00 | 132.00 | 1,202.00 | 2,040.00 |
| <b>Tankless gas water heater power vent kit.</b> For Bosch AquaStar. Power vent kit   |           |      |          |        |          |          |
| Power vent kit  | P1@2.50   | Ea   | 567.00   | 102.00 | 669.00   | 1,140.00 |
| <b>Tankless electric water heater, PowerStar™.</b> Designed to replace a 40-gallon electric storage tank water heater. Mounts on the wall. Electronic flow switch. Electronic thermostatic control. 10-year warranty. 99% efficiency rating. Glass reinforced plastic heat exchanger. 1/2" compression fitting connections. Filter screen on inlet. Thermal safety cut out. Add the cost of electrical source as required. Includes pipe connection labor. Add for pipe and fitting material costs if required.               |           |      |          |        |          |          |
| 240 volts, 17kW   | P1@2.15   | Ea   | 616.00   | 87.40  | 703.40   | 1,200.00 |
| 240 volts, 27kW   | P1@2.15   | Ea   | 894.00   | 87.40  | 981.40   | 1,670.00 |
| <b>Point-of-use electric water heater, Ariston GL4 Mini-Tank.</b> 4-gallon capacity. 6-year warranty. Adjustable thermostatic control. Glass-lined tank. Includes temperature/pressure relief valve. Plugs into standard 110-volt outlet. Dimensions: 14" x 14" x 12". Installs independently or in-line with larger hot water source. Meets ASHRAE 90.1 Standard. UL listed. Includes pipe connection labor. Add for pipe and fitting material costs if required.  |           |      |          |        |          |          |
| 4 gallon  | P1@2.15   | Ea   | 312.00   | 87.40  | 399.40   | 679.00   |
| <b>Point-of-use electric water heater, PowerStream™.</b> For under-sink applications. 5-year warranty. Solid copper heat exchanger. Mounts in any direction. Must be hardwired. Add the cost of electrical source as required. Includes pipe connection labor. Add for pipe and fitting material costs if required.   |           |      |          |        |          |          |
| 240 volts, 9.5kW  | P1@2.15   | Ea   | 401.00   | 87.40  | 488.40   | 830.00   |
| <b>Water Hammer Control</b>   |           |      |          |        |          |          |
| <b>Water hammer arrester.</b>   |           |      |          |        |          |          |
| 1/2" male threaded  | P1@.250   | Ea   | 17.50    | 10.20  | 27.70    | 47.10    |
| 3/4" male threaded  | P1@.250   | Ea   | 17.50    | 10.20  | 27.70    | 47.10    |
| <b>Water surge shock absorber.</b> Water hammer arrester. O-ring sealed air chamber maintains 60 PSI. Air charge absorbs high-pressure surge caused by quick closing of valves. Eliminates need for risers. Stops banging noises in pipes.  |           |      |          |        |          |          |
| 1/2" male threaded  | P1@.250   | Ea   | 17.50    | 10.20  | 27.70    | 47.10    |
| For washing machine line  | P1@.250   | Ea   | 17.50    | 10.20  | 27.70    | 47.10    |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Plumbing

**Remove and replace galvanized water pipe with copper pipe.** Includes fittings and pipe clips. Based on Type M copper pipe with soft soldered joints. Includes disposal of scrap pipe and fittings. No salvage value assumed. Add for floor, wall or ceiling patching, if required

|  |         |    |       |       |       |       |
|--|---------|----|-------|-------|-------|-------|
| 1/2" Type M copper pipe and fittings         | P1@.145 | LF | 2.29  | 5.90  | 8.19  | 13.90 |
| 3/4" Type M copper pipe and fittings         | P1@.160 | LF | 2.74  | 6.51  | 9.25  | 15.70 |
| Prep and connect to existing 1/2" galvanized | P1@.550 | Ea | 11.80 | 22.40 | 34.20 | 58.10 |
| Prep and connect to existing 3/4" galvanized | P1@.650 | Ea | 18.00 | 26.40 | 44.40 | 75.50 |

**Remove and replace galvanized drain, waste and vent pipe (DWV) with copper pipe.** Includes fittings and hangers. Based on type DWV copper pipe with soft soldered joints. Includes disposal of scrap pipe and fittings. No salvage value assumed. Add for floor, wall or ceiling patching, if required.

|  |         |    |       |       |       |        |
|--|---------|----|-------|-------|-------|--------|
| 1-1/2" DWV copper pipe and fittings            | P1@.165 | LF | 8.08  | 6.71  | 14.79 | 25.10  |
| 2" DWV copper pipe and fittings                | P1@.190 | LF | 10.10 | 7.73  | 17.83 | 30.30  |
| Prep and connect to existing 1-1/2" galvanized | P1@.650 | Ea | 35.30 | 26.40 | 61.70 | 105.00 |
| Prep and connect to existing 2" galvanized     | P1@.850 | Ea | 39.50 | 34.60 | 74.10 | 126.00 |

**Remove and replace cast iron drain, waste and vent pipe (DWV) with cast iron pipe.** Includes fittings, couplings and hangers. Based on service weight hub-less cast iron pipe with mechanical joint couplings. Includes disposal of scrap pipe and fittings. No salvage value assumed. Add for floor, wall or ceiling patching, if required.

|   |         |    |       |       |       |        |
|---|---------|----|-------|-------|-------|--------|
| 2" cast iron MJ pipe and fittings         | P1@.190 | LF | 9.23  | 7.73  | 16.96 | 28.80  |
| 3" cast iron pipe and fittings            | P1@.210 | LF | 10.20 | 8.54  | 18.74 | 31.90  |
| 4" cast iron pipe and fittings            | P1@.245 | LF | 12.00 | 9.96  | 21.96 | 37.30  |
| Prep and connect to existing 2" cast iron | P1@.650 | Ea | 18.30 | 26.40 | 44.70 | 76.00  |
| Prep and connect to existing 3" cast iron | P1@.700 | Ea | 24.60 | 28.50 | 53.10 | 90.30  |
| Prep and connect to existing 4" cast iron | P1@.750 | Ea | 33.70 | 30.50 | 64.20 | 109.00 |

**Remove and replace cast iron drain, waste and vent pipe (DWV) with ABS pipe.** Includes fittings and hangers. Based on ABS plastic pipe with solvent weld joints. Includes disposal of scrap pipe and fittings. No salvage value assumed. Add for floor, wall or ceiling patching, if required.

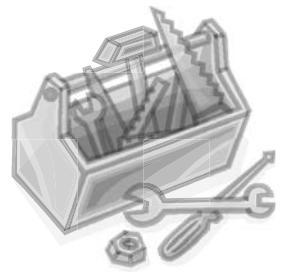
|   |         |    |       |       |        |        |
|---|---------|----|-------|-------|--------|--------|
| 1-1/2" ABS pipe and fittings                  | P1@.110 | LF | 1.82  | 4.47  | 6.29   | 10.70  |
| 2" ABS pipe and fittings                      | P1@.120 | LF | 3.05  | 4.88  | 7.93   | 13.50  |
| 3" ABS pipe and fittings                      | P1@.145 | LF | 4.80  | 5.90  | 10.70  | 18.20  |
| 4" ABS pipe and fittings                      | P1@.160 | LF | 7.77  | 6.51  | 14.28  | 24.30  |
| Prep and connect to existing 1-1/2" cast iron | P1@.550 | Ea | 35.40 | 22.40 | 57.80  | 98.30  |
| Prep and connect to existing 2" cast iron     | P1@.250 | Ea | 43.10 | 10.20 | 53.30  | 90.60  |
| Prep and connect to existing 3" cast iron     | P1@.750 | Ea | 54.80 | 30.50 | 85.30  | 145.00 |
| Prep and connect to existing 4" cast iron     | P1@.850 | Ea | 73.70 | 34.60 | 108.30 | 184.00 |

**Remove and replace cast iron drain, waste and vent pipe (DWV) with PVC pipe.** Includes fittings and hangers. Based on PVC DWV plastic pipe with solvent weld joints. Includes disposal of scrap pipe and fittings. No salvage value assumed. Add for floor, wall or ceiling patching, if required.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| 1-1/2" PVC DWV pipe and fittings              | P1@.115 | LF | 2.69   | 4.68  | 7.37   | 12.50  |
| 2" PVC DWV pipe and fittings                  | P1@.125 | LF | 4.73   | 5.08  | 9.81   | 16.70  |
| 3" PVC DWV pipe and fittings                  | P1@.150 | LF | 7.28   | 6.10  | 13.38  | 22.70  |
| 4" PVC DWV pipe and fittings                  | P1@.165 | LF | 11.70  | 6.71  | 18.41  | 31.30  |
| Prep and connect to existing 1-1/2" cast iron | P1@.550 | Ea | 58.50  | 22.40 | 80.90  | 138.00 |
| Prep and connect to existing 2" cast iron     | P1@.250 | Ea | 69.10  | 10.20 | 79.30  | 135.00 |
| Prep and connect to existing 3" cast iron     | P1@.750 | Ea | 81.20  | 30.50 | 111.70 | 190.00 |
| Prep and connect to existing 4" cast iron     | P1@.850 | Ea | 102.00 | 34.60 | 136.60 | 232.00 |

# Electrical

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Most older homes have electrical systems that are in perfectly good working order — but completely inadequate by modern standards. They have too little power, too few circuits and far too few outlets. Even if the electrical service in the home has been upgraded in the last 25 years, more circuits may be needed to keep up with the demand created by today's multitude of electrical conveniences.

Few homes built before World War I were wired for electricity. Circuits were added later, usually gouged into plaster walls or run behind baseboards. In the 1920s and 1930s, most new homes were planned for 40 amps. The next jump was to four 15-amp circuits, or 60 amps total power. Many rooms had only a single duplex receptacle and a switched light fixture. By the 1950s, 100 amps was considered adequate power, unless the plan included an electric range or electric heat. Since the 1970s, 150 amps has been considered the minimum for a small home and 200 amps a better choice for most homes.

## Enough Power?

The primary electrical shortcoming in older homes is too little amperage. Your first task is to determine how much power is available at the distribution panel (or fuse box). There are three ways to find out:

- ❖ The first limitation is the current-carrying capacity of the service entrance wire. The wire gauge may be marked on the insulation where the wire enters the weatherhead or where the cable emerges from underground conduit. If there's no marking, an electrician can measure the wire gauge and compute the maximum amperage. If you see only two wires instead of three running to the service head or emerging from underground conduit, there's no hope. Three wires are required for a modern 240-volt electrical system.
- ❖ Second, check the manufacturer's data plate or service disconnect. It will identify the maximum amperage of the main electrical panel.
- ❖ And third, the main circuit breaker will be marked with an amperage rating. It's always the same or less than the service drop and electrical panel.

Unfortunately, the amperage that can be delivered to loads in the house is determined by the *smallest* number among these three identifiers.

If the ampacity available isn't enough to carry the planned loads for your home improvement, you'll need a new service panel, and possibly a larger service drop from the electric company. If there's nothing wrong with the existing electrical system, you can just leave it in place. Then upgrade by adding more circuits and outlets and the new electrical service panel. Most building departments will allow non-electricians to do minor work, such as adding an outlet or switch, but a licensed electrician will be required for service upgrades. An electrician will be able to calculate what size panel you'll need to install. While doing that math, he can also figure the most efficient way to run circuits to new light fixtures, appliances and outlets. If you're not a licensed electrician, this is a job you'll have to sub out.

### ***Licensing and Code Compliance***

Electrical wiring can be dangerous, and a poorly-wired home is a fire hazard. Because of this, electricians have to be licensed and all their work must be done in compliance with the *National Electrical Code (NEC)*. Unfortunately, this isn't the last word on code compliance issues. Your electrical contractor will apply at the building department for a permit that covers the new work. That's easy enough. But the building department may require more. It's very unlikely that the existing electrical system in an older home complies with the current *NEC* standards. The question then becomes, how much of the old electrical system has to be brought up to code before the building inspector will sign off on the new work? If you're doing an extensive upgrade, the building department may require that you bring *all* the existing work up to meet current code requirements. This may involve more expense than the owner is willing, or able, to manage. And that's your best argument if you need to negotiate this issue with the building department. Too many requirements and nothing will get done — that benefits no one.

Resist the temptation to do major electrical work without a permit. You won't find a licensed electrician eager to bid on work like that, and a reputable home improvement contractor won't rely on an unlicensed electrician. A bootleg electrical job will make it hard for the owner to sell the home without first making the required code improvements. It's better for everyone to negotiate a fair compromise with the building official, use a professional electrician, and get the job signed off by a building inspector.

## **The Service Upgrade**

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The exterior portion of a service upgrade consists of replacing the meter, main service panel and the wire that connects the meter to the power grid. The lines up to the service drop belong to the utility company. The utility will probably have to do any work required on the service drop, but the homeowner will have to pay for the drop itself and the meter.

If the home has a basement, most of the service upgrade can be done there. Replace the old fuse box or boxes with a modern breaker panel. Then disconnect circuits running to the fuse box and reconnect them at the breaker box. Attach each circuit to a breaker with the correct capacity. The new breaker panel should have enough breaker spaces for existing circuits, plus a few extra for expansion. Most homes will need a 150- or 200-amp service panel.

Because the electrician's part of the work is done in the basement or outside, it can be done after all the carpentry and interior finishing is complete. However, any wiring that has to be run in the walls must be completed before drywall is installed. Otherwise, electrical wire has to be fished down between the studs.

## Wiring Residences

Nearly all new homes today are wired with non-metallic sheathed cable, but that may not be what you find when you work on an older house. Depending on its age, you may have some surprises.

### **Knob and Tube Wiring**

Homes built before about 1930 usually had knob and tube (K&T) wiring. Wires were strung between porcelain insulators driven into studs and joists. If wire had to pass through framing, a hollow porcelain tube was inserted in a hole drilled through the stud or joist. Conductors were usually single strands covered with cloth insulation. You won't find a ground wire on K&T. In those days, only lightning rods were grounded.

K&T that's given trouble-free service for nearly a century could probably do the same for another century, if no further demands were made on the system. But that's not likely. Because it isn't grounded, doesn't have enough capacity, and its insulation isn't worthy of the name, some insurance policies exclude coverage for homes with K&T wiring. For that reason alone, many of these older homes have already been upgraded.

If you find K&T wiring and the owner isn't willing to replace it, just bypass the K&T. Work around it with new circuits. *Don't extend it.* If possible, don't even touch it unless you find an actual or impending emergency.

### **Aluminum Wiring**

Aluminum wire is another type that's no longer used for interior home electrical systems. Aluminum is a good and durable conductor and is usually less expensive than the more popular copper. However, late in the 1970s, electricians and code officials began to recognize a problem developing in homes with aluminum wiring. When aluminum wire carries current, it warms up and expands, just like copper. When it cools, the aluminum contracts, just like copper. But unlike copper, aluminum connections oxidize during the cool-down phase, creating resistance where

conductors join. With time, the resistance grows into arcing — a spark that passes through the corrosion (*gap*) between the wire and the connector. Given the right conditions, that spark can ignite a fire.

The aluminum wire itself isn't the problem. It's the *wire connections* that are to blame. You don't need to rip out all the aluminum wire you find. But it's prudent to check connections in a home wired with aluminum. Electrical devices used with aluminum wire should be rated specifically for aluminum (usually stamped *CO/ALR* or *Al/Cu*). Look for signs of overheating, such as blackened connections or melted insulation. If you elect to extend an aluminum circuit using copper wire, your electrician will need to rent a special crimping tool made just for this purpose. When crimped, the wire connection must be covered with anti-oxidant grease.

Aluminum wire is still widely used for residential service entrance, though not for concealed wiring in walls and ceilings. Wires running between the house and the public utility grid are larger in diameter and require very few connections. That makes aluminum a good choice. For interior wiring, the price advantage of aluminum over copper usually isn't worth the risk or the extra trouble, though aluminum wire with a copper coating is used in some communities.

### ***Non-Metallic Sheathed Cable***

Non-metallic sheathed cable, called *Romex* or “*rope*” by electricians, is the most common wire type used in homes today. The *NEC* classifies it as *Type NM cable*. (Type NM-B cable is identical, but has a slightly-better temperature rating.) Romex has two or more insulated conductors and a ground wire, all covered in a plastic sheath. It's popular because it's inexpensive and easy to install. You can use NM cable in wall cavities where the wire is protected from physical damage and unlikely to get either wet or hot. When you run it through 2" x 4" stud walls, protect the cable at each stud with a metal plate to prevent damage from nails. Romex cable can be stapled to studs, rather than attached with nail-on hangers or supports. Most electrical codes permit the use of plastic (rather than metal) outlet boxes with NM cable.

You can't use Romex for exposed wiring on walls if it's within 5' of the floor. But most inspectors will approve *Type AC (armored cable)* for that purpose. AC is like Romex but includes a flexible aluminum cover that protects it from physical damage. If the inspector won't accept AC cable for exposed runs, you may have to install conduit. Unlike electric cable, conduit includes no wire. It's a protective tube through which wire is pulled. Conduit is used in most commercial buildings and occasionally in residences, such as in the service entrance mast where overhead wires terminate at the entrance cap. Flexible (*flex*), EMT (*electric metallic tube*), GRS (*galvanized rigid steel*) and IMC (*intermediate rigid conduit*) are the most common types of conduit. Flex is a hard metallic tube with enough flexibility to snake through studs. EMT is lightweight but not flexible. GRS conduit is heavier. IMC falls between EMT and GRS. Each of these types has specialized uses.

Electrical wire size is measured in American wire gauge (AWG) and usually abbreviated with the pound sign. For example, #14-3 indicates a 14-gauge wire with three conductors (and probably a separate bare ground wire). The smaller

the gauge number, the bigger the wire and the greater its current-carrying capacity. Most circuits in a home are rated at 15 amps and use 14-gauge copper wire. Circuits for kitchen appliances should be rated at 20 amps and use 12-gauge copper wire. Circuits for an electric water heater, air conditioner or electric clothes dryer should be 30 amps and use 10-gauge copper wire. An electric range requires 6-gauge copper wire and a 50-amp breaker. All of these cables should include a copper ground wire.

Usually Type THHN wire is used with conduit because it has a heat-resistant thermoplastic cover. THHN is available in many colors to simplify the identification of conductors after the wire is pulled in the conduit. Small gauges are solid wire. Larger gauges are stranded wire, usually 19 strands per conductor. Stranded wire is a slightly better conductor than solid wire. It's also not as stiff, so it's easier to pull stranded wire in conduit.

Use Type UF cable for underground runs or in damp locations. It's not required by all codes, but common sense dictates that buried UF cable be trenched deep enough to make accidental damage unlikely. Either enclose the UF in PVC conduit or lay a warning tape in the trench over the wire before it's backfilled.

Protect cable with conduit wherever it's exposed, particularly where it exits the residence. For outdoor wiring, junction boxes and outlet boxes must be rated waterproof, and all receptacles must be GFCI protected.

## Ground Wire

Electrical systems in old houses usually don't include a ground wire. If you're not sure about the house you're working on, just check any duplex receptacle. If it only has space for two contacts, you're dealing with an ungrounded electrical system. If you're not tearing into the walls, and you're working on a tight budget, it's best to simply leave this wiring as it is — assuming the building inspector doesn't intervene. An old electrical system that was properly installed is still safe and usable. But be aware that two-wire electrical cable can only support a 15-amp ungrounded circuit. That limits the number of receptacles and lighting fixtures on a circuit. If you're going to tear into the walls, plan to replace old two-wire circuits with 20-amp grounded circuits. If you disturb an old two-wire circuit, don't count on

### Fishing Electrical Cable

In new construction, wire is threaded through studs and between joists before the framing cavities are enclosed with drywall. That's the easy way to string wire. In home improvement work, wall and ceiling cavities aren't always exposed, so the wire has to be *fished* through enclosed stud spaces using an electrician's fish tape. Fishing electrical cable through existing walls is slow work.

A fish tape is a reel of springy wire that retracts into a circular case. The wire is flexible enough to bend when needed but stiff enough to be self-supporting for at least a few feet. The leading end of the tape has a hook so electrical wire is easy to attach. If possible, you'll want to fish the cable vertically — down from the attic or up from the basement. From the attic, bore down through the wall's top plate and thread fish tape down between two studs. When tape is fished from beginning point to end point, attach electric cable to the leading end of the tape. Then reel in the tape, threading new wire through the stud and joist cavities as the tape retracts.

If you have no choice but to fish cable horizontally across studs and joists, the first step is to find the shortest and easiest route between where power is available and where power is needed. With the help of an electric stud finder, count the studs and joists between those two points. When you've settled on the path of least resistance, break into the wall at each stud or joist and cut out a small notch large enough for wiring to pass through. When all the framing has been notched, start threading fish tape through the framing from notch to notch. This is slow work and requires two people, one pushing fish tape and the other finding and guiding the tape end. When the wire ends have been connected and you're sure the electrical work is done, seal the holes in the drywall. Use fiberglass mesh tape and joint compound to patch and smooth the drywall surface.

it to be entirely reliable. Insulation on old wire can become brittle and crumble when moved, leaving dangerous bare wires that you'll have to replace.

### **Low Voltage Wiring**

Phone lines, COAX TV cable, computer network cable and speaker wire don't present the same degree of risk that comes with 120-volt alternating current circuits. Because of this, the *NEC* has only a few simple rules for low voltage wiring. Primary among these is keeping low voltage wiring out of conduit, junction and outlet boxes that include 120-volt wiring. Low voltage wiring is dangerous if it's interconnected with regular AC circuits. You should also keep video, speaker and data cable at least a foot away from AC cable. That will minimize the effect of radio frequency interference (RFI) generated by alternating current circuits.

But don't let these rules impede progress. While adding or extending AC circuits, use the opportunity to also add new connections for modern low voltage conveniences. Most of the houses you'll be upgrading were built long before the need for phone jacks in every room, multiple cable TV outlets, and computer network cabling.

### **Adding Outlets and Switches**

Most rooms in old houses have a single electrical outlet, and all the outlets in the house may be on the same 15-amp circuit. That's enough power for a few lamps and not much more. It certainly won't support a modern lifestyle. You may be able to turn on the lights and watch TV in the evening, but forget the microwave popcorn!

The *NEC* sets standards for residential electrical outlets. These standards may or may not be enforced in home improvement projects in your community. The degree that these regulations affect your project may be a matter for negotiation between the contractor and the building department. Select an electrical contractor with experience in negotiating with building inspectors. Remember, however, that the code exists for a reason and most of what it requires is simply good professional practice. Follow the code standards.

**Spacing of Outlets** — In most rooms, the code requires that no point along the floor line be more than 6' from a receptacle. That means you need an outlet at least every 12' along walls. Floor outlets don't help meet this requirement unless they're near the wall. Different standards apply to kitchens, bathrooms and laundry rooms. Spacing in hallways can be 20' and closets don't need any outlets at all.

**Kitchens** — Plan at least two 20-amp small appliance circuits to serve the kitchen, pantry and dining area. These circuits are in addition to circuits used by the refrigerator, dishwasher, oven, range, garbage disposer and lighting. Every kitchen counter wider than 12" needs at least one outlet. No point on a kitchen counter can be more than 24" from an outlet. That means you need an outlet at least every 4' over counters. Outlets have to be mounted on a wall, not face-up in the counter. The outlet next to the sink must be protected with a ground-fault circuit interrupter (GFCI). Plan on dedicated circuits for the range, dishwasher, garbage

disposer, refrigerator, and microwave oven. A microwave oven will trip the breaker if it's on the same circuit with another large appliance, such as a refrigerator.

**Bathrooms** — Every bathroom needs at least one GFCI-protected outlet by the sink, even if the vanity lighting fixture includes an outlet. Keep the receptacle far enough away from the bathtub and shower to prevent the use of electric shavers or hairdryers while bathing.

**Laundry** — Provide at least one GFCI-protected duplex receptacle in the laundry area. The laundry receptacle must be on a dedicated 20-amp circuit.

**Unfinished Basement or Attic** — Provide at least one outlet.

**Outdoors** — Include a GFCI-protected duplex receptacle at the front and rear of the house.

**Garage** — Provide a GFCI-protected duplex receptacle for each parking space. Detached garages may not need any outlets.

**Ground-Fault Circuit Interrupter** — GFCI protection opens the circuit when a ground-fault is detected — such as when someone gets an electric shock. Outlets over the kitchen and bathroom sinks, in the laundry room, garage and outdoors have to be GFCI-protected. Installing GFCI outlets is easy, assuming the circuit includes a ground wire. Just remove the old outlet and replace it with a GFCI outlet. You don't have to buy a GFCI outlet for every receptacle that needs ground-fault protection. Several regular outlets can be wired to a single GFCI device. Circuitry in the GFCI outlet will protect all attached receptacles. That's the good news. The bad news is that GFCI outlets require a ground to work properly. If the old circuit has no ground wire, you'll have to run grounded cable to GFCI outlets.

**Arc-Fault Interrupter** — The *NEC* now requires these special breakers for circuits that serve sleeping rooms. Regular breakers open when there's an overload. Arc-fault breakers open any time the circuit is creating sparks, even if there's no overload.

**Outlets per Circuit** — Plan on six duplex outlets per 20-amp circuit. Your electrician may suggest ways to put 10 or even 12 outlets on a circuit and still meet *NEC* requirements. The code doesn't prohibit mixing light fixtures and outlets on the same *home run* (connection to the breaker panel).

**Lights** — Every room needs either a switch-operated overhead light or a switch-operated outlet. The code requires the switch to be located by the door at the room's entrance. You can run the wiring to any ceiling fixture that's still in good condition. If the fixture is worn, broken, or simply unattractive, replacing it is a simple task. But don't go overboard on wattage, such as replacing a 75-watt bathroom fixture with a 500-watt heat lamp. If your choice of replacement fixtures is a fluorescent, be sure there isn't a grounding problem. Many fluorescent fixtures require a ground wire. If you install a ceiling fan or a chandelier, plan to set a ceiling fixture box specifically rated for that purpose. Allow at least 3" between a recessed (non-IC) fixture and any insulation in the ceiling. Better yet, select a recessed fixture with an insulated case (IC) and thermal cutout specifically rated for installation touching insulation.

### ***Smoke Detectors***

Nearly all communities require some type of smoke detector. The most common are battery-powered ionization detectors that recognize products of combustion even before flame is visible. Other types of detectors recognize smoke or detect a rapid rise in temperature. If you have the opportunity, recommend an AC-powered detector rather than a battery-powered unit. Surveys show that a high percentage of battery-powered smoke detectors have a dead battery at any given time. For that reason, many building codes require AC detectors, some with a battery backup.

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

### Labor Estimates for Wiring

**Fish electrical cable through a stud wall.** Add the cost of connecting wire at both ends.

|                                   |         |    |   |       |       |       |
|-----------------------------------|---------|----|---|-------|-------|-------|
| Per job set-up                    | BE@.270 | Ea | — | 12.10 | 12.10 | 20.60 |
| Per foot of cable fished          | BE@.050 | Ea | — | 2.24  | 2.24  | 3.81  |
| Per electric box set              | BE@.761 | Ea | — | 34.20 | 34.20 | 58.10 |
| Per stud notched and hole patched | BE@.400 | Ea | — | 18.00 | 18.00 | 30.60 |

**Flat wire fish tape.** Perfect for fishing short runs of wire in existing structures. Ergonomic handle provides a sure grip for pulling. Aerodynamic tip reduces friction, requiring less force and decreased hang-ups. Reel handle allows for quick retrieval and locking for pulling.

|                    |   |    |       |   |       |   |
|--------------------|---|----|-------|---|-------|---|
| 50' x 1/4" x .031" | — | Ea | 30.00 | — | 30.00 | — |
|--------------------|---|----|-------|---|-------|---|

**Connect new 220-volt appliance with plug.** Does not include electrical rough-in. Includes a range, electric dryer or air conditioner using three-conductor cable with ground wire and connected plug. Add the cost of setting the appliance in place.

|               |         |    |   |       |       |       |
|---------------|---------|----|---|-------|-------|-------|
| Per appliance | BE@.433 | Ea | — | 19.40 | 19.40 | 33.00 |
|---------------|---------|----|---|-------|-------|-------|

**Connect new 220-volt appliance to an outlet box with cable.** Includes a range, electric dryer or air conditioner to a service outlet box using three-conductor non-metallic cable with ground wire. Add the cost of setting the appliance in place.

|               |         |    |   |       |       |       |
|---------------|---------|----|---|-------|-------|-------|
| Per appliance | BE@.530 | Ea | — | 23.80 | 23.80 | 40.50 |
|---------------|---------|----|---|-------|-------|-------|

**Disconnect and reconnect an existing 220-volt appliance to an outlet box with cable.** Includes a range, electric dryer or air conditioner to a service outlet box using three-conductor non-metallic cable with ground wire. Add the cost of setting the appliance in place.

|               |         |    |   |       |       |       |
|---------------|---------|----|---|-------|-------|-------|
| Per appliance | BE@.510 | Ea | — | 22.90 | 22.90 | 38.90 |
|---------------|---------|----|---|-------|-------|-------|

**Connect new 220-volt appliance using flex conduit.** Includes a range, electric dryer or air conditioner connected to a service outlet box using wire pulled in flex conduit. Add the cost of setting the appliance in place.

|               |         |    |   |       |       |       |
|---------------|---------|----|---|-------|-------|-------|
| Per appliance | BE@1.04 | Ea | — | 46.70 | 46.70 | 79.40 |
|---------------|---------|----|---|-------|-------|-------|

**Remove and replace 220-volt cable from appliance.** Includes a range, electric dryer or air conditioner. Add the cost of setting the appliance in place.

|               |         |    |   |       |       |       |
|---------------|---------|----|---|-------|-------|-------|
| Per appliance | BE@.465 | Ea | — | 20.90 | 20.90 | 35.50 |
|---------------|---------|----|---|-------|-------|-------|

**Connect or disconnect 110-volt appliance using three 8 gauge or smaller connectors.** Includes connecting a dishwasher or garbage disposer to the supply box. Add the cost of setting or removing the appliance.

|               |         |    |   |       |       |       |
|---------------|---------|----|---|-------|-------|-------|
| Per appliance | BE@.796 | Ea | — | 35.70 | 35.70 | 60.70 |
|---------------|---------|----|---|-------|-------|-------|

### Type NM Non-Metallic Cable

**14 gauge Type NM-B Romex® sheathed indoor cable.** White. With full-size ground wire. Labor is based on installation in a wood-frame building, including boring out and pulling cable in exposed walls. Add the cost of fishing cable through enclosed walls, when required.

|                        |         |    |      |      |      |      |
|------------------------|---------|----|------|------|------|------|
| 2 conductor, per foot  | BE@.027 | LF | 2.03 | 1.21 | 3.24 | 5.51 |
| 2 conductor, 25' coil  | BE@.027 | LF | 1.64 | 1.21 | 2.85 | 4.85 |
| 2 conductor, 50' coil  | BE@.027 | LF | 1.02 | 1.21 | 2.23 | 3.79 |
| 2 conductor, 100' coil | BE@.027 | LF | .64  | 1.21 | 1.85 | 3.15 |
| 2 conductor, 250' coil | BE@.027 | LF | .34  | 1.21 | 1.55 | 2.64 |
| 3 conductor, per foot  | BE@.030 | LF | .88  | 1.35 | 2.23 | 3.79 |
| 3 conductor, 25' coil  | BE@.030 | LF | 2.16 | 1.35 | 3.51 | 5.97 |
| 3 conductor, 50' coil  | BE@.030 | LF | 1.34 | 1.35 | 2.69 | 4.57 |
| 3 conductor, 100' coil | BE@.030 | LF | .84  | 1.35 | 2.19 | 3.72 |

|                        | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|------------------------|-----------|------|----------|-------|-------|------|
| 3 conductor, 250' coil | BE@.030   | LF   | .45      | 1.35  | 1.80  | 3.06 |
| 14-2-2, 25' coil       | BE@.032   | LF   | 2.79     | 1.44  | 4.23  | 7.19 |
| 14-2-2, 250' coil      | BE@.032   | LF   | 1.10     | 1.44  | 2.54  | 4.32 |

**12 gauge Type NM-B Romex® sheathed indoor cable.** Yellow. With full-size ground wire. Rated at 20 amps.

Labor is based on installation in a wood-frame building, including boring out and pulling cable in exposed walls. Add the cost of fishing cable through enclosed walls, when required.

|                        |         |    |      |      |      |      |
|------------------------|---------|----|------|------|------|------|
| 2 conductor, per foot  | BE@.030 | LF | 1.91 | 1.35 | 3.26 | 5.54 |
| 2 conductor, 25' coil  | BE@.030 | LF | 2.04 | 1.35 | 3.39 | 5.76 |
| 2 conductor, 50' coil  | BE@.030 | LF | 1.28 | 1.35 | 2.63 | 4.47 |
| 2 conductor, 100' coil | BE@.030 | LF | .80  | 1.35 | 2.15 | 3.66 |
| 2 conductor, 250' coil | BE@.030 | LF | .43  | 1.35 | 1.78 | 3.03 |
| 3 conductor, per foot  | BE@.031 | LF | 2.86 | 1.39 | 4.25 | 7.23 |
| 3 conductor, 25' coil  | BE@.031 | LF | 3.16 | 1.39 | 4.55 | 7.74 |
| 3 conductor, 50' coil  | BE@.031 | LF | 1.98 | 1.39 | 3.37 | 5.73 |
| 3 conductor, 100' coil | BE@.031 | LF | 1.26 | 1.39 | 2.65 | 4.51 |
| 3 conductor, 250' coil | BE@.031 | LF | .67  | 1.39 | 2.06 | 3.50 |
| 12-2-2, 25' coil       | BE@.032 | LF | 2.63 | 1.44 | 4.07 | 6.92 |
| 12-2-2, 250' coil      | BE@.032 | LF | 1.03 | 1.44 | 2.47 | 4.20 |

**10 gauge Type NM-B Romex® sheathed indoor cable.** Orange. With ground. Rated at 30 amps. Labor is based on installation in a wood-frame building, including boring out and pulling cable in exposed walls. Add the cost of fishing cable through enclosed walls, when required.

|                        |         |    |      |      |      |      |
|------------------------|---------|----|------|------|------|------|
| 2 conductor, per foot  | BE@.031 | LF | 2.86 | 1.39 | 4.25 | 7.23 |
| 2 conductor, 25' coil  | BE@.031 | LF | 2.98 | 1.39 | 4.37 | 7.43 |
| 2 conductor, 50' coil  | BE@.031 | LF | 2.78 | 1.39 | 4.17 | 7.09 |
| 2 conductor, 100' coil | BE@.031 | LF | 1.99 | 1.39 | 3.38 | 5.75 |
| 2 conductor, 250' coil | BE@.031 | LF | 1.20 | 1.39 | 2.59 | 4.40 |
| 3 conductor, per foot  | BE@.035 | LF | 2.98 | 1.57 | 4.55 | 7.74 |
| 3 conductor, 25' coil  | BE@.035 | LF | 3.96 | 1.57 | 5.53 | 9.40 |
| 3 conductor, 50' coil  | BE@.035 | LF | 2.78 | 1.57 | 4.35 | 7.40 |
| 3 conductor, 100' coil | BE@.035 | LF | 2.49 | 1.57 | 4.06 | 6.90 |
| 3 conductor, 250' coil | BE@.035 | LF | 1.60 | 1.57 | 3.17 | 5.39 |

**8 gauge Type NM-B Romex® sheathed indoor cable.** Black. With ground, except where noted. Rated at 40 amps. Labor is based on installation in a wood-frame building, including boring out and pulling cable in exposed walls. Add the cost of fishing cable through enclosed walls, when required.

|                                  |         |    |      |      |      |       |
|----------------------------------|---------|----|------|------|------|-------|
| 2 conductor, per foot            | BE@.033 | LF | 3.82 | 1.48 | 5.30 | 9.01  |
| 2 conductor, 125' coil           | BE@.033 | LF | 2.23 | 1.48 | 3.71 | 6.31  |
| 3 conductor, no ground, per foot | BE@.033 | LF | 4.91 | 1.48 | 6.39 | 10.90 |
| 3 conductor, per foot            | BE@.037 | LF | 6.14 | 1.66 | 7.80 | 13.30 |
| 3 conductor, 125' coil           | BE@.037 | LF | 6.27 | 1.66 | 7.93 | 13.50 |

**6 gauge Type NM-B Romex® sheathed indoor cable.** Black. With ground. Rated at 55 amps. Labor is based on installation in a wood-frame building, including boring out and pulling cable in exposed walls. Add the cost of fishing cable through enclosed walls when required.

|                        |         |    |      |      |      |       |
|------------------------|---------|----|------|------|------|-------|
| 2 conductor, per foot  | BE@.038 | LF | 4.98 | 1.71 | 6.69 | 11.40 |
| 2 conductor, 125' coil | BE@.038 | LF | 2.79 | 1.71 | 4.50 | 7.65  |
| 3 conductor, per foot  | BE@.044 | LF | 5.19 | 1.97 | 7.16 | 12.20 |
| 3 conductor, 125' reel | BE@.044 | LF | 3.99 | 1.97 | 5.96 | 10.10 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Cable two-piece clamp connector.** Zinc-plated steel. Butterfly style, does not require a locknut. For indoor use only in a dry location. Secures 14 to 10 gauge non-metallic sheathed cable to a steel outlet box or other metal enclosure. 3/8" size fits 1/2" knockout. UL listed.

|            |         |    |      |      |      |      |
|------------|---------|----|------|------|------|------|
| 3/8"       | BE@.050 | Ea | .44  | 2.24 | 2.68 | 4.56 |
| 3/4" to 1" | BE@.050 | Ea | .93  | 2.24 | 3.17 | 5.39 |
| 1-1/4"     | BE@.050 | Ea | 1.60 | 2.24 | 3.84 | 6.53 |
| 1-1/2"     | BE@.050 | Ea | 2.08 | 2.24 | 4.32 | 7.34 |

**Stud nail plate.** Steel. Installed at each stud to protect cable bored through framing, as defined in *NEC* Article 300-4.

|                             |         |    |       |        |        |        |
|-----------------------------|---------|----|-------|--------|--------|--------|
| 1-1/2" x 2-1/2", each       | BE@.050 | Ea | .59   | 2.24   | 2.83   | 4.81   |
| 1-1/2" x 2-1/2", pack of 50 | BE@2.50 | Ea | 29.40 | 112.00 | 141.40 | 240.00 |
| 1-1/2" x 5", each           | BE@.100 | Ea | 1.98  | 4.49   | 6.47   | 11.00  |

### Type UF Non-Metallic Cable

**UF-B sheathed underground cable.** Gray. With ground. Used to supply power to landscape lighting, pumps and other loads connected from the main building. Designed for burial in a trench. Add the cost of excavation and backfill.

|                                  |         |    |      |     |      |      |
|----------------------------------|---------|----|------|-----|------|------|
| 14 gauge, 2 conductor, per foot  | BE@.010 | LF | 1.81 | .45 | 2.26 | 3.84 |
| 14 gauge, 2 conductor, 25' coil  | BE@.010 | LF | .73  | .45 | 1.18 | 2.01 |
| 14 gauge, 2 conductor, 100' coil | BE@.010 | LF | .57  | .45 | 1.02 | 1.73 |
| 14 gauge, 3 conductor, per foot  | BE@.010 | LF | 2.18 | .45 | 2.63 | 4.47 |
| 14 gauge, 3 conductor, 25' coil  | BE@.010 | LF | 1.39 | .45 | 1.84 | 3.13 |
| 14 gauge, 3 conductor, 50' coil  | BE@.010 | LF | 1.14 | .45 | 1.59 | 2.70 |
| 12 gauge, 2 conductor, per foot  | BE@.010 | LF | 1.71 | .45 | 2.16 | 3.67 |
| 12 gauge, 2 conductor, 25' coil  | BE@.010 | LF | 1.13 | .45 | 1.58 | 2.69 |
| 12 gauge, 2 conductor, 50' coil  | BE@.010 | LF | 1.07 | .45 | 1.52 | 2.58 |
| 12 gauge, 2 conductor, 100' coil | BE@.010 | LF | .87  | .45 | 1.32 | 2.24 |
| 12 gauge, 3 conductor, per foot  | BE@.010 | LF | 2.74 | .45 | 3.19 | 5.42 |
| 12 gauge, 3 conductor, 100' coil | BE@.010 | LF | 1.50 | .45 | 1.95 | 3.32 |
| 10 gauge, 2 conductor, per foot  | BE@.010 | LF | 1.87 | .45 | 2.32 | 3.94 |
| 10 gauge, 3 conductor, per foot  | BE@.010 | LF | 3.77 | .45 | 4.22 | 7.17 |

**UF non-metallic cable compression connector.** Compression-type connector for underground feeder cable. Fits smaller UF cables as well as standard sizes. Box knockout size is the same as the nominal conduit size. UL listed.

|                                   |         |    |      |      |      |       |
|-----------------------------------|---------|----|------|------|------|-------|
| 1/2", 14 to 12 gauge, 2 conductor | BE@.050 | Ea | 5.45 | 2.24 | 7.69 | 13.10 |
| 3/4", 14 to 12 gauge, 3 conductor | BE@.060 | Ea | 5.45 | 2.69 | 8.14 | 13.80 |

**AC-90® steel armored flexible cable, American Flexible Conduit.** Galvanized steel. 16 gauge integral bond wire-to-armor grounding path. Sometimes referred to as "BX" cable. Paper wrap conductor insulation covering. Maximum temperature rating is 90 degrees Celsius (dry). 600 volts. UL listed. By American Wire Gauge size and number of conductors. Add the cost of fishing cable through enclosed walls when required.

|                                  |         |    |      |      |      |      |
|----------------------------------|---------|----|------|------|------|------|
| 14 gauge, 3 conductor, 25' coil  | BE@.020 | LF | 1.99 | .90  | 2.89 | 4.91 |
| 14 gauge, 4 conductor, per foot  | BE@.021 | LF | 3.14 | .94  | 4.08 | 6.94 |
| 14 gauge, 4 conductor, 250' coil | BE@.021 | LF | 2.35 | .94  | 3.29 | 5.59 |
| 12 gauge, 3 conductor, 50' coil  | BE@.021 | LF | 1.98 | .94  | 2.92 | 4.96 |
| 12 gauge, 3 conductor, 100' coil | BE@.021 | LF | 1.75 | .94  | 2.69 | 4.57 |
| 12 gauge, 4 conductor, per foot  | BE@.023 | LF | 1.67 | 1.03 | 2.70 | 4.59 |
| 12 gauge, 4 conductor, 250' reel | BE@.023 | LF | 2.05 | 1.03 | 3.08 | 5.24 |
| 10 gauge, 3 conductor, 125' coil | BE@.027 | LF | 2.23 | 1.21 | 3.44 | 5.85 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## PVC Conduit and Fittings

**PVC conduit, Schedule 40.** For above- or below-ground applications subject to physical abuse. Also for use encased in concrete or for direct burial. Sunlight resistant. For use with conductors rated to 90 degrees Celsius. Sold in 10' lengths. Nominal sizes, by outside diameter (OD), inside diameter (ID) and wall thickness:

Nominal 1/2" measures 0.840" OD, 0.622" ID and 0.109" in wall thickness.

Nominal 3/4" measures 1.050" OD, 0.820" ID and 0.113" in wall thickness.

Nominal 1" measures 1.315" OD, 1.049" ID and 0.133" in wall thickness.

Nominal 1-1/4" measures 1.660" OD, 1.380" ID and 0.140" in wall thickness.

Nominal 1-1/2" measures 1.900" OD, 1.610" ID and 0.145" in wall thickness.

Nominal 2" measures 2.375" OD, 2.067" ID and 0.154" in wall thickness.

Nominal 2-1/2" measures 2.875" OD, 2.469" ID and 0.203" in wall thickness.

|                         |         |    |      |      |      |       |
|-------------------------|---------|----|------|------|------|-------|
| 1/2" nominal diameter   | BE@.031 | LF | .78  | 1.39 | 2.17 | 3.69  |
| 3/4" nominal diameter   | BE@.032 | LF | 1.03 | 1.44 | 2.47 | 4.20  |
| 1" nominal diameter     | BE@.033 | LF | 1.35 | 1.48 | 2.83 | 4.81  |
| 1-1/4" nominal diameter | BE@.034 | LF | 2.00 | 1.53 | 3.53 | 6.00  |
| 1-1/2" nominal diameter | BE@.035 | LF | 2.25 | 1.57 | 3.82 | 6.49  |
| 2" nominal diameter     | BE@.035 | LF | 2.84 | 1.57 | 4.41 | 7.50  |
| 2-1/2" nominal diameter | BE@.039 | LF | 5.73 | 1.75 | 7.48 | 12.70 |

**PVC conduit, Schedule 80.** For above- or below-ground applications subject to physical abuse. Also for use encased in concrete or for direct burial. Sunlight resistant. For use with conductors rated to 90 degrees Celsius.

Meets specifications of Underwriters Laboratories 651 and the National Electrical Manufacturers Association TC 2.

|                         |         |    |      |      |      |       |
|-------------------------|---------|----|------|------|------|-------|
| 1/2" nominal diameter   | BE@.034 | LF | 1.31 | 1.53 | 2.84 | 4.83  |
| 3/4" nominal diameter   | BE@.035 | LF | 1.67 | 1.57 | 3.24 | 5.51  |
| 1" nominal diameter     | BE@.036 | LF | 2.92 | 1.62 | 4.54 | 7.72  |
| 1-1/4" nominal diameter | BE@.034 | LF | 3.87 | 1.53 | 5.40 | 9.18  |
| 1-1/2" nominal diameter | BE@.035 | LF | 3.73 | 1.57 | 5.30 | 9.01  |
| 2" nominal diameter     | BE@.040 | LF | 4.62 | 1.80 | 6.42 | 10.90 |
| 2-1/2" nominal diameter | BE@.042 | LF | 7.01 | 1.88 | 8.89 | 15.10 |

**Snap Strap PVC conduit clamp, Carlon®.** For installation of polyvinyl chloride conduit. Can be used with rigid steel. Indoor use only. All plastic clamp allows conduit to expand and contract with temperature changes, eliminating bowing.

|                      |         |    |      |      |      |      |
|----------------------|---------|----|------|------|------|------|
| Single mount, 1/2"   | BE@.050 | Ea | .93  | 2.24 | 3.17 | 5.39 |
| Single mount, 3/4"   | BE@.050 | Ea | 1.03 | 2.24 | 3.27 | 5.56 |
| Single mount, 1"     | BE@.050 | Ea | .86  | 2.24 | 3.10 | 5.27 |
| Double mount, 1-1/4" | BE@.050 | Ea | 1.05 | 2.24 | 3.29 | 5.59 |
| Double mount, 2"     | BE@.050 | Ea | 1.33 | 2.24 | 3.57 | 6.07 |

**Non-metallic reducer bushing, Carlon®.** Rigid Schedule 40 PVC conduit reducer. Socket ends. Male x female. UL listed.

|                 |         |    |       |      |       |       |
|-----------------|---------|----|-------|------|-------|-------|
| 3/4" x 1/2"     | BE@.030 | Ea | 1.31  | 1.35 | 2.66  | 4.52  |
| 1" x 1/2"       | BE@.030 | Ea | 1.81  | 1.35 | 3.16  | 5.37  |
| 1" x 3/4"       | BE@.040 | Ea | 2.89  | 1.80 | 4.69  | 7.97  |
| 1-1/4" x 3/4"   | BE@.050 | Ea | 2.54  | 2.24 | 4.78  | 8.13  |
| 1-1/4" x 1"     | BE@.050 | Ea | 3.29  | 2.24 | 5.53  | 9.40  |
| 1-1/2" x 1"     | BE@.050 | Ea | 2.86  | 2.24 | 5.10  | 8.67  |
| 1-1/2" x 1-1/4" | BE@.050 | Ea | 3.67  | 2.24 | 5.91  | 10.00 |
| 2" x 1-1/4"     | BE@.060 | Ea | 3.77  | 2.69 | 6.46  | 11.00 |
| 2" x 1-1/2"     | BE@.060 | Ea | 4.57  | 2.69 | 7.26  | 12.30 |
| 2-1/2" x 2"     | BE@.060 | Ea | 10.80 | 2.69 | 13.49 | 22.90 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>PVC conduit box adapter, Carlon®.</b> For non-metallic Schedule 40 or 80 conduit.  |           |      |          |       |       |       |
| 1/2" diameter   | BE@.050   | Ea   | .77      | 2.24  | 3.01  | 5.12  |
| 3/4" diameter   | BE@.060   | Ea   | .86      | 2.69  | 3.55  | 6.04  |
| 1" diameter   | BE@.080   | Ea   | .90      | 3.59  | 4.49  | 7.63  |
| 1-1/4" diameter   | BE@.100   | Ea   | 1.00     | 4.49  | 5.49  | 9.33  |
| 1-1/2" diameter   | BE@.100   | Ea   | 1.39     | 4.49  | 5.88  | 10.00 |
| 2" diameter   | BE@.150   | Ea   | 1.53     | 6.73  | 8.26  | 14.00 |
| <b>Non-metallic standard PVC coupling, Carlon®.</b> For joining Schedule 40 PVC conduit.  |           |      |          |       |       |       |
| 1/2" diameter   | BE@.020   | Ea   | .38      | .90   | 1.28  | 2.18  |
| 3/4" diameter   | BE@.030   | Ea   | .41      | 1.35  | 1.76  | 2.99  |
| 1" diameter   | BE@.050   | Ea   | .67      | 2.24  | 2.91  | 4.95  |
| 1-1/4" diameter   | BE@.060   | Ea   | 1.03     | 2.69  | 3.72  | 6.32  |
| 1-1/2" diameter   | BE@.060   | Ea   | 1.23     | 2.69  | 3.92  | 6.66  |
| 2" diameter   | BE@.080   | Ea   | 1.48     | 3.59  | 5.07  | 8.62  |
| 2-1/2" diameter   | BE@.090   | Ea   | 2.03     | 4.04  | 6.07  | 10.30 |
| <b>Non-metallic 45-degree elbow, plain end, Carlon®.</b> Standard radius. For Schedule 40 PVC conduit.  |           |      |          |       |       |       |
| 1/2" diameter   | BE@.050   | Ea   | .98      | 2.24  | 3.22  | 5.47  |
| 3/4" diameter   | BE@.060   | Ea   | 1.21     | 2.69  | 3.90  | 6.63  |
| 1" diameter   | BE@.080   | Ea   | 2.98     | 3.59  | 6.57  | 11.20 |
| 1-1/4" diameter   | BE@.080   | Ea   | 2.36     | 3.59  | 5.95  | 10.10 |
| 1-1/2" diameter   | BE@.100   | Ea   | 3.13     | 4.49  | 7.62  | 13.00 |
| 2" diameter   | BE@.150   | Ea   | 3.74     | 6.73  | 10.47 | 17.80 |
| 2-1/2" diameter   | BE@.150   | Ea   | 7.32     | 6.73  | 14.05 | 23.90 |
| <b>Non-metallic 90-degree elbow with plain end, standard radius, Carlon®.</b> For Schedule 40 PVC conduit.  |           |      |          |       |       |       |
| 1/2" diameter   | BE@.090   | Ea   | 1.34     | 4.04  | 5.38  | 9.15  |
| 3/4" diameter   | BE@.090   | Ea   | 1.38     | 4.04  | 5.42  | 9.21  |
| 1" diameter   | BE@.090   | Ea   | 1.80     | 4.04  | 5.84  | 9.93  |
| 1-1/4" diameter   | BE@.090   | Ea   | 3.18     | 4.04  | 7.22  | 12.30 |
| 1-1/2" diameter   | BE@.090   | Ea   | 4.54     | 4.04  | 8.58  | 14.60 |
| 2" diameter   | BE@.090   | Ea   | 5.53     | 4.04  | 9.57  | 16.30 |
| 2-1/2" diameter   | BE@.150   | Ea   | 11.30    | 6.73  | 18.03 | 30.70 |
| <b>PVC conduit body, Type T, Carlon®.</b> For easy access and pulling of wires through conduit runs. Will not rust or corrode. For use with Schedule 40 and 80 non-metallic conduit. Gasket included. |           |      |          |       |       |       |
| 1/2"  | BE@.100   | Ea   | 3.67     | 4.49  | 8.16  | 13.90 |
| 3/4"  | BE@.150   | Ea   | 4.92     | 6.73  | 11.65 | 19.80 |
| 1"  | BE@.150   | Ea   | 4.94     | 6.73  | 11.67 | 19.80 |
| 1-1/4"  | BE@.150   | Ea   | 5.38     | 6.73  | 12.11 | 20.60 |
| 1-1/2"  | BE@.150   | Ea   | 7.45     | 6.73  | 14.18 | 24.10 |
| 2"  | BE@.150   | Ea   | 12.90    | 6.73  | 19.63 | 33.40 |
| <b>PVC conduit body, Type LB, Carlon®.</b> For easy access and pulling of wires through conduit run. For use with Schedule 40 and 80 non-metallic conduit. Gasket included. UL listed.                |           |      |          |       |       |       |
| 1/2", 4 cubic inch  | BE@.100   | Ea   | 4.22     | 4.49  | 8.71  | 14.80 |
| 3/4", 12 cubic inch   | BE@.100   | Ea   | 4.69     | 4.49  | 9.18  | 15.60 |
| 1", 12 cubic inch   | BE@.150   | Ea   | 4.94     | 6.73  | 11.67 | 19.80 |
| 1-1/4", 32 cubic inch   | BE@.150   | Ea   | 6.73     | 6.73  | 13.46 | 22.90 |
| 1-1/2", 32 cubic inch   | BE@.150   | Ea   | 8.21     | 6.73  | 14.94 | 25.40 |
| 2", 63 cubic inch   | BE@.200   | Ea   | 13.10    | 8.98  | 22.08 | 37.50 |
| 2-1/2"  | BE@.215   | Ea   | 45.30    | 9.65  | 54.95 | 93.40 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>PVC service entrance cap.</b> UL listed. Plus 40 and Plus 80.  |           |      |          |       |       |       |
| 3/4"  | BE@.150   | Ea   | 4.42     | 6.73  | 11.15 | 19.00 |
| 1"  | BE@.150   | Ea   | 6.27     | 6.73  | 13.00 | 22.10 |
| 1-1/4"  | BE@.300   | Ea   | 8.65     | 13.50 | 22.15 | 37.70 |
| 1-1/2"  | BE@.300   | Ea   | 11.30    | 13.50 | 24.80 | 42.20 |
| 2"  | BE@.500   | Ea   | 14.10    | 22.40 | 36.50 | 62.10 |
| <b>Non-metallic two-gang conduit box, Super Blue, Carlon®.</b> Two-gang hard shell box with captive nails. Depth 3-1/2", width 4-1/8", length 3-7/8". 8 integral clamps, 4 each side.   |           |      |          |       |       |       |
| 35 cubic inch, wood studs   | BE@.200   | Ea   | 3.92     | 8.98  | 12.90 | 21.90 |
| 35 cubic inch, steel studs  | BE@.150   | Ea   | 4.87     | 6.73  | 11.60 | 19.70 |
| <b>Non-metallic three-gang conduit box, Super Blue, Carlon®.</b> Three-gang hard shell box with captive nails. Depth 3-1/2", width 3-3/4", length 5-7/8". 12 integral clamps, 6 each side.  |           |      |          |       |       |       |
| 53 cubic inch, wood studs   | BE@.200   | Ea   | 5.67     | 8.98  | 14.65 | 24.90 |
| 53 cubic inch, steel studs  | BE@.150   | Ea   | 6.18     | 6.73  | 12.91 | 21.90 |
| <b>Non-metallic ceiling fan box, Carlon®.</b> 4", rated for fans up to 35 pounds. Rated for lighting fixtures up to 50 pounds. Includes mounting screws.  |           |      |          |       |       |       |
| 1/2" deep, 8 cubic inch   | BE@.300   | Ea   | 5.98     | 13.50 | 19.48 | 33.10 |
| 2-1/4" deep, 20 cubic inch  | BE@.300   | Ea   | 8.38     | 13.50 | 21.88 | 37.20 |
| <b>Non-metallic old work switch box, Zip-Mount® retainers, Carlon®.</b> For existing construction. Non-metallic cable clamps. UL listed.  |           |      |          |       |       |       |
| Single gang, 14 cubic inch  | BE@.200   | Ea   | 2.20     | 8.98  | 11.18 | 19.00 |
| Single gang, 20 cubic inch  | BE@.200   | Ea   | 3.78     | 8.98  | 12.76 | 21.70 |
| 2 gang, 25 cubic inch   | BE@.200   | Ea   | 4.33     | 8.98  | 13.31 | 22.60 |
| 3 gang, 55 cubic inch   | BE@.200   | Ea   | 6.98     | 8.98  | 15.96 | 27.10 |
| 4 gang, 68 cubic inch   | BE@.300   | Ea   | 11.40    | 13.50 | 24.90 | 42.30 |
| <b>Non-metallic old work switch box, Zip-Mount® retainers, Carlon®.</b> For existing construction. 4 integral non-metallic cable clamps. 3 Zip-Mount® retainers. 2-3/4" deep. High temperature resistance. UL listed.   |           |      |          |       |       |       |
| Round   | BE@.300   | Ea   | 11.40    | 13.50 | 24.90 | 42.30 |
| <b>Non-metallic low voltage device mounting bracket, Arlington.</b> Low voltage device; Class 2 only. For both single- and double-gang installation on existing construction. Not to be used for AC circuits. 110 volt. 4.256" high. Non-conductive, smooth plastic construction. For communications, cable TV, computer wiring. CAT 5 listed. Adjusts to fit 1/4"- to 1"-thick wallboard, paneling, or drywall. Bracket is its own template for cutout. Specially designed wing flips up when mounting screw is tightened for a secure mount. UL listed. |           |      |          |       |       |       |
| Single gang, 2.507" wide  | BE@.050   | Ea   | 2.38     | 2.24  | 4.62  | 7.85  |
| Double gang, 4.185" wide  | BE@.050   | Ea   | 4.84     | 2.24  | 7.08  | 12.00 |
| <b>EMT Conduit and Fittings</b>   |           |      |          |       |       |       |
| <b>Remove EMT conduit and wire.</b> Removed in salvage condition.   |           |      |          |       |       |       |
| 1/2" to 2" conduit diameter   | BE@.030   | LF   | —        | 1.35  | 1.35  | 2.30  |
| <b>Electric metallic tube (EMT) conduit.</b> Welded and galvanized. UL listed. <i>NEC</i> approved. Meets ANSI specifications. Sold in 10' lengths. Labor assumes installation in exposed frame walls.  |           |      |          |       |       |       |
| 1/2" nominal diameter   | BE@.033   | LF   | .60      | 1.48  | 2.08  | 3.54  |
| 3/4" nominal diameter   | BE@.035   | LF   | 1.00     | 1.57  | 2.57  | 4.37  |
| 1" nominal diameter   | BE@.040   | LF   | 1.75     | 1.80  | 3.55  | 6.04  |
| 1-1/4" nominal diameter   | BE@.045   | LF   | 2.88     | 2.02  | 4.90  | 8.33  |
| 1-1/2" nominal diameter   | BE@.055   | LF   | 3.40     | 2.47  | 5.87  | 9.98  |
| 2" nominal diameter   | BE@.070   | LF   | 4.02     | 3.14  | 7.16  | 12.20 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>EMT 45-degree elbow.</b> Galvanized steel. Indoor use only. UL listed.  |           |      |          |       |       |       |
| 1/2" nominal diameter  | BE@.050   | Ea   | 2.70     | 2.24  | 4.94  | 8.40  |
| 3/4" nominal diameter  | BE@.060   | Ea   | 3.90     | 2.69  | 6.59  | 11.20 |
| 1" nominal diameter  | BE@.080   | Ea   | 5.47     | 3.59  | 9.06  | 15.40 |
| 1-1/4" nominal diameter  | BE@.100   | Ea   | 6.90     | 4.49  | 11.39 | 19.40 |
| 1-1/2" nominal diameter  | BE@.150   | Ea   | 9.24     | 6.73  | 15.97 | 27.10 |
| 2" nominal diameter  | BE@.200   | Ea   | 13.80    | 8.98  | 22.78 | 38.70 |
| <b>EMT 90-degree elbow.</b> Galvanized steel. Indoor use only. UL listed.  |           |      |          |       |       |       |
| 1/2" nominal diameter  | BE@.050   | Ea   | 3.56     | 2.24  | 5.80  | 9.86  |
| 3/4" nominal diameter  | BE@.060   | Ea   | 4.98     | 2.69  | 7.67  | 13.00 |
| 1" nominal diameter  | BE@.080   | Ea   | 6.97     | 3.59  | 10.56 | 18.00 |
| 1-1/4" nominal diameter  | BE@.100   | Ea   | 9.20     | 4.49  | 13.69 | 23.30 |
| 1-1/2" nominal diameter  | BE@.100   | Ea   | 11.70    | 4.49  | 16.19 | 27.50 |
| 2" nominal diameter  | BE@.150   | Ea   | 17.80    | 6.73  | 24.53 | 41.70 |
| <b>EMT 90-degree pulling elbow, EMT to box.</b> Die-cast zinc. Combination threaded/set screw. Includes cover and gasket. UL listed.   |           |      |          |       |       |       |
| 1/2" nominal diameter  | BE@.050   | Ea   | 4.32     | 2.24  | 6.56  | 11.20 |
| 3/4" nominal diameter  | BE@.060   | Ea   | 5.98     | 2.69  | 8.67  | 14.70 |
| 1" nominal diameter  | BE@.080   | Ea   | 8.87     | 3.59  | 12.46 | 21.20 |
| 1-1/4" nominal diameter  | BE@.100   | Ea   | 14.90    | 4.49  | 19.39 | 33.00 |
| <b>EMT compression connector.</b> Die-cast zinc. Indoor and outdoor use. Concrete-tight. Connects EMT conduit to steel outlet box, load center, or other metal enclosure. UL and CSA listed.           |           |      |          |       |       |       |
| 1/2"   | BE@.050   | Ea   | .71      | 2.24  | 2.95  | 5.02  |
| 3/4"   | BE@.050   | Ea   | .99      | 2.24  | 3.23  | 5.49  |
| 1"   | BE@.080   | Ea   | 1.78     | 3.59  | 5.37  | 9.13  |
| 1-1/4"   | BE@.100   | Ea   | 1.98     | 4.49  | 6.47  | 11.00 |
| 1-1/2"   | BE@.100   | Ea   | 2.76     | 4.49  | 7.25  | 12.30 |
| 2"   | BE@.150   | Ea   | 4.70     | 6.73  | 11.43 | 19.40 |
| <b>EMT insulated throat compression connector.</b> Die-cast zinc. Indoor and outdoor use. Concrete-tight. Connects EMT conduit to a steel outlet box, load center or other metal enclosure. UL listed. |           |      |          |       |       |       |
| 1/2"   | BE@.050   | Ea   | 1.45     | 2.24  | 3.69  | 6.27  |
| 3/4"   | BE@.060   | Ea   | 1.29     | 2.69  | 3.98  | 6.77  |
| 1"   | BE@.080   | Ea   | 1.76     | 3.59  | 5.35  | 9.10  |
| 1-1/4"   | BE@.100   | Ea   | 2.20     | 4.49  | 6.69  | 11.40 |
| 1-1/2"   | BE@.100   | Ea   | 2.86     | 4.49  | 7.35  | 12.50 |
| 2"   | BE@.150   | Ea   | 5.20     | 6.73  | 11.93 | 20.30 |
| <b>EMT set screw connector.</b> Zinc plated steel. Concrete-tight when taped. Connects EMT conduit to a steel outlet box, load center or other metal enclosure.  |           |      |          |       |       |       |
| 3/4"   | BE@.050   | Ea   | .80      | 2.24  | 3.04  | 5.17  |
| 1"   | BE@.080   | Ea   | 1.54     | 3.59  | 5.13  | 8.72  |
| 1-1/4"   | BE@.100   | Ea   | 2.14     | 4.49  | 6.63  | 11.30 |
| 1-1/2"   | BE@.100   | Ea   | 2.42     | 4.49  | 6.91  | 11.70 |
| 2"   | BE@.150   | Ea   | 2.97     | 6.73  | 9.70  | 16.50 |
| <b>EMT offset screw connector.</b> Die-cast zinc. Concrete-tight when taped. Connects EMT conduit to a metal outlet box or other enclosure where an offset is required. UL listed.                     |           |      |          |       |       |       |
| 1/2" conduit   | BE@.100   | Ea   | 2.36     | 4.49  | 6.85  | 11.60 |
| 3/4" conduit   | BE@.100   | Ea   | 3.20     | 4.49  | 7.69  | 13.10 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**EMT to box offset compression connector.** Die-cast zinc. Indoor and outdoor use. Concrete-tight. Connects EMT conduit to a metal outlet box or other enclosure where an offset is required. UL listed.

|              |         |    |      |      |      |       |
|--------------|---------|----|------|------|------|-------|
| 1/2" conduit | BE@.100 | Ea | 3.20 | 4.49 | 7.69 | 13.10 |
| 3/4" conduit | BE@.100 | Ea | 4.37 | 4.49 | 8.86 | 15.10 |

**EMT to flex combination coupling, compression to screw-in.** Die-cast zinc. Indoor or outdoor use. Joins EMT conduit to flexible metal conduit. UL listed.

|      |         |    |      |      |       |       |
|------|---------|----|------|------|-------|-------|
| 1/2" | BE@.050 | Ea | 2.89 | 2.24 | 5.13  | 8.72  |
| 3/4" | BE@.060 | Ea | 3.45 | 2.69 | 6.14  | 10.40 |
| 1"   | BE@.150 | Ea | 4.37 | 6.73 | 11.10 | 18.90 |

**EMT to non-metallic sheathed cable coupling.**

|      |         |    |     |      |      |      |
|------|---------|----|-----|------|------|------|
| 1/2" | BE@.100 | Ea | .30 | 4.49 | 4.79 | 8.14 |
|------|---------|----|-----|------|------|------|

**EMT 1-hole strap.** Zinc plated steel. Snap-on style. Indoor and outdoor use. Supports EMT conduit.

|        |         |    |      |      |      |      |
|--------|---------|----|------|------|------|------|
| 1/2"   | BE@.050 | Ea | .30  | 2.24 | 2.54 | 4.32 |
| 3/4"   | BE@.050 | Ea | .42  | 2.24 | 2.66 | 4.52 |
| 1"     | BE@.080 | Ea | .54  | 3.59 | 4.13 | 7.02 |
| 1-1/4" | BE@.100 | Ea | .66  | 4.49 | 5.15 | 8.76 |
| 1-1/2" | BE@.100 | Ea | .80  | 4.49 | 5.29 | 8.99 |
| 2"     | BE@.100 | Ea | 1.38 | 4.49 | 5.87 | 9.98 |

**EMT 2-hole strap.** Zinc plated steel. Indoor or outdoor use. Supports EMT conduit where greater load-bearing capacity is required. UL listed.

|        |         |    |      |      |      |      |
|--------|---------|----|------|------|------|------|
| 1/2"   | BE@.030 | Ea | .32  | 1.35 | 1.67 | 2.84 |
| 3/4"   | BE@.040 | Ea | .40  | 1.80 | 2.20 | 3.74 |
| 1-1/4" | BE@.050 | Ea | .75  | 2.24 | 2.99 | 5.08 |
| 1-1/2" | BE@.050 | Ea | .86  | 2.24 | 3.10 | 5.27 |
| 2"     | BE@.100 | Ea | 1.38 | 4.49 | 5.87 | 9.98 |

## Metal Conduit Boxes

**Install conduit box in confined area.** Installed in an area such as an attic, crawlspace or inserted in a wall.

|                                |         |    |   |       |       |       |
|--------------------------------|---------|----|---|-------|-------|-------|
| Junction, switch or outlet box | BE@.420 | Ea | — | 18.80 | 18.80 | 32.00 |
|--------------------------------|---------|----|---|-------|-------|-------|

**Drawn handy box.** 4" x 2", 1-7/8" deep. 13-cubic-inch capacity. Used to mount switches or receptacles. Bracket for wood or metal studs. Drawn construction. UL listed. KO (knockout).

|   |         |    |      |      |       |       |
|---|---------|----|------|------|-------|-------|
| (3) 1/2" side KOs,<br>(3) 1/2" bottom KOs                   | BE@.200 | Ea | 3.98 | 8.98 | 12.96 | 22.00 |
| (3) 1/2" side KOs,<br>(2) 1/2" end KOs, (3) 1/2" bottom KOs | BE@.200 | Ea | 3.53 | 8.98 | 12.51 | 21.30 |

**Welded handy box, RACO®.** 2-1/8" deep. 16.5-cubic-inch capacity. Used to mount switches or receptacles. Bracket for wood or metal studs. UL listed. KO (knockout).

|  |         |    |      |      |       |       |
|--|---------|----|------|------|-------|-------|
| 4" x 2", (2) 1/2" end KOs,<br>(3) 1/2" bottom KOs                    | BE@.200 | Ea | 3.40 | 8.98 | 12.38 | 21.00 |
| 4" x 2", (3) 1/2" side KOs,<br>(2) 1/2" end KOs, (3) 1/2" bottom KOs | BE@.200 | Ea | 4.47 | 8.98 | 13.45 | 22.90 |

**Handy box cover, RACO®.** Covers also may be used as single gang wall plates. Includes captive screws.

|                   |         |    |      |      |      |      |
|-------------------|---------|----|------|------|------|------|
| 20-amp receptacle | BE@.030 | Ea | 2.46 | 1.35 | 3.81 | 6.48 |
| Duplex receptacle | BE@.030 | Ea | .98  | 1.35 | 2.33 | 3.96 |
| Toggle switch     | BE@.030 | Ea | 1.23 | 1.35 | 2.58 | 4.39 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Welded square box, RACO®.</b> Used to mount switches and receptacles. 42-cubic-inch wiring capacity. Welded construction. UL listed. KO (knockout).  |           |      |          |       |       |       |
| (2) 1/2" side KOs, (7) top KOs,<br>(1) 1/2", (2) 3/4" bottom KOs  | BE@.300   | Ea   | 5.72     | 13.50 | 19.22 | 32.70 |
| (2) 1/2" and (10) TKO side KOs,<br>(2) 3/4" and (1) 1/2" TKO bottom KOs   | BE@.300   | Ea   | 5.72     | 13.50 | 19.22 | 32.70 |
| (4) 3/4", (4) 1" side KOs,<br>(3) 1/2", (2) 3/4" bottom KOs   | BE@.300   | Ea   | 7.32     | 13.50 | 20.82 | 35.40 |
| <b>Square surface box cover.</b> 30- to 50-amp receptacle. Steel. Raised 1/2".<br>2.156" diameter   |           |      |          |       |       |       |
|   | BE@.060   | Ea   | 7.98     | 2.69  | 10.67 | 18.10 |
| <b>Multi-gang switch box with conduit KOs, RACO®.</b> Steel. 2-1/2" deep. Combination 1/2" and 3/4" KOs. UL listed. KO (knockout).  |           |      |          |       |       |       |
| 3 gang, 5-19/32" wide,<br>(6) top, (2) bottom, (3) back KOs   | BE@.200   | Ea   | 15.70    | 8.98  | 24.68 | 42.00 |
| 4 gang, 7-19/32" wide,<br>(8) top, (2) bottom, (4) back KOs   | BE@.200   | Ea   | 15.70    | 8.98  | 24.68 | 42.00 |
| <b>Drawn 2-device switch box, RACO®.</b> 4" x 4". Used to mount switches or receptacles. 30.3-cubic-inch wiring capacity. Bracket for wood or metal studs. Drawn construction. KO (knockout).   |           |      |          |       |       |       |
| 1/2" side KOs,<br>(5) 1/2" bottom KOs   | BE@.200   | Ea   | 9.88     | 8.98  | 18.86 | 32.10 |
| (2) 1/2", (1) 3/4" side KOs,<br>(3) 1/2", (2) 3/4" bottom KOs   | BE@.200   | Ea   | 8.52     | 8.98  | 17.50 | 29.80 |
| (2) 3/4" side KOs,<br>(3) 1/2", (2) 3/4" bottom KOs   | BE@.200   | Ea   | 9.83     | 8.98  | 18.81 | 32.00 |
| <b>Finished box cover.</b> Baked Cadilite finished steel. 4" square. 1/2" deep. Fully depressed corners for easier mounting. UL listed.   |           |      |          |       |       |       |
| 1 GFCI receptacle   | BE@.050   | Ea   | 2.26     | 2.24  | 4.50  | 7.65  |
| 1 single receptacle   | BE@.050   | Ea   | 2.47     | 2.24  | 4.71  | 8.01  |
| 1 duplex receptacle   | BE@.050   | Ea   | 2.02     | 2.24  | 4.26  | 7.24  |
| 2 duplex receptacles  | BE@.050   | Ea   | 2.08     | 2.24  | 4.32  | 7.34  |
| 1 toggle switch   | BE@.050   | Ea   | 2.45     | 2.24  | 4.69  | 7.97  |
| 2 toggle switches   | BE@.050   | Ea   | 2.45     | 2.24  | 4.69  | 7.97  |
| Toggle and duplex   | BE@.050   | Ea   | 2.36     | 2.24  | 4.60  | 7.82  |
| <b>Ceiling fan box.</b> Steel. UL listed for installation of ceiling fans up to 35 pounds. Fixture supports up to 50 pounds. Affixes to joist or cross brace. 4 side cable knockouts, (2) 1/2" side conduit knockouts, 1/2" bottom conduit knockout.<br>4", includes fan-mounting screws<br>with lock washers |           |      |          |       |       |       |
|   | BE@.200   | Ea   | 7.61     | 8.98  | 16.59 | 28.20 |
| <b>Ceiling fan pancake box.</b> 6-cubic-inch capacity. Steel. Includes fan-mounting screws with lock washers. UL listed for installation of ceiling fans up to 35 pounds. Fixture supports up to 50 pounds. Affixes to joist or cross brace. Includes non-metallic connector. KO (knockout).                  |           |      |          |       |       |       |
| 4", 1/2" deep, (4) 1/2" bottom KOs  | BE@.200   | Ea   | 6.14     | 8.98  | 15.12 | 25.70 |
| <b>R-3 drawn octagon box, RACO®.</b> Used to support ceiling light fixture. Sides have (4) 1/2" knockouts, bottom has 1/2s" knockout. 50-pound maximum light fixture support. Not designed for ceiling fan support. UL listed.  |           |      |          |       |       |       |
| 11.8 cubic inch capacity  | BE@.200   | Ea   | 3.38     | 8.98  | 12.36 | 21.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Steel octagon box cover, RACO®.</b> Flat. Blank. UL listed.<br>4" x 1/2"   | BE@.050   | Ea   | 1.28     | 2.24  | 3.52  | 5.98  |
| <b>Flex Conduit and Fittings</b>  |           |      |          |       |       |       |
| <b>Remove flexible metal conduit and wire.</b> Includes removing one conduit box each 10'.  |           |      |          |       |       |       |
| 1/2" to 2" conduit diameter   | BE@.019   | LF   | —        | .85   | .85   | 1.45  |
| <b>Reduced wall flexible aluminum conduit.</b> By nominal trade size.   |           |      |          |       |       |       |
| 1/2", 25' coil  | BE@.030   | LF   | 2.10     | 1.35  | 3.45  | 5.87  |
| 1/2", 100' coil   | BE@.030   | LF   | 1.19     | 1.35  | 2.54  | 4.32  |
| 1/2", 500' coil   | BE@.030   | LF   | 1.15     | 1.35  | 2.50  | 4.25  |
| 3/4", 100' coil   | BE@.033   | LF   | .99      | 1.48  | 2.47  | 4.20  |
| 1", 50' coil  | BE@.033   | LF   | 2.28     | 1.48  | 3.76  | 6.39  |
| <b>Reduced wall flexible steel conduit.</b> By nominal trade size.  |           |      |          |       |       |       |
| 3/8", 100' coil   | BE@.025   | LF   | .86      | 1.12  | 1.98  | 3.37  |
| 3/8", 250' coil   | BE@.025   | LF   | .56      | 1.12  | 1.68  | 2.86  |
| 1/2", per foot  | BE@.028   | LF   | 1.27     | 1.26  | 2.53  | 4.30  |
| 1/2", 25' coil  | BE@.028   | LF   | 1.54     | 1.26  | 2.80  | 4.76  |
| 1/2", 100' coil   | BE@.028   | LF   | .96      | 1.26  | 2.22  | 3.77  |
| 3/4", per foot  | BE@.030   | LF   | 2.49     | 1.35  | 3.84  | 6.53  |
| 3/4", 100' coil   | BE@.030   | LF   | 1.39     | 1.35  | 2.74  | 4.66  |
| 1", 50' coil  | BE@.030   | LF   | 3.54     | 1.35  | 4.89  | 8.31  |
| <b>Flex screw-in connector.</b> Die-cast zinc. Indoor use only. Connects flexible metallic conduit to steel outlet box, load center or other metal enclosure. 3/8" size fits 1/2" knockout. UL listed.  |           |      |          |       |       |       |
| 3/8"  | BE@.050   | Ea   | .86      | 2.24  | 3.10  | 5.27  |
| 1/2"  | BE@.050   | Ea   | 1.05     | 2.24  | 3.29  | 5.59  |
| 3/4"  | BE@.050   | Ea   | 1.58     | 2.24  | 3.82  | 6.49  |
| 1"  | BE@.060   | Ea   | 2.20     | 2.69  | 4.89  | 8.31  |
| <b>Flex screw-in insulated throat connector.</b> For flexible metal conduit. Zinc die-cast. Knockout size is the same as the conduit trade size.  |           |      |          |       |       |       |
| 3/8" conduit  | BE@.050   | Ea   | 1.41     | 2.24  | 3.65  | 6.21  |
| 1/2" conduit  | BE@.050   | Ea   | .87      | 2.24  | 3.11  | 5.29  |
| 3/4" conduit  | BE@.060   | Ea   | 1.88     | 2.69  | 4.57  | 7.77  |
| 1" conduit  | BE@.080   | Ea   | .58      | 3.59  | 4.17  | 7.09  |
| <b>Flex 90-degree insulated throat connector.</b>   |           |      |          |       |       |       |
| 1/2" conduit  | BE@.050   | Ea   | 1.85     | 2.24  | 4.09  | 6.95  |
| 3/4" conduit  | BE@.050   | Ea   | 3.29     | 2.24  | 5.53  | 9.40  |
| <b>Flex 90-degree connector.</b> Die-cast zinc. Indoor use only. Use with flexible metal conduit, metal clad or armored cable. Use in a dry location to connect aluminum and steel flex to a steel outlet box or other metallic enclosure. 3/8" size fits 1/2" knockout. UL listed. |           |      |          |       |       |       |
| 3/8" conduit  | BE@.050   | Ea   | 1.78     | 2.24  | 4.02  | 6.83  |
| 1/2" conduit  | BE@.050   | Ea   | 2.36     | 2.24  | 4.60  | 7.82  |
| 3/4" conduit  | BE@.060   | Ea   | 3.46     | 2.69  | 6.15  | 10.50 |
| 1" conduit  | BE@.080   | Ea   | 4.36     | 3.59  | 7.95  | 13.50 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Flex squeeze connector.** Die-cast zinc. Indoor use only. In a dry location, use to connect flexible metallic conduit to a metal enclosure such as a steel outlet box or load center. 3/8" size fits 1/2" knockout. UL listed.

|              |         |    |      |      |      |      |
|--------------|---------|----|------|------|------|------|
| 3/8" conduit | BE@.050 | Ea | .64  | 2.24 | 2.88 | 4.90 |
| 1/2" conduit | BE@.050 | Ea | .91  | 2.24 | 3.15 | 5.36 |
| 3/4" conduit | BE@.060 | Ea | 1.28 | 2.69 | 3.97 | 6.75 |
| 1" conduit   | BE@.080 | Ea | 1.81 | 3.59 | 5.40 | 9.18 |

**Electrical non-metallic flex tubing (ENT) conduit, Carlon®.** Flex-Plus® Blue™ ENT. No special tools required.

Highly flexible. Cuts easily and cleanly. For use with 90-degree Celsius conductors. Corrugated design for easy wire pulling and pushing. NER-290 recognized by BOCA, ICC and SBCCI. UL listed. By nominal trade size.

|                 |         |    |     |      |      |      |
|-----------------|---------|----|-----|------|------|------|
| 1/2", per foot  | BE@.021 | LF | .73 | .94  | 1.67 | 2.84 |
| 1/2", 10' coil  | BE@.021 | LF | .65 | .94  | 1.59 | 2.70 |
| 1/2", 200' coil | BE@.021 | LF | .46 | .94  | 1.40 | 2.38 |
| 3/4", per foot  | BE@.022 | LF | .86 | .99  | 1.85 | 3.15 |
| 3/4", 10' coil  | BE@.022 | LF | .80 | .99  | 1.79 | 3.04 |
| 3/4", 100' coil | BE@.025 | LF | .63 | 1.12 | 1.75 | 2.98 |
| 1", 10' coil    | BE@.040 | LF | .83 | 1.80 | 2.63 | 4.47 |

**Carflex® non-metallic liquid-tight flexible conduit, Carlon®.** Non-conductive, non-corrosive, crush-, abrasion- and stain-resistant. Used to connect air conditioning and heating equipment for outdoor wiring and controls.

|                 |         |    |      |      |      |       |
|-----------------|---------|----|------|------|------|-------|
| 1/2", per foot  | BE@.020 | LF | 1.18 | .90  | 2.08 | 3.54  |
| 1/2", 100' coil | BE@.020 | LF | .88  | .90  | 1.78 | 3.03  |
| 3/4", per foot  | BE@.020 | LF | 1.31 | .90  | 2.21 | 3.76  |
| 3/4", 100' coil | BE@.020 | LF | 1.14 | .90  | 2.04 | 3.47  |
| 1", per foot    | BE@.025 | LF | 2.33 | 1.12 | 3.45 | 5.87  |
| 1", 100' coil   | BE@.025 | LF | 2.84 | 1.12 | 3.96 | 6.73  |
| 2", per foot    | BE@.030 | LF | 5.10 | 1.35 | 6.45 | 11.00 |

**Carflex® conduit fitting, Carlon®.** Requires no disassembly of components for installation. Locknut, O-rings and foam washer assembled onto fitting. Withstands temperatures up to 140 degrees F. UL listed.

|                        |         |    |      |      |       |       |
|------------------------|---------|----|------|------|-------|-------|
| 1/2" 90-degree ell     | BE@.100 | Ea | 3.96 | 4.49 | 8.45  | 14.40 |
| 3/4" 90-degree ell     | BE@.100 | Ea | 3.20 | 4.49 | 7.69  | 13.10 |
| 1" 90-degree ell       | BE@.150 | Ea | 4.82 | 6.73 | 11.55 | 19.60 |
| 1/2" straight coupling | BE@.100 | Ea | 2.94 | 4.49 | 7.43  | 12.60 |
| 3/4" straight coupling | BE@.100 | Ea | 2.41 | 4.49 | 6.90  | 11.70 |
| 1" straight coupling   | BE@.150 | Ea | 4.25 | 6.73 | 10.98 | 18.70 |

## Weatherproof Conduit Boxes and Fittings

**1-gang rectangular steel weatherproof conduit box, Red Dot®.** Includes mounting lugs, hole plugs and screws. UL listed. Silver.

|                                  |         |    |      |       |       |       |
|----------------------------------|---------|----|------|-------|-------|-------|
| 1/2" hole, 3 holes               | BE@.300 | Ea | 4.37 | 13.50 | 17.87 | 30.40 |
| 1/2" hole, 4 holes               | BE@.300 | Ea | 5.89 | 13.50 | 19.39 | 33.00 |
| 1/2" hole, 5 holes               | BE@.300 | Ea | 6.77 | 13.50 | 20.27 | 34.50 |
| 1/2" hole, 5 holes, 2 side holes | BE@.300 | Ea | 7.47 | 13.50 | 20.97 | 35.60 |
| 3/4" hole, 3 holes               | BE@.300 | Ea | 6.58 | 13.50 | 20.08 | 34.10 |
| 3/4" hole, 4 holes               | BE@.300 | Ea | 7.47 | 13.50 | 20.97 | 35.60 |
| 3/4" hole, 5 holes               | BE@.300 | Ea | 7.74 | 13.50 | 21.24 | 36.10 |

**2-gang steel weatherproof conduit box, Red Dot®.** Includes mounting lugs, hole plugs and screws. UL listed. Silver.

|                    |         |    |       |       |       |       |
|--------------------|---------|----|-------|-------|-------|-------|
| 1/2" hole, 3 holes | BE@.300 | Ea | 9.98  | 13.50 | 23.48 | 39.90 |
| 1/2" hole, 5 holes | BE@.300 | Ea | 11.50 | 13.50 | 25.00 | 42.50 |
| 1/2" hole, 7 holes | BE@.300 | Ea | 14.90 | 13.50 | 28.40 | 48.30 |
| 3/4" hole, 2 holes | BE@.300 | Ea | 11.20 | 13.50 | 24.70 | 42.00 |

|   | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|---|------------------|-------------|-----------------|--------------|--------------|-------------|
| 3/4" hole, 5 holes  | BE@.300          | Ea          | 13.50           | 13.50        | 27.00        | 45.90       |
| 3/4" hole, 5 holes, round   | BE@.300          | Ea          | 10.60           | 13.50        | 24.10        | 41.00       |
| 3/4" hole, 7 holes  | BE@.300          | Ea          | 13.80           | 13.50        | 27.30        | 46.40       |
| 3/4" hole, 7 holes, 2 side holes  | BE@.250          | Ea          | 16.00           | 11.20        | 27.20        | 46.20       |
| 1" hole, 5 holes, deep  | BE@.300          | Ea          | 14.50           | 13.50        | 28.00        | 47.60       |
| <b>Non-metallic exposed weatherproof conduit box, Carlon®.</b> With 1/2" threaded holes. Mounting feet included.  |                  |             |                 |              |              |             |
| Rectangular, gray, 3 holes  | BE@.300          | Ea          | 6.98            | 13.50        | 20.48        | 34.80       |
| Rectangular, white, 3 holes   | BE@.300          | Ea          | 6.98            | 13.50        | 20.48        | 34.80       |
| Round, gray, 5 holes  | BE@.300          | Ea          | 9.20            | 13.50        | 22.70        | 38.60       |
| Round, white, 5 holes   | BE@.300          | Ea          | 9.65            | 13.50        | 23.15        | 39.40       |
| <b>2-gang waterproof conduit box cover, Red Dot®.</b> Includes gasket and screws. Silver.   |                  |             |                 |              |              |             |
| Blank cover   | BE@.150          | Ea          | 3.27            | 6.73         | 10.00        | 17.00       |
| Duplex receptacle cover   | BE@.150          | Ea          | 10.30           | 6.73         | 17.03        | 29.00       |
| Switch cover  | BE@.150          | Ea          | 9.11            | 6.73         | 15.84        | 26.90       |
| <b>GFCI wet location conduit box receptacle cover, Red Dot®.</b> Includes cover, gasket, screws and instructions. All-metal construction. Required by the <i>NEC</i> . For residential, commercial industrial or recreational use. UL listed.   |                  |             |                 |              |              |             |
| 2 gang  | BE@.150          | Ea          | 24.30           | 6.73         | 31.03        | 52.80       |
| <b>Horizontal duplex weatherproof conduit box receptacle cover, Red Dot®.</b> Includes gasket and screws. Die-cast construction.  |                  |             |                 |              |              |             |
| Silver  | BE@.150          | Ea          | 3.61            | 6.73         | 10.34        | 17.60       |
| Silver, GFCI  | BE@.150          | Ea          | 5.83            | 6.73         | 12.56        | 21.40       |
| <b>Universal non-metallic wet location conduit box cover, Red Dot®, Carlon®.</b> Thermoplastic cover with transparent finish. Lockable. Accommodates GFCI, single and duplex receptacles, toggle switches and single receptacle up to 1.59" diameter. Horizontal or vertical orientation. Mounts to a box or the device. All installation screws included. Device holes are keyed. Just back out the existing device screws and slip the cover over previously installed screws. Meets <i>NEC</i> requirements. |                  |             |                 |              |              |             |
| 1 gang, clear   | BE@.150          | Ea          | 15.50           | 6.73         | 22.23        | 37.80       |
| 2 gang, clear   | BE@.150          | Ea          | 24.30           | 6.73         | 31.03        | 52.80       |
| <b>Non-metallic weatherproof single-gang conduit box cover.</b> Rigid PVC. Non-conductive and non-corrosive. For industrial, commercial, and residential applications. UL listed. Gray.   |                  |             |                 |              |              |             |
| 15 amp  | BE@.100          | Ea          | 7.96            | 4.49         | 12.45        | 21.20       |
| 30 amp  | BE@.100          | Ea          | 7.03            | 4.49         | 11.52        | 19.60       |
| 50 amp  | BE@.100          | Ea          | 7.04            | 4.49         | 11.53        | 19.60       |
| Blank   | BE@.100          | Ea          | 2.82            | 4.49         | 7.31         | 12.40       |
| Single switch   | BE@.100          | Ea          | 6.98            | 4.49         | 11.47        | 19.50       |
| Vertical duplex receptacle  | BE@.100          | Ea          | 8.03            | 4.49         | 12.52        | 21.30       |
| Vertical GFCI receptacle  | BE@.100          | Ea          | 7.32            | 4.49         | 11.81        | 20.10       |
| <b>Weatherproof lampholder and cover, Red Dot®.</b> Three-hole round cover, gaskets, and screws included.   |                  |             |                 |              |              |             |
| Single lamp, rectangular  | BE@.200          | Ea          | 4.73            | 8.98         | 13.71        | 23.30       |
| Dual lamps, round   | BE@.800          | Ea          | 12.80           | 35.90        | 48.70        | 82.80       |
| <b>Weatherproof switch and cover, Red Dot®.</b> Gasket, screws, and spacers included. Switch is UL listed.  |                  |             |                 |              |              |             |
| 1 pole, 15 amp  | BE@.250          | Ea          | 3.52            | 11.20        | 14.72        | 25.00       |
| 3 way, 15 amp   | BE@.250          | Ea          | 5.53            | 11.20        | 16.73        | 28.40       |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Rigid and IMC Conduit and Fittings</b>  |           |      |          |       |       |       |
| <b>Remove rigid steel conduit and wire.</b> Includes conduit and wire removed in salvage condition.  |           |      |          |       |       |       |
| 1/2" to 2" conduit diameter  | BE@.030   | LF   | —        | 1.35  | 1.35  | 2.30  |
| <b>Install rigid steel conduit in confined area.</b> Working in a confined area such as an attic, crawlspace or behind a wall.   |           |      |          |       |       |       |
| 1/2" to 1" conduit diameter  | BE@.076   | LF   | —        | 3.41  | 3.41  | 5.80  |
| <b>Galvanized rigid steel (GRS) conduit.</b> <i>NEC</i> approved. Meets ANSI specifications. Made of high-strength strip steel. Provides radiation protection and magnetic shielding. Sold in 10' lengths.                                 |           |      |          |       |       |       |
| 1/2" nominal diameter  | BE@.040   | LF   | 2.92     | 1.80  | 4.72  | 8.02  |
| 3/4" nominal diameter  | BE@.045   | LF   | 3.10     | 2.02  | 5.12  | 8.70  |
| 1" nominal diameter  | BE@.050   | LF   | 6.21     | 2.24  | 8.45  | 14.40 |
| 1-1/4" nominal diameter  | BE@.070   | LF   | 6.82     | 3.14  | 9.96  | 16.90 |
| 1-1/2" nominal diameter  | BE@.080   | LF   | 7.76     | 3.59  | 11.35 | 19.30 |
| 2" nominal diameter  | BE@.110   | LF   | 9.39     | 4.94  | 14.33 | 24.40 |
| <b>Intermediate metal conduit (IMC).</b> UL listed. <i>NEC</i> approved. Meets ANSI specifications. Full-cut threads are galvanized after cutting and capped for protection. Interior coated with lubricating finish. Sold in 10' lengths. |           |      |          |       |       |       |
| 1/2" nominal diameter  | BE@.038   | LF   | 2.23     | 1.71  | 3.94  | 6.70  |
| 3/4" nominal diameter  | BE@.040   | LF   | 2.46     | 1.80  | 4.26  | 7.24  |
| 1" nominal diameter  | BE@.045   | LF   | 3.57     | 2.02  | 5.59  | 9.50  |
| 1-1/4" nominal diameter  | BE@.065   | LF   | 4.40     | 2.92  | 7.32  | 12.40 |
| 1-1/2" nominal diameter  | BE@.065   | LF   | 5.48     | 2.92  | 8.40  | 14.30 |
| 2" nominal diameter  | BE@.090   | LF   | 7.10     | 4.04  | 11.14 | 18.90 |
| <b>Rigid or IMC 45-degree conduit elbow.</b> Galvanized steel. Indoor or outdoor use. UL listed.   |           |      |          |       |       |       |
| 1/2" nominal diameter  | BE@.100   | Ea   | 3.74     | 4.49  | 8.23  | 14.00 |
| 3/4" nominal diameter  | BE@.100   | Ea   | 5.89     | 4.49  | 10.38 | 17.60 |
| 1" nominal diameter  | BE@.120   | Ea   | 8.75     | 5.39  | 14.14 | 24.00 |
| 1-1/4" nominal diameter  | BE@.150   | Ea   | 12.70    | 6.73  | 19.43 | 33.00 |
| 1-1/2" nominal diameter  | BE@.150   | Ea   | 14.30    | 6.73  | 21.03 | 35.80 |
| 2" nominal diameter  | BE@.200   | Ea   | 18.50    | 8.98  | 27.48 | 46.70 |
| <b>Rigid or IMC 90-degree conduit elbow.</b> Galvanized steel. Indoor or outdoor use. UL listed.   |           |      |          |       |       |       |
| 1/2" nominal diameter  | BE@.100   | Ea   | 5.20     | 4.49  | 9.69  | 16.50 |
| 3/4" nominal diameter  | BE@.100   | Ea   | 6.57     | 4.49  | 11.06 | 18.80 |
| 1" nominal diameter  | BE@.120   | Ea   | 10.20    | 5.39  | 15.59 | 26.50 |
| 1-1/4" nominal diameter  | BE@.150   | Ea   | 12.80    | 6.73  | 19.53 | 33.20 |
| 1-1/2" nominal diameter  | BE@.150   | Ea   | 16.90    | 6.73  | 23.63 | 40.20 |
| 2" nominal diameter  | BE@.200   | Ea   | 25.20    | 8.98  | 34.18 | 58.10 |
| <b>Rigid or IMC conduit coupling.</b> Galvanized steel. Indoor and outdoor use. Joins threaded rigid or IMC conduit.   |           |      |          |       |       |       |
| 1/2" conduit   | BE@.050   | Ea   | 1.65     | 2.24  | 3.89  | 6.61  |
| 3/4" conduit   | BE@.050   | Ea   | 2.42     | 2.24  | 4.66  | 7.92  |
| 1" conduit   | BE@.080   | Ea   | 3.46     | 3.59  | 7.05  | 12.00 |
| 1-1/4" conduit   | BE@.100   | Ea   | 4.27     | 4.49  | 8.76  | 14.90 |
| 1-1/2" conduit   | BE@.100   | Ea   | 5.66     | 4.49  | 10.15 | 17.30 |
| 2" conduit   | BE@.150   | Ea   | 8.43     | 6.73  | 15.16 | 25.80 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Rigid or IMC compression conduit coupling.** Steel. Concrete-tight. Indoor and outdoor use. Joins two lengths of threadless rigid or IMC conduit. UL listed.

|                |         |    |       |      |       |       |
|----------------|---------|----|-------|------|-------|-------|
| 1/2" conduit   | BE@.050 | Ea | 7.37  | 2.24 | 9.61  | 16.30 |
| 3/4" conduit   | BE@.060 | Ea | 9.83  | 2.69 | 12.52 | 21.30 |
| 1" conduit     | BE@.080 | Ea | 14.00 | 3.59 | 17.59 | 29.90 |
| 1-1/4" conduit | BE@.100 | Ea | 18.60 | 4.49 | 23.09 | 39.30 |
| 1-1/2" conduit | BE@.100 | Ea | 19.30 | 4.49 | 23.79 | 40.40 |
| 2" conduit     | BE@.150 | Ea | 37.20 | 6.73 | 43.93 | 74.70 |

**Rigid or IMC insulating bushing.** High-impact thermoplastic. Flame-retardant. Indoor or outdoor. Use on threaded rigid or IMC conduit to protect wires. Required by *NEC*. UL listed.

|        |         |    |      |      |      |      |
|--------|---------|----|------|------|------|------|
| 1/2"   | BE@.020 | Ea | .34  | .90  | 1.24 | 2.11 |
| 3/4"   | BE@.020 | Ea | .36  | .90  | 1.26 | 2.14 |
| 1"     | BE@.030 | Ea | .68  | 1.35 | 2.03 | 3.45 |
| 1-1/4" | BE@.040 | Ea | .86  | 1.80 | 2.66 | 4.52 |
| 1-1/2" | BE@.040 | Ea | 1.18 | 1.80 | 2.98 | 5.07 |
| 2"     | BE@.050 | Ea | 1.63 | 2.24 | 3.87 | 6.58 |

**Rigid or IMC insulated metallic grounding bushing.** Die-cast zinc. Lay-in lug. Indoor or outdoor use. Use with locknut to terminate service conduit to a cabinet. Lug provided for bonding jumper to a neutral bus bar.

Thermoplastic liner rated at 150 degrees Celsius. UL listed.

|                   |         |    |       |      |       |       |
|-------------------|---------|----|-------|------|-------|-------|
| Trade size 1/2"   | BE@.100 | Ea | 2.85  | 4.49 | 7.34  | 12.50 |
| Trade size 3/4"   | BE@.100 | Ea | 3.96  | 4.49 | 8.45  | 14.40 |
| Trade size 1"     | BE@.100 | Ea | 5.20  | 4.49 | 9.69  | 16.50 |
| Trade size 1-1/4" | BE@.150 | Ea | 7.67  | 6.73 | 14.40 | 24.50 |
| Trade size 1-1/2" | BE@.150 | Ea | 8.79  | 6.73 | 15.52 | 26.40 |
| Trade size 2"     | BE@.200 | Ea | 15.30 | 8.98 | 24.28 | 41.30 |

**Rigid or IMC reducing bushing.** Die-cast zinc. Dry locations only. Reduces the entry size of a run of threaded conduit. UL listed.

|                 |         |    |      |      |      |       |
|-----------------|---------|----|------|------|------|-------|
| 3/4" x 1/2"     | BE@.050 | Ea | 1.15 | 2.24 | 3.39 | 5.76  |
| 1" x 1/2"       | BE@.075 | Ea | 1.57 | 3.37 | 4.94 | 8.40  |
| 1" x 3/4"       | BE@.100 | Ea | 1.57 | 4.49 | 6.06 | 10.30 |
| 1-1/2" x 1-1/4" | BE@.100 | Ea | 2.61 | 4.49 | 7.10 | 12.10 |

**Rigid or IMC watertight conduit hub.** With insulated throat. Zinc die-cast. UL listed.

|                         |         |    |       |       |       |       |
|-------------------------|---------|----|-------|-------|-------|-------|
| 1/2" nominal diameter   | BE@.200 | Ea | 4.15  | 8.98  | 13.13 | 22.30 |
| 3/4" nominal diameter   | BE@.250 | Ea | 14.30 | 11.20 | 25.50 | 43.40 |
| 1" nominal diameter     | BE@.300 | Ea | 7.92  | 13.50 | 21.42 | 36.40 |
| 1-1/4" nominal diameter | BE@.350 | Ea | 10.40 | 15.70 | 26.10 | 44.40 |
| 1-1/2" nominal diameter | BE@.375 | Ea | 13.50 | 16.80 | 30.30 | 51.50 |
| 2" nominal diameter     | BE@.400 | Ea | 20.80 | 18.00 | 38.80 | 66.00 |

**Steel sealing conduit locknut.** With PVC molded seal. UL listed.

|                         |         |    |      |     |      |      |
|-------------------------|---------|----|------|-----|------|------|
| 1/2" nominal diameter   | BE@.020 | Ea | .85  | .90 | 1.75 | 2.98 |
| 3/4" nominal diameter   | BE@.020 | Ea | 1.18 | .90 | 2.08 | 3.54 |
| 1" nominal diameter     | BE@.020 | Ea | 1.73 | .90 | 2.63 | 4.47 |
| 1-1/4" nominal diameter | BE@.020 | Ea | 2.10 | .90 | 3.00 | 5.10 |
| 1-1/2" nominal diameter | BE@.020 | Ea | 3.14 | .90 | 4.04 | 6.87 |
| 2" nominal diameter     | BE@.020 | Ea | 4.22 | .90 | 5.12 | 8.70 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Rigid or IMC conduit nipple.</b> Steel. Indoor or outdoor use. Connects two steel outlet boxes or enclosures. UL listed.  |           |      |          |       |       |       |
| 1/2" x close trade size  | BE@.050   | Ea   | 1.26     | 2.24  | 3.50  | 5.95  |
| 1/2" x 4" trade size   | BE@.050   | Ea   | 1.95     | 2.24  | 4.19  | 7.12  |
| 3/4" x close trade size  | BE@.060   | Ea   | 1.68     | 2.69  | 4.37  | 7.43  |
| 1" x 2" trade size   | BE@.080   | Ea   | 1.67     | 3.59  | 5.26  | 8.94  |
| 1" x 2-1/2" trade size   | BE@.080   | Ea   | 1.99     | 3.59  | 5.58  | 9.49  |
| 1" x 3" trade size   | BE@.080   | Ea   | 2.64     | 3.59  | 6.23  | 10.60 |
| 1" x 5" trade size   | BE@.080   | Ea   | 3.69     | 3.59  | 7.28  | 12.40 |
| 1-1/4" x 2" trade size   | BE@.100   | Ea   | 3.85     | 4.49  | 8.34  | 14.20 |
| 1-1/4" x 3" trade size   | BE@.100   | Ea   | 3.87     | 4.49  | 8.36  | 14.20 |
| 1-1/2" x 2" trade size   | BE@.100   | Ea   | 5.20     | 4.49  | 9.69  | 16.50 |
| 1-1/2" x 3" trade size   | BE@.100   | Ea   | 5.28     | 4.49  | 9.77  | 16.60 |
| 2" x 3" trade size   | BE@.150   | Ea   | 7.75     | 6.73  | 14.48 | 24.60 |
| 2" x 5" trade size   | BE@.150   | Ea   | 9.59     | 6.73  | 16.32 | 27.70 |
| 2" x 7" trade size   | BE@.150   | Ea   | 10.90    | 6.73  | 17.63 | 30.00 |
| 2" x 8" trade size   | BE@.150   | Ea   | 6.40     | 6.73  | 13.13 | 22.30 |
| <b>Rigid or IMC conduit 1-hole strap.</b> Zinc plated malleable iron. Dry locations. Secures rigid or IMC conduit to wood, masonry, or other surfaces. UL listed.  |           |      |          |       |       |       |
| 1/2" conduit diameter  | BE@.050   | Ea   | .31      | 2.24  | 2.55  | 4.34  |
| 3/4" conduit diameter  | BE@.060   | Ea   | .40      | 2.69  | 3.09  | 5.25  |
| 1" conduit diameter  | BE@.050   | Ea   | .82      | 2.24  | 3.06  | 5.20  |
| 1-1/4" conduit diameter  | BE@.075   | Ea   | 1.54     | 3.37  | 4.91  | 8.35  |
| 1-1/2" conduit diameter  | BE@.075   | Ea   | 1.97     | 3.37  | 5.34  | 9.08  |
| 2" conduit diameter  | BE@.100   | Ea   | 1.10     | 4.49  | 5.59  | 9.50  |
| <b>Rigid or IMC threaded aluminum conduit body.</b> Copper-free die-cast aluminum. Indoor or outdoor use. Includes cover and gasket. Used to gain access to the interior of raceway for wire pulling, splicing and maintenance (as allowed by the <i>NEC</i> ). UL listed. |           |      |          |       |       |       |
| Type C, 1/2"   | BE@.100   | Ea   | 5.47     | 4.49  | 9.96  | 16.90 |
| Type C, 3/4"   | BE@.150   | Ea   | 6.89     | 6.73  | 13.62 | 23.20 |
| Type C, 1"   | BE@.200   | Ea   | 9.20     | 8.98  | 18.18 | 30.90 |
| Type C, 1-1/4"   | BE@.250   | Ea   | 14.10    | 11.20 | 25.30 | 43.00 |
| Type C, 1-1/2"   | BE@.250   | Ea   | 17.90    | 11.20 | 29.10 | 49.50 |
| Type C, 2"   | BE@.300   | Ea   | 29.80    | 13.50 | 43.30 | 73.60 |
| Type LB, 1/2"  | BE@.100   | Ea   | 5.28     | 4.49  | 9.77  | 16.60 |
| Type LB, 3/4"  | BE@.150   | Ea   | 7.21     | 6.73  | 13.94 | 23.70 |
| Type LB, 1"  | BE@.150   | Ea   | 10.40    | 6.73  | 17.13 | 29.10 |
| Type LB, 1-1/4"  | BE@.200   | Ea   | 12.70    | 8.98  | 21.68 | 36.90 |
| Type LB, 1-1/2"  | BE@.200   | Ea   | 17.30    | 8.98  | 26.28 | 44.70 |
| Type LB, 2"  | BE@.250   | Ea   | 25.80    | 11.20 | 37.00 | 62.90 |
| Type LL or LR, 1/2"  | BE@.100   | Ea   | 5.40     | 4.49  | 9.89  | 16.80 |
| Type LL or LR, 3/4"  | BE@.150   | Ea   | 7.20     | 6.73  | 13.93 | 23.70 |
| Type LL or LR, 1"  | BE@.150   | Ea   | 9.90     | 6.73  | 16.63 | 28.30 |
| Type LL or LR, 1-1/4"  | BE@.200   | Ea   | 15.00    | 8.98  | 23.98 | 40.80 |
| Type LL or LR, 1-1/2"  | BE@.250   | Ea   | 41.10    | 11.20 | 52.30 | 88.90 |
| Type LL or LR, 2"  | BE@.300   | Ea   | 25.80    | 13.50 | 39.30 | 66.80 |
| Type T, 1/2"   | BE@.150   | Ea   | 5.77     | 6.73  | 12.50 | 21.30 |
| Type T, 3/4"   | BE@.200   | Ea   | 8.20     | 8.98  | 17.18 | 29.20 |
| Type T, 1"   | BE@.250   | Ea   | 12.20    | 11.20 | 23.40 | 39.80 |
| Type T, 1-1/4"   | BE@.300   | Ea   | 18.70    | 13.50 | 32.20 | 54.70 |
| Type T, 1-1/2"   | BE@.300   | Ea   | 22.70    | 13.50 | 36.20 | 61.50 |
| Type T, 2"   | BE@.330   | Ea   | 25.60    | 14.80 | 40.40 | 68.70 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Steel service entrance cap.** Copper-free die-cast aluminum. Clamp-on style. For overhead wiring service entrance. Mounts on top of EMT, rigid or IMC conduit. Serves as connecting point for service entrance wires. UL listed.

|                         |         |    |       |       |       |        |
|-------------------------|---------|----|-------|-------|-------|--------|
| 1/2" conduit diameter   | BE@.150 | Ea | 6.89  | 6.73  | 13.62 | 23.20  |
| 3/4" conduit diameter   | BE@.200 | Ea | 7.67  | 8.98  | 16.65 | 28.30  |
| 1" conduit diameter     | BE@.250 | Ea | 8.25  | 11.20 | 19.45 | 33.10  |
| 1-1/4" conduit diameter | BE@.300 | Ea | 8.74  | 13.50 | 22.24 | 37.80  |
| 1-1/2" conduit diameter | BE@.300 | Ea | 10.90 | 13.50 | 24.40 | 41.50  |
| 2" conduit diameter     | BE@.500 | Ea | 15.80 | 22.40 | 38.20 | 64.90  |
| 2-1/2" conduit diameter | BE@.500 | Ea | 43.90 | 22.40 | 66.30 | 113.00 |

**Rigid or IMC service entrance elbow.** Copper-free die-cast aluminum. Indoor or outdoor use. Includes cover and gasket. Use to gain access to interior of raceway for wire pulling, inspection, and maintenance. UL listed.

|                   |         |    |       |       |       |       |
|-------------------|---------|----|-------|-------|-------|-------|
| Trade size 1/2"   | BE@.100 | Ea | 5.77  | 4.49  | 10.26 | 17.40 |
| Trade size 3/4"   | BE@.150 | Ea | 7.92  | 6.73  | 14.65 | 24.90 |
| Trade size 1"     | BE@.150 | Ea | 10.70 | 6.73  | 17.43 | 29.60 |
| Trade size 1-1/4" | BE@.200 | Ea | 12.70 | 8.98  | 21.68 | 36.90 |
| Trade size 1-1/2" | BE@.200 | Ea | 17.80 | 8.98  | 26.78 | 45.50 |
| Trade size 2"     | BE@.250 | Ea | 26.60 | 11.20 | 37.80 | 64.30 |

**Service entrance roof flashing.** Prevents leaks where conduit penetrates the roof surface. Slips over the conduit mast and mounts on the roof. Made of galvanized steel with neoprene seal.

|                         |         |    |       |       |       |       |
|-------------------------|---------|----|-------|-------|-------|-------|
| 2" conduit diameter     | BE@.250 | Ea | 8.77  | 11.20 | 19.97 | 33.90 |
| 2-1/2" conduit diameter | BE@.250 | Ea | 11.60 | 11.20 | 22.80 | 38.80 |

**Service entrance conduit sill plate.** Copper-free die-cast aluminum. Helps seal the hole where service entrance cable enters the home.

|                        |         |    |      |      |       |       |
|------------------------|---------|----|------|------|-------|-------|
| 1/2" to 3/4", 2 screws | BE@.100 | Ea | 2.14 | 4.49 | 6.63  | 11.30 |
| 1", 2 screws           | BE@.100 | Ea | 3.27 | 4.49 | 7.76  | 13.20 |
| 1-1/4", 4 screws       | BE@.200 | Ea | 3.98 | 8.98 | 12.96 | 22.00 |
| 1-1/2", 4 screws       | BE@.200 | Ea | 4.34 | 8.98 | 13.32 | 22.60 |
| 2", 4 screws           | BE@.200 | Ea | 6.86 | 8.98 | 15.84 | 26.90 |

**Ground rod clamp.** Bronze. Connects the grounding wire to the ground rod. Approved for direct burial. UL listed.

|                                 |         |    |      |      |      |       |
|---------------------------------|---------|----|------|------|------|-------|
| 1/2" rod                        | BE@.100 | Ea | 2.98 | 4.49 | 7.47 | 12.70 |
| 5/8" rod                        | BE@.100 | Ea | 3.60 | 4.49 | 8.09 | 13.80 |
| 3/4" rod                        | BE@.100 | Ea | 3.48 | 4.49 | 7.97 | 13.50 |
| 1-1/4" to 2", 8 to 4 gauge wire | BE@.100 | Ea | 5.33 | 4.49 | 9.82 | 16.70 |

## Wire and Fittings

**Type THHN copper building wire.** Labor is based on wire pulled in conduit.

|                               |         |    |     |     |     |      |
|-------------------------------|---------|----|-----|-----|-----|------|
| 14 gauge, solid, per foot     | BE@.006 | LF | .35 | .27 | .62 | 1.05 |
| 14 gauge, solid, 50' coil     | BE@.006 | LF | .41 | .27 | .68 | 1.16 |
| 14 gauge, solid, 100' coil    | BE@.006 | LF | .45 | .27 | .72 | 1.22 |
| 14 gauge, solid, 500' coil    | BE@.006 | LF | .14 | .27 | .41 | .70  |
| 14 gauge, stranded, per foot  | BE@.006 | LF | .46 | .27 | .73 | 1.24 |
| 14 gauge, stranded, 500' coil | BE@.006 | LF | .13 | .27 | .40 | .68  |
| 12 gauge, solid, per foot     | BE@.007 | LF | .60 | .31 | .91 | 1.55 |
| 12 gauge, solid, 50' coil     | BE@.007 | LF | .51 | .31 | .82 | 1.39 |
| 12 gauge, solid, 100' coil    | BE@.007 | LF | .45 | .31 | .76 | 1.29 |
| 12 gauge, solid, 500' coil    | BE@.007 | LF | .17 | .31 | .48 | .82  |
| 12 gauge, stranded, per foot  | BE@.007 | LF | .48 | .31 | .79 | 1.34 |
| 12 gauge, stranded, 50' coil  | BE@.007 | LF | .57 | .31 | .88 | 1.50 |
| 12 gauge, stranded, 100' coil | BE@.007 | LF | .55 | .31 | .86 | 1.46 |
| 12 gauge, stranded, 500' coil | BE@.007 | LF | .18 | .31 | .49 | .83  |

|                               | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|-------------------------------|------------------|-------------|-----------------|--------------|--------------|-------------|
| 10 gauge, stranded, per foot  | BE@.008          | LF          | .68             | .36          | 1.04         | 1.77        |
| 10 gauge, stranded, 50' coil  | BE@.008          | LF          | .75             | .36          | 1.11         | 1.89        |
| 10 gauge, stranded, 100' coil | BE@.008          | LF          | .59             | .36          | .95          | 1.62        |
| 10 gauge, stranded, 500' coil | BE@.008          | LF          | .30             | .36          | .66          | 1.12        |
| 8 gauge, stranded, per foot   | BE@.009          | LF          | .97             | .40          | 1.37         | 2.33        |
| 8 gauge, stranded, 500' coil  | BE@.009          | LF          | .54             | .40          | .94          | 1.60        |
| 6 gauge, stranded, per foot   | BE@.010          | LF          | 1.58            | .45          | 2.03         | 3.45        |
| 6 gauge, stranded, 500' coil  | BE@.010          | LF          | .85             | .45          | 1.30         | 2.21        |

**20 gauge bell wire, Carol® Cable.** For alarms, thermostat controls, touch plate systems, burglar alarms, doorbells and other low voltage installations.

|                        |         |    |     |     |     |     |
|------------------------|---------|----|-----|-----|-----|-----|
| 2 conductor, 500' coil | BE@.006 | LF | .10 | .27 | .37 | .63 |
|------------------------|---------|----|-----|-----|-----|-----|

**18 gauge thermostat cable, Carol® Cable.** For thermostat control, heating and air conditioning, touch plate systems, burglar alarms, intercom systems, doorbells, remote control units, signal systems, and other low voltage installations. Annealed solid bare copper conductors. PVC insulation and white jacket. UL listed. Type CL-2.

|                        |         |    |     |     |     |      |
|------------------------|---------|----|-----|-----|-----|------|
| 2 conductor, 50' roll  | BE@.006 | LF | .26 | .27 | .53 | .90  |
| 2 conductor, 100' roll | BE@.006 | LF | .19 | .27 | .46 | .78  |
| 5 conductor, 50' roll  | BE@.006 | LF | .47 | .27 | .74 | 1.26 |
| 5 conductor, 100' roll | BE@.006 | LF | .33 | .27 | .60 | 1.02 |

**Speaker wire.** Clear jacket. Low-noise copper wire.

|                     |         |    |     |     |     |      |
|---------------------|---------|----|-----|-----|-----|------|
| 16 gauge, 50' long  | BE@.008 | LF | .40 | .36 | .76 | 1.29 |
| 16 gauge, 100' long | BE@.008 | LF | .26 | .36 | .62 | 1.05 |
| 18 gauge, 50' long  | BE@.008 | LF | .26 | .36 | .62 | 1.05 |
| 18 gauge, 100' long | BE@.008 | LF | .18 | .36 | .54 | .92  |

**Coaxial cable.** For RF signal transmission, MATV and CATV, drop cable, and FM broadcast. Solid bare copper-weld. AWG 18. Cellular polyethylene insulation. 100% aluminum/polyester tape shield with +55% aluminum braid. 0.308" outside diameter. Capacitance, pF/Ft. 17.3. Vel. propagation: 78% nominal impedance: 75 ohm. UL listed.

|                  |         |    |     |     |     |      |
|------------------|---------|----|-----|-----|-----|------|
| Black, per foot  | BE@.007 | LF | .37 | .31 | .68 | 1.16 |
| Black, 500' coil | BE@.007 | LF | .14 | .31 | .45 | .77  |

**Coaxial F connector, RCA.** For connecting to RG6 coaxial cable. Lifetime warranty.

|          |         |    |      |      |      |      |
|----------|---------|----|------|------|------|------|
| Crimp-on | BE@.075 | Ea | .80  | 3.37 | 4.17 | 7.09 |
| Twist-on | BE@.075 | Ea | 1.00 | 3.37 | 4.37 | 7.43 |

**Coaxial cable wall plate.** Fits standard electrical outlet box or flush-mount to drywall. Ivory or white.

|                |         |    |      |      |       |       |
|----------------|---------|----|------|------|-------|-------|
| 75 ohm, single | BE@.150 | Ea | 4.98 | 6.73 | 11.71 | 19.90 |
| 75 ohm, duplex | BE@.200 | Ea | 6.27 | 8.98 | 15.25 | 25.90 |

**Category 5E data communication cable, Carol® Cable.** UTP; Spec. 4480; Type MPR/CMR. Suitable for high-speed data/LAN transmission up to 16 Mbps; 10 BASE-T, 4 Mbps token ring, 100 VG-Any LAN, 100 Mbps TP-PMD, 100 BASE-T, and 55/155 Mbps ATM. 24 AWG solid bare annealed copper construction. Flame retardant PVC insulation. Pairing: two twists per foot. Pull-Pac® cartons. Maximum DC resistance, 9.38 (omega)/100 m at 20°C (68°F). Mutual capacitance, 4.59pF/Ft. at 1 kHz. Characteristic impedance for 772 kHz, 87-117 (omega). For 1.0-100.0 MHz, 85-115 (omega). SRL for 1.0-20.0 MHz, 23 dB. For 20.0-100.0 MHz, 23-10 log. Skew 10 ns. NVP, 70% speed of light. UL listed. cPCCFT4 listed. Meets requirements: ANSI/TIA/EIA 568A, ANSI/ICEA S-90-661 and NEMA WC63.1. Ivory. 1" outside diameter. 24 gauge.

|                        |         |    |     |     |     |      |
|------------------------|---------|----|-----|-----|-----|------|
| 4 conductor, per foot  | BE@.007 | LF | .30 | .31 | .61 | 1.04 |
| 4 conductor, 500' coil | BE@.007 | LF | .16 | .31 | .47 | .80  |

**Decorator phone wall plate.** Ivory or white.

|             |         |    |      |       |       |       |
|-------------|---------|----|------|-------|-------|-------|
| Single line | BE@.270 | Ea | 6.23 | 12.10 | 18.33 | 31.20 |
| Duplex      | BE@.270 | Ea | 7.36 | 12.10 | 19.46 | 33.10 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Switches and Receptacles

**Remove switch or receptacle.** Includes removal of cover plate, disconnecting wires and taping ends.

|                                  |         |    |   |      |      |       |
|----------------------------------|---------|----|---|------|------|-------|
| Single pole switch or receptacle | BE@.110 | Ea | — | 4.94 | 4.94 | 8.40  |
| Double pole switch or receptacle | BE@.178 | Ea | — | 7.99 | 7.99 | 13.60 |

**Residential-grade AC quiet toggle switch, Leviton.** 120-volt, 15-amp, with grounding screw. Side-wired and quick-wired framed toggle push-in. Quickwire accepts conductors up to 12 gauge. Large head, triple-drive combination screws. Impact-resistant. Durable thermoplastic toggle and frame. UL listed.

|                           |         |    |      |       |       |       |
|---------------------------|---------|----|------|-------|-------|-------|
| 1 pole, almond            | BE@.250 | Ea | .85  | 11.20 | 12.05 | 20.50 |
| 1 pole, brown             | BE@.250 | Ea | .85  | 11.20 | 12.05 | 20.50 |
| 1 pole, ivory             | BE@.250 | Ea | .85  | 11.20 | 12.05 | 20.50 |
| 1 pole, white             | BE@.250 | Ea | .85  | 11.20 | 12.05 | 20.50 |
| 1 pole, clear illuminated | BE@.250 | Ea | 4.98 | 11.20 | 16.18 | 27.50 |
| 3 way, clear illuminated  | BE@.250 | Ea | 7.82 | 11.20 | 19.02 | 32.30 |

**Commercial-grade AC quiet toggle switch, Leviton.** Side-wired 120/277-volt AC. 15-amp. Back-wiring clamps and large head. Double-drive terminal screws, backed out and staked. Accepts up to 10 gauge copper or copper-clad wire. Large silver and cadmium oxide contacts. Rust-resistant heavy-gauge steel mounting strap. Break-off plaster ears. One-piece brass alloy contact arm for reliable electrical performance. UL listed.

|                        |         |    |       |       |       |       |
|------------------------|---------|----|-------|-------|-------|-------|
| 1 pole, brown          | BE@.250 | Ea | 2.43  | 11.20 | 13.63 | 23.20 |
| 1 pole, gray           | BE@.250 | Ea | 3.83  | 11.20 | 15.03 | 25.60 |
| 1 pole, ivory          | BE@.250 | Ea | 3.83  | 11.20 | 15.03 | 25.60 |
| 1 pole, white          | BE@.250 | Ea | 3.83  | 11.20 | 15.03 | 25.60 |
| 3 way, ivory           | BE@.300 | Ea | 7.84  | 13.50 | 21.34 | 36.30 |
| 3 way, white           | BE@.300 | Ea | 8.28  | 13.50 | 21.78 | 37.00 |
| 4 way, framed, ivory   | BE@.400 | Ea | 11.60 | 18.00 | 29.60 | 50.30 |
| 4 way, framed, white   | BE@.400 | Ea | 12.60 | 18.00 | 30.60 | 52.00 |
| 4 way, grounded, ivory | BE@.400 | Ea | 12.60 | 18.00 | 30.60 | 52.00 |
| 4 way, grounded, white | BE@.400 | Ea | 12.60 | 18.00 | 30.60 | 52.00 |
| 1 pole, lighted, ivory | BE@.250 | Ea | 11.10 | 11.20 | 22.30 | 37.90 |
| 1 pole, lighted, white | BE@.250 | Ea | 11.10 | 11.20 | 22.30 | 37.90 |
| 3 way, lighted, ivory  | BE@.300 | Ea | 12.80 | 13.50 | 26.30 | 44.70 |
| 3 way, lighted, white  | BE@.300 | Ea | 14.20 | 13.50 | 27.70 | 47.10 |

**Decora® AC quiet rocker switch, Leviton.** 15-amp, 120/277-volt AC. Side wired with Quickwire push-in terminals accepting No.12 or No.14 copper or copper-clad wire. Switch frame shields against dust and fits in wallplate to prevent rocker binding. Sturdy construction for long service life. Full rated current capacity with tungsten, fluorescent and resistive loads. UL listed.

|                    |         |    |       |       |       |       |
|--------------------|---------|----|-------|-------|-------|-------|
| 1 pole             | BE@.250 | Ea | 2.47  | 11.20 | 13.67 | 23.20 |
| 1 pole,            | BE@.250 | Ea | 2.47  | 11.20 | 13.67 | 23.20 |
| 3 way              | BE@.300 | Ea | 4.55  | 13.50 | 18.05 | 30.70 |
| 3 way, illuminated | BE@.300 | Ea | 16.90 | 13.50 | 30.40 | 51.70 |
| 4 way              | BE@.350 | Ea | 16.80 | 15.70 | 32.50 | 55.30 |

**Residential-grade duplex straight blade receptacle, Leviton.** 15-amp, 125-volts. Quickwire push-in and side wired. Large head terminal screws accept up to 12 gauge copper or copper-clad wire. Quickwire push-in terminals accept up to 14 gauge copper or copper-clad wire. Double-wide power contacts. Plated steel mounting strap. Break-off plaster ears. Captive backed-out mounting screws. Break-off fins for 2-circuit conversion. (5-15R). UL listed.

|                                |         |    |      |      |       |       |
|--------------------------------|---------|----|------|------|-------|-------|
| 15 amps, almond                | BE@.200 | Ea | .96  | 8.98 | 9.94  | 16.90 |
| 15 amps, brown                 | BE@.200 | Ea | .96  | 8.98 | 9.94  | 16.90 |
| 15 amps, ivory                 | BE@.200 | Ea | .96  | 8.98 | 9.94  | 16.90 |
| 15 amps, white                 | BE@.200 | Ea | .96  | 8.98 | 9.94  | 16.90 |
| 15 amps, self-grounding, ivory | BE@.200 | Ea | 2.00 | 8.98 | 10.98 | 18.70 |
| 15 amps, self-grounding, white | BE@.200 | Ea | 2.00 | 8.98 | 10.98 | 18.70 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Commercial-grade duplex receptacle, Leviton.</b> Side wired. 125 volts. Ground out. Large head triple-drive terminal screws, backed out and staked. Terminals and back-wiring clamps. Accepts 10 gauge copper or copper-clad wire. Rust-resistant mounting strap. Washer-type break-off plaster ears. Captive-mounting screws. 15-amp, NEMA 5-15R. 20-amp NEMA 2-20R. UL listed.   |           |      |          |       |       |       |
| 15 amps   | BE@.200   | Ea   | 4.07     | 8.98  | 13.05 | 22.20 |
| 20 amps   | BE@.200   | Ea   | 6.12     | 8.98  | 15.10 | 25.70 |
| <b>CO/ALR duplex receptacle, Leviton.</b> Residential grade. 125 volts. Side-wired grounding. Fits shallow receptacle. Large head terminal screws accept up to 12 gauge copper or copper-clad wire. Quickwire push-in terminals accept 14 gauge solid copper wire only. Rust-resistant steel mounting strap. Break-off plaster ears. Captive mounting screws. Break-off tabs allow easy two-circuit conversion. 5-15R. UL listed. |           |      |          |       |       |       |
| 15 amps, ivory  | BE@.200   | Ea   | 4.34     | 8.98  | 13.32 | 22.60 |
| 15 amps, white  | BE@.200   | Ea   | 4.34     | 8.98  | 13.32 | 22.60 |
| <b>GFCI hospital-grade receptacle.</b>  |           |      |          |       |       |       |
| 20 amps, ivory  | BE@.300   | Ea   | 37.90    | 13.50 | 51.40 | 87.40 |
| 20 amps, red  | BE@.300   | Ea   | 37.90    | 13.50 | 51.40 | 87.40 |
| <b>GFCI receptacle.</b> 15-amp shock guard ground fault circuit interrupter. Side- and back-wired to accept 12 gauge wire. Shallow design allows for easy installation.   |           |      |          |       |       |       |
| 15 amps, ivory  | BE@.300   | Ea   | 34.20    | 13.50 | 47.70 | 81.10 |
| 15 amps, white  | BE@.300   | Ea   | 34.20    | 13.50 | 47.70 | 81.10 |
| <b>Single receptacle, Leviton.</b> Commercial grade. Large head triple-drive terminal screws, backed out and staked. Terminals and back-wiring clamps accept 10 gauge copper or copper-clad wire. Heavy-gauge, rust-resistant steel mounting strap. Convenient washer-type break-off plaster ears for best flush alignment. Triple-wide power contacts. Captive-mounting screws.  |           |      |          |       |       |       |
| 15 amps, 125 volts  | BE@.200   | Ea   | 5.18     | 8.98  | 14.16 | 24.10 |
| 20 amps, 125 volts  | BE@.200   | Ea   | 6.65     | 8.98  | 15.63 | 26.60 |
| 20 amps, 250 volts  | BE@.200   | Ea   | 8.19     | 8.98  | 17.17 | 29.20 |
| <b>Appliance receptacle, flush mount, Pass &amp; Seymour/Legrand.</b> Straight blade receptacle. Industrial specification grade. 125/250-volt, 60 Hz, AC only. For copper or aluminum conductors. Easily identifiable color-coded terminals. Double-wipe copper alloy contacts. Terminals accept up to #4 conductors. Fits single- or 2-gang outlet boxes. Includes mounting hardware. UL listed.                                 |           |      |          |       |       |       |
| NEMA 14-30R, 30 amps, dryer   | BE@.350   | Ea   | 11.00    | 15.70 | 26.70 | 45.40 |
| NEMA 14-50R, 50 amps, range   | BE@.400   | Ea   | 11.40    | 18.00 | 29.40 | 50.00 |
| <b>Single-gang plastic wall plate, Leviton.</b> Residential grade. Standard size. Resists fading, discoloration, grease, oils, organic solvents and scratches. Round on edges to prevent injury and wall damage. Includes matching metal mounting screws. UL listed.  |           |      |          |       |       |       |
| 1 duplex receptacle   | BE@.050   | Ea   | .47      | 2.24  | 2.71  | 4.61  |
| 2 duplex receptacles  | BE@.100   | Ea   | 1.98     | 4.49  | 6.47  | 11.00 |
| 1 toggle switch   | BE@.050   | Ea   | .42      | 2.24  | 2.66  | 4.52  |
| 1 toggle, 1 duplex receptacle   | BE@.100   | Ea   | .42      | 2.24  | 2.66  | 4.52  |
| 2 toggle switches   | BE@.100   | Ea   | 1.48     | 4.49  | 5.97  | 10.10 |
| Blank   | BE@.050   | Ea   | .77      | 2.24  | 3.01  | 5.12  |
| <b>Single-gang Decora® wall plate, Leviton.</b> Smooth face and round edges that resist dust accumulation. Individual plastic wrapping to protect surfaces. Color-matched mounting screws included. UL listed.  |           |      |          |       |       |       |
| 1 rocker switch   | BE@.050   | Ea   | .83      | 2.24  | 3.07  | 5.22  |
| 2 rocker switches   | BE@.100   | Ea   | 1.60     | 4.49  | 6.09  | 10.40 |
| 1 rocker switch, 1 toggle   | BE@.100   | Ea   | 1.98     | 4.49  | 6.47  | 11.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Incandescent slide dimmer.</b> Commercial specification grade. 600 watt. Compact design. Single pole. Positive on/off switching with upper-end dimming bypass for maximum brightness. Solid-state circuitry with built-in radio/TV interference filter. UL listed.  |           |      |          |       |        |        |
| Ivory  | BE@.250   | Ea   | 23.90    | 11.20 | 35.10  | 59.70  |
| White  | BE@.250   | Ea   | 20.00    | 11.20 | 31.20  | 53.00  |
| <b>3-way illuminated incandescent, CFL and LED slide dimmer.</b> Commercial specification grade. Separate heavy-duty on/off rocker for switching without disturbing preset brightness levels. 600 watt. Compact design. Solid-state circuitry with built-in radio/TV interference filter. Includes wall plate. UL listed. 120-volt, 60 hertz, AC.  |           |      |          |       |        |        |
| White, preset on/off   | BE@.300   | Ea   | 25.30    | 13.50 | 38.80  | 66.00  |
| <b>Spring-wound timer switch.</b> Operation requires no electricity, automatically limiting length of time energy is used. Installs in most 2-1/2"-deep junction boxes. Compact design. Single pole, single throw.   |           |      |          |       |        |        |
| 60 minute  | BE@.200   | Ea   | 30.00    | 8.98  | 38.98  | 66.30  |
| <b>Smoke Detectors</b>   |           |      |          |       |        |        |
| <b>9-volt smoke detector, Kidde®.</b> With test button. Flashing red light indicates unit is receiving power. Includes batteries. 3-year warranty.   |           |      |          |       |        |        |
| 3-7/8", round  | BE@.300   | Ea   | 15.00    | 13.50 | 28.50  | 48.50  |
| <b>Dual-sensing smoke alarm.</b> Dual-sensing ionization and photoelectric smoke-sensing technologies. Microprocessor technology to reduce unwanted alarms. Low battery chirp, missing battery guard and blinking power indicator.   |           |      |          |       |        |        |
| 10" diameter   | BE@.300   | Ea   | 28.00    | 13.50 | 41.50  | 70.60  |
| <b>Dual-ionization smoke detector.</b> Battery and AC operation. Photoelectric sensor for detecting slow, smoldering fires. Dual-ionization sensor for detecting fast, flaming fires. Two test buttons to test each function, 30-day low battery signal.   |           |      |          |       |        |        |
| 120-volt interconnectable  | BE@.500   | Ea   | 35.00    | 22.40 | 57.40  | 97.60  |
| <b>Interconnected Smoke and CO Alarm.</b>  |           |      |          |       |        |        |
| 120-volt interconnectable  | BE@.500   | Ea   | 55.00    | 22.40 | 77.40  | 132.00 |
| <b>Battery Powered Carbon Monoxide Alarm.</b>  |           |      |          |       |        |        |
| Battery powered  | BE@.300   | Ea   | 43.00    | 13.50 | 56.50  | 96.10  |
| <b>Builder's door chime kit, Trine.</b> Includes front and back door black and ivory push buttons, one chime, one transformer and wire. UL listed.   |           |      |          |       |        |        |
| Wired chime kit  | BE@1.50   | Ea   | 45.50    | 67.30 | 112.80 | 192.00 |
| <b>Wireless door bell, front and back, Trine.</b> Weatherproof. Selectable front and back, push button and battery included. 128 selectable codes. 150-foot range. Westminster or ding-dong selection. Volume control and high-quality chime sound. Applications are 2 tones. Includes 12-volt remote control battery and mounting hardware. No wiring needed. Wall- or ceiling-mount. Coded transmission. No signal interference. Uses 3 standard D batteries. UL listed. |           |      |          |       |        |        |
| White.   |           |      |          |       |        |        |
| Wireless chime   | BE@.300   | Ea   | 25.20    | 13.50 | 38.70  | 65.80  |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| <b>Electrical Distribution Panels</b>  |           |      |          |       |        |        |
| <b>Disconnect and remove distribution panel.</b> Add for disconnecting circuits. Single-phase breaker panel.   |           |      |          |       |        |        |
| 50 to 100 amps, concrete wall  | BE@.258   | Ea   | —        | 11.60 | 11.60  | 19.70  |
| 50 to 100 amps, frame wall   | BE@.220   | Ea   | —        | 9.87  | 9.87   | 16.80  |
| 50 to 100 amps, steel column   | BE@.416   | Ea   | —        | 18.70 | 18.70  | 31.80  |
| 200 amps, wood or concrete wall  | BE@.300   | Ea   | —        | 13.50 | 13.50  | 23.00  |
| 200 amps, steel column   | BE@.492   | Ea   | —        | 22.10 | 22.10  | 37.60  |
| Add per circuit disconnected   | BE@.063   | Ea   | —        | 2.83  | 2.83   | 4.81   |
| <b>HomeLine® indoor main lug load center, value pack, Square D®.</b> Class 1170. Single-phase, 3-wire, 120/240-volt, 1-pole circuits. 10,000 RMS AIR. Factory-installed main lugs. Straight-in mains. Split-branch neutral. Rotates for top or bottom feed. 10-year limited warranty. Main wire size #6 to 250 AWG aluminum/copper. Main breaker frame size QOM2. Equipment ground bar. Combination surface/flush cover. Install Square D HOM type circuit breakers only. UL listed.   |           |      |          |       |        |        |
| 200 amps, 20 spaces, 40 circuits, with (6) 15-amp and (6) 20-amp 1-pole and (1) 30-amp and (1) 50-amp 2-pole breakers  | BE@1.50   | Ea   | 288.00   | 67.30 | 355.30 | 604.00 |
| <b>HomeLine circuit breaker, Square D®.</b> 1-pole, 120-volt. 10,000 AIC rated.  |           |      |          |       |        |        |
| 15 amp   | BE@.150   | Ea   | 6.63     | 6.73  | 13.36  | 22.70  |
| 20 amp   | BE@.150   | Ea   | 6.63     | 6.73  | 13.36  | 22.70  |
| 30 amp   | BE@.150   | Ea   | 6.63     | 6.73  | 13.36  | 22.70  |
| <b>HomeLine arc-fault circuit breaker, Square D®.</b> 1-pole, 120-volt arc fault interrupter. 10,000 AIC rated.  |           |      |          |       |        |        |
| 15 amp   | BE@.200   | Ea   | 63.40    | 8.98  | 72.38  | 123.00 |
| 20 amp   | BE@.200   | Ea   | 63.40    | 8.98  | 72.38  | 123.00 |
| <b>HomeLine ground-fault interrupter circuit breaker, Square D®.</b> 1-pole, 120-volt. 10,000 AIC rated. For use in Square D HomeLine load centers. UL listed.   |           |      |          |       |        |        |
| 15 amp   | BE@.200   | Ea   | 52.90    | 8.98  | 61.88  | 105.00 |
| 20 amp   | BE@.200   | Ea   | 52.90    | 8.98  | 61.88  | 105.00 |
| <b>Combination service entrance all-in-one meter main load center, Square D®.</b> Overhead or underground. Single-phase, 3-wire, 120/240-volt, 200-amp ring utility meter socket. 200-amp main circuit breaker and 30-space, 40-circuit, HOM load center with semi-flush outdoor enclosure. Meets EUSERC standards.  |           |      |          |       |        |        |
| Model CSEDVP1, 200 amps, 30 spaces, 40 circuits  | BE@1.30   | Ea   | 457.00   | 58.30 | 515.30 | 876.00 |
| <b>Combination ring-type meter socket and main load center, Square D®.</b> Overhead or underground service entrance device. Dual main breaker with feed-through lugs. Single-phase, 3-wire, 120/240-volt AC. 10,000 amp short circuit current rating. Ring utility meter socket. Surface-mount convertible to semi-flush with SC200F flange kit. Flush-mount cover included with HOM load center. Enclosure is of rainproof construction and accepts A-type bolt-on hubs. NEMA 3R enclosure. Center mounted hub. Supplied with line side feed through lugs for #6 AWG-250 K circular mils (Al/Cu) conductors and provision for branch circuit breakers. Designed for single-family residential applications. Wire size #6 to 300 KCmil (Al/Cu). Box dimensions, 14-1/2" wide x 32-1/16" long x 6-15/16" deep. Meets EUSE standards. UL listed. |           |      |          |       |        |        |
| No. SC816D200C, 200 amps, 8 spaces, 16 circuits  | BE@1.30   | Ea   | 307.00   | 58.30 | 365.30 | 621.00 |
| <b>Load center flange kit, Square D®.</b> Converts 125- to 200-amp ring and ringless type surface mount load centers to semi-flush mount.  |           |      |          |       |        |        |
| Kit  | BE@.050   | Ea   | 8.68     | 2.24  | 10.92  | 18.60  |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Combination service entrance device, Square D®.** All-in-one main circuit breaker panel. Surface-mount. Includes ring-type utility meter socket, service disconnect, and integral load center. HOM load center with surface outdoor enclosure. Single-phase, 3-wire. 120/240-volt AC, 10,000 amp short circuit current rating. NEMA Type 3R enclosure. Overhead or underground service feed. Left meter location. Hub style A. Suitable only for use as service equipment. UL listed. Meets EUSERC standards. 10-year limited warranty.

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| No. SC1624M100S, 100 amp,<br>16 spaces, 24 circuits  | BE@1.30 | Ea | 144.00 | 58.30 | 202.30 | 344.00 |
| No. SC1624M125S2, 125 amp,<br>16 spaces, 24 circuits | BE@1.30 | Ea | 159.00 | 58.30 | 217.30 | 369.00 |
| No. SC2040M200C, 200 amp,<br>20 spaces, 40 circuits  | BE@1.30 | Ea | 283.00 | 58.30 | 341.30 | 580.00 |

**Combination service entrance device, Square D®.** All-in-one main circuit breaker panel. Surface mount. Includes ring-type utility meter socket, service disconnect, and integral load center. HOM load center with surface outdoor enclosure. Single-phase, 3-wire, 120/240-volt AC, 22,000 amp short circuit current rating. NEMA Type 3R enclosure. Overhead or underground service feed. Left meter location. Hub style A. Suitable only for use as service equipment. UL listed. Meets EUSERC standards. 10-year limited warranty.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| No. SC2040M200S, 200 amp,<br>20 spaces, 40 circuit  | BE@1.30 | Ea | 312.00 | 58.30 | 370.30 | 630.00 |
| No. SC3040M200SS, 200 amp,<br>30 spaces, 40 circuit | BE@1.30 | Ea | 381.00 | 58.30 | 439.30 | 747.00 |
| No. SC40M200S, 200 amp,<br>40 spaces, 40 circuit    | BE@1.30 | Ea | 368.00 | 58.30 | 426.30 | 725.00 |

**Bolt-on A Type universal hub, Square D®.** Bolt-on closing plate for A or A-L hub opening. Series A style. For Class 4131 meter socket. Class 4119 service entrance device. Aluminum. UL listed. Threaded for rigid conduit.

|                |         |    |       |      |       |       |
|----------------|---------|----|-------|------|-------|-------|
| 1" conduit     | BE@.050 | Ea | 14.80 | 2.24 | 17.04 | 29.00 |
| 1-1/4" conduit | BE@.050 | Ea | 14.70 | 2.24 | 16.94 | 28.80 |
| 1-1/2" conduit | BE@.050 | Ea | 15.50 | 2.24 | 17.74 | 30.20 |
| 2" conduit     | BE@.050 | Ea | 14.60 | 2.24 | 16.84 | 28.60 |

**Main circuit breaker, Class 1130 QO® main lugs, rainproof, Square D®.** 2-pole, 22,000 AC rated. For convertible load centers only. Load center main rating. KCM is thousand circular mils.

|                            |         |    |        |      |        |        |
|----------------------------|---------|----|--------|------|--------|--------|
| 100 amp, AWG #4 to 2/0     | BE@.150 | Ea | 94.00  | 6.73 | 100.73 | 171.00 |
| 125 amp, AWG #4 to 2/0     | BE@.150 | Ea | 98.10  | 6.73 | 104.83 | 178.00 |
| 200 amp, AWG #4 to 300 KCM | BE@.150 | Ea | 113.00 | 6.73 | 119.73 | 204.00 |

**QO® Indoor main lug load center, Square D®.** Surface-mount. Class 736, 1130. Single-phase, 3-wire, 120/240-volt AC. Fixed mains. Factory-installed main lugs. 10,000 RMS amp short circuit current rating. Shielded copper bus. Straight-in mains. Rotates for top or bottom feed. Cover included. Ground bar kit sold separately. Uses QO, QOT, QO-EPD, QO-GFI or QO-PL branch circuit breakers separately. UL listed. 10-year limited warranty.

|   |         |    |       |       |       |        |
|---|---------|----|-------|-------|-------|--------|
| No. QO2L30SCP, 30 amp,<br>2 spaces, 2 circuits,<br>main wire #12-10 Al, #14-10 Cu | BE@.450 | Ea | 21.70 | 20.20 | 41.90 | 71.20  |
| No. QO24L70SCP, 70 amp,<br>2 spaces, 4 circuits,<br>main wire #12-3 Al, #14-4 Cu  | BE@.500 | Ea | 30.40 | 22.40 | 52.80 | 89.80  |
| No. QO612L100DS, 100 amp,<br>6 spaces, 12 circuits,<br>main wire #8-1 Al and Cu   | BE@.800 | Ea | 42.60 | 35.90 | 78.50 | 133.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| No. QO612L100SCP, 100 amp,<br>6 spaces, 12 circuits,<br>main wire #8-1 Al and Cu | BE@.800   | Ea   | 33.70    | 35.90 | 69.60  | 118.00 |
| No. QO816L100DS, 100 amp,<br>8 spaces, 16 circuits,<br>main wire #8-1 Al and Cu  | BE@.900   | Ea   | 69.00    | 40.40 | 109.40 | 186.00 |
| No. QO816L100SCP, 100 amp,<br>8 spaces, 16 circuits<br>main wire #8-1 Al and Cu  | BE@.900   | Ea   | 48.90    | 40.40 | 89.30  | 152.00 |

**QO® outdoor main lug load center, QOM1 frame size, Square D®.** Single-phase, 3-wire, 120/240-volt AC. Main wire #6-2/0 aluminum or copper. 65,000 RMS symmetrical amp short circuit current rating. Metallic enclosure. Convertible mains. Factory-installed main lug. QOM1 main frame size. Convertible to main circuit breaker. Straight-in mains. Includes rainproof cover. Order ground bar kit separately. Order QO, QOT, QO-GFI, QO-EPD, QO-AFI OR QO-APL branch circuit breakers separately. Install Square D QO type circuit breakers only. 10-year limited warranty. UL Listed.

|  |         |    |        |       |        |        |
|--|---------|----|--------|-------|--------|--------|
| No. QO11224L125GRB, 125 amp,<br>12 spaces, 24 circuits | BE@.800 | Ea | 119.00 | 35.90 | 154.90 | 263.00 |
|--|---------|----|--------|-------|--------|--------|

**QO® miniature circuit breaker, Square D®.** Single pole. Square D QO miniature circuit breakers are plug-in products for use in QO load centers and NQOD panelboards. 120/240-volts AC. 10,000-amp interrupting rating (AIR) RMS symmetrical with VISI-TRIP® indicator. Class 730, 731 and 733. 1 space required. Use in Square D QO load centers only. UL listed.

|                |         |    |       |      |       |       |
|----------------|---------|----|-------|------|-------|-------|
| 15 amp, 1 pole | BE@.150 | Ea | 15.80 | 6.73 | 22.53 | 38.30 |
| 20 amp, 1 pole | BE@.150 | Ea | 15.80 | 6.73 | 22.53 | 38.30 |
| 25 amp, 1 pole | BE@.150 | Ea | 16.40 | 6.73 | 23.13 | 39.30 |
| 30 amp, 1 pole | BE@.150 | Ea | 15.80 | 6.73 | 22.53 | 38.30 |
| 40 amp, 1 pole | BE@.150 | Ea | 17.20 | 6.73 | 23.93 | 40.70 |
| 50 amp, 1 pole | BE@.150 | Ea | 15.80 | 6.73 | 22.53 | 38.30 |
| 15 amp, 2 pole | BE@.150 | Ea | 37.70 | 6.73 | 44.43 | 75.50 |
| 20 amp, 2 pole | BE@.150 | Ea | 37.70 | 6.73 | 44.43 | 75.50 |
| 25 amp, 2 pole | BE@.150 | Ea | 37.70 | 6.73 | 44.43 | 75.50 |
| 30 amp, 2 pole | BE@.150 | Ea | 37.70 | 6.73 | 44.43 | 75.50 |
| 40 amp, 2 pole | BE@.150 | Ea | 37.70 | 6.73 | 44.43 | 75.50 |
| 50 amp, 2 pole | BE@.150 | Ea | 37.70 | 6.73 | 44.43 | 75.50 |

**Replacement tandem circuit breaker, QO®, Square D®.** 1 pole. 120-volts AC. 10,000 AIR. For use in Square D QO load centers manufactured before 1967. UL listed.

|               |         |    |       |      |       |        |
|---------------|---------|----|-------|------|-------|--------|
| 15 and 15 amp | BE@.150 | Ea | 83.20 | 6.73 | 89.93 | 153.00 |
| 20 and 20 amp | BE@.150 | Ea | 83.20 | 6.73 | 89.93 | 153.00 |

**Tandem circuit breaker, Square D®.** 1 pole. 120-volts AC. 10,000 AIR. HACR type. Visi-Trip® indicator. Requires handle tie No. QOTHT for common switching. For use in Square D QO load centers manufactured after 1967. UL listed as CTL.

|               |         |    |       |      |       |       |
|---------------|---------|----|-------|------|-------|-------|
| 15 and 15 amp | BE@.150 | Ea | 28.80 | 6.73 | 35.53 | 60.40 |
| 20 and 20 amp | BE@.150 | Ea | 28.80 | 6.73 | 35.53 | 60.40 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Ground-fault interrupter plug-on circuit breaker, QO-GFI Qwik-Gard®, Square D®.** QWIK-GARD® circuit breakers provide overload and short circuit protection, combined with Class A ground-fault protection. Class A denotes a ground-fault circuit interrupter that will trip when a ground-fault current is 6 milliamperes or greater, for people protection. Do not connect to more than 250' of load conductor for the total one-way run to prevent nuisance tripping. Class 685, 690, 730, 912 and 950. 10,000 AIR. HACR type. Visi-Trip® indicator. 1 poles are 120 volt and 2 poles are 120/240 volt. 2-pole breakers have common trip, 120-volts AC. 2 spaces required for 2-pole breakers. UL listed.

|                |         |    |        |      |        |        |
|----------------|---------|----|--------|------|--------|--------|
| 20 amp, 1 pole | BE@.150 | Ea | 114.00 | 6.73 | 120.73 | 205.00 |
| 20 amp, 2 pole | BE@.150 | Ea | 123.00 | 6.73 | 129.73 | 221.00 |
| 30 amp, 2 pole | BE@.150 | Ea | 131.00 | 6.73 | 137.73 | 234.00 |
| 50 amp, 2 pole | BE@.150 | Ea | 147.00 | 6.73 | 153.73 | 261.00 |
| 60 amp, 2 pole | BE@.150 | Ea | 160.00 | 6.73 | 166.73 | 283.00 |

**QO® load center ground bar kit, Square D®.** Sold separately from the QO® load centers. Indoor, single phase, main lug, class 736 and 1130. Aluminum. UL listed.

|                            |         |    |       |      |       |       |
|----------------------------|---------|----|-------|------|-------|-------|
| No. PK3GTA, 3 terminal     | BE@.200 | Ea | 6.78  | 8.98 | 15.76 | 26.80 |
| No. PK4GTA, 4 terminal     | BE@.200 | Ea | 7.50  | 8.98 | 16.48 | 28.00 |
| No. PK7GTA, 7 terminal     | BE@.200 | Ea | 7.98  | 8.98 | 16.96 | 28.80 |
| No. PK9GTA, 9 terminal     | BE@.200 | Ea | 9.45  | 8.98 | 18.43 | 31.30 |
| No. PK12GTACP, 12 terminal | BE@.200 | Ea | 11.30 | 8.98 | 20.28 | 34.50 |
| No. PK15GTA, 15 terminal   | BE@.200 | Ea | 11.80 | 8.98 | 20.78 | 35.30 |

## Recessed Lighting

**Recessed low-voltage baffle light kit, remodel, Commercial Electric.** Not for direct contact with insulation. 4" black baffle trim. Uses (1) MR16 bulb, 50 watt (included). Minimizes glare in general, accent and task lighting. Pre-wired housing. Thermally protected. UL listed for damp locations. For suspended ceilings. Installation instructions and template enclosed. Compatible with standard wall dimmer.

|                            |         |    |       |       |       |        |
|----------------------------|---------|----|-------|-------|-------|--------|
| 4", with black baffle trim | BE@1.00 | Ea | 37.30 | 44.90 | 82.20 | 140.00 |
|----------------------------|---------|----|-------|-------|-------|--------|

**Recessed low-voltage slot aperture light kit, remodel, Commercial Electric.** Not for direct contact with insulation. 4" white slot aperture trim. Uses (1) MR16 bulb, 50 watt (included). Pre-wired housing. Thermally protected. UL listed for damp locations. For suspended ceilings. Installation instructions and template enclosed. Compatible with standard wall dimmer.

|                              |         |    |       |       |        |        |
|------------------------------|---------|----|-------|-------|--------|--------|
| 4", white slot aperture trim | BE@1.00 | Ea | 55.90 | 44.90 | 100.80 | 171.00 |
|------------------------------|---------|----|-------|-------|--------|--------|

**Mini can recessed eyeball trim light kit, Commercial Electric.** 5" mini non-IC housing. 5" white eyeball trim. For new or remodel construction. Not for direct contact with insulation. For suspended ceilings or joist support (hanger bars sold separately). Pre-wired housing. Thermally protected. UL listed for damp locations. Compatible with standard wall dimmer. 75-watt maximum, PAR-30 bulb (not included).

|               |         |    |       |       |        |        |
|---------------|---------|----|-------|-------|--------|--------|
| 5", white     | BE@1.00 | Ea | 24.90 | 44.90 | 69.80  | 119.00 |
| 5", white LED | BE@1.00 | Ea | 67.10 | 44.90 | 112.00 | 190.00 |

**Mini can recessed open light kit, Commercial Electric.** 5" mini non-IC housing. 5" white open trim. For new or remodel construction. Not for direct contact with insulation. For suspended ceilings or joist support (hanger bars sold separately). Pre-wired housing. Thermally protected. UL listed for damp locations. Compatible with standard wall dimmer.

|           |         |    |       |       |       |        |
|-----------|---------|----|-------|-------|-------|--------|
| 5", white | BE@1.00 | Ea | 14.90 | 44.90 | 59.80 | 102.00 |
|-----------|---------|----|-------|-------|-------|--------|

**Recessed light kit.** For use in an insulated ceiling. Kit includes housing and trim. For new construction.

|                |         |    |       |       |       |        |
|----------------|---------|----|-------|-------|-------|--------|
| 6", white trim | BE@.700 | Ea | 31.10 | 31.40 | 62.50 | 106.00 |
|----------------|---------|----|-------|-------|-------|--------|

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Lighting Fixtures</b>  |           |      |          |       |        |        |
| <b>Remove and replace ceiling light fixture.</b> Disassemble and remove incandescent fixture and replace with incandescent fixture.   |           |      |          |       |        |        |
| Ceiling-mounted   | BE@.787   | Ea   | —        | 35.30 | 35.30  | 60.00  |
| <b>Cambridge II residential fluorescent ceiling fixture, Lithonia Lighting.</b> Electronic ballast. 32 watt, T8 tubes.  |           |      |          |       |        |        |
| 1' x 4', 2 lamps, oak   | BE@.800   | Ea   | 137.00   | 35.90 | 172.90 | 294.00 |
| 1' x 4', 2 lamps, white   | BE@.800   | Ea   | 138.00   | 35.90 | 173.90 | 296.00 |
| 1.5' x 4', 4 lamps, oak   | BE@.800   | Ea   | 164.00   | 35.90 | 199.90 | 340.00 |
| 1.5' x 4', 4 lamps, dentil  | BE@.800   | Ea   | 164.00   | 35.90 | 199.90 | 340.00 |
| 1.5' x 4', 4 lamps, white   | BE@.800   | Ea   | 160.00   | 35.90 | 195.90 | 333.00 |
| 2' x 2', 2 U-lamps, oak   | BE@.800   | Ea   | 156.00   | 35.90 | 191.90 | 326.00 |
| 2' x 2', 2 U-lamps, white   | BE@.800   | Ea   | 156.00   | 35.90 | 191.90 | 326.00 |
| <b>Low-profile fluorescent diffuser fixture, Lithonia Lighting.</b> Suitable for use in closets, laundry areas and pantries. Acrylic white diffuser. Wall- or ceiling-mount. UL listed.             |           |      |          |       |        |        |
| 11", 22-watt lamp, round  | BE@.900   | Ea   | 2828.60  | 40.40 | 69.00  | 117.00 |
| 12", 22-watt lamp, square   | BE@.900   | Ea   | 2323.90  | 40.40 | 64.30  | 109.00 |
| 14", 2 lamps, 22/32 watts, round  | BE@.900   | Ea   | 3535.30  | 40.40 | 75.70  | 129.00 |
| 15", 2 lamps, 22/32 watts, square   | BE@.900   | Ea   | 6262.30  | 40.40 | 102.70 | 175.00 |
| 19", 2 lamps, 32/40 watts, round  | BE@.900   | Ea   | 7373.60  | 40.40 | 114.00 | 194.00 |
| 20", 2 lamps, 32/40 watts, square   | BE@.900   | Ea   | 56.40    | 40.40 | 96.80  | 165.00 |
| <b>Wave bath bar light fixture, Hampton Bay™.</b> Brushed nickel finish with etched marble glass. Uses 100-watt, medium base bulb(s), sold separately. 5" and 22" wide respectively by 7-1/4" high. |           |      |          |       |        |        |
| 1 light, brushed nickel   | BE@.500   | Ea   | 41.50    | 22.40 | 63.90  | 109.00 |
| 3 light, brushed nickel   | BE@.500   | Ea   | 96.00    | 22.40 | 118.40 | 201.00 |
| <b>Chrome bath bar light fixture.</b> Chrome finish with etched opal glass. Uses 100-watt, medium base bulb(s), not included. 9-5/8" high.  |           |      |          |       |        |        |
| 1 light, chrome, 5-1/2" long  | BE@.500   | Ea   | 56.50    | 22.40 | 78.90  | 134.00 |
| 2 light, chrome, 13-1/4" long   | BE@.500   | Ea   | 73.30    | 22.40 | 95.70  | 163.00 |
| 3 light, chrome, 21-1/4" long   | BE@.500   | Ea   | 105.00   | 22.40 | 127.40 | 217.00 |
| <b>Beveled mirror bath bar.</b> Chrome finish. Beveled mirror, flat back. Uses 100-watt (maximum) globe bulbs, not included. Mounting hardware included. 4-1/2" high. Extends 4" from wall.         |           |      |          |       |        |        |
| 24" wide, 4 light   | BE@.800   | Ea   | 37.60    | 35.90 | 73.50  | 125.00 |
| 36" wide, 6 light   | BE@.800   | Ea   | 53.50    | 35.90 | 89.40  | 152.00 |
| 48" wide, 8 light   | BE@.800   | Ea   | 67.40    | 35.90 | 103.30 | 176.00 |
| <b>Opal glass wall light.</b> Chrome finish. Hand-blown opal glass. Uses 100-watt bulbs. Chrome.  |           |      |          |       |        |        |
| 1 light, 4-3/4" wide  | BE@.800   | Ea   | 35.60    | 35.90 | 71.50  | 122.00 |
| 2 lights, 14" wide  | BE@.800   | Ea   | 47.60    | 35.90 | 83.50  | 142.00 |
| 3 lights, 15" wide  | BE@.800   | Ea   | 53.30    | 35.90 | 89.20  | 152.00 |
| 4 lights, 26" wide  | BE@.800   | Ea   | 71.20    | 35.90 | 107.10 | 182.00 |
| <b>Two-light ceiling fixture.</b> Flush-mount hidden pan. Frosted glass shade. Uses two frosted A-19 or torpedo 60-watt maximum lamps. 13" deep by 6-1/4" high.                                     |           |      |          |       |        |        |
| Chrome  | BE@.800   | Ea   | 54.60    | 35.90 | 90.50  | 154.00 |
| Cobblestone finish  | BE@.800   | Ea   | 54.60    | 35.90 | 90.50  | 154.00 |
| <b>Mushroom ceiling light fixture drum.</b>   |           |      |          |       |        |        |
| 6", white   | BE@.800   | Ea   | 16.90    | 35.90 | 52.80  | 89.80  |

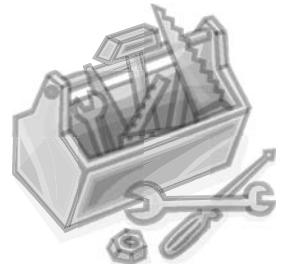
|   | Craft@Hrs | Unit | Material | Labor | Total    | Sell     |
|---|-----------|------|----------|-------|----------|----------|
| <b>Two-light incandescent flush-mount ceiling fixture, Sunburst.</b> Screw-in bubble-style glass. Medium base. 9" wide, white   | BE@.800   | Ea   | 17.00    | 35.90 | 52.90    | 89.90    |
| <b>Mushroom flush-mount light.</b> 7-3/8" diameter x 4-1/2" high. Uses one medium base bulb, 60-watt maximum (not included).  |           |      |          |       |          |          |
| Satin nickel finish, frosted ribbed glass   | BE@.800   | Ea   | 33.50    | 35.90 | 69.40    | 118.00   |
| <b>Mushroom flush-mount light fixture.</b> 9-1/4" diameter x 5-5/8" high. Uses 2 medium base bulbs, 60-watt maximum (not included).   |           |      |          |       |          |          |
| Polished brass finish, clear ribbed glass   | BE@.800   | Ea   | 16.60    | 35.90 | 52.50    | 89.30    |
| Satin nickel finish, frosted ribbed glass   | BE@.800   | Ea   | 18.60    | 35.90 | 54.50    | 92.70    |
| <b>Mushroom flush-mount ceiling fixture.</b>  |           |      |          |       |          |          |
| 8", polished brass  | BE@.500   | Ea   | 14.50    | 22.40 | 36.90    | 62.70    |
| 8", white on white, 75 watt   | BE@.500   | Ea   | 14.20    | 22.40 | 36.60    | 62.20    |
| 9-1/2", polished brass  | BE@.500   | Ea   | 16.40    | 22.40 | 38.80    | 66.00    |
| 10", white on white, 75 watt  | BE@.500   | Ea   | 15.40    | 22.40 | 37.80    | 64.30    |
| <b>Glass globe ceiling light fixture.</b> 6" white dome fixture with polished brass fitter. Uses one 75-watt bulb, sold separately. UL listed. Flush mount.   |           |      |          |       |          |          |
| With switch, white on white   | BE@.500   | Ea   | 13.00    | 22.40 | 35.40    | 60.20    |
| Without switch, polished brass  | BE@.500   | Ea   | 11.20    | 22.40 | 33.60    | 57.10    |
| Without pull chain, white on white  | BE@.500   | Ea   | 11.00    | 22.40 | 33.40    | 56.80    |
| <b>Glass globe ceiling light fixture.</b> 8" white dome fixture with polished brass fitter. Uses one 75-watt bulb, sold separately. UL listed.  |           |      |          |       |          |          |
| Flush mount   | BE@.500   | Ea   | 18.00    | 22.40 | 40.40    | 68.70    |
| <b>Swirl flush-mount dome light ceiling fixture.</b> Polished brass finish. Clear swirled glass dome. Uses one 75-watt bulb, sold separately. Includes mounting hardware.   |           |      |          |       |          |          |
| 11", clear  | BE@.500   | Ea   | 17.30    | 22.40 | 39.70    | 67.50    |
| 13", clear  | BE@.500   | Ea   | 22.00    | 22.40 | 44.40    | 75.50    |
| <b>6-light crystal chandelier.</b>  |           |      |          |       |          |          |
| Antique copper finish   | BE@1.10   | Ea   | 791.00   | 49.40 | 840.40   | 1,430.00 |
| Crystal chandelier  | BE@1.10   | Ea   | 706.00   | 49.40 | 755.40   | 1,280.00 |
| White with shades   | BE@1.10   | Ea   | 873.00   | 49.40 | 922.40   | 1,570.00 |
| With shades   | BE@1.10   | Ea   | 957.00   | 49.40 | 1,006.40 | 1,710.00 |
| <b>Glass chandelier.</b> Brushed nickel finish chandelier with etched marble glass shades with interchangeable blue and frosted white decorative rings. Uses 100-watt medium base bulbs, not included. Fixtures are 18-1/2" and 27-1/2" wide and 20" and 23" high respectively. |           |      |          |       |          |          |
| 4 light, brushed nickel   | BE@1.10   | Ea   | 311.00   | 49.40 | 360.40   | 613.00   |
| 6 light, brushed nickel   | BE@1.10   | Ea   | 371.00   | 49.40 | 420.40   | 715.00   |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| <b>Outdoor bulkhead oval light fixture, Hampton Bay™.</b> 5" wide x 8-1/2" high. 4-1/2" extension from the wall. Cast aluminum construction. Frosted, ribbed glass lens. UL wet location listed. Uses 1 medium base bulb, 60-watt maximum (included).   |           |      |          |       |        |        |
| Black finish  | BE@.800   | Ea   | 15.00    | 35.90 | 50.90  | 86.50  |
| White finish  | BE@.800   | Ea   | 15.00    | 35.90 | 50.90  | 86.50  |
| <b>Outdoor round bulkhead light fixture, Hampton Bay™.</b> 8" wide x 8" high x 4-1/2" extension from the wall. Cast aluminum construction. Frosted, ribbed glass lens. UL wet location listed. Uses one medium base bulb, 60-watt maximum (included).   |           |      |          |       |        |        |
| White finish  | BE@.800   | Ea   | 17.00    | 35.90 | 52.90  | 89.90  |
| <b>Outdoor wall lantern.</b> 7" wide x 12-1/2" high. 7-3/8" extension from the wall. Solid brass construction. Clear bent beveled glass. Install with or without tail. Uses one 100-watt maximum medium base bulb (included).   |           |      |          |       |        |        |
| Antique brass finish  | BE@.800   | Ea   | 59.40    | 35.90 | 95.30  | 162.00 |
| Polished brass finish   | BE@.800   | Ea   | 59.40    | 35.90 | 95.30  | 162.00 |
| <b>Curved glass wall-mount lantern with photo cell, Hampton Bay™.</b> Cast aluminum. Six sides of clear bent beveled glass panels. Photo control turns light on at dusk and off at dawn. Weather-resistant finish. Uses one medium base bulb, 100-watt maximum (not included). 7" wide x 15" high.  |           |      |          |       |        |        |
| Black   | BE@.800   | Ea   | 65.00    | 35.90 | 100.90 | 172.00 |
| White   | BE@.800   | Ea   | 65.00    | 35.90 | 100.90 | 172.00 |
| <b>Jelly jar fixture, Catalina Lighting.</b> Extra-thick glass. Coated aluminum screw shell. 10-1/8" high by 6" wide and 5-3/4" diameter.   |           |      |          |       |        |        |
| Black   | BE@.800   | Ea   | 7.97     | 35.90 | 43.87  | 74.60  |
| Polished brass  | BE@.800   | Ea   | 8.02     | 35.90 | 43.92  | 74.70  |
| White   | BE@.800   | Ea   | 7.97     | 35.90 | 43.87  | 74.60  |
| <b>6-sided motion-sensing lantern, Hampton Bay™.</b> Cast aluminum. Six sides of clear bent beveled glass panels. Motion sensor turns on the light when motion is detected. Adjustable to 30' away with a 180-degree angle of coverage for security and convenience. Weather-resistant finish. Uses one 100-watt maximum medium base bulb (not included).   |           |      |          |       |        |        |
| Black   | BE@.800   | Ea   | 104.00   | 35.90 | 139.90 | 238.00 |
| White   | BE@.800   | Ea   | 104.00   | 35.90 | 139.90 | 238.00 |
| <b>Motion-sensor security light.</b> Quartz. Daylight shut-off. Selectable walk test. Automatic power outage reset. Sensitivity adjustment. Selectable light timer. Manual override. Operating temperature -22 to +120 degrees F. 150-degree angle lens. Instant-on operation. 70-foot sensor range. 2,400-square-foot sensor coverage area. Pulse count. Die-cast metal fixtures. Dual-Brite™ 2-level lighting. 3- and 5-hour dawn-to-dusk timer. Wall- or eave-mount. Two 150-watt quartz halogen bulbs included. |           |      |          |       |        |        |
| Bronze  | BE@.800   | Ea   | 51.80    | 35.90 | 87.70  | 149.00 |
| White   | BE@.800   | Ea   | 56.50    | 35.90 | 92.40  | 157.00 |
| <b>Heavy-duty motion-sensor security light.</b> Metal fixtures. 150-degree angle lens. 70-foot illumination, 6,400-square-foot coverage. Indoor manual override wall switch. Weather-resistant die-cast aluminum construction. Bulbs not included. UL listed.   |           |      |          |       |        |        |
| Gray  | BE@.800   | Ea   | 63.30    | 35.90 | 99.20  | 169.00 |
| White   | BE@.800   | Ea   | 63.30    | 35.90 | 99.20  | 169.00 |

|   | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|---|-----------|------|----------|--------|----------|----------|
| <b>Ceiling Fans</b>   |           |      |          |        |          |          |
| <b>Ceiling fan with light kit, Hampton Bay™.</b> Stylish mesh spotlight kit and finish. Powerful 153mm x 15mm motor. Triple capacitor speed control. Accu-Arm blade arms and slide-on mounting bracket make for wobble-free installation. Tri-mount installation compatible. Five reversible rosewood and black blades.   |           |      |          |        |          |          |
| 46", brushed steel  | BE@1.78   | Ea   | 145.00   | 79.90  | 224.90   | 382.00   |
| <b>Indoor or outdoor ceiling fan, Hampton Bay™.</b> Stainless steel hardware. UL rating for outdoor use. Lifetime warranty.   |           |      |          |        |          |          |
| 42", white  | BE@1.50   | Ea   | 156.00   | 67.30  | 223.30   | 380.00   |
| <b>Ceiling fan with light kit, indoor or outdoor.</b> Special galvanized finish. Five oak wood grain weather-resistant blades with PowerMax motor. Stepped dome light kit. Stainless steel hardware. UL rating for outdoor use. Accu-Arm for accurate, easy installation. Uses two 60-watt vibration resistant bulbs, sold separately. Separate (2) pull-chain switches for fan and light. Lifetime warranty.   |           |      |          |        |          |          |
| 52", copper patina  | BE@1.78   | Ea   | 266.00   | 79.90  | 345.90   | 588.00   |
| 52", verde, wood grain blades   | BE@1.78   | Ea   | 283.00   | 79.90  | 362.90   | 617.00   |
| 52", white, white blades  | BE@1.78   | Ea   | 264.00   | 79.90  | 343.90   | 585.00   |
| <b>Smart home electrical management system.</b> Complies with U.S. Green Building Council standard for energy-efficient upgrades. Provides automated management of lights, appliances, audio/video and other IR-controlled devices. Includes sensors for occupancy, water, humidity and temperature and an emergency notification system (phone, flashing lights, email, etc.), remote control over locks for doors and gates, heating and cooling, integration with security alarm systems and sensors, plus energy savings through efficient control. Add the cost of consulting and programming (if required), permit, insurance inspection and an uninterruptible power supply (if required). Installed in an existing residence. |           |      |          |        |          |          |
| HVAC monitoring, thermostat and trending module   | BE@4.00   | Ea   | 1,450.00 | 180.00 | 1,630.00 | 2,770.00 |
| Intruder motion-sensing and alarm module  | BE@2.50   | Ea   | 655.00   | 112.00 | 767.00   | 1,300.00 |
| Remote PDA/iPhone-based communications monitoring and control module  | BE@3.00   | Ea   | 2,060.00 | 135.00 | 2,195.00 | 3,730.00 |
| Main interior lighting and outdoor lighting control module  | BE@3.00   | Ea   | 1,120.00 | 135.00 | 1,255.00 | 2,130.00 |
| Fire and emergency service direct interconnects   | BE@2.00   | Ea   | 688.00   | 89.80  | 777.80   | 1,320.00 |
| Remote door lock actuator   | BE@0.50   | Ea   | 233.00   | 22.40  | 255.40   | 434.00   |
| PC-recording CCD surveillance camera  | BE@0.50   | Ea   | 206.00   | 22.40  | 228.40   | 388.00   |
| Mount, wire and test smart system controls  | BE@0.25   | LF   | .77      | 11.20  | 11.97    | 20.30    |
| RFI, lightning & ground fault wiring  | BE@.184   | LF   | .77      | 8.26   | 9.03     | 15.40    |
| Fire protection piping (if required)  | P1@0.25   | LF   | 13.80    | 10.20  | 24.00    | 40.80    |
| Mount and wire automatic transfer switch to household main breaker box and electrical service   | BE@.184   | LF   | .77      | 8.26   | 9.03     | 15.40    |
| Commission and test   | BE@2.00   | Ea   | —        | 89.80  | 89.80    | 153.00   |
| <b>LED lighting system retrofit.</b> Light-emitting diodes use 10% to 20% of the electrical power required for equivalent incandescent or fluorescent lamps. LED life expectancy approximates 50,000 hours (25 years of normal use). Meets U.S. Green Building Council standards for energy efficient upgrades.   |           |      |          |        |          |          |
| Fluorescent LED troffer substitute, interior  | BE@0.50   | Ea   | 382.00   | 22.40  | 404.40   | 687.00   |
| Re-wire an existing troffer (remove ballast)  | BE@0.75   | Ea   | 210.00   | 33.70  | 243.70   | 414.00   |
| Screw-in LED lamps, interior  | BE@0.03   | Ea   | 133.00   | 1.35   | 134.35   | 228.00   |
| Track and spot LED lamps, interior  | BE@0.03   | Ea   | 99.20    | 1.35   | 100.55   | 171.00   |
| External LED floodlights  | BE@0.03   | Ea   | 210.00   | 1.35   | 211.35   | 359.00   |
| Wiring of electrical service (typical)  | BE@.184   | LF   | .72      | 8.26   | 8.98     | 15.30    |
| Test total system (per fixture)   | BE@0.25   | Ea   | —        | 11.20  | 11.20    | 19.00    |

# *Porches and Decks*

# 16



Adding a porch or a deck is a popular home improvement project. The advantage is obvious: Porches and decks add value at a lesser square foot cost than similar enclosed living area. What isn't so obvious is the disadvantage: Porches and decks are more exposed to the weather, and have a life expectancy considerably less than the home itself. That makes porch and deck work a common repair task. The result is a steady volume of work for porch and deck specialists. This chapter includes cost estimates for both the addition of new porches and decks, and repair work.

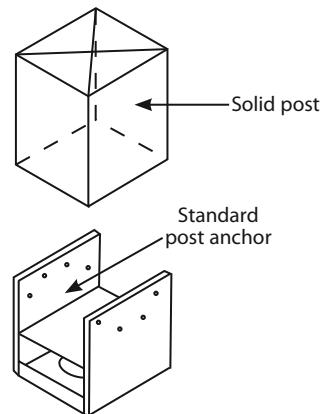
## Inspecting for Decay

Exposure to sun, wind and rain tends to open wood grain. The result is a higher moisture content that supports the growth of wood-destroying organisms. Nearly all wood decays if it remains moist for long periods. Check for decay and insect damage with a screwdriver. Wood has lost nearly all its load-carrying capacity when you can push a common screwdriver blade into the grain. Deck flooring needs to be replaced when it sags under foot traffic.

Check the crawlspace under the porch or deck for signs of dampness. Condensation forms on the underside of an elevated porch or deck when there isn't proper ventilation. Replace decayed framing with treated lumber.

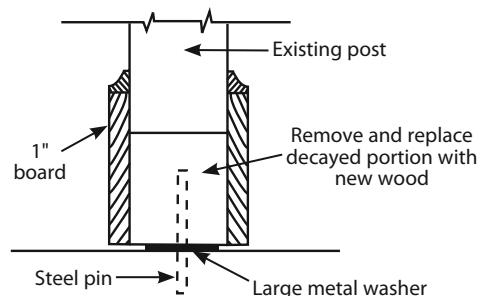
Give particular attention to posts that are in contact with concrete. Posts should be replaced when heavily decayed. Support the new post slightly above the porch floor with a post anchor, as in Figure 16-1. Embed the post anchor in concrete to help protect the porch roof from uplift wind forces.

If a decayed post is strictly ornamental, consider cutting off the decayed base. Replace the decayed portion with a wood block secured to the concrete with a pin and a washer. Add base trim to conceal the patch (see Figure 16-2). Keep trim pieces slightly above the concrete so moisture can escape.



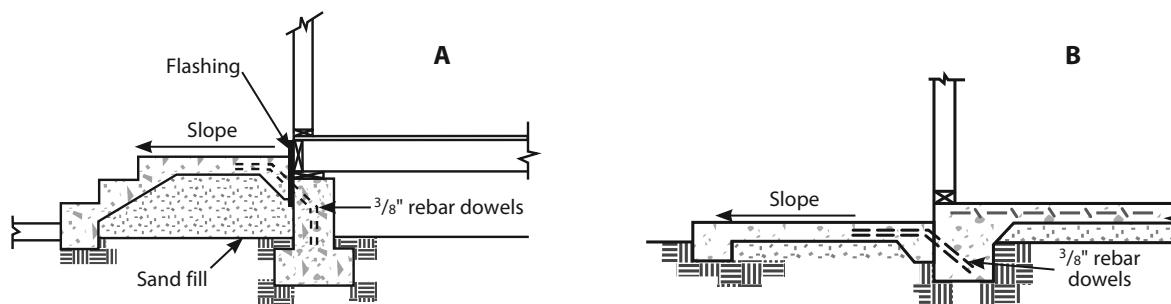
**Figure 16-1**

Base for post; standard post anchor for resistance to uplift



**Figure 16-2**

Replace end of decayed porch post

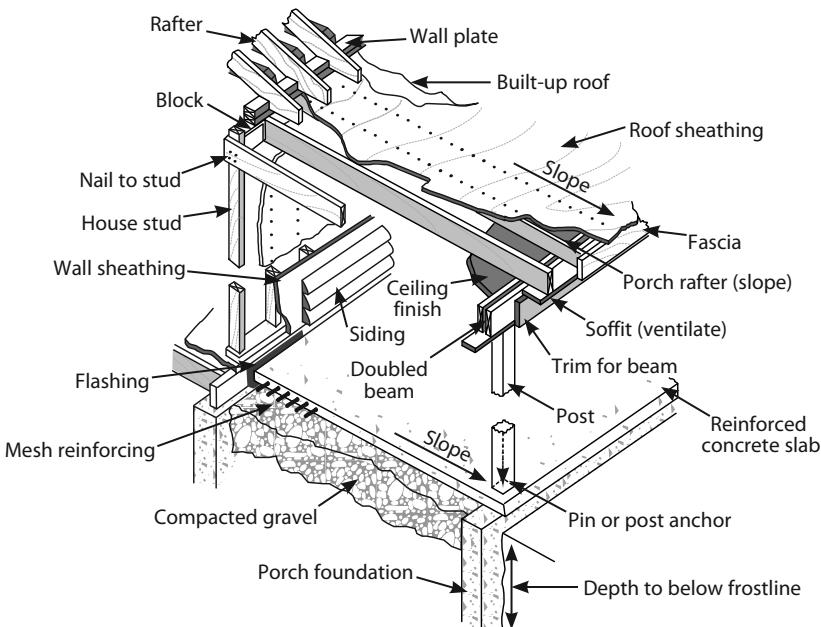
**Figure 16-3**

Porch slab connection to house: **A**, concrete porch with wood-frame floor; **B**, porch with house slab

## Adding a Porch

Figure 16-3 shows how to tie a porch slab to a house with either a conventional crawlspace foundation (Figure 16-3A) or a concrete slab (Figure 16-3B). Tie the new concrete foundation, piers or slab to the existing foundation with anchor bolts. The new footing should go at least as deep as the footing on the existing building.

Figure 16-4 shows construction details for a porch addition built on a concrete slab. In colder climates and where the porch or deck can be built at least 18" above ground level, use conventional floor framing, as shown in Figure 16-5. Provide a polyethylene soil cover to control excessive moisture. Whether wood or concrete, slope the floor away from the house at least  $1/8"$  per foot of width. That'll help keep water away from the existing foundation line.

**Figure 16-4**

Details of porch construction for concrete slab

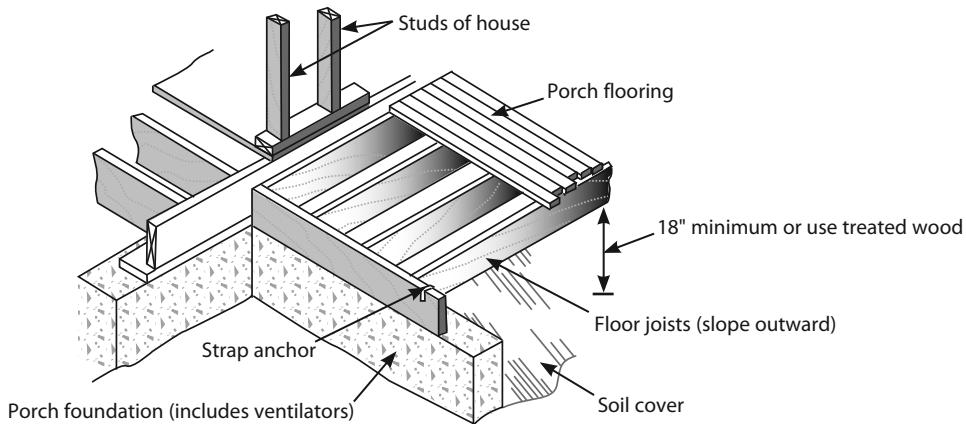


Figure 16-5

*Porch floor with wood framing*

### Columns and Posts

Support the porch roof with either solid or built-up posts or columns. Figure 16-6A shows a column built from doubled 2 x 4s covered with 1 x 4" casing on two opposite sides and 1 x 6" finish casing on the other sides. Solid posts should be either 4 x 4" or 6 x 6" lumber. For a traditional-style home, use factory-made adjustable round columns.

Keep the post or column base out of any pocket or depression that will collect moisture and invite decay. If high winds aren't a design consideration, use a steel pin to join a one-piece post to the foundation. Set a large galvanized washer or spacer between the bottom of the post and the top of the floor or slab, as in Figure 16-6B. Apply wood preservative to cut ends at both the top and bottom of the post. For a cased post, install flashing under the base molding, as in Figure 16-6C. Build all deck posts and framing from pressure-treated lumber. Use 0.40 treated lumber for framing and 0.60 treated lumber for posts in contact with the ground.

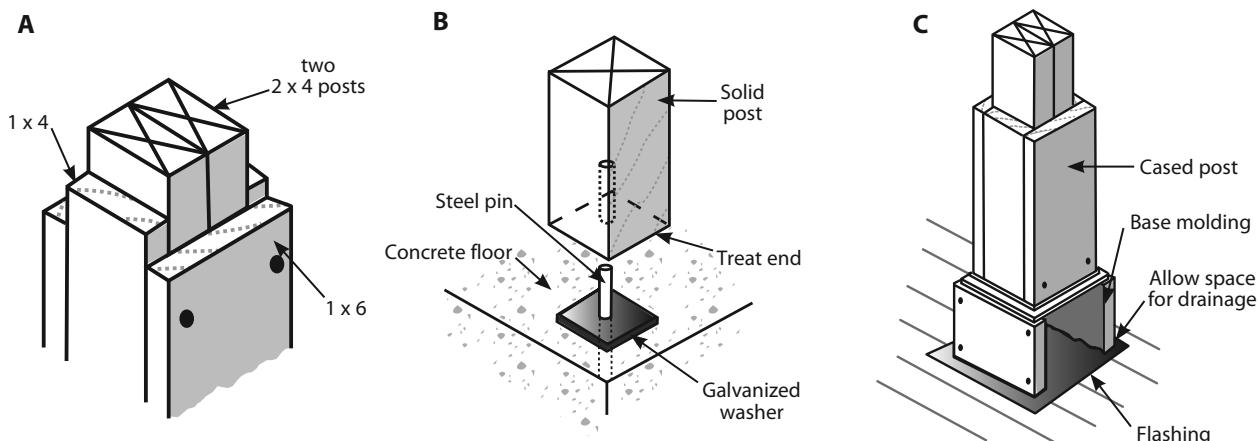


Figure 16-6

*Post details: A, cased post; B, pin anchor and space; C, flashing at base*

## Balustrades

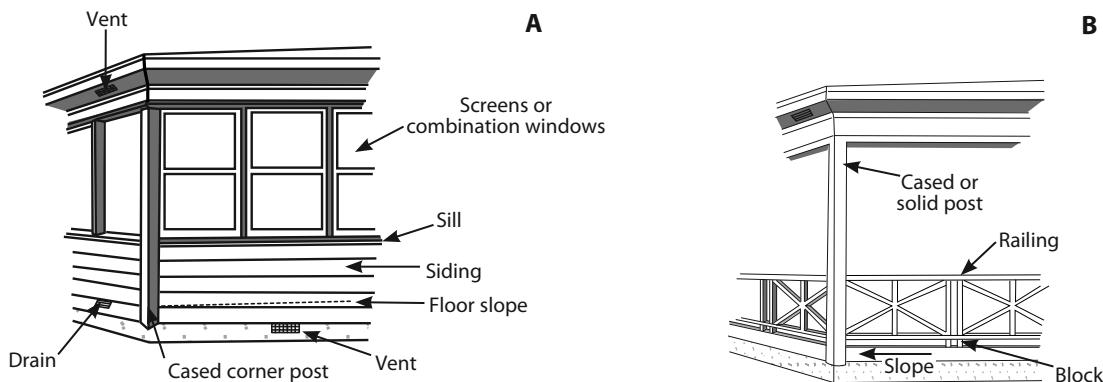
To exclude insects and flying debris, enclose the porch with either combination windows or window screen. See Figure 16-7A. An open balustrade adds safety as well as a decorative accent to a porch that isn't enclosed. See Figure 16-7B.

All wood railing exposed to weather should be shaped to shed water. Select railing that tapers slightly at the edges. Figure 16-8A shows a balustrade with a tapered top rail, a tapered bottom rail and balusters connecting the two. Design the joint between the post and rail to avoid trapping moisture. One method is to leave a small space between the post and the end of the railing, as shown in Figure 16-8B. Treat the cut rail end with water-repellent preservative. Wood posts, balusters and railings should be made from either the heartwood of a decay-resistant wood species or from treated wood. Place a small block under the bottom railing so it doesn't contact a concrete floor. Any wood in contact with concrete should be pressure-treated.

You must provide a railing around the perimeter of the porch if it's more than 30" above the existing grade. Generally the railing on a single-family residential porch or deck must be at least 36" high. Secure all hand rails and guard rails firmly to the deck. The space between balusters must be narrow enough so that nothing larger than a 4"-diameter sphere can pass through it.

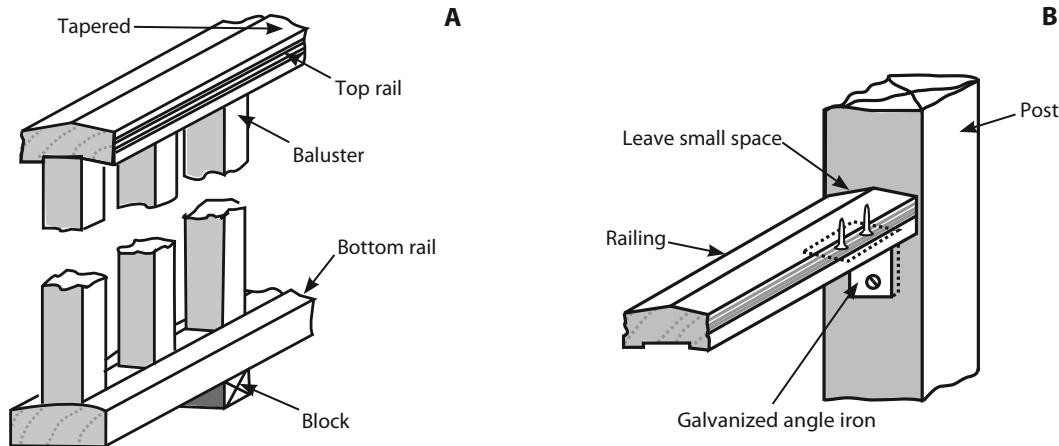
## Elevated Decks

An elevated wood deck is a good choice for a sloping lot where a concrete patio slab isn't practical. Use pressure-treated or decay-resistant lumber for support posts, beams and joists. Joist spacing can be 24", 16" or 12" on center, depending on the anticipated load and the type of deck material you use. The deck surface can be either wood that's naturally decay-resistant, pressure-treated, or a composite



**Figure 16-7**

Types of balustrades: **A**, closed balustrades; **B**, open balustrades



**Figure 16-8**

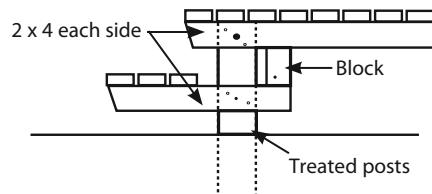
Railing details: **A**, balustrade assembly; **B**, rail to post connection

made from recycled plastics. Synthetic decking doesn't have the strength of wood decking and usually requires joists spaced 12" on center.

The bottom step of an elevated porch or deck stairway should never be in contact with the soil. Support the bottom step and stair carriage on a concrete pad or with a pressure-treated post. Figure 16-9 shows a porch stairway supported on treated posts. Posts like this should measure at least 5" in each dimension and should be embedded in the soil at least 3'. Nail and bolt a cross member between the posts. Then block the inner end of the horizontal support to the floor framing.

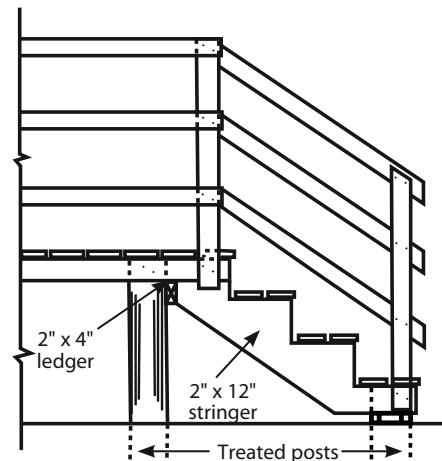
Where more than one step is required, use a 2 x 12 stringer at each end of the steps (see Figure 16-10). Bolt the lower end of each stringer to a treated post and attach the upper end of the stringer to the porch framing. You could also support the stairway on concrete or masonry piers.

Begin the construction of an elevated porch and deck by fastening a ledger securely to the existing sill with lag bolts (Figure 16-11). Then build a post and beam framework that'll support the joists and wood decking. Hang joists from the ledger using metal joist hangers. Joist spacing depends of the type of decking you select. As mentioned earlier, synthetic deck materials usually require joists no more than 12" on center. For treated  $5/4$ " fir and pine, you can usually space joists 16" on center. Install solid blocking between the joists at all supporting beams. Finally, fasten decking to the joists. You can face-nail, blind-nail or screw and plug wood decking in straight, diagonal, herringbone, or checkerboard patterns.



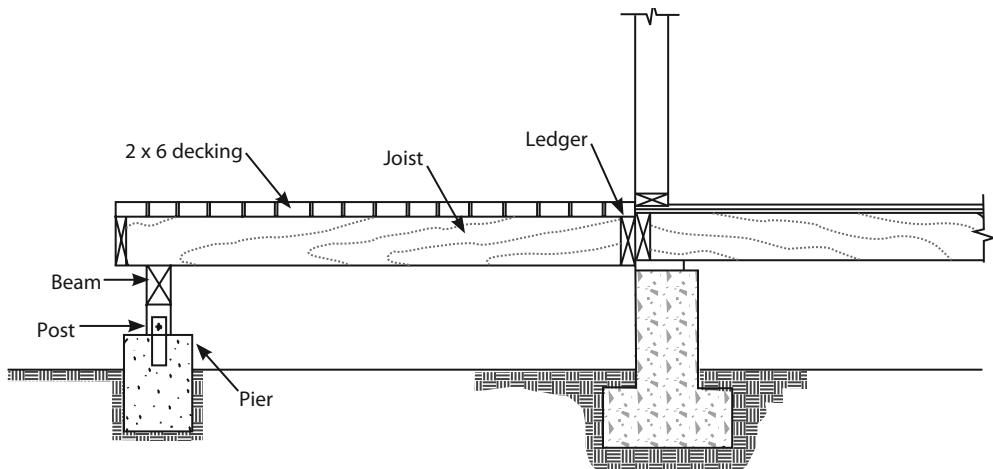
**Figure 16-9**

Single porch step supported on a treated post



**Figure 16-10**

Step stringer supported by porch framing and posts

**Figure 16-11**

Wood deck attached to house

If you build or remodel a deck that is under a window, and the deck floor is less than 18" below the bottom edge of the window, that window may now be considered a hazardous location by the building code. If it is, the window must be special safety glass. Check for this when you estimate the job. That way if it applies, you can include the cost in your bid.

### **Choices in Porch and Deck Floor Plank**

Western red cedar and redwood are naturally decay- and insect-resistant. The cost is higher than pressure-treated lumber, especially in areas remote from the west coast of the U.S. and Canada, where western red cedar and redwood are milled. For decks, use either construction common or construction heart redwood. "Merch" redwood is a lower grade ("merchantable") and has more knots and sapwood. Heart redwood is cinnamon-red and has more natural decay resistance. The sapwood is creamy yellow. The most common widths are 4" and 6". Lengths are usually 8', 12' and 16'. Both 5/4" and nominal 2" thickness are available. When left unfinished, both redwood and cedar turn a rustic gray after a few years. Apply water-repellent or stain to retard the color change. Varnishes and other film-forming coatings will crack and peel on a walking surface and aren't recommended. Both western red cedar and redwood are relatively soft and can be abraded under foot traffic.

Pressure-treated lumber makes sturdy and durable deck material. Most treated lumber sold for decking measures 5/4" (1 1/4") or nominal 2" thick and from 4" to 6" wide. Lengths are from 8' to 16'. Shorter lengths and narrower widths cost less per square foot of deck. Longer and wider pieces cost more but require less labor for installation. Pressure-treated wood decking costs less than other decking materials but should be fastened with galvanized nails or screws. All hangers and fasteners should be hot-dipped galvanized, such as Simpson Zmax. For 2" lumber, use

12d nails or 3" screws. For 5/4" decking, use 10d nails or 2<sup>1/2</sup>" screws. Most pressure-treated lumber isn't pretty. It comes from the lumberyard tinted green from the residue of the ACQ (alkaline copper quaternary) or CA (copper azol) treatment. Soft areas in the wood absorb more stain than the harder portions. The result is a mottled appearance that won't win any prizes. Exposure to the sun and rain will fade the deck from green to honey to gray after a few years. Unless deck lumber has been coated already (Thompsonized), apply a water-repellent top coat immediately after installation.

All wood decks require occasional maintenance. Check for splits, warping, popped nails and splinters. Unless the owner likes the look of aged wood, he'll need to apply a coat of sealer every few years.

Synthetics include composites made from a combination of recycled wood fiber and recycled thermoplastics. These products (Fiberon is one name) look like real wood and have characteristics like real wood. For example, composites don't expand and contract as much as thermoplastics. But composites made from wood fiber will absorb moisture and tend to age like real wood. You can cut or drill composites with an ordinary hand drill or hand saw equipped with a carbide tip blade. Composites can be stained or painted and should never require maintenance. Deck planks made from rice hulls (Edeck<sup>®</sup>) are stronger than other composites and don't absorb moisture like deck lumber made from wood fiber. Edeck<sup>®</sup> requires installation with T-clips that permit expansion and contraction as the deck material heats and cools. Synthetics tend to be more slippery than real wood, especially when wet.

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Porch and deck demolition.** Includes demolition of framing, supports, flooring, posts, railing, wood stairs. Enclosed porch demolition also includes removal of roof framing, interior finish, gutters, downspouts and roofing. These figures assume use of hand tools (rather than excavation equipment). All debris piled on site. No salvage value assumed. Add the cost of debris hauling and dump fees. Add the cost of electric work, patching of exterior walls and patching of the roof, if required. Cost per square foot of floor demolished.

Demolish enclosed wood-frame porch

|             |         |    |   |      |      |       |
|-------------|---------|----|---|------|------|-------|
| One story   | BL@.250 | SF | — | 8.33 | 8.33 | 14.20 |
| Two story   | BL@.225 | SF | — | 7.49 | 7.49 | 12.70 |
| Three story | BL@.196 | SF | — | 6.53 | 6.53 | 11.10 |

Demolish a screened porch built on a concrete slab. Includes demolition of one concrete or wood frame step to grade. Per square foot of floor area.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| Porch and one step (no slab demolition) | BL@.100 | SF | — | 3.33 | 3.33 | 5.66 |
|---|---------|----|---|------|------|------|

Demolish a wood deck with railing or kneewall. Includes demolition of the wood deck and up to 7 steps to grade.

|                                 |         |    |   |        |        |          |
|---------------------------------|---------|----|---|--------|--------|----------|
| Deck to 150 SF                  | BL@18.5 | Ea | — | 616.00 | 616.00 | 1,050.00 |
| Add per SF for deck over 150 SF | BL@.100 | SF | — | 3.33   | 3.33   | 5.66     |

**Porch and deck repair.** Includes piling debris on site. No salvage value assumed.

Remove and replace structural deck posts

|                                      |         |    |        |        |        |        |
|--------------------------------------|---------|----|--------|--------|--------|--------|
| 8' treated post, to 6" x 6"          | B1@10.3 | Ea | 28.50  | 383.00 | 411.50 | 700.00 |
| 8' x 10" wood colonial column        | B1@11.0 | Ea | 140.00 | 409.00 | 549.00 | 933.00 |
| Built-up 8' to 10' post              | B1@10.0 | Ea | 15.90  | 372.00 | 387.90 | 659.00 |
| Cut post base and patch 6" x 6" post | B1@5.50 | Ea | 28.30  | 205.00 | 233.30 | 397.00 |

Deck and stair repairs

|  |         |    |       |       |       |       |
|--|---------|----|-------|-------|-------|-------|
| Chip out decay in joist, reinforce with 2" x 6" to 2" x 10" sister joist per LF of joist     | B1@.333 | LF | 1.96  | 12.40 | 14.36 | 24.40 |
| Remove wood porch or deck floor and replace with 5/4" or 2" wood flooring per SF of flooring | B1@.166 | SF | 3.20  | 6.17  | 9.37  | 15.90 |
| Remove and replace wood exterior open stairs, per SF of tread and landing                    | B1@.725 | SF | 29.60 | 27.00 | 56.60 | 96.20 |

**Post and beam wood deck.** Using pressure treated framing lumber with 4" x 6" posts set in concrete. Includes concrete, pressure treated posts, beams, joists 12" on center, deck plank as described, galvanized hardware, fasteners, 4' wide stairs from deck level to ground level, 36" high railing with balusters 4" on center and stair rail. Add for deck skirt and deck finish, if needed. Per square foot of floor area.

Based on rectangular 12' x 10' deck with railing on four sides and stairway, 24" above ground level.

|                                   |         |    |       |      |       |       |
|-----------------------------------|---------|----|-------|------|-------|-------|
| With 5/4" pressure treated plank  | B1@.260 | SF | 18.30 | 9.67 | 27.97 | 47.50 |
| With 2" Thompsonized plank        | B1@.260 | SF | 16.60 | 9.67 | 26.27 | 44.70 |
| With 5/4" western red cedar plank | B1@.260 | SF | 39.00 | 9.67 | 48.67 | 82.70 |
| With 5/4" Fiberon deck plank      | B1@.260 | SF | 19.80 | 9.67 | 29.47 | 50.10 |
| With 5/4" Edeck® plank            | B1@.260 | SF | 32.80 | 9.67 | 42.47 | 72.20 |

Based on L-shaped 12' x 12' deck with railing on three sides and stairway, 120" above ground level.

|   |         |    |        |        |        |        |
|---|---------|----|--------|--------|--------|--------|
| With 5/4" pressure treated plank        | B1@.330 | SF | 22.10  | 12.30  | 34.40  | 58.50  |
| With 2" Thompsonized plank              | B1@.330 | SF | 20.90  | 12.30  | 33.20  | 56.40  |
| With 5/4" western red cedar plank       | B1@.330 | SF | 48.30  | 12.30  | 60.60  | 103.00 |
| With 5/4" Fiberon deck plank            | B1@.330 | SF | 23.30  | 12.30  | 35.60  | 60.50  |
| With 5/4" Edeck® plank                  | B1@.330 | SF | 38.10  | 12.30  | 50.40  | 85.70  |
| Add for framing to support a spa        | B1@8.50 | LS | 233.00 | 316.00 | 549.00 | 933.00 |
| Add for split level deck, 6" difference | B1@6.00 | Ea | 165.00 | 223.00 | 388.00 | 660.00 |
| Add for stain and sealer finish         | B1@.006 | SF | .19    | .22    | .41    | .70    |

**Pressure treated construction select deck framing lumber.** For use above ground. .40 treatment. Nominal sizes.

|               |   |    |       |   |       |   |
|---------------|---|----|-------|---|-------|---|
| 2" x 4" x 8'  | — | Ea | 12.10 | — | 12.10 | — |
| 2" x 4" x 10' | — | Ea | 9.05  | — | 9.05  | — |
| 2" x 4" x 16' | — | Ea | 15.30 | — | 15.30 | — |

|                | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|----------------|-----------|------|----------|-------|--------|------|
| 2" x 6" x 8'   | —         | Ea   | 16.10    | —     | 16.10  | —    |
| 2" x 6" x 10'  | —         | Ea   | 14.10    | —     | 14.10  | —    |
| 2" x 6" x 16'  | —         | Ea   | 20.80    | —     | 20.80  | —    |
| 2" x 8" x 8'   | —         | Ea   | 18.40    | —     | 18.40  | —    |
| 2" x 8" x 10'  | —         | Ea   | 20.40    | —     | 20.40  | —    |
| 2" x 8" x 12'  | —         | Ea   | 26.40    | —     | 26.40  | —    |
| 2" x 8" x 16'  | —         | Ea   | 30.30    | —     | 30.30  | —    |
| 2" x 10" x 8'  | —         | Ea   | 28.60    | —     | 28.60  | —    |
| 2" x 10" x 10' | —         | Ea   | 26.40    | —     | 26.40  | —    |
| 2" x 10" x 12' | —         | Ea   | 34.60    | —     | 34.60  | —    |
| 2" x 10" x 16' | —         | Ea   | 46.00    | —     | 46.00  | —    |
| 2" x 12" x 8'  | —         | Ea   | 27.60    | —     | 27.60  | —    |
| 2" x 12" x 10' | —         | Ea   | 38.70    | —     | 38.70  | —    |
| 2" x 12" x 12' | —         | Ea   | 44.50    | —     | 44.50  | —    |
| 2" x 12" x 16' | —         | Ea   | 67.50    | —     | 67.50  | —    |
| 4" x 4" x 6'   | —         | Ea   | 37.20    | —     | 37.20  | —    |
| 4" x 4" x 10'  | —         | Ea   | 22.40    | —     | 22.40  | —    |
| 4" x 4" x 12'  | —         | Ea   | 24.60    | —     | 24.60  | —    |
| 4" x 6" x 8'   | —         | Ea   | 24.40    | —     | 24.40  | —    |
| 4" x 6" x 10'  | —         | Ea   | 33.40    | —     | 33.40  | —    |
| 4" x 6" x 12'  | —         | Ea   | 44.20    | —     | 44.20  | —    |
| 4" x 6" x 16'  | —         | Ea   | 56.70    | —     | 56.70  | —    |
| 4" x 8" x 10'  | —         | Ea   | 48.70    | —     | 48.70  | —    |
| 4" x 8" x 12'  | —         | Ea   | 56.90    | —     | 56.90  | —    |
| 4" x 8" x 16'  | —         | Ea   | 80.00    | —     | 80.00  | —    |
| 4" x 8" x 20'  | —         | Ea   | 95.30    | —     | 95.30  | —    |
| 4" x 10" x 16' | —         | Ea   | 99.30    | —     | 99.30  | —    |
| 4" x 12" x 12' | —         | Ea   | 94.50    | —     | 94.50  | —    |
| 4" x 12" x 16' | —         | Ea   | 120.00   | —     | 120.00 | —    |
| 4" x 12" x 20' | —         | Ea   | 153.00   | —     | 153.00 | —    |
| 6" x 6" x 8'   | —         | Ea   | 39.70    | —     | 39.70  | —    |
| 6" x 6" x 10'  | —         | Ea   | 72.10    | —     | 72.10  | —    |

**Pressure treated #2 grade deck posts.** For use in contact with the ground. .60 treatment.

|               |   |    |       |   |       |   |
|---------------|---|----|-------|---|-------|---|
| 4" x 6" x 8'  | — | Ea | 15.10 | — | 15.10 | — |
| 4" x 6" x 10' | — | Ea | 25.00 | — | 25.00 | — |
| 4" x 6" x 12' | — | Ea | 40.70 | — | 40.70 | — |
| 4" x 6" x 14' | — | Ea | 43.40 | — | 43.40 | — |
| 4" x 6" x 16' | — | Ea | 60.10 | — | 60.10 | — |
| 6" x 6" x 8'  | — | Ea | 39.00 | — | 39.00 | — |
| 6" x 6" x 10' | — | Ea | 46.40 | — | 46.40 | — |
| 6" x 6" x 12' | — | Ea | 69.20 | — | 69.20 | — |
| 6" x 6" x 16' | — | Ea | 76.50 | — | 76.50 | — |

**Western red cedar deck lumber.** Round edge, surfaced four sides.

|                      |   |    |       |   |       |   |
|----------------------|---|----|-------|---|-------|---|
| 5/4" x 4" x 8'       | — | Ea | 7.50  | — | 7.50  | — |
| 5/4" x 4" x 10'      | — | Ea | 9.36  | — | 9.36  | — |
| 5/4" x 4" x 12'      | — | Ea | 11.40 | — | 11.40 | — |
| 5/4" x 4" x 16'      | — | Ea | 15.10 | — | 15.10 | — |
| 5/4" x 6" x 8'       | — | Ea | 16.80 | — | 16.80 | — |
| 5/4" x 6" x 10'      | — | Ea | 21.00 | — | 21.00 | — |
| 5/4" x 6" x 12'      | — | Ea | 25.20 | — | 25.20 | — |
| 5/4" x 6" x 16'      | — | Ea | 33.20 | — | 33.20 | — |
| 2" x 6" x 8', Select | — | Ea | 37.50 | — | 37.50 | — |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|---|-----------|------|----------|-------|--------|------|
| <b>Pressure treated deck lumber.</b> .40 treatment. Nominal sizes.  |           |      |          |       |        |      |
| 5/4" x 4" x 8', Premium   | —         | Ea   | 4.69     | —     | 4.69   | —    |
| 5/4" x 4" x 10', Premium  | —         | Ea   | 5.69     | —     | 5.69   | —    |
| 5/4" x 4" x 12', Premium  | —         | Ea   | 7.29     | —     | 7.29   | —    |
| 5/4" x 4" x 16', Premium  | —         | Ea   | 10.20    | —     | 10.20  | —    |
| 5/4" x 6" x 8', Standard and Better   | —         | Ea   | 5.91     | —     | 5.91   | —    |
| 5/4" x 6" x 8', Premium   | —         | Ea   | 7.66     | —     | 7.66   | —    |
| 5/4" x 6" x 10', Standard and Better  | —         | Ea   | 7.37     | —     | 7.37   | —    |
| 5/4" x 6" x 10', Premium  | —         | Ea   | 9.56     | —     | 9.56   | —    |
| 5/4" x 6" x 12', Standard and Better  | —         | Ea   | 6.84     | —     | 6.84   | —    |
| 5/4" x 6" x 12', Premium  | —         | Ea   | 11.30    | —     | 11.30  | —    |
| 5/4" x 6" x 14', Standard and Better  | —         | Ea   | 8.69     | —     | 8.69   | —    |
| 5/4" x 6" x 14', Premium  | —         | Ea   | 14.10    | —     | 14.10  | —    |
| 5/4" x 6" x 16', Standard and Better  | —         | Ea   | 11.30    | —     | 11.30  | —    |
| 5/4" x 6" x 16', Premium  | —         | Ea   | 19.30    | —     | 19.30  | —    |
| <b>Thompsonized outdoor decking.</b> Nominal sizes. Actual size is about 1/2" less when dry. Pressure treated and water repellent.  |           |      |          |       |        |      |
| 2" x 4" x 8'  | —         | Ea   | 5.34     | —     | 5.34   | —    |
| 2" x 4" x 10'   | —         | Ea   | 6.92     | —     | 6.92   | —    |
| 2" x 4" x 12'   | —         | Ea   | 8.60     | —     | 8.60   | —    |
| 2" x 4" x 16'   | —         | Ea   | 12.20    | —     | 12.20  | —    |
| 2" x 6" x 8'  | —         | Ea   | 8.60     | —     | 8.60   | —    |
| 2" x 6" x 10'   | —         | Ea   | 11.30    | —     | 11.30  | —    |
| 2" x 6" x 12'   | —         | Ea   | 13.20    | —     | 13.20  | —    |
| 2" x 6" x 16'   | —         | Ea   | 22.00    | —     | 22.00  | —    |
| Deck post surface-mount kit   | —         | Ea   | 19.50    | —     | 19.50  | —    |
| Deck post, 4" x 4" x 48"  | —         | Ea   | 24.80    | —     | 24.80  | —    |
| End cut preservative, quart   | —         | Ea   | 25.20    | —     | 25.20  | —    |
| <b>Composite decking.</b> Composite deck made from recycled fiber and recycled polyethylene plastic. Will not split, warp, rot, cup, or crack. Slip-resistant when wet. Installs with conventional woodworking tools. Use stainless steel nails or screws for best results. |           |      |          |       |        |      |
| 5/4" x 6" x 8'  | —         | Ea   | 58.10    | —     | 58.10  | —    |
| 5/4" x 6" x 12'   | —         | Ea   | 87.20    | —     | 87.20  | —    |
| 5/4" x 6" x 16'   | —         | Ea   | 116.00   | —     | 116.00 | —    |
| 4" x 4" x 48" deck post   | —         | Ea   | 64.90    | —     | 64.90  | —    |
| Post cap  | —         | Ea   | 21.50    | —     | 21.50  | —    |
| Post bracket, joist mount   | —         | Ea   | 37.30    | —     | 37.30  | —    |
| Post hardware for concrete  | —         | Ea   | 80.10    | —     | 80.10  | —    |
| Post jacket top   | —         | Ea   | 26.40    | —     | 26.40  | —    |
| Post sleeve, 4-1/2" x 4-1/2" x 42"  | —         | Ea   | 62.20    | —     | 62.20  | —    |
| Bevel post cap  | —         | Ea   | 8.26     | —     | 8.26   | —    |
| Top or bottom rail, 8' long   | —         | Ea   | 140.00   | —     | 140.00 | —    |
| Square baluster, 32" long   | —         | Ea   | 12.90    | —     | 12.90  | —    |
| Line rail hardware kit  | —         | Ea   | 23.20    | —     | 23.20  | —    |
| Stair rail hardware kit   | —         | Ea   | 36.10    | —     | 36.10  | —    |
| <b>Trex® composite deck.</b> 95% recycled wood and plastic.   |           |      |          |       |        |      |
| 1" x 5-1/2" x 16' grooved edge board  | —         | Ea   | 41.60    | —     | 41.60  | —    |
| 1" x 5-1/2" x 12' grooved edge board  | —         | Ea   | 31.00    | —     | 31.00  | —    |
| 1" x 5-1/2" x 8' board  | —         | Ea   | 20.80    | —     | 20.80  | —    |
| 4 in. x 4 in. x 39 in. Composite Post Sleeve  | —         | Ea   | 13.00    | —     | 13.00  | —    |
| Hidden Deck Fasteners, 500 per box  | —         | Ea   | 149.00   | —     | 149.00 | —    |
| Hideaway Universal Hidden Fastener, 90 per box  | —         | Ea   | 40.00    | —     | 40.00  | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell     |
|--|-----------|------|----------|-------|--------|----------|
| Transcend Railing system, 91.5" rail system  | —         | Ea   | 304.00   | —     | 304.00 | —        |
| 5" X 5" x 9' Post  | —         | Ea   | 126.00   | —     | 126.00 | —        |
| Universal Top or Bottom Rail, 91"  | —         | Ea   | 56.20    | —     | 56.20  | —        |
| Post Sleeve Cap  | —         | Ea   | 12.00    | —     | 12.00  | —        |
| Post Sleeve Skirt  | —         | Ea   | 4.96     | —     | 4.96   | —        |
| <b>Turned colonial-style wood porch post.</b>  |           |      |          |       |        |          |
| 4" x 4" x 8'   | B1@1.18   | Ea   | 271.00   | 43.90 | 314.90 | 535.00   |
| 4-1/4" x 4-1/4" x 8'   | B1@1.18   | Ea   | 546.00   | 43.90 | 589.90 | 1,000.00 |
| 6" x 6" x 8'   | B1@1.18   | Ea   | 879.00   | 43.90 | 922.90 | 1,570.00 |
| 8" x 8" x 8'   | B1@1.18   | Ea   | 794.00   | 43.90 | 837.90 | 1,420.00 |
| <b>Plinth for turned wood porch post.</b>  |           |      |          |       |        |          |
| 4" plinth  | B1@.250   | Ea   | 13.90    | 9.30  | 23.20  | 39.40    |
| 5" plinth  | B1@.250   | Ea   | 15.20    | 9.30  | 24.50  | 41.70    |
| 6" plinth  | B1@.250   | Ea   | 16.60    | 9.30  | 25.90  | 44.00    |
| <b>Structural aluminum porch column.</b> White decorative column. Includes column, cap and base. Integral interlocking device permanently holds column together. Electrostatically painted. 6" load capacity is 16,000 pounds. 8" load capacity is 20,000 pounds.                                      |           |      |          |       |        |          |
| 6" x 8' column, round  | B1@2.00   | Ea   | 218.00   | 74.40 | 292.40 | 497.00   |
| 8" x 8' column, round  | B1@2.00   | Ea   | 261.00   | 74.40 | 335.40 | 570.00   |
| 6" x 6" x 8' column, square  | B1@2.00   | Ea   | 298.00   | 74.40 | 372.40 | 633.00   |
| <b>Round repair column.</b> Colonial column can wrap around existing posts or be used as load-bearing column for new construction. Fluted design. Maintenance-free baked-on enamel finish.   |           |      |          |       |        |          |
| 6" x 8' round column   | B1@2.00   | Ea   | 240.00   | 74.40 | 314.40 | 534.00   |
| 8" x 8' round column   | B1@2.00   | Ea   | 301.00   | 74.40 | 375.40 | 638.00   |
| <b>Porch roof framing.</b> Conventionally framed beams and joists. Per square foot of area covered. Figures in parentheses indicate board feet per square foot of ceiling including end joists, header joists and 5% waste. Based on a 200 SF job. Add the cost of support posts and finish roof.      |           |      |          |       |        |          |
| 2" x 4", Standard and Better grade   |           |      |          |       |        |          |
| 16" centers (.59 BF per SF)  | B1@.020   | SF   | .52      | .74   | 1.26   | 2.14     |
| 24" centers (.42 BF per SF)  | B1@.014   | SF   | .37      | .52   | .89    | 1.51     |
| 2" x 6", Standard and Better grade   |           |      |          |       |        |          |
| 16" centers (.88 BF per SF)  | B1@.020   | SF   | .80      | .74   | 1.54   | 2.62     |
| 24" centers (.63 BF per SF)  | B1@.015   | SF   | .57      | .56   | 1.13   | 1.92     |
| Add for porch support posts. Per post, including one sack of concrete per post. Add the cost of excavation and post anchors.   |           |      |          |       |        |          |
| 3" x 3" yellow pine, pressure treated, 10' long  | B1@.500   | Ea   | 21.60    | 18.60 | 40.20  | 68.30    |
| 4" x 4" pressure treated, 10' long   | B1@.750   | Ea   | 25.10    | 27.90 | 53.00  | 90.10    |
| 6" x 6" pressure treated, 10' long   | B1@.750   | Ea   | 31.80    | 27.90 | 59.70  | 101.00   |
| <b>Porch roofing.</b> Cover over conventionally framed wood ceiling joists. Flat roof with built-up roofing. Using 1/2" CDX roof sheathing with 3 ply asphalt consisting of 2 plies of 15 lb. felt with 90 lb. mineral surface cap sheet and 2 hot mop coats of asphalt. Add the cost of roof framing. |           |      |          |       |        |          |
| Total flat roof assembly cost per SF   | B1@.029   | SF   | 3.00     | 1.08  | 4.08   | 6.94     |
| <b>Deck railing.</b> Typical 42"-high deck rail and baluster consisting of top and bottom rail and 2" x 2" baluster 5" OC with posts lag bolted to the edge of the deck. See detailed railing material costs below. Cost per linear foot of deck railing.  |           |      |          |       |        |          |
| Pine, pressure treated   | B1@.333   | LF   | 5.47     | 12.40 | 17.87  | 30.40    |
| Redwood, select heart  | B1@.333   | LF   | 15.10    | 12.40 | 27.50  | 46.80    |
| Recycled plastic lumber  | B1@.333   | LF   | 33.30    | 12.40 | 45.70  | 77.70    |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| <b>Pressure treated deck posts. 4" x 4" x 4" high.</b> |           |      |          |       |       |      |
| Chamfered dado post                                    | —         | Ea   | 24.80    | —     | 24.80 | —    |
| Treated cedar post                                     | —         | Ea   | 30.50    | —     | 30.50 | —    |
| Laminated finial-ready post                            | —         | Ea   | 24.70    | —     | 24.70 | —    |
| Notched cedar post                                     | —         | Ea   | 33.80    | —     | 33.80 | —    |
| V-groove cedar post                                    | —         | Ea   | 36.30    | —     | 36.30 | —    |
| Turned deck post                                       | —         | Ea   | 31.10    | —     | 31.10 | —    |
| Premium ball-top post                                  | —         | Ea   | 32.90    | —     | 32.90 | —    |
| <b>Pressure treated deck post cap.</b>                 |           |      |          |       |       |      |
| 3-1/2" x 3-1/2" square cap                             | —         | Ea   | 1.83     | —     | 1.83  | —    |
| 4" x 4" plain ball cap                                 | —         | Ea   | 3.98     | —     | 3.98  | —    |
| 4" x 4" royal coachman cap                             | —         | Ea   | 12.00    | —     | 12.00 | —    |
| 4" x 4" Hampton flat cap                               | —         | Ea   | 7.98     | —     | 7.98  | —    |
| 4" x 4" cannon ball post cap                           | —         | Ea   | 9.79     | —     | 9.79  | —    |
| 4" x 4" Newport pyramid cap                            | —         | Ea   | 8.98     | —     | 8.98  | —    |
| 4" x 4" Verona copper cap                              | —         | Ea   | 9.98     | —     | 9.98  | —    |
| 4" x 4" Victoria copper cap                            | —         | Ea   | 12.00    | —     | 12.00 | —    |
| 6" x 6" Verona copper cap                              | —         | Ea   | 16.00    | —     | 16.00 | —    |
| 6" x 6" Victoria copper cap                            | —         | Ea   | 19.50    | —     | 19.50 | —    |
| <b>Pressure treated deck rail.</b>                     |           |      |          |       |       |      |
| 2" x 3" x 6' pine rail insert                          | —         | Ea   | 9.75     | —     | 9.75  | —    |
| 2" x 4" x 6' molded rail                               | —         | Ea   | 13.80    | —     | 13.80 | —    |
| 2" x 4" x 6' combo rail                                | —         | Ea   | 24.90    | —     | 24.90 | —    |
| Contemporary finial                                    | —         | Ea   | 5.08     | —     | 5.08  | —    |
| <b>Pressure treated deck rail baluster.</b>            |           |      |          |       |       |      |
| 2" x 2" x 32", square ends                             | —         | Ea   | 1.26     | —     | 1.26  | —    |
| 2" x 2" x 36", square ends                             | —         | Ea   | 1.47     | —     | 1.47  | —    |
| 2" x 2" x 42", beveled one end                         | —         | Ea   | 1.77     | —     | 1.77  | —    |
| 2" x 2" x 48", beveled one end                         | —         | Ea   | 1.32     | —     | 1.32  | —    |
| 2" x 2" x 42", beveled two ends                        | —         | Ea   | 1.88     | —     | 1.88  | —    |
| <b>Pressure treated deck rail turned spindle.</b>      |           |      |          |       |       |      |
| 2" x 2" x 32" classic spindle                          | —         | Ea   | 2.15     | —     | 2.15  | —    |
| 2" x 2" x 36" classic spindle                          | —         | Ea   | 2.37     | —     | 2.37  | —    |
| 2" x 3" x 36" classic spindle                          | —         | Ea   | 3.77     | —     | 3.77  | —    |
| 2" x 2" x 36" colonial spindle                         | —         | Ea   | 4.84     | —     | 4.84  | —    |
| 3" x 3" x 36" jumbo spindle                            | —         | Ea   | 6.77     | —     | 6.77  | —    |
| <b>Outdoor deck rail.</b>                              |           |      |          |       |       |      |
| 2" x 4" x 8' redwood dado rail                         | —         | Pr   | 26.00    | —     | 26.00 | —    |
| 2" x 5" x 8' primed handrail                           | —         | Ea   | 21.20    | —     | 21.20 | —    |
| 2" x 4" x 8' deluxe cedar rail                         | —         | Ea   | 24.90    | —     | 24.90 | —    |
| 2" x 6" x 8' western red cedar rail                    | —         | Ea   | 46.00    | —     | 46.00 | —    |
| 2" x 4" x 8' western red cedar rail                    | —         | Ea   | 35.60    | —     | 35.60 | —    |
| Rail bracket kit, 4-piece                              | —         | Ea   | 12.30    | —     | 12.30 | —    |
| Rail angle bracket kit, 4-piece                        | —         | Ea   | 24.60    | —     | 24.60 | —    |
| <b>Outdoor deck rail baluster.</b>                     |           |      |          |       |       |      |
| 2" x 2" x 24" Douglas fir baluster                     | —         | Ea   | 2.40     | —     | 2.40  | —    |
| 2" x 2" x 30" Douglas fir baluster                     | —         | Ea   | 2.98     | —     | 2.98  | —    |
| 2" x 2" x 36" Douglas fir baluster                     | —         | Ea   | 3.98     | —     | 3.98  | —    |
| 2" x 2" x 36", beveled redwood                         | —         | Ea   | 3.44     | —     | 3.44  | —    |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|---|-----------|------|----------|-------|--------|--------|
| 2" x 2" x 42", one end beveled cedar  | —         | Ea   | 3.81     | —     | 3.81   | —      |
| 1-3/8" x 1-3/8" x 32", beveled redwood  | —         | Ea   | 4.83     | —     | 4.83   | —      |
| 1-3/8" x 1-3/8" x 48", redwood  | —         | Ea   | 5.02     | —     | 5.02   | —      |
| 8' Western red cedar fillet strip   | —         | Ea   | 5.21     | —     | 5.21   | —      |
| <b>Outdoor deck post cap.</b>   |           |      |          |       |        |        |
| 5" cedar post cap   | —         | Ea   | 4.64     | —     | 4.64   | —      |
| 4" x 4" suburban pyramid  | —         | Ea   | 8.19     | —     | 8.19   | —      |
| Cedar ball top  | —         | Ea   | 7.57     | —     | 7.57   | —      |
| 4" x 4" cascade peak cap  | —         | Ea   | 9.91     | —     | 9.91   | —      |
| Gothic post cap   | —         | Ea   | 12.80    | —     | 12.80  | —      |
| Newport classic cap   | —         | Ea   | 13.30    | —     | 13.30  | —      |
| 4" x 4" Newport pyramid, cedar  | —         | Ea   | 9.38     | —     | 9.38   | —      |
| 4" x 4" copper high point cap   | —         | Ea   | 9.98     | —     | 9.98   | —      |
| 4" x 4" redwood ball cap  | —         | Ea   | 15.30    | —     | 15.30  | —      |
| 4" x 4" cedar ball cap  | —         | Ea   | 14.50    | —     | 14.50  | —      |
| <b>Porch or deck stairs.</b> All stairs assume 12" tread (step) composed of two 2" x 6" lumber and riser. Add the cost of a concrete footing.   |           |      |          |       |        |        |
| One or two steps high, box construction. Prices are per LF of step. A 4' wide stairway with 2 steps has 8 LF of step. Use 8 LF as the quantity. |           |      |          |       |        |        |
| Pine treads, open risers  | B1@.270   | LF   | 6.99     | 10.00 | 16.99  | 28.90  |
| Pine treads, with pine risers   | B1@.350   | LF   | 12.80    | 13.00 | 25.80  | 43.90  |
| Redwood treads, open risers   | B1@.270   | LF   | 6.93     | 10.00 | 16.93  | 28.80  |
| Redwood treads, with redwood risers   | B1@.350   | LF   | 12.70    | 13.00 | 25.70  | 43.70  |
| 5/4" recycled plastic lumber treads, open risers  | B1@.270   | LF   | 11.00    | 10.00 | 21.00  | 35.70  |
| 5/4" recycled plastic lumber treads, with recycled plastic lumber risers  | B1@.350   | LF   | 24.10    | 13.00 | 37.10  | 63.10  |
| 2" x 6" recycled plastic lumber treads, open risers   | B1@.270   | LF   | 12.20    | 10.00 | 22.20  | 37.70  |
| 2" x 6" recycled plastic lumber treads, with recycled plastic lumber risers   | B1@.350   | LF   | 27.70    | 13.00 | 40.70  | 69.20  |
| Three or more steps high, 36" wide. 3 stringers cut from 2" x 12" pressure treated lumber.  |           |      |          |       |        |        |
| Cost per riser.   |           |      |          |       |        |        |
| Pine treads, open risers  | B1@.530   | Ea   | 25.10    | 19.70 | 44.80  | 76.20  |
| Pine treads, with pine risers   | B1@.620   | Ea   | 42.60    | 23.10 | 65.70  | 112.00 |
| Redwood treads, open risers   | B1@.530   | Ea   | 24.90    | 19.70 | 44.60  | 75.80  |
| Redwood treads, with redwood risers   | B1@.620   | Ea   | 42.00    | 23.10 | 65.10  | 111.00 |
| 5/4" recycled plastic lumber treads, open risers  | B1@.810   | Ea   | 37.70    | 30.10 | 67.80  | 115.00 |
| 5/4" recycled plastic lumber treads, with recycled plastic lumber risers  | B1@1.05   | Ea   | 76.90    | 39.00 | 115.90 | 197.00 |
| 2" x 6" recycled plastic lumber treads, open risers   | B1@.810   | Ea   | 41.20    | 30.10 | 71.30  | 121.00 |
| 2" x 6" recycled plastic lumber treads, with recycled plastic lumber risers   | B1@1.05   | Ea   | 87.50    | 39.00 | 126.50 | 215.00 |

|   | Craft@Hrs | Unit | Material | Labor  | Total    | Sell     |
|---|-----------|------|----------|--------|----------|----------|
| <b>Precut outdoor deck stair stringers.</b> Cost per stringer.  |           |      |          |        |          |          |
| 2" x 12" x 3 step, redwood  | —         | Ea   | 30.00    | —      | 30.00    | —        |
| 2" x 12" x 4 step, redwood  | —         | Ea   | 40.00    | —      | 40.00    | —        |
| 2" x 12" x 5 step, redwood  | —         | Ea   | 48.40    | —      | 48.40    | —        |
| 2 step, treated lumber  | —         | Ea   | 22.80    | —      | 22.80    | —        |
| 3 step, treated lumber  | —         | Ea   | 24.00    | —      | 24.00    | —        |
| 4 step, treated lumber  | —         | Ea   | 34.00    | —      | 34.00    | —        |
| 5 step, treated lumber  | —         | Ea   | 43.70    | —      | 43.70    | —        |
| 2 step, steel   | —         | Ea   | 24.30    | —      | 24.30    | —        |
| 3 step, steel   | —         | Ea   | 36.40    | —      | 36.40    | —        |
| 4 step, steel   | —         | Ea   | 45.70    | —      | 45.70    | —        |
| EZ stair building hardware kit  | —         | Ea   | 13.10    | —      | 13.10    | —        |
| <b>Outdoor deck stair stepping.</b> Pressure treated lumber.  |           |      |          |        |          |          |
| 2" x 12" x 48" tread  | —         | Ea   | 23.40    | —      | 23.40    | —        |
| <b>Porch and patio misting (fog) system.</b> Installed 8' high on a porch exterior. Based on .008" stainless steel and brass nozzles installed each 18" along 3/8" Type L copper refrigeration tubing. Includes one electric operated 1 HP, 800 PSI, 1 GPM water pump, supply valve, auto drain valve, a wireless remote control switch, 50' of underground water connection line tapped to the existing service and trenching. Add the cost of 20 amp electrical connection. |           |      |          |        |          |          |
| Set up water pump, tap to existing water line   | P1@5.00   | Ea   | 2,000.00 | 203.00 | 2,203.00 | 3,750.00 |
| Add per nozzle (each 18" of tube)   | P1@.160   | Ea   | 8.77     | 6.51   | 15.28    | 26.00    |
| <b>Porch enclosure screening.</b> Includes medium quality aluminum frame stock, screening and insertion of vinyl screen spline in the frame. Cost per square foot of screen installed, either from a kneewall to the header or from the deck to the header.   |           |      |          |        |          |          |
| With fiberglass screen wire   | B1@.040   | SF   | .26      | 1.49   | 1.75     | 2.98     |
| With aluminum screen wire   | B1@.040   | SF   | .39      | 1.49   | 1.88     | 3.20     |
| With solar bronze screen wire   | B1@.040   | SF   | .86      | 1.49   | 2.35     | 4.00     |
| <b>Porch enclosure screen wire.</b> Per roll.   |           |      |          |        |          |          |
| Aluminum, 36" x 25'   | —         | Ea   | 23.50    | —      | 23.50    | —        |
| Aluminum, 48" x 25'   | —         | Ea   | 29.00    | —      | 29.00    | —        |
| Fiberglass, 72" x 100'  | —         | Ea   | 133.00   | —      | 133.00   | —        |
| Solar screen, 36" x 25'   | —         | Ea   | 64.70    | —      | 64.70    | —        |
| Solar screen, 48" x 25'   | —         | Ea   | 75.00    | —      | 75.00    | —        |
| <b>Aluminum porch screen frame stock.</b> Framing for screen porch enclosure. With integrated groove ready to accept screen and flat spline when framework assembly is complete. Supports the top of a kickplate coil when attached between uprights. Bronze or white finish.   |           |      |          |        |          |          |
| 1" x 2", 8'   | —         | Ea   | 19.90    | —      | 19.90    | —        |
| 1" x 2", 10'  | —         | Ea   | 20.20    | —      | 20.20    | —        |
| 2" x 2", 8'   | —         | Ea   | 26.00    | —      | 26.00    | —        |
| 2" x 2", 10'  | —         | Ea   | 32.00    | —      | 32.00    | —        |
| 2" x 3", 8'   | —         | Ea   | 47.80    | —      | 47.80    | —        |
| <b>Angle anchor clip.</b> Aluminum. Use to attach 2" x 3" uprights to 1" x 2" and concrete. Bronze or white finish.   |           |      |          |        |          |          |
| 2" x 2" x 1/8", bag of 25   | —         | Ea   | 17.40    | —      | 17.40    | —        |
| <b>Capri clip angle fastener.</b> Aluminum. Attaches top of uprights to framework header with self-drilling screws. Bronze or white finish.   |           |      |          |        |          |          |
| Clip with Fasteners   | —         | Ea   | 1.89     | —      | 1.89     | —        |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| <b>Castle clip U-fastener.</b> Aluminum. Attaches kickplate rails to uprights with self-drilling screws. Bronze or white finish.   |           |      |          |       |       |      |
| Fastener   | —         | Ea   | 1.28     | —     | 1.28  | —    |
| <b>F-channel.</b> Aluminum. Attaches to soffit or fascia. Brown or white finish.   |           |      |          |       |       |      |
| 12' long   | —         | Ea   | 18.80    | —     | 18.80 | —    |
| <b>Kickplate channel.</b> Aluminum. Trims edges of kickplate coil. Slips over edges of kickplate coil and is screwed to coil and framework. Bronze or white finish.                                    |           |      |          |       |       |      |
| 10' long   | —         | Ea   | 6.98     | —     | 6.98  | —    |
| <b>Kickplate coil.</b> Aluminum. Covers area under kickplate rails. Helps keep dirt from blowing and rain from splashing into the room. Bronze or white finish.  |           |      |          |       |       |      |
| 16" x 16"  | —         | Ea   | 76.20    | —     | 76.20 | —    |
| <b>Screen enclosure screws.</b> Weatherproof coating provides corrosion resistance. Use 2" screws to 1" x 2" of side wall to front wall corner upright. Use 3" screws to attach header to wood framing |           |      |          |       |       |      |
| Size 8 self-drilling hex washer head,<br>9/16", bag of 100   | —         | Ea   | 18.60    | —     | 18.60 | —    |
| Size 10 hex head self-drilling hex washer head,<br>2", bag of 25   | —         | Ea   | 14.40    | —     | 14.40 | —    |
| 3", bag of 25  | —         | Ea   | 15.00    | —     | 15.00 | —    |
| <b>Screen spline.</b> Vinyl. Rolls into spline grooves of framework to hold screen in place.   |           |      |          |       |       |      |
| 100' roll, flat black  | —         | Ea   | 8.98     | —     | 8.98  | —    |
| <b>Deck screws.</b> Includes drive bit.  |           |      |          |       |       |      |
| Coated composite, 2-1/2", 5 pounds   | —         | Ea   | 38.00    | —     | 38.00 | —    |
| Stainless steel, 3", 5 pounds  | —         | Ea   | 78.90    | —     | 78.90 | —    |
| Stainless trim screw, 2-1/4", 1 pound  | —         | Ea   | 19.10    | —     | 19.10 | —    |

## Aluminum Patio Covers

**Standard aluminum patio cover.** 12" wide V aluminum pans supported by scroll aluminum posts bolted to an existing concrete slab or wood deck. One side secured to an existing wall, roof or fascia. With rain gutter and downspout. Designed for 10 psf live load and 90 mph wind speed to comply with most building codes. To 10' high. Cost per square foot of cover (length times width) based on projection measured from the existing wall, roof or fascia.

|                |         |    |      |      |       |       |
|----------------|---------|----|------|------|-------|-------|
| 10' projection | B1@.050 | SF | 9.58 | 1.86 | 11.44 | 19.40 |
| 12' projection | B1@.050 | SF | 9.18 | 1.86 | 11.04 | 18.80 |
| 14' projection | B1@.050 | SF | 9.02 | 1.86 | 10.88 | 18.50 |
| 16' projection | B1@.050 | SF | 8.63 | 1.86 | 10.49 | 17.80 |

**Embossed aluminum patio cover.** 12" wide W .018 aluminum pans supported by 3" x 8" aluminum header beam and 2" x 6" aluminum rafters on 3" square aluminum posts bolted to an existing concrete slab or wood deck. One side attached to an existing wall, roof or fascia. With rain gutter and downspout. Designed for 10 psf live load and 90 mph wind speed to comply with most building codes. To 12' high. Cost per square foot of cover (length times width) based on projection measured from the existing wall, roof or fascia.

|  |         |    |       |      |       |       |
|--|---------|----|-------|------|-------|-------|
| 10' projection                               | B1@.050 | SF | 15.40 | 1.86 | 17.26 | 29.30 |
| 12' projection                               | B1@.050 | SF | 14.80 | 1.86 | 16.66 | 28.30 |
| 14' projection                               | B1@.050 | SF | 13.30 | 1.86 | 15.16 | 25.80 |
| 16' to 20' projection                        | B1@.050 | SF | 12.50 | 1.86 | 14.36 | 24.40 |
| Add for 2" square lattice in place of W pans | —       | SF | 3.16  | —    | 3.16  | —     |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| Add for decorative 8" diameter Roman column          | —         | Ea   | 572.00   | —     | 572.00 | —    |
| Add for 30 psf snow load                             | —         | %    | 20.0     | —     | —      | —    |
| Add for free-standing patio cover including footings | —         | %    | 50.0     | —     | —      | —    |

## Pool and Spa Replastering

**Pool replaster preparation.** Drain pool, remove pool fixtures for reinstallation, chip out existing deteriorated plaster with pneumatic tools and dispose of debris. Add the cost of a compressor, hose and chipping hammers. Per linear foot of pool perimeter, based on an average depth of 4 feet.

|   |         |    |     |       |       |       |
|---|---------|----|-----|-------|-------|-------|
| Chip out existing plaster surface             | B8@.333 | LF | .77 | 13.40 | 14.17 | 24.10 |
| Add per LF of cut around tile or obstructions | B8@.200 | LF | —   | 8.04  | 8.04  | 13.70 |

**Pool replastering and resetting pool fixtures.** Includes setting new ceramic trim tile on steps, repairing rebar, if needed, and replacing the main drain cover and rope anchors. Add the cost of replacing or regrouting water line tile, if required. Per linear foot of pool perimeter, based on an average depth of 4 feet, and using Colorquartz or similar plaster aggregate.

|                              |         |    |       |       |       |        |
|------------------------------|---------|----|-------|-------|-------|--------|
| White plaster                | B6@.500 | LF | 29.40 | 18.10 | 47.50 | 80.80  |
| Pastel plaster aggregate     | B6@.500 | LF | 42.60 | 18.10 | 60.70 | 103.00 |
| Deep color plaster aggregate | B6@.500 | LF | 69.10 | 18.10 | 87.20 | 148.00 |

**Replace pop-up cleaning heads.** Cost is per head replaced. Includes chipping away plaster collar, cutting off old head with a saber saw, installing new riser and temporary cap, and performing system water pressure test. Based on a job with 15 quick-clean pop-up heads.

|                    |         |    |        |      |        |        |
|--------------------|---------|----|--------|------|--------|--------|
| Per head installed | P1@.200 | Ea | 113.00 | 8.13 | 121.13 | 206.00 |
|--------------------|---------|----|--------|------|--------|--------|

**Spa replaster preparation.** Drain spa, remove pool fittings for reinstallation, chip out the existing deteriorated plaster with pneumatic tools and dispose of debris. Add the cost of a compressor, hose and chipping hammers. Cost per linear foot of the maximum spa diameter, based on an average depth of 3 feet. Deduct 15% when a pool and spa are refinished as part of the same job.

|   |         |    |      |       |       |       |
|---|---------|----|------|-------|-------|-------|
| Chip out existing plaster surface             | B8@.430 | LF | 1.48 | 17.30 | 18.78 | 31.90 |
| Add per LF of cut around tile or obstructions | B8@.200 | LF | —    | 8.04  | 8.04  | 13.70 |

**Spa replastering and resetting spa fixtures.** Includes setting new ceramic trim tile on steps, repairing rebar if needed, and replacing the main drain cover. Add the cost of replacing or regrouting water line tile, if required. Per linear foot of maximum spa diameter, based on an average depth of 3 feet, and using Colorquartz or similar plaster aggregate. Deduct 15% when a pool and spa are refinished as part of the same job.

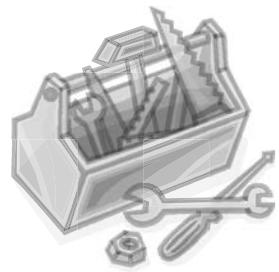
|                              |         |    |       |        |        |        |
|------------------------------|---------|----|-------|--------|--------|--------|
| White plaster                | B6@4.30 | LF | 62.40 | 156.00 | 218.40 | 371.00 |
| Pastel plaster aggregate     | B6@4.30 | LF | 84.60 | 156.00 | 240.60 | 409.00 |
| Deep color plaster aggregate | B6@4.30 | LF | 98.80 | 156.00 | 254.80 | 433.00 |

**Replace in-ground pool or spa filter.** Includes removal and disposal of an existing filter system, new filter tank, filter material (sand, glass, fiber or cartridge) and connection to existing input and return lines. Sand filters assume an existing backflow discharge line. Each CF of pool or spa capacity equals 7.5 gallons.

|  |         |    |          |        |          |          |
|--|---------|----|----------|--------|----------|----------|
| Sand filter, to 15,000 gallon pool or spa      | P1@4.00 | Ea | 700.00   | 162.00 | 862.00   | 1,470.00 |
| Sand filter, to 25,000 gallon pool             | P1@4.30 | Ea | 1,000.00 | 175.00 | 1,175.00 | 2,000.00 |
| Sand filter, to 35,000 gallon pool             | P1@5.00 | Ea | 1,200.00 | 203.00 | 1,403.00 | 2,390.00 |
| Cartridge filter, to 15,000 gallon pool or spa | P1@4.00 | Ea | 1,200.00 | 162.00 | 1,362.00 | 2,320.00 |
| Cartridge filter, to 25,000 gallon pool        | P1@4.30 | Ea | 1,460.00 | 175.00 | 1,635.00 | 2,780.00 |
| Cartridge filter, to 35,000 gallon pool        | P1@5.00 | Ea | 1,800.00 | 203.00 | 2,003.00 | 3,410.00 |

# *Painting and Finishing*

17



Nothing improves the looks of an old house like a new coat of paint. But before deciding to repaint, consider washing the surface or spot painting. Excessive paint buildup increases the chance of chipping and peeling from incompatible paint layers. Paint film that's too thick is likely to crack. The only remedy for cross-grain cracking or intercoat peeling may be to strip the surface down to bare wood. Areas sheltered from the sun, such as eaves and porch ceilings, don't need to be painted as often as exposed areas. Instead of repainting the entire surface, spot paint only in areas showing the most wear. Matching colors is easy with modern optical paint-matching equipment. Most paint suppliers can match nearly any sample you bring in.

## **Guidelines for Recoating**

Nearly all surfaces in a home can be recoated successfully with the right surface preparation. The challenge is to identify what's on the surface so you know what treatment to use, and then to select the appropriate coating.

- ❖ *Kalsomine* (also called *calcimine*) is a whitewash made from zinc oxide and glue. Kalsomine turns to powder as it ages, which makes it an unsuitable surface for any type of coating. Either remove the existing surface by sandblasting or cover the surface, such as with new siding.
- ❖ *Grease* falls in the same category as kalsomine. No paint will adhere to walls or ceilings coated with grease. This is a common problem in kitchens. Remove all grease before recoating. If paint has been applied over grease, remove all coatings down to the bare surface.
- ❖ *Non-compatible paints* can result in intercoat peeling. Adding another coat on top of peeling paint will only compound the problem. You'll generally need to remove the existing paint. If the surface you're to paint is incompatible with the paint you're going to use, apply a coat of primer between the non-compatible paints. That will usually solve the problem.

- ❖ *Stains* caused by water damage, smoke or a foreign substance need special attention. Be sure the surface is dry and clean, then coat with a primer-sealer such as Kilz®.
- ❖ *Plaster cracks* should be repaired with fiberglass tape and joint compound before recoating. Don't think that paint will fill the cracks for you.
- ❖ *Varnish* should be cleaned with a strong tri-sodium phosphate solution and then painted soon after drying. Heavily-alligated varnish must be removed before coating.
- ❖ *Metals* should be wire brushed to remove loose material and then coated with a metal primer.
- ❖ *Hardwood floors* of oak, birch, beech, and maple are usually finished by applying two coats of sealer. Sand lightly or buff with steel wool between coats. Then apply a coat of paste wax and buff. Maintain the finish by rewaxing. For a high-gloss finish, instead of applying two coats of sealer, make the second coat varnish.
- ❖ *Wood trim and paneling* are usually finished with a clear wood sealer or a stain-sealer combination and then top-coated with at least one additional coat of sealer or varnish. Sand lightly between sealing and top-coating. For a deeper finish, apply one coat of high-gloss varnish followed by a coat of semi-gloss varnish.
- ❖ *Painted wood trim* requires a primer or undercoat and then a coat of acrylic latex, either flat or semi-gloss. Paint with at least some gloss resists fingerprints better and can be cleaned with soap and water.
- ❖ *Kitchen and bathroom* walls need a coat of semi-gloss enamel. This type of finish wears well, is easy to clean, and resists moisture.
- ❖ *Drywall*, in rooms other than the kitchen and bathroom, needs a coat of flat latex. New drywall, since it's highly porous, should have a coat of primer before the final coat of latex paint.

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## Paint Color and Gloss

---

Paint comes in an infinite range of colors. Your paint store probably stocks a few of the basic colors, such as white and black, but can mix any color you want. You buy the tinting base and the paint technician adds just the right amount of pigment to yield the color needed. Any color you select will be the same price. However, you'll

pay more for high-gloss paints and less for low-gloss (*flat*) paints. High-gloss paint resists fingerprints and holds up better when scrubbed. Use high-gloss in kitchens and bathrooms where you need a washable surface. High-gloss paint tends to reveal surface imperfections and any application defects. Flat paints cost a little less than high-gloss and hide flaws better, but don't stand up as well to scrubbing. Use a flat paint in bedrooms, halls and living rooms. Eggshell paint has slightly more gloss than flat paint. Semi-gloss and satin finishes have more gloss than eggshell, but are still not as glossy as high-gloss.

Paint is also classified by its reflectance value — how much light is reflected off the surface. Light colors have a light reflectance value (LRV) of 50 or more and are a good choice for interiors. Darker colors are better for exteriors.

Paint selection isn't the place to try and save a few bucks on materials. Top quality paints made by well-known and respected brands will yield better results. Lesser quality paints may require additional coats, which will end up costing more in the end.

## Exterior Trim

Expect wood trim on the exterior of an older home to be in poor condition. If the finish is worn but the surface is smooth, another coat of paint should be enough. Trim that's damaged or badly chipped may need to be replaced. Matching old trim isn't easy. Patterns popular 50 or 100 years ago may no longer be available at your local lumberyard. You can have trim pieces custom made to order, but the cost may be greater than replacing all similar trim.

## Wood Preservatives

Remove blotchy discoloration and signs of rain spatter on wood by wire brushing. Brush *with* the grain. Then treat the surface with a water-repellent preservative. Applying a coat of water-repellent preservative every few years will prevent nearly all decay.

Wood treated with water-soluble preservatives can be painted the same as untreated wood. The coating may not last as long as with untreated wood, but there's no major difference, especially when the treated wood has weathered for several months.

## Penetrating Stains

If the surface hasn't been coated previously, consider a penetrating stain. These stains make a good finish for most wood surfaces, especially rough-sawn, textured wood and knotty wood that would be difficult to paint. Penetrating stain doesn't

form a film on the surface. Because the surface isn't sealed, the coating won't crack, peel or blister. Use pigmented penetrating stains to add shades of brown, green, red, or gray to the wood. To avoid lap marks, coat full lengths of siding or trim without stopping. On smooth surfaces, apply a single coat. Two or three years later, when the surface has weathered, apply another coat of penetrating stain. This time the surface will be rougher and will absorb more stain. That will protect the wood longer — up to eight years.

On rough-sawn or weathered surfaces, apply two coats of penetrating stain. Both coats should be applied within a few hours. Don't let the first coat dry before applying the second. A dry first coat will keep the second from penetrating into the wood. Rough wood that's been double-coated with penetrating stain has a finish life of ten years or more.

Refinish a stained wood surface when the color has faded and bare wood is beginning to show through. Prepare the surface by brushing with steel wool. Brush in the direction of the grain. Then hose down with water. When the surface is thoroughly dry, apply another coat of stain.

## Paint Application Methods

The three most common paint application techniques are brush, roller and spray. Brushwork takes the most time per square foot coated. Productivity is highest when a spray rig can be put to good use, but not all paints are suitable for spraying.

### Brush, Roller or Spray?

- ❖ Spray application is usually impractical (takes longer than brushing or rolling) in small rooms with multiple openings and installed hardware or fixtures.
- ❖ Bedrooms and bathrooms are seldom candidates for spray painting, especially if the home is occupied.
- ❖ Even in larger rooms, such as a kitchen or living room, spray painting isn't usually practical in an occupied home.
- ❖ Building exteriors are good candidates for spray painting, especially stucco, masonry and panel exteriors where less masking is required.
- ❖ Interiors of most occupied homes are usually painted with a brush (hand cut in) and roller. The labor tables that follow identify this work as "roll and brush."
- ❖ It's safe to assume that recoating railings, trim, doors, windows, metals and cabinets will be done with a brush.

Sprayers generally require the paint to be thinned, and some paints are designated "Do not thin." Applying paint by roller takes less time per square foot than brushing, but more time than spraying. The cost of a painting task will differ depending on the application method used. That's why labor estimates and material costs are separated in this chapter. Labor estimates come first, followed by material costs. The labor estimates include figures for each of the three application methods.

The best tool for applying paint depends on what's being coated and what's not supposed to get coated. Spray painting isn't as precise as painting with a brush or even a roller. Spray painting requires much more attention to masking and covering adjacent surfaces, such as the floor, doors, windows, hardware and trim. When painting a wall or ceiling with brush or roller, it may be enough to lay down several drop cloths. That takes only a minute or two. Coating the same surface with a spray rig will require masking off everything in the room that's not supposed to get coated — and then closing off openings to adjacent rooms. When spray painting,

as much as 80 percent of the job may be masking and protecting adjacent surfaces. That's especially true in an occupied building where it's impractical to remove every ornament and piece of hardware — and where overspray poses a major risk to the dwelling contents. If spray painting a large room can be expected to take an hour, expect painters will spend two to four hours on masking and protection from overspray.

Brush, roller and spray don't necessarily produce equivalent results. For example, paint brushed on a metal surface makes better contact with the metal than paint sprayed on the same surface. Contact and adhesion affect the life of the coating, especially on metal. So most metal surfaces are coated with brush or roller, at least in home improvement work. Likewise, when applying semi-gloss to doors, most painters prefer to brush coat four sides (front, back, hinge edge and latch edge) while the door is hung in the opening. That results in a much smoother finish. Even when paint is sprayed on, some jobs are *back-rolled*. The spray coat is smoothed out with a roller immediately after application.

When a spray job is complete, good practice requires that someone inspect the surface carefully, looking for voids, imperfections and painter's holidays (areas missed). Assume that about 10 percent of the surface will require brush or roller touch-up after a spray application is complete.

When working with a roller, most jobs require hand *cut in*. Paint is applied by brush at corners, where different materials intersect and around obstructions such as hardware, vents, cases, trim and fixtures. When hand cut-in is complete, the remainder of the surface is rolled.

## Additional Costs

None of the figures in this chapter includes moving furniture, fixtures, wall hangings, objects of art, etc. All assume that loose contents are moved to the center of the room or removed entirely before painting begins. Reduce productivity by 30 to 50 percent if painters will be moving furniture, removing and rehanging pictures, and removing and replacing drapery valances.

Straight, uninterrupted walls with square corners are quick and easy paint jobs. Painting cut-up surfaces with alcoves, soffits, light wells and offsets takes longer. For a cut-up job, allow 20 to 40 percent more time than indicated in the following tables.

These estimates assume landscaping materials (shrubs and trees) are cut back or pulled away from exterior surfaces before exterior painting begins.

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

## Labor Estimates for Painting

**Cost to repaint a home interior.** Typical costs per 100 square feet of floor for roller and brush application of a single coat to walls and ceilings in all rooms of an occupied dwelling, including bathrooms and closets. Add the cost of coating cabinets, trim, doors and window trim. Includes minimum surface preparation, spackle of minor defects in wallboard or plaster, masking of adjacent surfaces and priming of stained or discolored surfaces. Use these figures for preliminary estimates and to check completed bids. These estimates equate to 3 painter-hours and 1 gallon of paint per 100 square feet of floor.

|  |         |     |       |        |        |        |
|--|---------|-----|-------|--------|--------|--------|
| Repaint a home interior, per 100 SF of floor | PT@3.00 | CSF | 29.80 | 126.00 | 155.80 | 265.00 |
|--|---------|-----|-------|--------|--------|--------|

**Cost to repaint a home exterior.** Typical costs per 100 square feet of floor for spray painting a single coat on exterior walls and soffits of an occupied dwelling. Add the cost of painting trim, doors and windows. Includes a waterblast of the exterior, repair of minor surface defects in siding and trim, and priming of stained, cracked or peeling surfaces. Use these figures for preliminary estimates and to check completed bids. These figures equate to 2 painter-hours and 1 gallon of paint per 100 square feet of floor.

|  |         |     |       |       |        |        |
|--|---------|-----|-------|-------|--------|--------|
| Repaint a home exterior, per 100 SF of floor | PT@2.00 | CSF | 28.90 | 84.30 | 113.20 | 192.00 |
|--|---------|-----|-------|-------|--------|--------|

**High time difficulty factors for surface preparation and painting.** Painting takes longer when heights exceed 8' above the floor. Productivity is lower when application requires a roller pole or wand on a spray gun or when work is done from a ladder or scaffold. When painting above 8', apply the following factors.

Add 30% to the area for heights from 8' to 13' (multiply by 1.3)

Add 60% to the area for heights from 13' to 17' (multiply by 1.6)

Add 90% to the area for heights from 17' to 19' (multiply by 1.9)

Add 120% to the area for heights from 19' to 21' (multiply by 2.2)

**Labor for acid wash of gutters and downspouts.** For heights above one story, use the high time difficulty factors above.

|                     |         |     |   |       |       |       |
|---------------------|---------|-----|---|-------|-------|-------|
| Per 100 linear feet | PT@1.05 | CLF | — | 44.30 | 44.30 | 75.30 |
|---------------------|---------|-----|---|-------|-------|-------|

**Labor to burn off paint.** Using a heat gun or torch. For heights above 8', use the high time difficulty factors above.

|  |         |     |   |        |        |        |
|--|---------|-----|---|--------|--------|--------|
| Beveled wood siding, per 100 square feet     | PT@3.33 | CSF | — | 140.00 | 140.00 | 238.00 |
| Exterior plain surfaces, per 100 square feet | PT@2.50 | CSF | — | 105.00 | 105.00 | 179.00 |
| Exterior trim, per 100 square feet           | PT@5.00 | CSF | — | 211.00 | 211.00 | 359.00 |
| Interior plain surfaces, per 100 square feet | PT@4.00 | CSF | — | 169.00 | 169.00 | 287.00 |
| Interior trim, per 100 square feet           | PT@6.67 | CSF | — | 281.00 | 281.00 | 478.00 |

**Labor for caulking.** Add extra time for digging out and removing old caulk and residue, protecting adjacent surfaces and masking.

|                               |         |     |   |        |        |        |
|-------------------------------|---------|-----|---|--------|--------|--------|
| 1/8" gap, per 100 linear feet | PT@1.54 | CLF | — | 64.90  | 64.90  | 110.00 |
| 1/4" gap, per 100 linear feet | PT@1.82 | CLF | — | 76.70  | 76.70  | 130.00 |
| 3/8" gap, per 100 linear feet | PT@2.22 | CLF | — | 93.60  | 93.60  | 159.00 |
| 1/2" gap, per 100 linear feet | PT@2.63 | CLF | — | 111.00 | 111.00 | 189.00 |

## Labor for masking.

|                             |         |     |   |        |        |        |
|-----------------------------|---------|-----|---|--------|--------|--------|
| Masking per 100 linear feet | PT@2.50 | CLF | — | 105.00 | 105.00 | 179.00 |
|-----------------------------|---------|-----|---|--------|--------|--------|

## Labor for cutting-in.

|                                |         |     |   |        |        |        |
|--------------------------------|---------|-----|---|--------|--------|--------|
| Cutting-in per 100 linear feet | PT@2.75 | CLF | — | 116.00 | 116.00 | 197.00 |
|--------------------------------|---------|-----|---|--------|--------|--------|

**Labor for interior sanding.** For heights above 8', use the high time difficulty factors above.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Sand flat wall areas before first coat,<br>per 100 square feet   | PT@.333 | CSF | — | 14.00 | 14.00 | 23.80 |
| Sand and putty before second flat coat,<br>per 100 square feet   | PT@.500 | CSF | — | 21.10 | 21.10 | 35.90 |
| Sand and putty before second enamel coat,<br>per 100 square feet | PT@.800 | CSF | — | 33.70 | 33.70 | 57.30 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| Sand and putty cabinets before second coat,<br>per 100 square feet         | PT@.667   | CSF  | —        | 28.10 | 28.10 | 47.80 |
| Sand and putty bookshelves before second coat,<br>per 100 square feet      | PT@.800   | CSF  | —        | 33.70 | 33.70 | 57.30 |
| Sand bookshelves with light grit before third coat,<br>per 100 square feet | PT@.444   | CSF  | —        | 18.70 | 18.70 | 31.80 |
| Sand with light grit before third enamel coat,<br>per 100 square feet      | PT@.714   | CSF  | —        | 30.10 | 30.10 | 51.20 |

**Labor for exterior sanding.** For heights above 8', use the high time difficulty factors above.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Sand and putty siding and trim,<br>before second coat, per 100 square feet | PT@.500 | CSF | — | 21.10 | 21.10 | 35.90 |
| Sand and putty trim only,<br>before second coat, per 100 square feet       | PT@.909 | CSF | — | 38.30 | 38.30 | 65.10 |
| Sand trim only with light grit,<br>before third coat, per 100 square feet  | PT@.571 | CSF | — | 24.10 | 24.10 | 41.00 |

**Labor for sandblasting.** Sandblast only. Add the cost of equipment, protecting adjacent surfaces, mobilization and cleanup. For heights above 8', use the high time difficulty factors above.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Brush-off sandblast to remove cement base paint,<br>per 100 square feet  | PT@.571 | CSF | — | 24.10 | 24.10 | 41.00 |
| Brush-off sandblast to remove oil or latex paint,<br>per 100 square feet | PT@.800 | CSF | — | 33.70 | 33.70 | 57.30 |

**Labor for stripping paint.** For heights above 8', use the high time difficulty factors above.

|  |         |     |   |        |        |        |
|--|---------|-----|---|--------|--------|--------|
| Strip, remove, or bleach,<br>per 100 square feet                     | PT@1.43 | CSF | — | 60.30  | 60.30  | 103.00 |
| Strip varnish with light-duty liquid remover,<br>per 100 square feet | PT@2.86 | CSF | — | 121.00 | 121.00 | 206.00 |
| Strip varnish with heavy-duty liquid remover,<br>per 100 square feet | PT@3.33 | CSF | — | 140.00 | 140.00 | 238.00 |
| Paint removal with light-duty liquid remover,<br>per 100 square feet | PT@3.33 | CSF | — | 140.00 | 140.00 | 238.00 |
| Paint removal with heavy-duty liquid remover,<br>per 100 square feet | PT@4.00 | CSF | — | 169.00 | 169.00 | 287.00 |

**Labor for wash down.** For heights above 8', use the high time difficulty factors above.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Interior smooth flat wall,<br>per 100 square feet                            | PT@.500 | CSF | — | 21.10 | 21.10 | 35.90 |
| Wash and touch up a smooth<br>flat interior wall, per 100 square feet        | PT@.625 | CSF | — | 26.30 | 26.30 | 44.70 |
| Wash down a rough surface flat interior wall,<br>per 100 square feet         | PT@.667 | CSF | — | 28.10 | 28.10 | 47.80 |
| Wash and touch up a rough surface flat<br>interior wall, per 100 square feet | PT@1.05 | CSF | — | 44.30 | 44.30 | 75.30 |
| Wash down an interior enamel wall,<br>per 100 square feet                    | PT@.465 | CSF | — | 19.60 | 19.60 | 33.30 |
| Wash down and touch up an interior<br>enamel wall, per 100 square feet       | PT@.885 | CSF | — | 37.30 | 37.30 | 63.40 |
| Wash down interior enamel trim,<br>per 100 square feet                       | PT@.667 | CSF | — | 28.10 | 28.10 | 47.80 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| Wash and touch up interior enamel trim,<br>per 100 square feet         | PT@.833   | CSF  | —        | 35.10 | 35.10 | 59.70 |
| Wash interior varnish trim,<br>per 100 square feet                     | PT@.513   | CSF  | —        | 21.60 | 21.60 | 36.70 |
| Wash and touch up interior varnish trim,<br>per 100 square feet        | PT@.714   | CSF  | —        | 30.10 | 30.10 | 51.20 |
| Wash interior varnished floors,<br>per 100 square feet                 | PT@.476   | CSF  | —        | 20.10 | 20.10 | 34.20 |
| Wash and touch up interior varnish floors,<br>per 100 square feet      | PT@.654   | CSF  | —        | 27.60 | 27.60 | 46.90 |
| Wash interior smooth plaster,<br>per 100 square feet                   | PT@.571   | CSF  | —        | 24.10 | 24.10 | 41.00 |
| Wash and touch up interior smooth plaster,<br>per 100 square feet      | PT@.714   | CSF  | —        | 30.10 | 30.10 | 51.20 |
| Wash interior sand finish plaster,<br>per 100 square feet              | PT@.741   | CSF  | —        | 31.20 | 31.20 | 53.00 |
| Wash and touch up interior sand finish plaster,<br>per 100 square feet | PT@.909   | CSF  | —        | 38.30 | 38.30 | 65.10 |

**Labor for waterblasting (pressure washing).** Waterblast to remove deteriorated, cracked or flaking paint from wood, concrete, brick, block, plaster or stucco surfaces. Add the cost of waterblast equipment, protecting adjacent surfaces and mobilization. For heights above 8', use the high time difficulty factors. These production rates will apply on larger jobs, such as an entire home. For smaller jobs, use a minimum charge of 3 or 4 hours to move on, set up, waterblast, clean up and move off. Production rates are based on medium-pressure equipment (2,500 PSI). High-pressure equipment (3,000 PSI) will increase productivity 10% to 50%. Low-pressure equipment (1,700 PSI) will reduce productivity by 10% to 50%. Rates assume a 1/4"-diameter nozzle. Productivity will be much higher when the surface is not deteriorated or contaminated with grease or grime. Note that the surface must dry thoroughly before coating begins. Per 100 square feet of surface cleaned.

|                                 |         |    |   |      |      |      |
|---------------------------------|---------|----|---|------|------|------|
| Light blast (250 SF per hour)   | PT@.011 | SF | — | .46  | .46  | .78  |
| Most jobs (150 SF per hour)     | PT@.018 | SF | — | .76  | .76  | 1.29 |
| Difficult jobs (75 SF per hour) | PT@.037 | SF | — | 1.56 | 1.56 | 2.65 |

**Labor for painting baseboard.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Brush 1 coat, 700 linear feet per gallon,<br>per 100 linear feet | PT@.833 | CLF | — | 35.10 | 35.10 | 59.70 |
| Roll 1 coat, 750 linear feet per gallon,<br>per 100 linear feet  | PT@.083 | CLF | — | 3.50  | 3.50  | 5.95  |

**Labor for painting bookcases and shelves.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|   |         |     |   |        |        |        |
|---|---------|-----|---|--------|--------|--------|
| Roll and brush undercoat,<br>280 square feet per gallon,<br>per 100 square feet   | PT@3.33 | CSF | — | 140.00 | 140.00 | 238.00 |
| Roll and brush finish coat,<br>340 square feet per gallon,<br>per 100 square feet | PT@2.50 | CSF | — | 105.00 | 105.00 | 179.00 |
| Spray undercoat, 133 square feet per gallon,<br>per 100 square feet               | PT@.606 | CSF | — | 25.50  | 25.50  | 43.40  |
| Spray finish coat, 158 square feet per gallon,<br>per 100 square feet             | PT@.400 | CSF | — | 16.90  | 16.90  | 28.70  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| <b>Labor for painting cabinets.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.  |           |      |          |       |       |        |
| Brush cabinet back, 275 square feet per gallon, per 100 square feet  | PT@.769   | CSF  | —        | 32.40 | 32.40 | 55.10  |
| Roll and brush cabinet face, 250 square feet per gallon, per 100 square feet of face   | PT@1.08   | CSF  | —        | 45.50 | 45.50 | 77.40  |
| Spray cabinet face, 113 square feet per gallon, per 100 square feet of face  | PT@.714   | CSF  | —        | 30.10 | 30.10 | 51.20  |
| <b>Labor for applying acoustic ceiling texture.</b> Application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For work more than 8' above floor level, use the high time difficulty factors. |           |      |          |       |       |        |
| Spray prime coat for acoustic textured ceiling, 90 square feet per gallon, per 100 square feet   | PT@.333   | CSF  | —        | 14.00 | 14.00 | 23.80  |
| Spray finish coat for acoustic textured ceiling, 170 square feet per gallon, per 100 square feet   | PT@.222   | CSF  | —        | 9.36  | 9.36  | 15.90  |
| Spray stipple finish texture paint, light coverage, dry powder mix, 7.5 square feet per gallon, per 100 square feet  | PT@.400   | CSF  | —        | 16.90 | 16.90 | 28.70  |
| <b>Labor for painting tongue-and-groove ceiling — brush.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.     |           |      |          |       |       |        |
| Brush 1st coat of water-base flat latex, 288 square feet per gallon, per 100 square feet   | PT@1.54   | CSF  | —        | 64.90 | 64.90 | 110.00 |
| Brush additional coats of water-base flat latex, 338 square feet per gallon, per 100 square feet   | PT@1.33   | CSF  | —        | 56.10 | 56.10 | 95.40  |
| Brush prime coat of water-base sealer, 288 square feet per gallon, per 100 square feet   | PT@1.43   | CSF  | —        | 60.30 | 60.30 | 103.00 |
| Brush 1st finish coat of water-base enamel, 288 square feet per gallon, per 100 square feet  | PT@1.33   | CSF  | —        | 56.10 | 56.10 | 95.40  |
| Brush additional coats of water-base enamel, 363 square feet per gallon, per 100 square feet   | PT@1.11   | CSF  | —        | 46.80 | 46.80 | 79.60  |
| <b>Labor for painting tongue-and-groove ceiling — roll.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.      |           |      |          |       |       |        |
| Roll 1st coat of water-base flat latex, 263 square feet per gallon, per 100 square feet  | PT@.769   | CSF  | —        | 32.40 | 32.40 | 55.10  |
| Roll additional coats of water-base flat latex, 313 square feet per gallon, per 100 square feet  | PT@.645   | CSF  | —        | 27.20 | 27.20 | 46.20  |

|  | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|--|-----------|------|----------|--------|--------|--------|
| Roll prime coat of water-base sealer,<br>263 square feet per gallon,<br>per 100 square feet  | PT@.833   | CSF  | —        | 35.10  | 35.10  | 59.70  |
| Roll 1st finish coat of water-base enamel,<br>313 square feet per gallon,<br>per 100 square feet   | PT@.690   | CSF  | —        | 29.10  | 29.10  | 49.50  |
| Roll additional coats of water-base enamel,<br>338 square feet per gallon,<br>per 100 square feet  | PT@.526   | CSF  | —        | 22.20  | 22.20  | 37.70  |
| <b>Labor for painting tongue-and-groove ceiling — spray.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors. |           |      |          |        |        |        |
| Spray 1st coat of water-base flat latex,<br>155 square feet per gallon,<br>per 100 square feet   | PT@.278   | CSF  | —        | 11.70  | 11.70  | 19.90  |
| Spray additional coats of water-base flat latex,<br>225 square feet per gallon,<br>per 100 square feet   | PT@.213   | CSF  | —        | 8.98   | 8.98   | 15.30  |
| Spray prime coat of water-base sealer,<br>155 square feet per gallon,<br>per 100 square feet   | PT@.263   | CSF  | —        | 11.10  | 11.10  | 18.90  |
| Spray 1st finish coat of water-base enamel,<br>225 square feet per gallon,<br>per 100 square feet  | PT@.222   | CSF  | —        | 9.36   | 9.36   | 15.90  |
| Spray additional coats of water-base enamel,<br>300 square feet per gallon,<br>per 100 square feet   | PT@.182   | CSF  | —        | 7.67   | 7.67   | 13.00  |
| <b>Labor for staining tongue-and-groove ceiling.</b> Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.         |           |      |          |        |        |        |
| Roll and brush water-base semi-transparent stain,<br>275 square feet per gallon,<br>per 100 square feet  | PT@.417   | CSF  | —        | 17.60  | 17.60  | 29.90  |
| <b>Labor for painting closet shelf and pole.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.   |           |      |          |        |        |        |
| Brush 1 coat of water-base undercoat,<br>70 linear feet per gallon,<br>per 100 linear feet   | PT@4.55   | CLF  | —        | 192.00 | 192.00 | 326.00 |
| Brush split coat of water-base undercoat<br>and enamel, 70 linear feet per gallon,<br>per 100 linear feet  | PT@4.76   | CLF  | —        | 201.00 | 201.00 | 342.00 |
| Brush finish coat of water-base enamel,<br>70 linear feet per gallon,<br>per 100 linear feet   | PT@5.00   | CLF  | —        | 211.00 | 211.00 | 359.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Labor for painting door frame and trim only.** Paint application only. Opening refers to both sides of a doorway. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| Brush 1 coat of water-base undercoat,<br>28 openings per gallon, per opening                | PT@.063 | Ea | — | 2.66 | 2.66 | 4.52 |
| Brush split coat of water-base undercoat and enamel,<br>31 openings per gallon, per opening | PT@.071 | Ea | — | 2.99 | 2.99 | 5.08 |
| Brush water-base enamel,<br>31 openings per gallon, per opening                             | PT@.077 | Ea | — | 3.25 | 3.25 | 5.53 |

**Labor for painting flush exterior door, frame and trim.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|   |         |    |   |       |       |       |
|---|---------|----|---|-------|-------|-------|
| Roll and brush 2 coats of water-base exterior enamel,<br>6 doors per gallon, per door | PT@.400 | Ea | — | 16.90 | 16.90 | 28.70 |
| Roll and brush 2 coats of oil-base exterior enamel,<br>6 doors per gallon, per door   | PT@.400 | Ea | — | 16.90 | 16.90 | 28.70 |
| Brush 2 coats of polyurethane,<br>4.5 doors per gallon, per door                      | PT@.600 | Ea | — | 25.30 | 25.30 | 43.00 |

**Labor for painting exterior French door, frame and trim.** Paint application only. Add preparation time for sanding, puttying, protecting adjacent surfaces and masking or waxing glass panes.

|  |         |    |   |       |       |       |
|--|---------|----|---|-------|-------|-------|
| Roll and brush 2 coats of water-base exterior enamel,<br>10 doors per gallon, per door | PT@.800 | Ea | — | 33.70 | 33.70 | 57.30 |
| Roll and brush 2 coats of oil-base exterior enamel,<br>12 doors per gallon, per door   | PT@.800 | Ea | — | 33.70 | 33.70 | 57.30 |
| Brush 2 coats of polyurethane,<br>7.5 doors per gallon, per door                       | PT@1.30 | Ea | — | 54.80 | 54.80 | 93.20 |

**Labor for painting exterior louver door, frame and trim.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|   |         |    |   |       |       |        |
|---|---------|----|---|-------|-------|--------|
| Roll and brush 2 coats of water-base exterior enamel,<br>6 doors per gallon, per door | PT@1.10 | Ea | — | 46.40 | 46.40 | 78.90  |
| Brush 2 coats of polyurethane,<br>4.5 doors per gallon, per door                      | PT@1.50 | Ea | — | 63.20 | 63.20 | 107.00 |

**Labor for painting exterior panel (entry) door, frame and trim.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|   |         |    |   |       |       |        |
|---|---------|----|---|-------|-------|--------|
| Roll and brush 2 coats of water-base exterior enamel,<br>3 doors per gallon, per door | PT@1.10 | Ea | — | 46.40 | 46.40 | 78.90  |
| Brush 2 coats of polyurethane,<br>3 doors per gallon, per door                        | PT@1.50 | Ea | — | 63.20 | 63.20 | 107.00 |

**Labor for painting interior flush door, frame and trim — roll and brush.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|  |         |    |   |       |       |       |
|--|---------|----|---|-------|-------|-------|
| Roll and brush 1 coat of water-base undercoat,<br>13 doors per gallon, per door                    | PT@.300 | Ea | — | 12.60 | 12.60 | 21.40 |
| Roll and brush 1st finish coat of water-base enamel,<br>12.5 doors per gallon, per door            | PT@.250 | Ea | — | 10.50 | 10.50 | 17.90 |
| Roll and brush additional finish coats<br>of water-base enamel,<br>13.5 doors per gallon, per door | PT@.200 | Ea | — | 8.43  | 8.43  | 14.30 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Labor for painting interior flush door, frame and trim — spray.** New installations only. Includes paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| Spray 1 coat of water-base undercoat,<br>16 doors per gallon, per door        | PT@.090 | Ea | — | 3.79 | 3.79 | 6.44 |
| Spray 1 coat of oil-base undercoat,<br>16 doors per gallon, per door          | PT@.090 | Ea | — | 3.79 | 3.79 | 6.44 |
| Spray 1st finish coat of water-base enamel,<br>17 doors per gallon, per door  | PT@.080 | Ea | — | 3.37 | 3.37 | 5.73 |
| Spray additional coats of water-base enamel,<br>18 doors per gallon, per door | PT@.070 | Ea | — | 2.95 | 2.95 | 5.02 |

**Labor for painting interior French door, frame and trim.** Paint application only. Add preparation time for sanding, puttying, protecting adjacent surfaces and masking or waxing glass panes.

|  |         |    |   |       |       |       |
|--|---------|----|---|-------|-------|-------|
| Roll and brush 1 coat of water-base undercoat,<br>13 doors per gallon, per door                  | PT@.380 | Ea | — | 16.00 | 16.00 | 27.20 |
| Roll and brush 1st finish coat of water-base enamel,<br>14 doors per gallon, per door            | PT@.350 | Ea | — | 14.80 | 14.80 | 25.20 |
| Roll and brush additional finish coats<br>of water-base enamel,<br>15 doors per gallon, per door | PT@.330 | Ea | — | 13.90 | 13.90 | 23.60 |

**Labor for painting interior louver door, frame and trim — roll and brush.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|   |         |    |   |       |       |       |
|---|---------|----|---|-------|-------|-------|
| Roll and brush 1 coat of water-base undercoat,<br>7 doors per gallon, per door                  | PT@.540 | Ea | — | 22.80 | 22.80 | 38.80 |
| Roll and brush 1st finish coat of water-base enamel,<br>8 doors per gallon, per door            | PT@.420 | Ea | — | 17.70 | 17.70 | 30.10 |
| Roll and brush additional finish<br>coats of water-base enamel,<br>9 doors per gallon, per door | PT@.300 | Ea | — | 12.60 | 12.60 | 21.40 |

**Labor for painting interior louver door, frame and trim — spray.** New installations only. Includes paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|   |         |    |   |      |      |       |
|---|---------|----|---|------|------|-------|
| Spray 1 coat of water-base undercoat,<br>11 doors per gallon, per door                  | PT@.140 | Ea | — | 5.90 | 5.90 | 10.00 |
| Spray 1st finish coat of water-base enamel,<br>12 doors per gallon, per door            | PT@.110 | Ea | — | 4.64 | 4.64 | 7.89  |
| Spray additional finish coats<br>of water-base enamel,<br>13 doors per gallon, per door | PT@.090 | Ea | — | 3.79 | 3.79 | 6.44  |

**Labor for painting interior panel door, frame and trim — roll and brush.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.

|  |         |    |   |       |       |       |
|--|---------|----|---|-------|-------|-------|
| Roll and brush 1 coat of water-base undercoat,<br>7 doors per gallon, per door                   | PT@.330 | Ea | — | 13.90 | 13.90 | 23.60 |
| Roll and brush 1st finish coat of water-base enamel,<br>10 doors per gallon, per door            | PT@.300 | Ea | — | 12.60 | 12.60 | 21.40 |
| Roll and brush additional finish coats<br>of water-base enamel,<br>11 doors per gallon, per door | PT@.250 | Ea | — | 10.50 | 10.50 | 17.90 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| <b>Labor for painting interior panel door, frame and trim — spray.</b> New installations only. Includes paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.  |           |      |          |       |       |       |
| Spray 1 coat of water-base undercoat,<br>14 doors per gallon, per door   | PT@.110   | Ea   | —        | 4.64  | 4.64  | 7.89  |
| Spray 1st finish coat of water-base enamel,<br>15 doors per gallon, per door   | PT@.080   | Ea   | —        | 3.37  | 3.37  | 5.73  |
| Spray additional finish coats<br>of water-base enamel,<br>16 doors per gallon, per door  | PT@.080   | Ea   | —        | 3.37  | 3.37  | 5.73  |
| <b>Labor for staining 2" x 4" fascia.</b> Front side and bottom edge only. Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.             |           |      |          |       |       |       |
| Roll and brush each coat of solid-body stain,<br>130 linear feet per gallon,<br>per 100 linear feet  | PT@.488   | CLF  | —        | 20.60 | 20.60 | 35.00 |
| Roll and brush each coat of semi-transparent stain,<br>150 linear feet per gallon,<br>per 100 linear feet  | PT@.444   | CLF  | —        | 18.70 | 18.70 | 31.80 |
| Spray each coat of solid-body stain,<br>100 linear feet per gallon,<br>per 100 linear feet   | PT@.308   | CLF  | —        | 13.00 | 13.00 | 22.10 |
| Spray each coat of semi-transparent stain,<br>115 linear feet per gallon,<br>per 100 linear feet   | PT@.286   | CLF  | —        | 12.10 | 12.10 | 20.60 |
| <b>Labor for staining 2" x 6" or 2" x 10" fascia.</b> Front side and bottom edge only. Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors. |           |      |          |       |       |       |
| Roll and brush each coat of solid-body stain,<br>110 linear feet per gallon,<br>per 100 linear feet  | PT@.571   | CLF  | —        | 24.10 | 24.10 | 41.00 |
| Roll and brush each coat of semi-transparent stain,<br>130 linear feet per gallon,<br>per 100 linear feet  | PT@.513   | CLF  | —        | 21.60 | 21.60 | 36.70 |
| Spray each coat of solid-body stain,<br>80 linear feet per gallon,<br>per 100 linear feet  | PT@.333   | CLF  | —        | 14.00 | 14.00 | 23.80 |
| Spray each coat of semi-transparent stain,<br>95 linear feet per gallon,<br>per 100 linear feet  | PT@.319   | CLF  | —        | 13.40 | 13.40 | 22.80 |
| <b>Labor for staining 2" x 12" fascia.</b> Front side and bottom edge only. Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.            |           |      |          |       |       |       |
| Roll and brush each coat of solid-body stain,<br>75 linear feet per gallon,<br>per 100 linear feet   | PT@.769   | CLF  | —        | 32.40 | 32.40 | 55.10 |
| Roll and brush each coat of semi-transparent stain,<br>95 linear feet per gallon,<br>per 100 linear feet   | PT@.667   | CLF  | —        | 28.10 | 28.10 | 47.80 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| Spray each coat of solid-body stain,<br>50 linear feet per gallon,<br>per 100 linear feet  | PT@.380   | CLF  | —        | 16.00 | 16.00 | 27.20 |
| Spray each coat of semi-transparent stain,<br>65 linear feet per gallon,<br>per 100 linear feet  | PT@.347   | CLF  | —        | 14.60 | 14.60 | 24.80 |
| <b>Labor for staining picket fence.</b> Area is the fence length times the fence height times two. Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. |           |      |          |       |       |       |
| Roll and brush 1st coat of solid-body or<br>semi-transparent stain,<br>343 square feet per gallon,<br>per 100 square feet  | PT@.690   | CSF  | —        | 29.10 | 29.10 | 49.50 |
| Roll and brush additional coats of solid-body or<br>semi-transparent stain,<br>388 square feet per gallon,<br>per 100 square feet  | PT@.444   | CSF  | —        | 18.70 | 18.70 | 31.80 |
| Spray 1st coat of solid-body or<br>semi-transparent stain,<br>275 square feet per gallon,<br>per 100 square feet   | PT@.200   | CSF  | —        | 8.43  | 8.43  | 14.30 |
| Spray additional coats of solid-body or<br>semi-transparent stain,<br>325 square feet per gallon,<br>per 100 square feet   | PT@.167   | CSF  | —        | 7.04  | 7.04  | 12.00 |
| <b>Labor for painting concrete floor — roll.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.   |           |      |          |       |       |       |
| Roll and brush 1st coat of water-base<br>masonry paint, 263 square feet per gallon,<br>per 100 square feet   | PT@.459   | CSF  | —        | 19.30 | 19.30 | 32.80 |
| Roll and brush 2nd coat of water-base<br>masonry paint, 325 square feet per gallon,<br>per 100 square feet   | PT@.373   | CSF  | —        | 15.70 | 15.70 | 26.70 |
| Roll and brush 3rd or additional coats of<br>water-base masonry paint,<br>350 square feet per gallon,<br>per 100 square feet   | PT@.333   | CSF  | —        | 14.00 | 14.00 | 23.80 |
| Roll and brush each coat of 1-part water-base<br>epoxy, 488 square feet per gallon,<br>per 100 square feet   | PT@.444   | CSF  | —        | 18.70 | 18.70 | 31.80 |
| Roll and brush each coat of 2-part water-base<br>epoxy, 488 square feet per gallon,<br>per 100 square feet   | PT@.481   | CSF  | —        | 20.30 | 20.30 | 34.50 |
| Roll and brush 1st coat of penetrating oil stain,<br>425 square feet per gallon,<br>per 100 square feet  | PT@.400   | CSF  | —        | 16.90 | 16.90 | 28.70 |
| Roll and brush 2nd coat of penetrating oil stain,<br>475 square feet per gallon,<br>per 100 square feet  | PT@.290   | CSF  | —        | 12.20 | 12.20 | 20.70 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| Roll and brush 3rd or additional coats of penetrating oil stain, 500 square feet per gallon, per 100 square feet  | PT@.261   | CSF  | —        | 11.00 | 11.00 | 18.70 |
| <b>Labor for painting concrete floor — spray.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.     |           |      |          |       |       |       |
| Spray 1st coat of water-base masonry paint, 163 square feet per gallon, per 100 square feet   | PT@.111   | CSF  | —        | 4.68  | 4.68  | 7.96  |
| <b>Spray 2nd coat of water-base masonry paint, 263 square feet per gallon, per 100 square feet</b>  |           |      |          |       |       |       |
| Spray 3rd or additional coats of water-base masonry paint, 313 square feet per gallon, per 100 square feet  | PT@.100   | CSF  | —        | 4.22  | 4.22  | 7.17  |
| <b>Spray 3rd or additional coats of water-base masonry paint, 313 square feet per gallon, per 100 square feet</b>   |           |      |          |       |       |       |
| Roll and brush water-base prime undercoat, 425 square feet per gallon, per 100 square feet  | PT@.228   | CSF  | —        | 9.61  | 9.61  | 16.30 |
| Roll and brush porch and deck enamel, 450 square feet per gallon, per 100 square feet   | PT@.216   | CSF  | —        | 9.10  | 9.10  | 15.50 |
| Brush 1-part water-base epoxy, 400 square feet per gallon, per 100 square feet  | PT@.400   | CSF  | —        | 16.90 | 16.90 | 28.70 |
| Roll 2-part epoxy, 225 square feet per gallon, per 100 square feet  | PT@.444   | CSF  | —        | 18.70 | 18.70 | 31.80 |
| <b>Labor for staining wood deck or floor — brush.</b> Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. |           |      |          |       |       |       |
| Brush 1st coat oil-base wiping stain, wipe and fill wood floor, 475 square feet per gallon, per 100 square feet   | PT@.400   | CSF  | —        | 16.90 | 16.90 | 28.70 |
| Brush 2nd coat oil-base stain, wipe and fill wood floor, 500 square feet per gallon, per 100 square feet  | PT@.235   | CSF  | —        | 9.91  | 9.91  | 16.80 |
| Brush 3rd or additional coats of oil-base stain, wipe and fill wood floor, 525 square feet per gallon, per 100 square feet  | PT@.222   | CSF  | —        | 9.36  | 9.36  | 15.90 |
| Brush 1st coat of sanding sealer on maple or pine floor, 450 square feet per gallon, per 100 square feet  | PT@.250   | CSF  | —        | 10.50 | 10.50 | 17.90 |
| Brush additional coats of sanding sealer on maple or pine floor, 525 square feet per gallon, per 100 square feet  | PT@.222   | CSF  | —        | 9.36  | 9.36  | 15.90 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| Brush 1st coat of sanding sealer on oak floor,<br>500 square feet per gallon,<br>per 100 square feet                           | PT@.235   | CSF  | —        | 9.91  | 9.91  | 16.80 |
| Brush additional coats of sanding sealer<br>on oak floor, 600 square feet per gallon,<br>per 100 square feet                   | PT@.190   | CSF  | —        | 8.01  | 8.01  | 13.60 |
| Brush 1st coat of penetrating stain,<br>wax and wipe wood floor,<br>525 square feet per gallon,<br>per 100 square feet         | PT@.400   | CSF  | —        | 16.90 | 16.90 | 28.70 |
| Brush additional coats of penetrating stain,<br>wax and wipe wood floor,<br>525 square feet per gallon,<br>per 100 square feet | PT@.333   | CSF  | —        | 14.00 | 14.00 | 23.80 |
| Wax and polish wood floors by hand,<br>per 100 square feet   | PT@.500   | CSF  | —        | 21.10 | 21.10 | 35.90 |
| Wax and polish wood floors by machine,<br>per 100 square feet  | PT@.222   | CSF  | —        | 9.36  | 9.36  | 15.90 |

**Labor for painting gutters and downspouts.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|  |         |     |   |        |        |        |
|--|---------|-----|---|--------|--------|--------|
| Brush prime coat rust inhibitor on metal gutters,<br>375 linear feet per gallon,<br>per 100 linear feet    | PT@1.11 | CLF | — | 46.80  | 46.80  | 79.60  |
| Brush 1st finish coat on metal gutters,<br>400 linear feet per gallon,<br>per 100 linear feet              | PT@.909 | CLF | — | 38.30  | 38.30  | 65.10  |
| Brush additional finish coats on metal gutters,<br>425 linear feet per gallon,<br>per 100 linear feet      | PT@.769 | CLF | — | 32.40  | 32.40  | 55.10  |
| Brush prime coat rust inhibitor on metal<br>downspouts, 225 linear feet per gallon,<br>per 100 linear feet | PT@2.86 | CLF | — | 121.00 | 121.00 | 206.00 |

**Labor for applying masonry block filler on brick masonry.** Filler application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Brush one coat of masonry block filler,<br>65 square feet per gallon,<br>per 100 square feet | PT@.800 | CSF | — | 33.70 | 33.70 | 57.30 |
| Roll one coat of masonry block filler,<br>60 square feet per gallon,<br>per 100 square feet  | PT@.465 | CSF | — | 19.60 | 19.60 | 33.30 |
| Spray one coat of masonry block filler,<br>55 square feet per gallon,<br>per 100 square feet | PT@.190 | CSF | — | 8.01  | 8.01  | 13.60 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Labor for painting smooth brick masonry — brush.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.         |           |      |          |       |       |       |
| Brush 1st coat of water-base masonry paint,<br>275 square feet per gallon,<br>per 100 square feet   | PT@.444   | CSF  | —        | 18.70 | 18.70 | 31.80 |
| Brush additional coats of water-base masonry paint,<br>300 square feet per gallon,<br>per 100 square feet   | PT@.364   | CSF  | —        | 15.30 | 15.30 | 26.00 |
| <b>Labor for painting smooth brick masonry — roll.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.          |           |      |          |       |       |       |
| Roll 1st coat of water-base masonry paint,<br>213 square feet per gallon,<br>per 100 square feet  | PT@.286   | CSF  | —        | 12.10 | 12.10 | 20.60 |
| Roll additional coats of water-base masonry paint,<br>250 square feet per gallon,<br>per 100 square feet  | PT@.250   | CSF  | —        | 10.50 | 10.50 | 17.90 |
| Roll 1st coat of clear hydro sealer,<br>150 square feet per gallon,<br>per 100 square feet  | PT@.444   | CSF  | —        | 18.70 | 18.70 | 31.80 |
| Roll additional coats of clear hydro sealer,<br>190 square feet per gallon,<br>per 100 square feet  | PT@.400   | CSF  | —        | 16.90 | 16.90 | 28.70 |
| <b>Labor for painting smooth brick masonry — spray.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.         |           |      |          |       |       |       |
| Spray 1st coat of water-base masonry paint,<br>225 square feet per gallon,<br>per 100 square feet   | PT@.133   | CSF  | —        | 5.61  | 5.61  | 9.54  |
| Spray additional coats of water-base masonry paint,<br>238 square feet per gallon,<br>per 100 square feet   | PT@.121   | CSF  | —        | 5.10  | 5.10  | 8.67  |
| Spray 1st coat of clear hydro sealer,<br>100 square feet per gallon,<br>per 100 square feet   | PT@.125   | CSF  | —        | 5.27  | 5.27  | 8.96  |
| Spray additional coats of clear hydro sealer,<br>138 square feet per gallon,<br>per 100 square feet   | PT@.111   | CSF  | —        | 4.68  | 4.68  | 7.96  |
| <b>Labor for painting concrete masonry units (CMU) — brush.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors. |           |      |          |       |       |       |
| Brush 1st coat of water-base masonry paint,<br>88 square feet per gallon,<br>per 100 square feet  | PT@.769   | CSF  | —        | 32.40 | 32.40 | 55.10 |
| Brush additional coats of water-base<br>masonry paint, 168 square feet per gallon,<br>per 100 square feet   | PT@.476   | CSF  | —        | 20.10 | 20.10 | 34.20 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| Brush 1st coat of 2-part clear epoxy,<br>98 square feet per gallon,<br>per 100 square feet          | PT@.870   | CSF  | —        | 36.70 | 36.70 | 62.40 |
| Brush additional coats of 2-part clear epoxy,<br>188 square feet per gallon,<br>per 100 square feet | PT@.526   | CSF  | —        | 22.20 | 22.20 | 37.70 |
| Brush 1st coat of clear hydro sealer,<br>80 square feet per gallon,<br>per 100 square feet          | PT@.667   | CSF  | —        | 28.10 | 28.10 | 47.80 |
| Brush additional coats of clear hydro sealer,<br>110 square feet per gallon,<br>per 100 square feet | PT@.364   | CSF  | —        | 15.30 | 15.30 | 26.00 |

**Labor for painting concrete masonry units (CMU) — roll.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Roll 1st coat of water-base masonry paint,<br>78 square feet per gallon,<br>per 100 square feet          | PT@.333 | CSF | — | 14.00 | 14.00 | 23.80 |
| Roll additional coats of water-base masonry paint,<br>143 square feet per gallon,<br>per 100 square feet | PT@.308 | CSF | — | 13.00 | 13.00 | 22.10 |
| Roll 1st coat 2-part epoxy coating,<br>88 square feet per gallon,<br>per 100 square feet                 | PT@.364 | CSF | — | 15.30 | 15.30 | 26.00 |
| Roll additional coats of 2-part epoxy coating,<br>160 square feet per gallon,<br>per 100 square feet     | PT@.333 | CSF | — | 14.00 | 14.00 | 23.80 |

**Labor for painting concrete masonry units (CMU) — spray.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|   |         |     |   |      |      |       |
|---|---------|-----|---|------|------|-------|
| Spray 1st coat of water-base masonry paint,<br>78 square feet per gallon,<br>per 100 square feet          | PT@.143 | CSF | — | 6.03 | 6.03 | 10.30 |
| Spray additional coats of water-base masonry paint,<br>133 square feet per gallon,<br>per 100 square feet | PT@.125 | CSF | — | 5.27 | 5.27 | 8.96  |
| Spray 1st coat of 2-part clear epoxy,<br>68 square feet per gallon,<br>per 100 square feet                | PT@.167 | CSF | — | 7.04 | 7.04 | 12.00 |
| Spray additional coats of 2-part clear epoxy,<br>130 square feet per gallon,<br>per 100 square feet       | PT@.143 | CSF | — | 6.03 | 6.03 | 10.30 |
| Spray 1st coat of clear hydro sealer,<br>50 square feet per gallon,<br>per 100 square feet                | PT@.143 | CSF | — | 6.03 | 6.03 | 10.30 |
| Spray additional coats of clear hydro sealer,<br>75 square feet per gallon,<br>per 100 square feet        | PT@.125 | CSF | — | 5.27 | 5.27 | 8.96  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Labor for painting molding or trim.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|  |         |     |   |       |       |        |
|--|---------|-----|---|-------|-------|--------|
| Brush prime coat, 600 linear feet per gallon, per 100 linear feet  | PT@.488 | CLF | — | 20.60 | 20.60 | 35.00  |
| Brush split coat of 1/2 undercoat and 1/2 enamel, 675 linear feet per gallon, per 100 linear feet        | PT@.741 | CLF | — | 31.20 | 31.20 | 53.00  |
| Brush 1st finish coat of enamel, 675 linear feet per gallon, per 100 linear feet                         | PT@.625 | CLF | — | 26.30 | 26.30 | 44.70  |
| Brush 2nd or additional coats of enamel, 675 linear feet per gallon, per 100 linear feet                 | PT@.667 | CLF | — | 28.10 | 28.10 | 47.80  |
| Brush stipple finish enamel on smooth exterior molding, per 100 linear feet                              | PT@1.11 | CLF | — | 46.80 | 46.80 | 79.60  |
| Brush glazing or mottling over enamel on smooth molding, 900 linear feet per gallon, per 100 linear feet | PT@1.54 | CLF | — | 64.90 | 64.90 | 110.00 |

**Labor for painting roof overhang to 30" wide — roll and brush.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. See the overhang difficulty factors that follow.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Roll and brush 1st coat of solid-body stain, 185 square feet per gallon, per 100 square feet         | PT@.800 | CSF | — | 33.70 | 33.70 | 57.30 |
| Roll and brush 2nd coat of solid-body stain, 240 square feet per gallon, per 100 square feet         | PT@.541 | CSF | — | 22.80 | 22.80 | 38.80 |
| Roll and brush additional coats of solid body stain, 270 square feet per gallon, per 100 square feet | PT@.444 | CSF | — | 18.70 | 18.70 | 31.80 |

**Labor for painting roof overhang to 30" wide — spray.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. See the overhang difficulty factors that follow.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Spray 1st coat of semi-transparent stain, 125 square feet per gallon, per 100 square feet                | PT@.286 | CSF | — | 12.10 | 12.10 | 20.60 |
| Spray 2nd coat of semi-transparent stain, 163 square feet per gallon, per 100 square feet                | PT@.222 | CSF | — | 9.36  | 9.36  | 15.90 |
| Spray 3rd or additional coats of semi-transparent stain, 213 square feet per gallon, per 100 square feet | PT@.190 | CSF | — | 8.01  | 8.01  | 13.60 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Labor for painting large roof overhang over 30" wide — roll and brush.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. See the overhang difficulty factors below.  |           |      |          |       |       |       |
| Roll and brush 1st coat of solid-body stain,<br>210 square feet per gallon,<br>per 100 square feet  | PT@.556   | CSF  | —        | 23.40 | 23.40 | 39.80 |
| Roll and brush 2nd coat of solid-body stain,<br>275 square feet per gallon,<br>per 100 square feet  | PT@.444   | CSF  | —        | 18.70 | 18.70 | 31.80 |
| Roll and brush 3rd coat of solid-body stain,<br>280 square feet per gallon,<br>per 100 square feet  | PT@.357   | CSF  | —        | 15.00 | 15.00 | 25.50 |
| <b>Labor for painting large roof overhang over 30" wide — spray.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. See the overhang difficulty factors below.           |           |      |          |       |       |       |
| Spray 1st coat of solid-body or<br>semi-transparent stain, 90 square feet<br>per gallon, per 100 square feet  | PT@.167   | CSF  | —        | 7.04  | 7.04  | 12.00 |
| Spray 2nd coat of solid-body or<br>semi-transparent stain, 163 square feet<br>per gallon, per 100 square feet   | PT@.154   | CSF  | —        | 6.49  | 6.49  | 11.00 |
| Spray 3rd or additional coats of solid-body<br>or semi-transparent stain, 213 square feet<br>per gallon, per 100 square feet  | PT@.143   | CSF  | —        | 6.03  | 6.03  | 10.30 |
| <b>Overhang difficulty factors for eaves and cornices.</b> The labor estimates above are for roof overhang with boxed eaves (no exposed rafter tails) on new single-story buildings.  |           |      |          |       |       |       |
| Add 50% for repainting overhang or painting overhang with exposed rafter tails or second color<br>(multiply the area by 1.5).   |           |      |          |       |       |       |
| Add 50% for painting second-story overhang from scaffolding (multiply the area by 1.5).   |           |      |          |       |       |       |
| Add 100% for second story with no scaffolding or exposed rafter tails (multiply the area by 2.0)  |           |      |          |       |       |       |
| <b>Labor for painting exterior plaster or stucco — brush.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors. |           |      |          |       |       |       |
| Brush water-base masonry paint,<br>213 square feet per gallon,<br>per 100 square feet   | PT@.613   | CSF  | —        | 25.80 | 25.80 | 43.90 |
| Brush 2nd coat water-base masonry paint,<br>230 square feet per gallon,<br>per 100 square feet  | PT@.613   | CSF  | —        | 25.80 | 25.80 | 43.90 |
| Brush 3rd or additional coat water-base<br>masonry paint, 245 square feet per gallon,<br>per 100 square feet  | PT@.578   | CSF  | —        | 24.40 | 24.40 | 41.50 |
| Brush 1st coat of clear hydro sealer,<br>163 square feet per gallon,<br>per 100 square feet   | PT@.667   | CSF  | —        | 28.10 | 28.10 | 47.80 |
| Brush 2nd coat of clear hydro sealer,<br>188 square feet per gallon,<br>per 100 square feet   | PT@.500   | CSF  | —        | 21.10 | 21.10 | 35.90 |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Labor for painting exterior plaster or stucco — roll.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.  |           |      |          |        |        |        |
| Roll 1st water-base masonry prime coat,<br>175 square feet per gallon,<br>per 100 square feet   | PT@.366   | CSF  | —        | 15.40  | 15.40  | 26.20  |
| Roll 2nd water-base masonry coat,<br>200 square feet per gallon,<br>per 100 square feet   | PT@.313   | CSF  | —        | 13.20  | 13.20  | 22.40  |
| Roll 3rd or additional water-base<br>masonry coats, 225 square feet per gallon,<br>per 100 square feet  | PT@.294   | CSF  | —        | 12.40  | 12.40  | 21.10  |
| Roll 1st coat of clear hydro sealer,<br>138 square feet per gallon,<br>per 100 square feet  | PT@.275   | CSF  | —        | 11.60  | 11.60  | 19.70  |
| Roll 2nd or additional coats of clear<br>hydro sealer, 163 square feet per gallon,<br>per 100 square feet   | PT@.235   | CSF  | —        | 9.91   | 9.91   | 16.80  |
| <b>Labor for painting exterior plaster or stucco — spray.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors. |           |      |          |        |        |        |
| Spray 1st water-base masonry prime coat,<br>120 square feet per gallon,<br>per 100 square feet  | PT@.148   | CSF  | —        | 6.24   | 6.24   | 10.60  |
| Spray 2nd water-base masonry coat,<br>150 square feet per gallon,<br>per 100 square feet  | PT@.125   | CSF  | —        | 5.27   | 5.27   | 8.96   |
| Spray 3rd or additional water-base masonry coat,<br>165 square feet per gallon,<br>per 100 square feet  | PT@.118   | CSF  | —        | 4.97   | 4.97   | 8.45   |
| Spray 1st coat of clear hydro sealer,<br>113 square feet per gallon,<br>per 100 square feet   | PT@.143   | CSF  | —        | 6.03   | 6.03   | 10.30  |
| Spray 2nd or additional coats of clear<br>hydro sealer, 138 square feet per gallon,<br>per 100 square feet  | PT@.121   | CSF  | —        | 5.10   | 5.10   | 8.67   |
| <b>Labor for painting decorative wood handrail — brush.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks.   |           |      |          |        |        |        |
| Brush undercoat or enamel,<br>110 linear feet per gallon,<br>per 100 linear feet  | PT@2.86   | CLF  | —        | 121.00 | 121.00 | 206.00 |
| <b>Labor for painting 2' x 4' shutters or blinds — brush.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors. |           |      |          |        |        |        |
| Brush undercoat,<br>11 shutters per gallon, per shutter   | PT@.333   | Ea   | —        | 14.00  | 14.00  | 23.80  |
| Brush split coat (1/2 undercoat + 1/2 enamel),<br>14 shutters per gallon, per shutter   | PT@.286   | Ea   | —        | 12.10  | 12.10  | 20.60  |
| Brush exterior enamel,<br>14 shutters per gallon, per shutter   | PT@.400   | Ea   | —        | 16.90  | 16.90  | 28.70  |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| <b>Labor for painting 2' x 4' shutters or blinds — spray.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors. |           |      |          |       |       |       |
| Spray undercoat,<br>9 shutters per gallon, per shutter  | PT@.111   | Ea   | —        | 4.68  | 4.68  | 7.96  |
| Spray split coat (1/2 undercoat + 1/2 enamel),<br>11 shutters per gallon, per shutter   | PT@.100   | Ea   | —        | 4.22  | 4.22  | 7.17  |
| Spray exterior enamel,<br>11 shutters per gallon, per shutter   | PT@.125   | Ea   | —        | 5.27  | 5.27  | 8.96  |
| <b>Labor for painting aluminum siding — brush.</b> Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.            |           |      |          |       |       |       |
| Brush metal primer,<br>420 square feet per gallon,<br>per 100 square feet   | PT@.426   | CSF  | —        | 18.00 | 18.00 | 30.60 |
| Brush 1st or additional finish coats on aluminum<br>siding, 465 square feet per gallon,<br>per 100 square feet  | PT@.351   | CSF  | —        | 14.80 | 14.80 | 25.20 |
| <b>Labor for staining rough wood siding — roll and brush.</b> Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors. |           |      |          |       |       |       |
| Roll and brush 1st coat of water-base stain,<br>213 square feet per gallon,<br>per 100 square feet  | PT@.500   | CSF  | —        | 21.10 | 21.10 | 35.90 |
| Roll and brush 2nd coat of water-base stain,<br>275 square feet per gallon,<br>per 100 square feet  | PT@.400   | CSF  | —        | 16.90 | 16.90 | 28.70 |
| Roll and brush 3rd or additional coats of<br>water-base stain, 325 square feet per gallon,<br>per 100 square feet   | PT@.347   | CSF  | —        | 14.60 | 14.60 | 24.80 |
| Roll and brush 1st coat of penetrating oil stain,<br>125 square feet per gallon,<br>per 100 square feet   | PT@.444   | CSF  | —        | 18.70 | 18.70 | 31.80 |
| Roll and brush 2nd coat of penetrating oil stain,<br>240 square feet per gallon,<br>per 100 square feet   | PT@.364   | CSF  | —        | 15.30 | 15.30 | 26.00 |
| Roll and brush 3rd or additional coats of<br>penetrating oil stain, 330 square feet per gallon,<br>per 100 square feet  | PT@.299   | CSF  | —        | 12.60 | 12.60 | 21.40 |
| <b>Labor for staining rough wood siding — spray.</b> Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.          |           |      |          |       |       |       |
| Spray 1st coat of water-base stain,<br>115 square feet per gallon,<br>per 100 square feet   | PT@.200   | CSF  | —        | 8.43  | 8.43  | 14.30 |
| Spray 2nd coat of water-base stain,<br>125 square feet per gallon,<br>per 100 square feet   | PT@.167   | CSF  | —        | 7.04  | 7.04  | 12.00 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| Spray 3rd or additional coats of water-base stain,<br>170 square feet per gallon,<br>per 100 square feet      | PT@.154   | CSF  | —        | 6.49  | 6.49  | 11.00 |
| Spray 1st coat penetrating oil stain,<br>180 square feet per gallon,<br>per 100 square feet                   | PT@.200   | CSF  | —        | 8.43  | 8.43  | 14.30 |
| Spray 2nd coat of penetrating oil stain,<br>245 square feet per gallon,<br>per 100 square feet                | PT@.182   | CSF  | —        | 7.67  | 7.67  | 13.00 |
| Spray 3rd or additional coats of penetrating<br>oil stain, 360 square feet per gallon,<br>per 100 square feet | PT@.154   | CSF  | —        | 6.49  | 6.49  | 11.00 |
| Spray 1st coat of clear hydro sealer,<br>113 square feet per gallon,<br>per 100 square feet                   | PT@.174   | CSF  | —        | 7.33  | 7.33  | 12.50 |
| Spray 2nd coat of clear hydro sealer,<br>150 square feet per gallon,<br>per 100 square feet                   | PT@.148   | CSF  | —        | 6.24  | 6.24  | 10.60 |
| Spray 3rd or additional coats of clear hydro<br>sealer, 175 square feet per gallon,<br>per 100 square feet    | PT@.133   | CSF  | —        | 5.61  | 5.61  | 9.54  |

**Labor for painting gypsum drywall walls — roll and brush.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|   |         |     |   |      |      |       |
|---|---------|-----|---|------|------|-------|
| Roll and brush 1st coat of water-base flat latex,<br>275 square feet per gallon,<br>per 100 square feet         | PT@.186 | CSF | — | 7.84 | 7.84 | 13.30 |
| Roll and brush 2nd coat of water-base flat latex,<br>313 square feet per gallon,<br>per 100 square feet         | PT@.167 | CSF | — | 7.04 | 7.04 | 12.00 |
| Roll and brush additional coats of water-base<br>flat latex, 338 square feet per gallon,<br>per 100 square feet | PT@.154 | CSF | — | 6.49 | 6.49 | 11.00 |
| Roll and brush prime coat of water-base sealer,<br>263 square feet per gallon,<br>per 100 square feet           | PT@.200 | CSF | — | 8.43 | 8.43 | 14.30 |
| Roll and brush 1st finish coat of water-base<br>enamel, 263 square feet per gallon,<br>per 100 square feet      | PT@.222 | CSF | — | 9.36 | 9.36 | 15.90 |
| Roll and brush 2nd finish coat of water-base<br>enamel, 288 square feet per gallon,<br>per 100 square feet      | PT@.211 | CSF | — | 8.89 | 8.89 | 15.10 |

**Labor for painting gypsum drywall walls — spray.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|  |         |     |   |      |      |      |
|--|---------|-----|---|------|------|------|
| Spray 1st coat of water-base flat latex,<br>225 square feet per gallon,<br>per 100 square feet | PT@.125 | CSF | — | 5.27 | 5.27 | 8.96 |
| Spray 2nd coat of water-base flat latex,<br>275 square feet per gallon,<br>per 100 square feet | PT@.111 | CSF | — | 4.68 | 4.68 | 7.96 |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|---|-----------|------|----------|-------|-------|-------|
| Spray additional coats of water-base flat latex,<br>300 square feet per gallon,<br>per 100 square feet    | PT@.105   | CSF  | —        | 4.43  | 4.43  | 7.53  |
| Spray prime coat of water-base sealer,<br>225 square feet per gallon,<br>per 100 square feet              | PT@.136   | CSF  | —        | 5.73  | 5.73  | 9.74  |
| Spray 1st finish coat of water-base enamel,<br>238 square feet per gallon,<br>per 100 square feet         | PT@.148   | CSF  | —        | 6.24  | 6.24  | 10.60 |
| Spray 2nd finish coat of water-base enamel,<br>263 square feet per gallon,<br>per 100 square feet         | PT@.143   | CSF  | —        | 6.03  | 6.03  | 10.30 |
| Spray additional finish coats of water-base<br>enamel, 275 square feet per gallon,<br>per 100 square feet | PT@.129   | CSF  | —        | 5.44  | 5.44  | 9.25  |

**Labor for painting gypsum drywall ceiling — roll and brush.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|   |         |     |   |       |       |       |
|---|---------|-----|---|-------|-------|-------|
| Roll and brush 1st coat of flat latex,<br>275 square feet per gallon,<br>per 100 square feet                  | PT@.286 | CSF | — | 12.10 | 12.10 | 20.60 |
| Roll and brush 2nd coat of flat latex,<br>313 square feet per gallon,<br>per 100 square feet                  | PT@.267 | CSF | — | 11.30 | 11.30 | 19.20 |
| Roll and brush 3rd coat of flat latex,<br>338 square feet per gallon,<br>per 100 square feet                  | PT@.235 | CSF | — | 9.91  | 9.91  | 16.80 |
| Roll and brush prime coat of water-base sealer,<br>275 square feet per gallon,<br>per 100 square feet         | PT@.267 | CSF | — | 11.30 | 11.30 | 19.20 |
| Roll and brush 1st finish coat of water-base<br>enamel, 313 square feet per gallon,<br>per 100 square feet    | PT@.286 | CSF | — | 12.10 | 12.10 | 20.60 |
| Roll and brush additional coats of water-base<br>enamel, 338 square feet per gallon,<br>per 100 square feet   | PT@.250 | CSF | — | 10.50 | 10.50 | 17.90 |
| Roll and brush 1st coat of white epoxy coating,<br>288 square feet per gallon,<br>per 100 square feet         | PT@.308 | CSF | — | 13.00 | 13.00 | 22.10 |
| Roll and brush additional coats of white<br>epoxy coating, 288 square feet per gallon,<br>per 100 square feet | PT@.267 | CSF | — | 11.30 | 11.30 | 19.20 |

**Labor for painting gypsum drywall ceiling — spray.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|   |         |     |   |      |      |      |
|---|---------|-----|---|------|------|------|
| Spray 1st coat of flat latex,<br>200 square feet per gallon,<br>per 100 square feet | PT@.133 | CSF | — | 5.61 | 5.61 | 9.54 |
| Spray 2nd coat of flat latex,<br>225 square feet per gallon,<br>per 100 square feet | PT@.114 | CSF | — | 4.81 | 4.81 | 8.18 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| Spray additional coats of flat latex,<br>250 square feet per gallon,<br>per 100 square feet        | PT@.108   | CSF  | —        | 4.55  | 4.55  | 7.74 |
| Spray prime coat of water-base sealer,<br>200 square feet per gallon,<br>per 100 square feet       | PT@.125   | CSF  | —        | 5.27  | 5.27  | 8.96 |
| Spray 1st finish coat of water-base enamel,<br>225 square feet per gallon,<br>per 100 square feet  | PT@.121   | CSF  | —        | 5.10  | 5.10  | 8.67 |
| Spray additional coats of water-base enamel,<br>250 square feet per gallon,<br>per 100 square feet | PT@.114   | CSF  | —        | 4.81  | 4.81  | 8.18 |

**Labor for painting wood paneled walls — roll and brush.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Roll and brush water-base undercoat,<br>263 square feet per gallon,<br>per 100 square feet                               | PT@.333 | CSF | — | 14.00 | 14.00 | 23.80 |
| Roll and brush water-base split coat<br>(1/2 undercoat + 1/2 enamel), 263 square<br>feet per gallon, per 100 square feet | PT@.364 | CSF | — | 15.30 | 15.30 | 26.00 |
| Roll and brush 1st finish coat of water-base<br>enamel, 313 square feet per gallon,<br>per 100 square feet               | PT@.235 | CSF | — | 9.91  | 9.91  | 16.80 |

**Labor for painting wood paneled walls — spray.** Paint application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|   |         |     |   |       |       |       |
|---|---------|-----|---|-------|-------|-------|
| Spray water-base undercoat,<br>150 square feet per gallon,<br>per 100 square feet                               | PT@.235 | CSF | — | 9.91  | 9.91  | 16.80 |
| Spray water-base split coat<br>(1/2 undercoat + 1/2 enamel), 150 square<br>feet per gallon, per 100 square feet | PT@.250 | CSF | — | 10.50 | 10.50 | 17.90 |
| Spray 1st finish coat of water-base enamel,<br>225 square feet per gallon,<br>per 100 square feet               | PT@.182 | CSF | — | 7.67  | 7.67  | 13.00 |
| Spray additional finish coats of water-base<br>enamel, 325 square feet per gallon,<br>per 100 square feet       | PT@.154 | CSF | — | 6.49  | 6.49  | 11.00 |

**Labor for staining wood paneled walls.** Stain application only. Add the cost of surface preparation, protecting adjacent surfaces, mobilization, cleanup and callbacks. For heights above 8', use the high time difficulty factors.

|  |         |     |   |       |       |       |
|--|---------|-----|---|-------|-------|-------|
| Roll and brush each coat of solid or semi-transparent<br>stain, 450 square feet per gallon,<br>per 100 square feet | PT@.380 | CSF | — | 16.00 | 16.00 | 27.20 |
| Spray solid or semi-transparent stain,<br>250 square feet per gallon,<br>per 100 square feet                       | PT@.250 | CSF | — | 10.50 | 10.50 | 17.90 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Labor for painting windows to 15 square feet, 1, 2 or 3 panes, per side painted.** Paint application only. Add preparation time for sanding, puttying, protecting adjacent surfaces and masking or waxing window panes. For heights above 8', use the high time difficulty factors.

|   |         |    |   |       |       |       |
|---|---------|----|---|-------|-------|-------|
| Brush undercoat,<br>14.5 windows per gallon, per window                               | PT@.200 | Ea | — | 8.43  | 8.43  | 14.30 |
| Brush split coat (1/2 undercoat + 1/2 enamel),<br>16.5 windows per gallon, per window | PT@.250 | Ea | — | 10.50 | 10.50 | 17.90 |
| Brush finish coat of enamel,<br>15.5 windows per gallon, per window                   | PT@.300 | Ea | — | 12.60 | 12.60 | 21.40 |

**Labor for painting windows to 15 square feet, 4, 5 or 6 panes, per side painted.** Paint application only. Add preparation time for sanding, puttying, protecting adjacent surfaces and masking or waxing window panes. For heights above 8', use the high time difficulty factors.

|   |         |    |   |       |       |       |
|---|---------|----|---|-------|-------|-------|
| Brush undercoat,<br>13.5 windows per gallon, per window                               | PT@.300 | Ea | — | 12.60 | 12.60 | 21.40 |
| Brush split coat (1/2 undercoat + 1/2 enamel),<br>15.5 windows per gallon, per window | PT@.350 | Ea | — | 14.80 | 14.80 | 25.20 |
| Brush finish coat of enamel,<br>14.5 windows per gallon, per window                   | PT@.450 | Ea | — | 19.00 | 19.00 | 32.30 |

**Labor for painting windows to 15 square feet, 7 or 8 panes, per side painted.** Paint application only. Add preparation time for sanding, puttying, protecting adjacent surfaces and masking or waxing window panes. For heights above 8', use the high time difficulty factors.

|   |         |    |   |       |       |       |
|---|---------|----|---|-------|-------|-------|
| Brush undercoat,<br>13 windows per gallon, per window                               | PT@.400 | Ea | — | 16.90 | 16.90 | 28.70 |
| Brush split coat (1/2 undercoat + 1/2 enamel),<br>15 windows per gallon, per window | PT@.500 | Ea | — | 21.10 | 21.10 | 35.90 |
| Brush finish coat of enamel,<br>14 windows per gallon, per window                   | PT@.620 | Ea | — | 26.10 | 26.10 | 44.40 |

**Labor for painting windows to 15 square feet, 9, 10 or 11 panes, per side painted.** Paint application only. Add preparation time for sanding, puttying, protecting adjacent surfaces and masking or waxing window panes. For heights above 8', use the high time difficulty factors.

|   |         |    |   |       |       |       |
|---|---------|----|---|-------|-------|-------|
| Brush undercoat,<br>12 windows per gallon, per window                               | PT@.500 | Ea | — | 21.10 | 21.10 | 35.90 |
| Brush split coat (1/2 undercoat + 1/2 enamel),<br>14 windows per gallon, per window | PT@.620 | Ea | — | 26.10 | 26.10 | 44.40 |
| Brush finish coat of enamel,<br>13 windows per gallon, per window                   | PT@.730 | Ea | — | 30.80 | 30.80 | 52.40 |

**Labor for painting windows to 15 square feet, 12 panes, per side painted.** Paint application only. Add preparation time for sanding, puttying, protecting adjacent surfaces and masking or waxing window panes. For heights above 8', use the high time difficulty factors.

|   |         |    |   |       |       |       |
|---|---------|----|---|-------|-------|-------|
| Brush undercoat,<br>11 windows per gallon, per window                               | PT@.620 | Ea | — | 26.10 | 26.10 | 44.40 |
| Brush split coat (1/2 undercoat + 1/2 enamel),<br>13 windows per gallon, per window | PT@.670 | Ea | — | 28.20 | 28.20 | 47.90 |
| Brush finish coat of enamel,<br>12 windows per gallon, per window                   | PT@.800 | Ea | — | 33.70 | 33.70 | 57.30 |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Labor for painting windows, per square foot of window, per side painted.** Use figures in the following table to estimate labor for windows larger than 15 square feet (length times width). To calculate the window area, add 1 foot to each dimension (top, bottom, left and right side). Then multiply the width times length. For example, a window measuring 4' x 4' with 1 foot added to the top, bottom, right side and left side would be 6' x 6' or 36 square feet. Then, add 2 square feet for each window pane to allow time for painting the mullions, muntins and sash. The calculation for a 4' x 4' double-hung window with two panes would be 6' x 6' + 4', or 40 square feet. Add preparation time for sanding, puttying, protecting adjacent surfaces and masking or waxing window panes. For heights above 8', use the high time difficulty factors.

|   |         |     |   |       |       |       |
|---|---------|-----|---|-------|-------|-------|
| Brush undercoat, 450 square feet<br>per gallon, per 100 square feet                               | PT@.606 | CSF | — | 25.50 | 25.50 | 43.40 |
| Brush split coat (1/2 undercoat + 1/2 enamel), 500 square feet<br>per gallon, per 100 square feet | PT@.741 | CSF | — | 31.20 | 31.20 | 53.00 |
| Brush finish coat of enamel, 480 square feet<br>per gallon, per 100 square feet                   | PT@.885 | CSF | — | 37.30 | 37.30 | 63.40 |

### Exterior Solid Stain

**Deck Plus® solid color deck and siding stain, Behr.** 100% acrylic latex. Opaque. For decks (including pressure-treated), siding, fences and patio furniture. Water-repellent and mildew-resistant. Water cleanup. Resists scuffing, cracking and peeling. Covers 400 square feet per gallon. Dries to touch in 2 to 3 hours; to recoat in 24 hours. Full cure in 30 days.

|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Gallon    | — | Ea | 49.70  | — | 49.70  | — |
| 5 gallons | — | Ea | 149.00 | — | 149.00 | — |

**Premium Plus® solid color exterior stain, Behr.** Oil and latex formula. Water cleanup. Protects against fading, weathering and chalking for up to 10 years on vertical surfaces. Prevents cracking, peeling and blistering. Opaque finish covers wood grain and allows wood texture to remain. For exterior shakes, shingles, wood siding, fencing, trim, stucco and masonry surfaces.

|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Gallon    | — | Ea | 42.70  | — | 42.70  | — |
| 5 gallons | — | Ea | 198.00 | — | 198.00 | — |

### Acrylic exterior and interior stain, Behr.

|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Gallon    | — | Ea | 34.30  | — | 34.30  | — |
| 5 gallons | — | Ea | 141.00 | — | 141.00 | — |

**Preserva-Wood penetrating finish, Preserva products.** Will not crack or peel. Tinted natural finishes to enhance the natural beauty and color of various types of wood. Ultraviolet protection, environmentally responsible. Clear or tinted.

|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Quart     | — | Ea | 16.00  | — | 16.00  | — |
| Gallon    | — | Ea | 40.00  | — | 40.00  | — |
| 5 gallons | — | Ea | 180.00 | — | 180.00 | — |

**Wood bleach kit.** 2-part solution. Lightens stripped or unfinished wood. Prepares bare wood for staining. Pint covers 15 to 20 square feet.

|              |   |    |        |   |        |   |
|--------------|---|----|--------|---|--------|---|
| 2 Gallon A+B | — | Ea | 113.00 | — | 113.00 | — |
|--------------|---|----|--------|---|--------|---|

### Interior Oil Wiping Stain

**Wood finish wiping stain, Minwax®.** Use on interior bare or stripped wood surface. Penetrates into wood fibers to highlight grain. Available in 20 wood-tone colors.

|        |   |    |       |   |       |   |
|--------|---|----|-------|---|-------|---|
| Quart  | — | Ea | 9.32  | — | 9.32  | — |
| Gallon | — | Ea | 69.30 | — | 69.30 | — |

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|---|-----------|------|----------|-------|--------|------|
| <b>Watco™ Danish Oil™, Rust-Oleum®.</b> Natural, hand-rubbed appearance. Penetrating stain soaks into pores of wood. Won't crack, chip or peel. Walnut, fruitwood or natural tint.  |           |      |          |       |        |      |
| Pint  | —         | Ea   | 11.20    | —     | 11.20  | —    |
| Gallon  | —         | Ea   | 40.80    | —     | 40.80  | —    |
| <b>Waterborne Stain</b>   |           |      |          |       |        |      |
| <b>Water-based pickling stain, Minwax®.</b> Leaves a unique, subtle shade of white while allowing the natural wood grain to show through.   |           |      |          |       |        |      |
| Quart   | —         | Ea   | 26.80    | —     | 26.80  | —    |
| <b>Water-based wood stain, Minwax®.</b> Provides rich, even stain penetration. Fast drying and easily cleans up with soap and water.  |           |      |          |       |        |      |
| Half pint   | —         | Ea   | 10.40    | —     | 10.40  | —    |
| Quart   | —         | Ea   | 15.10    | —     | 15.10  | —    |
| <b>Gel Stain</b>  |           |      |          |       |        |      |
| <b>Gel stain.</b> Oil-based, gelled stain for finishing vertical surfaces and non-wood surfaces like fiberglass, metal, veneer and fiberboard. Non-drip formula. Suitable for fine woods. Controlled penetration for uniform color.   |           |      |          |       |        |      |
| Quart   | —         | Ea   | 20.80    | —     | 20.80  | —    |
| <b>Polyurethane stain, Minwax®.</b> Stain color and tough polyurethane protection in one easy step. Available in nine colors.   |           |      |          |       |        |      |
| Half pint   | —         | Ea   | 12.50    | —     | 12.50  | —    |
| Quart   | —         | Ea   | 20.20    | —     | 20.20  | —    |
| <b>Exterior Clear Wood Coating</b>  |           |      |          |       |        |      |
| <b>Spar varnish, Minwax®.</b> For outdoor furniture, doors, entryways, finish, and trim. Resists water, salt, and sun. Low volatile organic compounds (VOCs).   |           |      |          |       |        |      |
| Gloss, quart  | —         | Ea   | 22.50    | —     | 22.50  | —    |
| Gloss, gallon   | —         | Ea   | 61.80    | —     | 61.80  | —    |
| Satin, quart  | —         | Ea   | 23.90    | —     | 23.90  | —    |
| Satin, gallon   | —         | Ea   | 68.20    | —     | 68.20  | —    |
| <b>Man-O-War marine spar varnish, Valspar.</b> Protection against weathering and salt water. Resists cracking and peeling. Better than polyurethane. Expands and contracts with weather conditions. For fences and outdoor furniture. Gloss or satin finish.  |           |      |          |       |        |      |
| Gloss, quart  | —         | Ea   | 39.90    | —     | 39.90  | —    |
| Gloss, gallon   | —         | Ea   | 112.00   | —     | 112.00 | —    |
| <b>Helmsman® spar urethane, Minwax.</b> Clear finish protects wood exposed to sunlight, water or temperature changes. Ultraviolet absorbers help protect wood from graying and fading in the sun. Contains oils that help the finish expand and contract with wood as the seasons and temperature change. 24-hour drying time. 400 square feet per gallon. 2-3 coat application. Clean up with mineral spirits. High gloss, semi-gloss or satin finish. |           |      |          |       |        |      |
| Quart   | —         | Ea   | 23.90    | —     | 23.90  | —    |
| Gallon  | —         | Ea   | 60.40    | —     | 60.40  | —    |
| <b>Clearshield™ weather-resistant wood coating, Minwax®.</b> Clear protective topcoat with ultraviolet absorbers to help protect wood from weather damage. Satin or semi-gloss.   |           |      |          |       |        |      |
| Quart   | —         | Ea   | 26.50    | —     | 26.50  | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Varathane® exterior classic clear finish, water-based, Rust-Oleum®.</b> For outdoor patio furniture, garage doors and front doors. Excellent scratch and impact resistance. Transparent, non-yellowing, and low odor. Fast drying and easy water clean up. Gloss, semi-gloss or satin finish.   |           |      |          |       |        |      |
| 11.25-ounce aerosol  | —         | Ea   | 14.20    | —     | 14.20  | —    |
| Quart  | —         | Ea   | 21.30    | —     | 21.30  | —    |
| Gallon   | —         | Ea   | 66.60    | —     | 66.60  | —    |
| <b>Varathane® exterior classic clear finish, oil-based, Rust-Oleum®.</b> For outdoor furniture, garage doors and front doors. Excellent scratch and impact resistance. Expands and contracts with weather conditions. Fast drying and self-leveling. Gloss or satin finish.  |           |      |          |       |        |      |
| Quart  | —         | Ea   | 14.20    | —     | 14.20  | —    |
| Gallon   | —         | Ea   | 46.20    | —     | 46.20  | —    |
| <b>Log home gloss finish.</b> For log and timber frame homes, siding, fencing and railings. Contains mildewcide and offers UV protection. Water clean-up. Dries to the touch in 8 to 12 hours. Recoat after 24 hours. 3 to 4 coats provide maximum protection. Clear or cedar finish.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 42.30    | —     | 42.30  | —    |
| 5 gallons  | —         | Ea   | 190.00   | —     | 190.00 | —    |
| <b>Oil-based Polyurethane Interior Clear Finish</b>  |           |      |          |       |        |      |
| <b>Fast-drying clear polyurethane, Minwax®.</b> A clear, oil-based, durable protective finish for wood. Provides long-lasting protection and beauty to interior wood surfaces such as furniture, doors, cabinets and floors. Gloss, semi-gloss or satin finish.  |           |      |          |       |        |      |
| Half pint  | —         | Ea   | 8.28     | —     | 8.28   | —    |
| Quart  | —         | Ea   | 14.20    | —     | 14.20  | —    |
| Gallon   | —         | Ea   | 34.80    | —     | 34.80  | —    |
| 2-1/2 gallons  | —         | Ea   | 86.90    | —     | 86.90  | —    |
| <b>Varathane® oil-based floor finish, Rust-Oleum®.</b> High impact resistance. Self-leveling to eliminate brush marks. Scratch and mar resistance. High solids content. Gloss, semi-gloss or satin.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 60.40    | —     | 60.40  | —    |
| <b>Varathane® interior classic clear finish, oil-based, Rust-Oleum®.</b> Extra hard finish resists scuffing, chipping, and abrasion. Self-leveling. Outlasts varnish. Gloss, semi-gloss or satin.  |           |      |          |       |        |      |
| 12-ounce aerosol   | —         | Ea   | 20.00    | —     | 20.00  | —    |
| Quart  | —         | Ea   | 17.20    | —     | 17.20  | —    |
| Gallon   | —         | Ea   | 59.70    | —     | 59.70  | —    |
| <b>Waterborne Clear Finish</b>   |           |      |          |       |        |      |
| <b>Polycrylic® protective finish, Minwax®.</b> A hard, clear, ultra fast-drying protective finish. Non-flammable and very little odor. Cleans up with water. For use over light woods, pastel stained woods, painted surfaces, both latex- and oil-based and well-bonded wall coverings. Available in clear gloss, clear semi-gloss and clear satin. Covers 125 square feet per quart. Dries clear in 2 hours. |           |      |          |       |        |      |
| 11.5-ounce aerosol   | —         | Ea   | 15.80    | —     | 15.80  | —    |
| Half pint  | —         | Ea   | 11.90    | —     | 11.90  | —    |
| Quart  | —         | Ea   | 21.30    | —     | 21.30  | —    |
| Gallon   | —         | Ea   | 60.40    | —     | 60.40  | —    |
| <b>Parks PRO Finisher waterborne sanding sealer, Parks Corporation.</b> A fast-drying water-based sanding sealer to be used on unfinished wood before applying a waterborne top coat. Thoroughly sand sealer to retard grain raise.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 50.90    | —     | 50.90  | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Shellac</b>   |           |      |          |       |        |      |
| <b>Bulls Eye shellac, Zinsser.</b> Protects cabinetry, trim work, and furniture. Seals in stain to protect from water leaks, grease marks, smoke, and soot. Adheres to glossy surfaces without sanding. Seals knots and tannins. May be tinted to produce fast-drying deep color primer. Interior use only. Clear or amber color.  |           |      |          |       |        |      |
| Amber, quart   | —         | Ea   | 19.00    | —     | 19.00  | —    |
| Amber, gallon  | —         | Ea   | 58.60    | —     | 58.60  | —    |
| Clear, quart   | —         | Ea   | 19.00    | —     | 19.00  | —    |
| Clear, gallon  | —         | Ea   | 58.00    | —     | 58.00  | —    |
| <b>Water Seal for Wood</b>   |           |      |          |       |        |      |
| <b>WaterSeal® clear wood protector, Thompson's.</b> Enhance and maintain wood's natural color. Protects against damage from water and sun and provides a mildew-resistant coating. Oil-enriched formula provides long-lasting protection for all types of wood.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 14.20    | —     | 14.20  | —    |
| 5 gallons  | —         | Ea   | 64.60    | —     | 64.60  | —    |
| <b>WaterSeal® clear multi-surface waterproofer, Thompson's.</b> For wood, brick, concrete, stucco and masonry. Can be applied to ACQ pressure-treated wood. Protects against warping, cracking, swelling, and water damage. Paintable. One-coat coverage. Withstands abrasion. Allows wood to weather naturally. Prevents moisture from penetrating by setting up barrier beneath. Goes on milky white, dries clear. |           |      |          |       |        |      |
| 12-ounce aerosol   | —         | Ea   | 5.91     | —     | 5.91   | —    |
| Gallon   | —         | Ea   | 27.60    | —     | 27.60  | —    |
| 5 gallons  | —         | Ea   | 75.80    | —     | 75.80  | —    |
| <b>Waterproofing wood protector, Behr.</b> For decks, fences, siding and furniture. Lasts up to one year on decks and up to two years on fences and siding.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 35.60    | —     | 35.60  | —    |
| 5 gallons  | —         | Ea   | 137.00   | —     | 137.00 | —    |
| <b>Advanced wood protector.</b> Clear or tinted.   |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 36.50    | —     | 36.50  | —    |
| 5 gallons  | —         | Ea   | 182.00   | —     | 182.00 | —    |
| <b>Wood Preservative</b>   |           |      |          |       |        |      |
| <b>Copper-Green wood preservative.</b> Exterior, green, water-repellent. For marine or below-ground use. Deep-penetrating formula. For wood in contact with soil and water. Protects against wood rot, warping, swelling, termite damage, mildew and moisture. Water clean up.   |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 38.40    | —     | 38.40  | —    |
| <b>Seasonite® new wood treatment, The Flood Company.</b> Protects pressure-treated and untreated wood against moisture. Provides a gradual seasoning process to reduce warping, cupping, splitting, and checking. Readies surface for painting, staining, or finishing. Ideal for new deck and patio lumber. Mildew resistant. Soap and water clean up.  |           |      |          |       |        |      |
| 2.5 liter  | —         | Ea   | 56.20    | —     | 56.20  | —    |
| <b>Termin-8 wood preservative, green, Jasco.</b> Oil-based. Preserves and protects wood from carpenter ants, termites, and powder post beetles. Protects against rot, warping, mildew, swelling, fungus, and moss. Slow drying for deep absorption. Exterior or marine use. Gallon covers 100 to 300 square feet. Paintable after 2 to 7 days  |           |      |          |       |        |      |
| Quart  | —         | Ea   | 14.20    | —     | 14.20  | —    |
| Gallon   | —         | Ea   | 31.70    | —     | 31.70  | —    |
| 5 gallons  | —         | Ea   | 133.00   | —     | 133.00 | —    |

|   | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|---|-----------|------|----------|-------|-------|------|
| <b>Copper wood preservative, Jasco.</b> |           |      |          |       |       |      |
| Brown, quart                            | —         | Ea   | 22.60    | —     | 22.60 | —    |
| Brown, gallon                           | —         | Ea   | 47.20    | —     | 47.20 | —    |
| Clear, quart                            | —         | Ea   | 22.60    | —     | 22.60 | —    |
| Clear, gallon                           | —         | Ea   | 47.20    | —     | 47.20 | —    |

**ZPW clear wood preservative, Jasco.** Kills termites, carpenter ants, protects decks and fences. Use inside or outside house above or below ground. Paintable and tintable. Controls warping, swelling and cracking.

|        |   |    |       |   |       |   |
|--------|---|----|-------|---|-------|---|
| Quart  | — | Ea | 14.20 | — | 14.20 | — |
| Gallon | — | Ea | 29.20 | — | 29.20 | — |

## Wood Conditioners

### Tung oil.

|       |   |    |       |   |       |   |
|-------|---|----|-------|---|-------|---|
| Quart | — | Ea | 24.80 | — | 24.80 | — |
|-------|---|----|-------|---|-------|---|

**Boston polish, Butcher's.** Like White Diamond bowling alley wax except for color. Amber tint hides kinks and scratches on wood.

|              |   |    |       |   |       |   |
|--------------|---|----|-------|---|-------|---|
| Amber, pound | — | Ea | 49.10 | — | 49.10 | — |
|--------------|---|----|-------|---|-------|---|

**White Diamond bowling alley wax, Butcher's.** Clear wax in turpentine and other select solvents. Cleans as it waxes. Polishes easily to a deep luster. Also recommended for shoes, boots, leather, copper, brass, fiberglass, marble, sealed brick and flagstone, linoleum and cork floors.

|              |   |    |       |   |       |   |
|--------------|---|----|-------|---|-------|---|
| Clear, pound | — | Ea | 31.60 | — | 31.60 | — |
|--------------|---|----|-------|---|-------|---|

### Teak oil, Valspar.

|       |   |    |       |   |       |   |
|-------|---|----|-------|---|-------|---|
| Quart | — | Ea | 18.10 | — | 18.10 | — |
|-------|---|----|-------|---|-------|---|

**Finishing paste wax, Minwax®.** Protects and adds luster to any stained or finished wood surface.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| 1.2 pound | — | Ea | 27.40 | — | 27.40 | — |
|-----------|---|----|-------|---|-------|---|

**Wood conditioner, Minwax®.** Ensures even stain penetration on soft or porous woods such as pine, fir, alder and maple. When working with soft or porous woods, wood conditioner helps prevent stains from blotching and streaking.

|        |   |    |       |   |       |   |
|--------|---|----|-------|---|-------|---|
| Pint   | — | Ea | 14.90 | — | 14.90 | — |
| Quart  | — | Ea | 29.80 | — | 29.80 | — |
| Gallon | — | Ea | 70.70 | — | 70.70 | — |

## Interior Primers

**Interior enamel undercoater.** Improves sheen, hide, adhesion, flow and leveling of enamel topcoats. Blocks stains. Conceals surface blemishes. For use with wood, drywall, plaster, stucco, masonry, brick and metal. Use prior to top-coating with satin, semi-gloss and high-gloss topcoats.

|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Quart     | — | Ea | 12.20  | — | 12.20  | — |
| Gallon    | — | Ea | 28.50  | — | 28.50  | — |
| 5 gallons | — | Ea | 117.00 | — | 117.00 | — |

**Interior polyvinyl acrylic latex primer, Speed-Wall®.** General purpose. Easy application, fast-drying and high-hiding. Covers 400 square feet per gallon.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| Gallon    | — | Ea | 13.70 | — | 13.70 | — |
| 5 gallons | — | Ea | 56.90 | — | 56.90 | — |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>KILZ® Premium sealer-primer-stainblocker, Masterchem.</b> Interior/exterior, water-base formula. Superior stainblocker. Great for mildew-prone areas. Excellent enamel undercoater. High hide and durability.   |           |      |          |       |        |      |
| Quart  | —         | Ea   | 14.20    | —     | 14.20  | —    |
| Gallon   | —         | Ea   | 30.80    | —     | 30.80  | —    |
| 5 gallons  | —         | Ea   | 137.00   | —     | 137.00 | —    |
| <b>Interior Paint</b>  |           |      |          |       |        |      |
| <b>Interior latex ceiling paint.</b> Minimal splatter and excellent coverage. Hides minor surface imperfections and dries quickly to a smooth, even finish. Clean up with water. Covers 300 square feet per gallon.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 29.60    | —     | 29.60  | —    |
| 5 gallons  | —         | Ea   | 110.00   | —     | 110.00 | —    |
| <b>Interior acrylic latex flat wall and trim paint.</b> Dries to a smooth, even finish. Hides minor surface imperfections. Easy to clean up and dries quickly. Covers 400 square feet per gallon.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 15.00    | —     | 15.00  | —    |
| 5 gallons  | —         | Ea   | 71.60    | —     | 71.60  | —    |
| <b>Ultra-Hide® interior latex flat finish, Glidden.</b> For use on interior walls, ceilings, and low-traffic areas. High-hiding with excellent touch-up ability when applied by spray, brush, or roller. Quick drying and recoat. Covers 400 square feet per gallon. |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 25.20    | —     | 25.20  | —    |
| 5 gallons  | —         | Ea   | 89.20    | —     | 89.20  | —    |
| <b>Premium Plus® interior flat paint, Behr.</b> 100% acrylic latex. Hides minor surface imperfections. For walls, woodwork and ceilings. Lifetime guarantee. Matte, flat finish. Easy water clean up.  |           |      |          |       |        |      |
| Pastel base, gallon  | —         | Ea   | 31.80    | —     | 31.80  | —    |
| Pastel base, 5 gallons   | —         | Ea   | 136.00   | —     | 136.00 | —    |
| Ultra white, quart   | —         | Ea   | 14.60    | —     | 14.60  | —    |
| Ultra white, gallon  | —         | Ea   | 31.70    | —     | 31.70  | —    |
| Ultra white, 5 gallons   | —         | Ea   | 142.00   | —     | 142.00 | —    |
| <b>Latex eggshell wall and trim paint.</b> Acrylic latex. 15-year durability.  |           |      |          |       |        |      |
| Quart  | —         | Ea   | 16.60    | —     | 16.60  | —    |
| Gallon   | —         | Ea   | 37.90    | —     | 37.90  | —    |
| 5 gallons  | —         | Ea   | 113.00   | —     | 113.00 | —    |
| <b>Ultra-Hide® interior latex eggshell, Glidden.</b>   |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 22.60    | —     | 22.60  | —    |
| 5 gallons  | —         | Ea   | 102.00   | —     | 102.00 | —    |
| <b>Latex satin wall and trim enamel, Behr.</b> 100% acrylic latex. For kitchens and bathrooms. Exceptional washability, scrubability, stain and mildew-resistance. Pearl-like finish. Hides minor surface imperfections. Superior adhesion. Lifetime guarantee.      |           |      |          |       |        |      |
| Quart  | —         | Ea   | 17.70    | —     | 17.70  | —    |
| Gallon   | —         | Ea   | 37.90    | —     | 37.90  | —    |
| 5 gallons  | —         | Ea   | 166.00   | —     | 166.00 | —    |
| <b>Ultra-Hide® interior latex semi-gloss wall and trim enamel, Glidden.</b> High-hiding. Good adhesion and moisture resistance. Easy application. Fast-drying. Covers 400 square feet per gallon.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 42.70    | —     | 42.70  | —    |
| 5 gallons  | —         | Ea   | 192.00   | —     | 192.00 | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Speed-Wall® interior latex semi-gloss wall and trim enamel, Glidden.</b> Good dry hide. Hard and durable. Easy application. Fast-drying. Covers 400 to 450 square feet per gallon.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 18.50    | —     | 18.50  | —    |
| 5 gallons  | —         | Ea   | 74.60    | —     | 74.60  | —    |
| <b>Enamel semi-gloss interior latex paint, Behr.</b> For walls, ceilings, trim, previously painted or primed masonry, previously painted or primed metal. Scrubbable finish. Resists scuffs and stains. Quick-drying.  |           |      |          |       |        |      |
| Quart  | —         | Ea   | 21.30    | —     | 21.30  | —    |
| Gallon   | —         | Ea   | 47.40    | —     | 47.40  | —    |
| 5 gallons  | —         | Ea   | 209.00   | —     | 209.00 | —    |
| <b>Premium Plus® interior and exterior high-gloss enamel, Behr.</b> 100% acrylic latex. Mildew-proof. Glass-like finish. For kitchen, bath, railings, trim, doors, cabinets, and woodwork. Exceptional washability and stain removal.  |           |      |          |       |        |      |
| Quart  | —         | Ea   | 17.50    | —     | 17.50  | —    |
| Gallon   | —         | Ea   | 37.50    | —     | 37.50  | —    |
| 5 gallons  | —         | Ea   | 174.00   | —     | 174.00 | —    |
| <b>Ultra-Hide® interior and exterior alkyd gloss enamel, Glidden.</b> Durable high-gloss finish. High solids and low VOC. Good abrasion resistance. Excellent resistance to grease, oil and water. Covers 350 to 400 square feet per gallon.   |           |      |          |       |        |      |
| Quart  | —         | Ea   | 22.10    | —     | 22.10  | —    |
| Gallon   | —         | Ea   | 42.70    | —     | 42.70  | —    |
| 5 gallons  | —         | Ea   | 189.00   | —     | 189.00 | —    |
| <b>Interior texture paint, Behr.</b> Decorative finish for walls and ceilings. Alternative to wallpaper, borders, and stenciling. Reinforced with interwoven fibers to easily repair old textured surfaces. Usable with topcoat. Brightest white, ready to use. 2-gallon container.  |           |      |          |       |        |      |
| Trowel-on Mediterranean ceiling  | —         | Ea   | 39.00    | —     | 39.00  | —    |
| Sand stucco knockdown  | —         | Ea   | 39.00    | —     | 39.00  | —    |
| Roll-on smooth acoustic  | —         | Ea   | 39.00    | —     | 39.00  | —    |
| <b>Roll-on stucco texture, Litex.</b> Interior and exterior.   |           |      |          |       |        |      |
| 3.5 gallons  | —         | Ea   | 57.10    | —     | 57.10  | —    |
| <b>Sand-Texture™, Homax®.</b> A classic wall texture for a sandstone-like finish. Mixes with any paint, won't change the color of the paint. Use one package per gallon.   |           |      |          |       |        |      |
| 6 ounces   | —         | Ea   | 5.85     | —     | 5.85   | —    |
| <b>Perlite texturing paint additive, Litex.</b> Add to any paint to create texture and sand finishes.  |           |      |          |       |        |      |
| Fine, quart  | —         | Ea   | 5.26     | —     | 5.26   | —    |
| Medium, quart  | —         | Ea   | 5.26     | —     | 5.26   | —    |
| Coarse, quart  | —         | Ea   | 5.26     | —     | 5.26   | —    |
| <b>Exterior Primer</b>   |           |      |          |       |        |      |
| <b>Oil-based exterior primer sealer.</b> Universal undercoat for use on wood, hardboard, aluminum and wrought iron. Prevents extractive bleeding.  |           |      |          |       |        |      |
| Quart  | —         | Ea   | 20.30    | —     | 20.30  | —    |
| Gallon   | —         | Ea   | 44.40    | —     | 44.40  | —    |
| <b>Water-based concrete bonding primer, No. 880, Behr.</b> Clear epoxy treatment for porous concrete, garage floors, driveways, walkways, patios and stucco. Penetrates and bonds. Resistant to water, alkali, and efflorescence. Creates a sound surface for painting or staining. Promotes uniform finish of topcoats. Dries to touch in 2 to 4 hours. Approximately 350 to 400 square feet per gallon coverage. |           |      |          |       |        |      |
| Clear, gallon  | —         | Ea   | 27.20    | —     | 27.20  | —    |

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Premium Plus® exterior water-base primer and sealer, Behr.** 100% acrylic latex. Multi-purpose stain blocking.

Use on exterior wood, hardboard, masonry, stucco, brick, galvanized metal, and aluminum.

|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Quart     | — | Ea | 15.60  | — | 15.60  | — |
| Gallon    | — | Ea | 28.50  | — | 28.50  | — |
| 5 gallons | — | Ea | 125.00 | — | 125.00 | — |

**KILZ® exterior sealer primer stainblocker, Masterchem.** Exterior oil-base formula. Resists cracking and peeling.

Mildew-resistant coating. Blocks tannin bleed on redwood and cedar.

|           |   |    |       |   |       |   |
|-----------|---|----|-------|---|-------|---|
| Gallon    | — | Ea | 21.30 | — | 21.30 | — |
| 5 gallons | — | Ea | 90.10 | — | 90.10 | — |

## Exterior Paint

**Glidden Premium® exterior latex house and trim paint, 20 year.** 100% acrylic to protect against UV rays, color fading and severe weather conditions. Hides minor surface imperfections, gives a mildew-resistant coating. Non-chalking. Good weather resistance against dirt, blistering and peeling. For siding, wood, stucco, brick and masonry surfaces. Use the satin finish on windows and doors. Covers 300 to 400 square feet per gallon.

|                       |   |    |        |   |        |   |
|-----------------------|---|----|--------|---|--------|---|
| Flat, quart           | — | Ea | 17.80  | — | 17.80  | — |
| Flat, gallon          | — | Ea | 32.00  | — | 32.00  | — |
| Flat, 5 gallon        | — | Ea | 163.00 | — | 163.00 | — |
| Satin, quart          | — | Ea | 20.10  | — | 20.10  | — |
| Satin, gallon         | — | Ea | 42.00  | — | 42.00  | — |
| Satin, 5 gallons      | — | Ea | 177.00 | — | 177.00 | — |
| Semi-gloss, quart     | — | Ea | 20.40  | — | 20.40  | — |
| Semi-gloss, gallon    | — | Ea | 40.10  | — | 40.10  | — |
| Semi-gloss, 5 gallons | — | Ea | 215.00 | — | 215.00 | — |
| Gloss, quart          | — | Ea | 24.30  | — | 24.30  | — |
| Gloss, gallon         | — | Ea | 47.00  | — | 47.00  | — |

**Premium Plus® exterior paint, Behr.** 100% acrylic latex. Mildew and fade resistant. For use on wood, masonry, brick, stucco, vinyl and aluminum siding, and metal.

|                       |   |    |        |   |        |   |
|-----------------------|---|----|--------|---|--------|---|
| Flat, quart           | — | Ea | 16.50  | — | 16.50  | — |
| Flat, gallon          | — | Ea | 40.30  | — | 40.30  | — |
| Flat, 5 gallons       | — | Ea | 184.00 | — | 184.00 | — |
| Satin, gallon         | — | Ea | 43.80  | — | 43.80  | — |
| Satin, 5 gallons      | — | Ea | 195.00 | — | 195.00 | — |
| Semi-gloss, quart     | — | Ea | 20.10  | — | 20.10  | — |
| Semi-gloss, gallon    | — | Ea | 46.20  | — | 46.20  | — |
| Semi-gloss, 5 gallons | — | Ea | 208.00 | — | 208.00 | — |

## Masonry and Stucco Paint

**Plus 10® latex flat masonry and stucco paint, Behr.** For interior or exterior use. Acrylic latex paint for smooth, rough and textured masonry surfaces. Weather- and temperature-resistant.

|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Gallon    | — | Ea | 27.20  | — | 27.20  | — |
| 5 gallons | — | Ea | 124.00 | — | 124.00 | — |

**Plus 10® elastomeric waterproofing paint, Behr.** Acrylic latex for masonry, stucco, and concrete. Exterior, flexible, high-build coating. Expands and contracts, bridging hairline cracks. Stretches up to 600%. Resists mildew and dirt. Retains color. Passes Federal Specification TT-C-555B sec. 3.3.3.

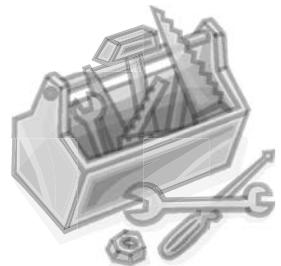
|           |   |    |        |   |        |   |
|-----------|---|----|--------|---|--------|---|
| Gallon    | — | Ea | 36.70  | — | 36.70  | — |
| 5 gallons | — | Ea | 168.00 | — | 168.00 | — |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Concrete Coatings</b>   |           |      |          |       |        |      |
| <b>Waterproofing sealer, Seal-Krete.</b> Waterborne, high-binding acrylic base. Penetrating sealer formulated for use on all vertical concrete, cement, masonry and stucco surfaces. Non-toxic.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 19.30    | —     | 19.30  | —    |
| 5 gallons  | —         | Ea   | 89.20    | —     | 89.20  | —    |
| <b>Exposed aggregate sealer.</b>   |           |      |          |       |        |      |
| Brown or clear, gallon   | —         | Ea   | 32.40    | —     | 32.40  | —    |
| Brown or clear, 5 gallons  | —         | Ea   | 130.00   | —     | 130.00 | —    |
| <b>Concrete and masonry waterproofer, Behr.</b> Penetrating water-based silicone formula reduces water damage and deterioration for up to 10 years. Forms a breathable barrier that reduces corrosion, freeze-thaw damage, mildew and algae staining.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 32.00    | —     | 32.00  | —    |
| 5 gallons  | —         | Ea   | 143.00   | —     | 143.00 | —    |
| <b>Thoroseal® protective coating, Thoro.</b> For walls, pool floors, cisterns, tanks, and masonry reservoirs. Finishes masonry of all types. Seals water and dampness out of walls, above or below grade, inside or out. Leakproofs water containers. Under ordinary water conditions, 2 pounds cover 1 square yard as a base coat; 1 pound covers 1 square yard as a second coat. Under extreme water pressures, 1 brush coat at 2 pounds per square yard and 1 trowel coat. White or gray. |           |      |          |       |        |      |
| 50 pound bag   | —         | Ea   | 85.00    | —     | 85.00  | —    |
| <b>Epoxy floor coating, 2 part.</b> Prevents hot tire pickup. Resists gasoline, oil, grease, acid, transmission fluid, saltwater, bleach, and alkali.  |           |      |          |       |        |      |
| Clear, 2 gallon  | —         | Ea   | 133.00   | —     | 133.00 | —    |
| Gray, 2 gallon   | —         | Ea   | 133.00   | —     | 133.00 | —    |
| <b>Cure-Seal wet-look concrete sealer, Jasco.</b> Protects exposed aggregate, brick, flagstone, and concrete from oil, rust, and water staining. Dries clear. Covers 150 to 400 square feet per gallon. Ready for traffic in eight to 24 hours.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 30.70    | —     | 30.70  | —    |
| 5 gallons  | —         | Ea   | 101.00   | —     | 101.00 | —    |
| <b>Plus 10® concrete stain.</b> Durable, water-repellent. Interior and exterior. Forms tough, longwearing film on all properly-prepared surfaces such as patios, basements, pool decks, pillars, bricks and sidewalks. Natural slate color. 100% acrylic resins.   |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 37.90    | —     | 37.90  | —    |
| 5 gallons  | —         | Ea   | 169.00   | —     | 169.00 | —    |
| <b>Gloss porch and floor enamel.</b> 100% acrylic. Mildew-resistant. Dries to touch in 2 hours. Recoat in 24 to 48 hours. Full cure in 30 days.  |           |      |          |       |        |      |
| Gloss, quart   | —         | Ea   | 16.80    | —     | 16.80  | —    |
| Gloss, gallon  | —         | Ea   | 37.20    | —     | 37.20  | —    |
| Slate gray, low luster, gallon   | —         | Ea   | 36.70    | —     | 36.70  | —    |
| Slate gray, low luster, 5 gallons  | —         | Ea   | 171.00   | —     | 171.00 | —    |
| <b>Porch and floor polyurethane oil gloss, Glidden.</b> For interior or exterior wood and concrete floors, stairs, porches, railings and steps. Covers 400 to 500 square feet per gallon.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 35.60    | —     | 35.60  | —    |
| 5 gallons  | —         | Ea   | 132.00   | —     | 132.00 | —    |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell |
|--|-----------|------|----------|-------|--------|------|
| <b>Rust Preventative</b>   |           |      |          |       |        |      |
| <b>Clean metal primer.</b> White. For use on bare, lightly rusted or previously-painted surfaces. Creates a strong surface for better topcoat adhesion and weather resistance.   |           |      |          |       |        |      |
| Quart  | —         | Ea   | 13.00    | —     | 13.00  | —    |
| Quart, low VOC   | —         | Ea   | 12.90    | —     | 12.90  | —    |
| <b>Rust converting metal primer.</b> Non-toxic, USDA and FDA approved. Heat-resistant up to 800 degrees F. Five-year guarantee. Works on clean or rusty steel, zinc galvanized metal, core tan steel, aluminum, tin, previously painted surfaces and barbeques. When applied over new metal, will prevent rusting.   |           |      |          |       |        |      |
| Quart  | —         | Ea   | 24.30    | —     | 24.30  | —    |
| Gallon   | —         | Ea   | 78.10    | —     | 78.10  | —    |
| <b>Professional oil-based enamel, Rust-Oleum®.</b> Tough industrial enamel. Prevents rust, resists cracking, peeling, chipping, and fading. Scuff-, abrasion- and moisture-resistant. Lead-free. Not low-volatile-organic-compound compliant.  |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 37.90    | —     | 37.90  | —    |
| 5 gallons  | —         | Ea   | 142.00   | —     | 142.00 | —    |
| <b>Stops Rust, Rust-Oleum®.</b> Resists moisture and corrosion. For metal, wood, concrete and masonry.   |           |      |          |       |        |      |
| Half pint  | —         | Ea   | 6.87     | —     | 6.87   | —    |
| Quart  | —         | Ea   | 13.00    | —     | 13.00  | —    |
| <b>Rusty metal primer.</b> Fish oil based formula penetrates rust to bare metal. Drives out corrosive air and moisture. Bonds tightly to rust to form a surface that topcoats can adhere to. Volatile organic compound (VOC) compliant.  |           |      |          |       |        |      |
| Half pint  | —         | Ea   | 8.15     | —     | 8.15   | —    |
| Quart  | —         | Ea   | 13.00    | —     | 13.00  | —    |
| <b>Specialty Coatings</b>  |           |      |          |       |        |      |
| <b>Chlorinated rubber swimming pool paint, Insl-X.</b> For new or existing pools, indoor or outdoor. Semi-gloss, self-priming for gunite and marcite pools. Durable in salt or fresh water. Resists fading, fungus, algae, abrasion and alkalis.   |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 89.00    | —     | 89.00  | —    |
| <b>Barn and fence paint.</b>   |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 21.30    | —     | 21.30  | —    |
| 5 gallons  | —         | Ea   | 95.50    | —     | 95.50  | —    |
| <b>Tru-Glaze 4508™ epoxy gloss coating, Devoe.</b> Waterborne. Hard, durable high-performance architectural coating for use on interior concrete, concrete block, drywall, metal and wood.   |           |      |          |       |        |      |
| 5 Gallons  | —         | Ea   | 633.00   | —     | 633.00 | —    |
| <b>Tru-Glaze 4030™ epoxy primer, Devoe.</b> High-performance waterborne epoxy rust-inhibitive primer for steel, aluminum and certain galvanized metal surfaces. Can also be used over concrete, masonry, glazed brick or ceramic tile. Excellent adhesion, chemical resistance, and good resistance to splash, spillage or fumes for a wide range of chemicals. May be top-coated with epoxy, urethane, alkyd or latex coatings. |           |      |          |       |        |      |
| Gallon   | —         | Ea   | 77.70    | —     | 77.70  | —    |

# Earthquake Damage

18



Most homes built more than 100 years ago were constructed with little or no regard for seismic safety. Earthquakes were considered random acts of nature that couldn't be forecast or prevented. Damage was inevitable — but only for the unfortunate few in the area affected. And there was no way to anticipate who would be affected. So there was little reason, and no practical way, to build for earthquake safety.

Since the 1930s, our perspective has changed, largely due to analysis of damage and loss of life from earthquakes in California and elsewhere. Earthquakes remain unpredictable and inevitable. But damage and loss of life is not. Materials have improved, codes have improved, our understanding of how earthquakes affect structures has improved. Homes and commercial buildings constructed under modern codes, such as the *International Residential Code (IRC)* and the *International Building Code (IBC)*, have to meet the seismic safety standards appropriate for the community where built.

But for many years to come, older buildings along the Pacific rim will be susceptible to damage or destruction from earthquake. Buildings along the central Mississippi valley, the eastern seaboard and in other areas may also be damaged by seismic activity. According to the U.S. Geological Survey, every U.S. state has had an earthquake. Florida and North Dakota have the least quakes. Florida's last earthquake was in 2006. North Dakota hasn't had a quake since 1968.

## Types of Damage

Damage from earthquakes can be either structural or cosmetic. Any compromise in the ability of a building to resist expected loads is considered structural damage. Some structural damage can be repaired. For example, it's common for wood-frame walls, window openings and doorways to be twisted out of alignment by an earthquake. If the framing is otherwise sound, the wall can be braced back into alignment and secured in place, and may last for many years.

Other structural damage is more difficult to repair. For example, the massive structural failure in Figure 18-1 makes this home a candidate for demolition rather than improvement. Expect local authorities to prohibit entry into this home, at least until a licensed structural engineer makes an evaluation of whether it's safe to re-enter the building. The *International Property Maintenance Code (IPMC)*, where



(Photo courtesy of FEMA)

**Figure 18-1**

A candidate for demolition

adopted, gives the building department authority to deal with public hazards like this. A building official will usually notify the property owner of the action required. If the owner doesn't comply, the building official can expel the occupants, secure the building or even demolish the structure.

Nearly all cosmetic damage can be repaired. Stiff, brittle materials, such as wallboard, brick masonry and glass tend to fracture under earthquake loads. When placed under stress by sudden ground movement, well-anchored wood framing will deflect and then rebound. But finish materials (such as plaster, wallboard or stucco) will show evidence of stress by developing cracks at joints and corners. Most repair of earthquake damage involves patching and matching. These cosmetic repairs won't prevent similar damage in the future. But the next earthquake may be years or decades into the future, perhaps well beyond the useful life of the building.

### **Structural Improvements**

When making earthquake repairs, consider making upgrades that can prevent damage in the future, especially serious structural damage. The Federal Emergency Management Agency (FEMA) offers a list of cost-effective structural improvements in *Home Builder's Guide to Seismic Resistant Construction*. These seismic improvements are especially cost-effective when made at the same time earthquake damage is repaired. What FEMA recommends won't bring an older building up to the standard set by modern building codes. But FEMA recommendations address the most common failures found when older buildings are damaged by earthquake.

Structural home improvements require a permit nearly everywhere in the U.S. All construction contractors understand the risk of working without a permit. But you've probably met owners who don't want an inspector on the property. Their concern is that an inspector will require the entire building to be brought up to code. That's possible. But it isn't likely. And it isn't required by the code. *International Residential Code* Section R102.7.1 requires only that new work conform to the *IRC*. Existing construction is grandfathered in unless it's inherently unsafe (such as an unreinforced masonry chimney) or reduces performance of the house. What that means is a matter for negotiation. But in any negotiation over improvements to an older building, both the contractor and the owner have an advantage. What you plan to do will increase the durability, safety and the value of the structure. That's a benefit to everyone. If the building department makes demands the owner can't meet, nothing is going to happen — neither the improvements you plan nor what the building department requests. On that basis, the building department will usually be quite reasonable. But it's always good practice to discuss the issue of code upgrades when applying for a permit to work on an existing building.

In any case, professional home improvement contractors who value their reputation (and their license) are well-advised to resist the temptation to work without a permit.

## What FEMA Recommends

FEMA has studied hundreds of structural failures caused by earthquakes. Many of these failures could have been limited or eliminated entirely with a few straps, anchors or braces. Consider making the changes recommended in this chapter any time you repair earthquake damage. Most of these changes can be made at a very reasonable cost.

Here are the defects FEMA has cited as most common in older homes:

- ❖ missing or inadequate bolting to the foundation
- ❖ inadequate cripple wall bracing
- ❖ damage to bracing and finish materials
- ❖ excessive drift at garage fronts
- ❖ partial or complete collapse of hillside houses
- ❖ separation and loss of vertical support at “split-level” floor offsets
- ❖ damage and collapse of masonry chimneys

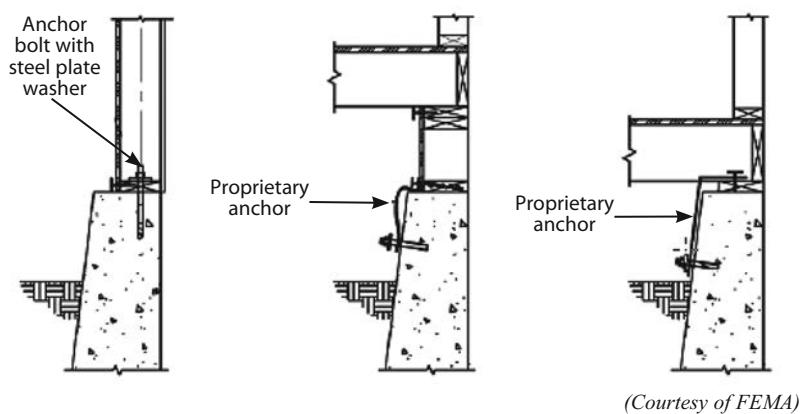
Nearly every older home in a seismic zone is a candidate for one or more of these improvements.

### Foundation Bolting

Many houses constructed in California before 1950, and even later in other parts of the United States, do not have anchor bolts that attach the wall bottom plate or foundation sill plate securely to the foundation. During an earthquake, wood framing can slide off the foundation. If you’re doing cosmetic earthquake repairs in an older building, note the presence or absence of anchor bolts. *IRC* code section 403.1.6 requires a 1/2" anchor bolt embedded 7 inches into concrete every 6 feet.

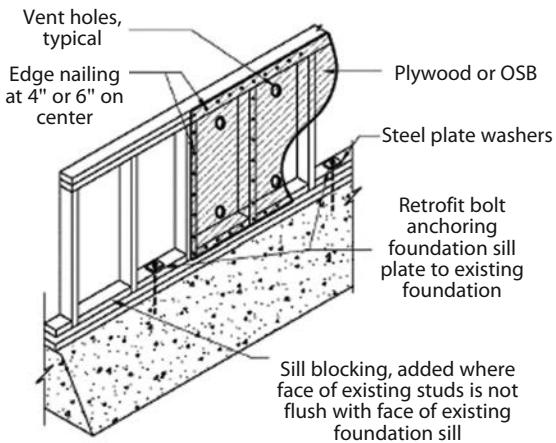
If you don’t find anchor bolts where expected, adding additional anchor bolts isn’t particularly difficult or expensive. Figure 18-2 suggests three good options. Drill expansion-type anchors into a reinforced concrete or masonry foundation. Adhesive anchors are a good choice for use in unreinforced masonry or weaker concrete foundations, but can be used with any type of foundation. Be sure to place a steel plate washer under each anchor head.

If there isn’t enough working area to drill an anchor bolt hole through the bottom plate and into the foundation, use one of the other type of anchors shown in Figure 18-2. All of these anchors will transfer horizontal earthquake loads from framing to the foundation.



(Courtesy of FEMA)

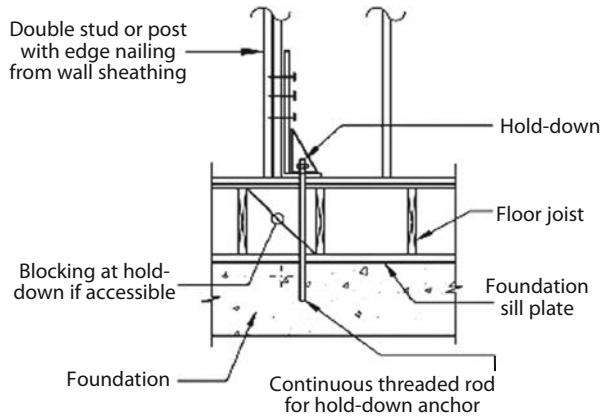
**Figure 18-2**  
Three types of foundation anchors



(Courtesy of FEMA)

**Figure 18-3**

Cripple wall bracing



(Courtesy of FEMA)

**Figure 18-4**

Adding a hold-down anchor

### Cripple Wall Bracing

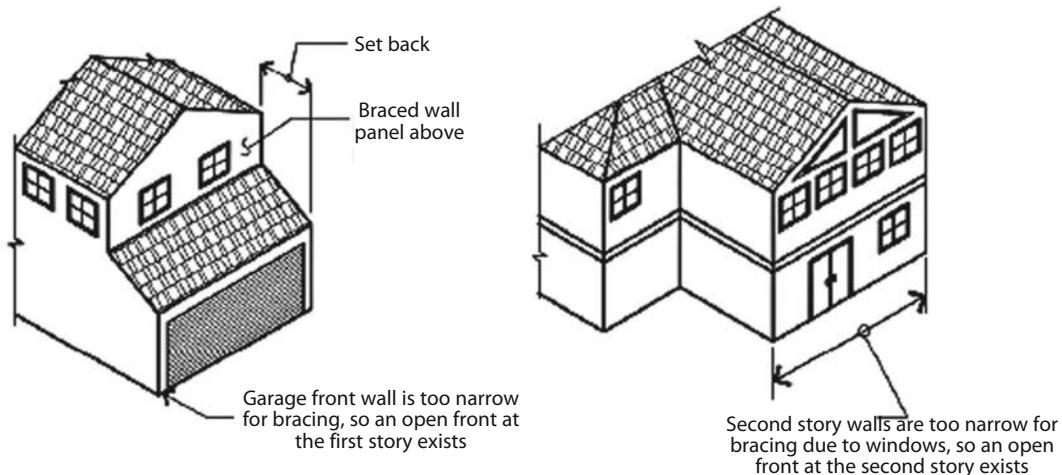
Any framed wall above the foundation and below the first framed floor is a candidate for extra bracing. These *cripple walls* are highly susceptible to damage during an earthquake. Cripple walls in houses built prior to about 1960 seldom have adequate bracing. The sheathing won't be structural grade panels and may not be attached securely at both the bottom plate and the first floor. It's easy to upgrade cripple walls for earthquake resistance.

Before starting the upgrade, check existing cripple wall framing for signs of decay. Replace any framing lumber that appears to be decayed. Use treated lumber. Check to be sure there are enough foundation anchors. Then apply structural panel sheathing to either the exterior or interior face of the cripple wall. Sheathing and connections should meet *IRC* requirements for new construction. Figure 18-3 shows cripple wall bracing details. The Association of Bay Area Governments (San Francisco) offers a detailed plan sheet for bracing of cripple walls at [www.abag.ca.gov](http://www.abag.ca.gov)

Apply 3/8" plywood or OSB panels to the interior face of cripple walls if there's enough room to work in the crawlspace. If not, install panels on the exterior with nails spaced no more than 4 inches apart. Reinforcing a poorly-braced cripple wall is probably the single most cost-effective improvement you can make to protect a pre-1960 structure from earthquake damage.

### Weak- and Soft-Story Bracing

Ground floors of older multi-story buildings seldom have adequate bracing. To reduce the risk of earthquake damage, consider adding hold-down anchors at corners any time you remove interior finish materials. Attach these anchors to the end studs (or other studs that have sheathing edge nailing). Sink a vertical rod or bolt into the foundation below. See Figure 18-4. Removing a 16"-wide by 4'-high section of drywall at each corner should provide enough working room.



(Courtesy of FEMA)

**Figure 18-5**

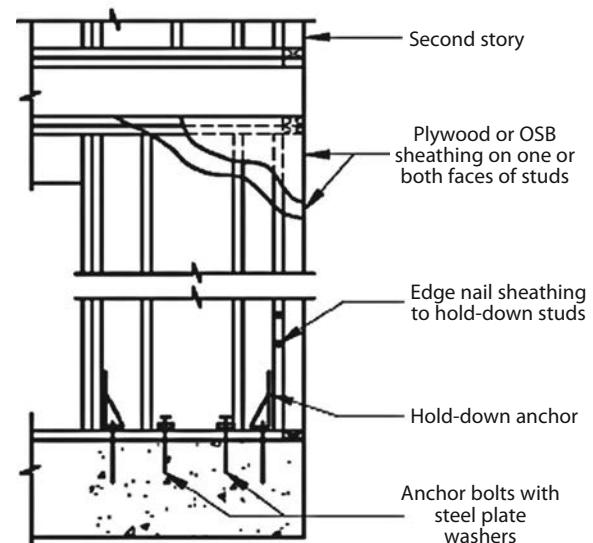
Open fronts in need of extra bracing

This is an effective upgrade anywhere you can tie into a reinforced continuous concrete or masonry foundation. Anchors set in isolated footings or unreinforced masonry footings will be much less effective.

### Open-Front Bracing

Figure 18-5 shows two buildings with what could be called an *open-front*. The double garage door in the building at the left occupies most of the building wall of the lower story. The building on the right has windows nearly all the way across one wall of the second story. In both cases, wall openings leave little room for adequate wall bracing. Open-front garages (at the left in Figure 18-5) are especially vulnerable when a bedroom is located above the garage.

In older homes without engineered steel bracing, every wall should have at least one solid wall panel at least 32 inches wide. Walls over 25 feet long should have at least one solid wall panel for each 25 feet of length. In newer homes, narrow wall segments at each side of a garage door will usually conceal engineered steel bracing or a fabricated steel panel. You'll probably see steel hold-down connectors or straps embedded in the foundation. If the home doesn't meet one of these standards, consider installing either steel wall braces or structural panel sheathing. Tie the braces or sheathing to the foundation as required by the *IRC*. Figure 18-6 shows a typical application.



(Courtesy of FEMA)

**Figure 18-6**

Bracing a narrow wall segment



(Photo courtesy of FEMA)

**Figure 18-7**

Poorly-anchored hillside home

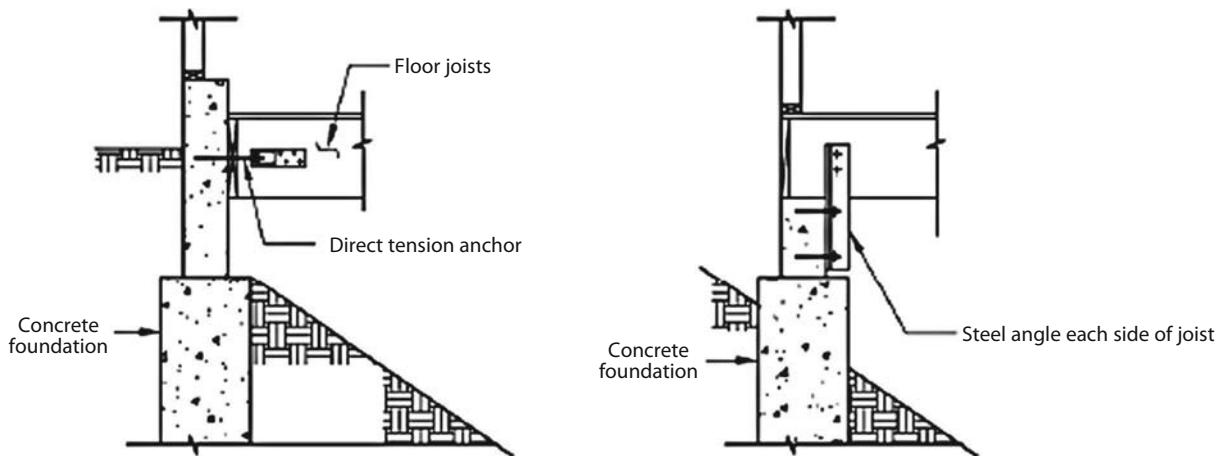
Extra hold-downs will add earthquake resistance if the existing foundation is continuous reinforced concrete or masonry. If the foundation isn't reinforced concrete or masonry, a structural engineer may recommend a steel moment frame that can transfer loads to other parts of the building.

### Bracing Hillside Homes

Beginning in the 1950s, it was common to see homes built over steep hillsides. Usually the main floor of such a house is at street level. A system of stilts or tall wood-frame walls support the portion of the home built over the lower part of the lot. In an earthquake, the floor framing can pull away from the uphill foundation wall. Figure 18-7 shows a common result. An earthquake moved the home a step or two down the slope. Today we know better ways to anchor a home securely to the uphill foundation. But older hillside homes need extra protection from earthquakes.

The *IRC* doesn't include any approved design for reducing the risk of collapse in a hillside home. But an engineer will recommend upgrades that include:

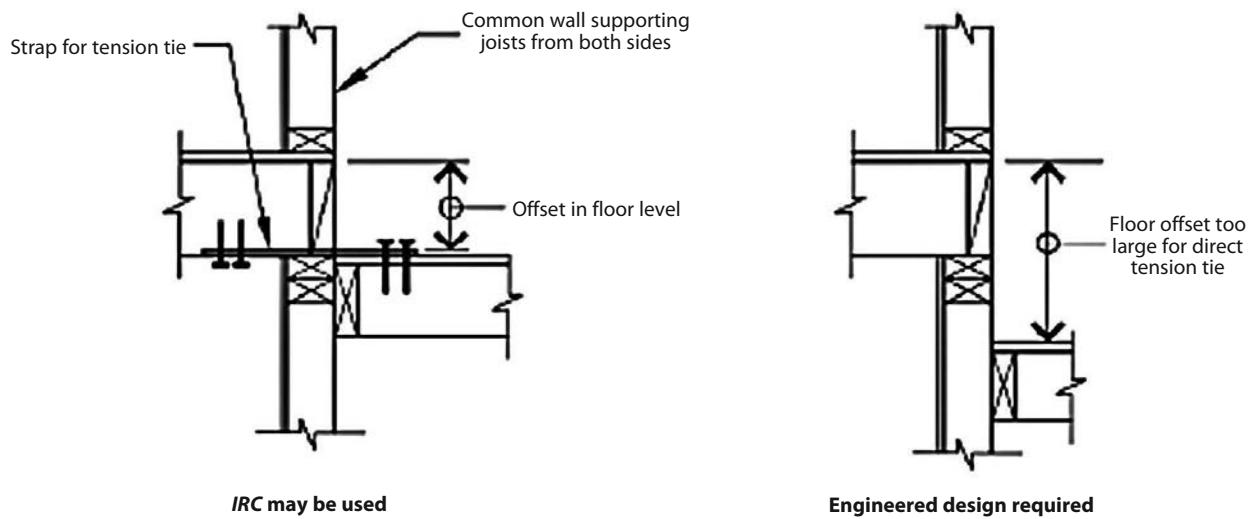
- ❖ additional hold-down connectors or adhesive anchors to tie each floor joist securely to the upper level foundation, as in Figure 18-8.
- ❖ attaching bottom plates of stepped (or sloped) downhill cripple walls to the upper level foundation. This is particularly important when the top of the side foundation is sloped rather than stepped.



(Courtesy of FEMA)

**Figure 18-8**

Anchors for a hillside home

**Figure 18-9***Ties for a split-level home*

(Courtesy of FEMA)

- ❖ joining stepped or sloped side cripple wall top plates at each splice joint with strap connectors. Heavy steel straps should connect securely on both sides of the splice. Make the top plate of a stepped cripple wall act as though it were one piece along the entire length of the wall.
- ❖ structural panel sheathing applied over the stepped wall and on the downhill wall.

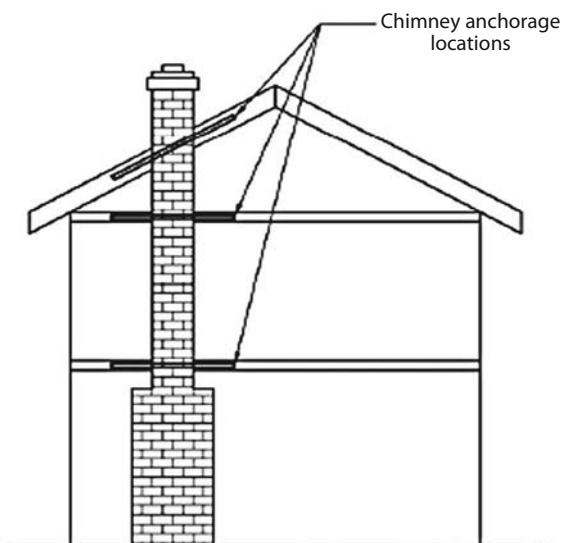
### **Split-Level Homes**

The weak point in a split-level home is where vertical offsets join a common wall or other support at different levels. See Figure 18-9. In an earthquake, floor and roof framing can pull away from the common wall.

To reduce the risk of damage due to earth movement, add ties to the floor framing on either side of the common wall. Where the offset in floor elevations is no more than the depth of floor joists, install steel straps every 8 feet along the common wall. Where the offset is more than the depth of a floor joist, the *IRC* doesn't offer a solution. You'll need help from a structural engineer.

### **Anchor Masonry Chimneys**

Fireplace chimneys are heavy, rigid, brittle and very susceptible to earthquake damage. Chimneys in older homes may not have reinforcing steel and usually aren't anchored securely to the house. In an earthquake, large sections of the chimney can fall away from the house — even into the house. The *IRC* now requires



(Courtesy of FEMA)

**Figure 18-10**

Anchoring a chimney to the building frame

both horizontal and vertical reinforcing and chimney anchors that tie into the floor, ceiling and roof.

If the chimney is outside the frame walls, consider wrapping steel straps around the outside of the chimney. Figure 18-10 shows straps at the floor, ceiling and roof level. These straps will be exposed to the elements, so use straps with corrosion protection. Straps aren't likely to reduce earthquake damage to the chimney itself but will reduce the chance of injury due to falling debris.

Where the chimney extends well above the roof line, add a brace to connect the top of the chimney to the roof surface.

A better choice is to replace a masonry fireplace and chimney with a factory-built fireplace and flue surrounded by light-frame walls. Factory-built fireplaces and chimneys withstand earthquakes much better than conventional masonry fireplaces and chimneys.

## When Making Alterations

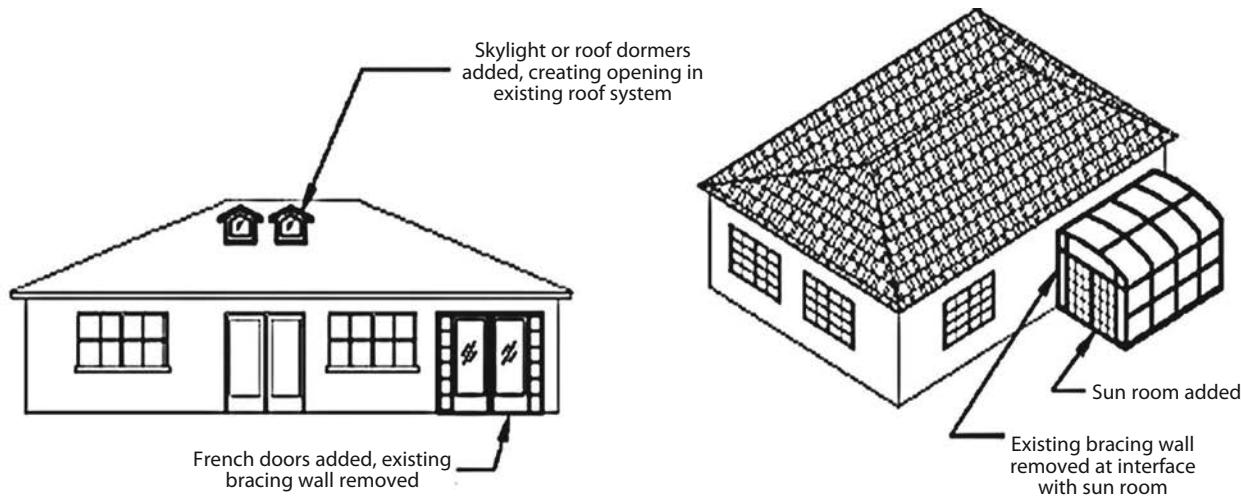
Consider earthquake risk any time you change or remove bracing from a wall, floor or roof. Even interior remodeling projects can increase the risk of earthquake damage. Many interior walls actually provide protection against earthquake and wind loads.

Figure 18-11 shows two popular remodeling projects that can add risk of earthquake damage. At the left in Figure 18-11, dormer windows have been added to an existing roof. Any time you add an opening to an existing roof, check the opening size against permitted maximum sizes in the *IRC*. Doubled rafters and headers may be required to meet gravity load requirements.

At the right in Figure 18-11, a sun room has been added to the rear of a home. If you remove wall bracing when making an alteration such as this, check the remaining wall braces to be sure location, length and type of bracing comply with the *IRC*. More bracing will usually be required in walls on either side of the alteration.

## When Adding a Room

Additions to a home are either horizontal or vertical, or both. Figure 18-12 shows a horizontal addition (upper drawing) and a vertical addition (lower drawing). Many horizontal additions built at the side of an existing house will require reframing the roof, as



(Courtesy of FEMA)

**Figure 18-11**

Remodeling projects can increase the risk of earthquake damage

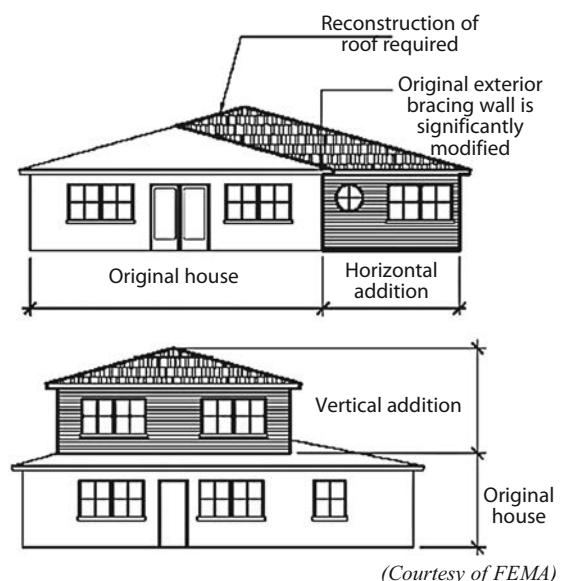
shown in the upper drawing in Figure 18-12. Vertical additions always require a change in the roof line.

Think about earthquake resistance when you add living space to a home. Removing any wall bracing will increase the risk of earthquake damage. Any increase in the living area, the roof area or the floor area will add extra weight and thus increase earthquake loading.

Horizontal additions will require extra bracing around new wall penetrations — and possibly extra bracing of interior walls. Check to be sure that bracing and anchors in the completed wall comply with the *IRC*.

Tie the addition to the existing house with steel straps. Ideally, the joint between old and new should be as secure as though both sections were built at the same time. You can't join the old and new foundations as though both were poured at the same time. But you *can* strap the new top plates and sill plates securely to existing top plates and sill plates. If possible, connect structural sheathing panels across the joint between old and new construction.

A vertical addition will more than double the gravity and lateral loads on walls of the floor below. That usually means you'll have to bring the entire home into compliance with the current code. In theory, you could probably meet *IRC* requirements when adding a second story. But it's usually more practical to prepare a plan that meets design requirements of the *International Building Code*.



(Courtesy of FEMA)

**Figure 18-12**

Horizontal addition above, and a vertical addition below

## Checking for Earthquake Damage

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Serious structural damage to a building deserves evaluation by a structural engineer. The decision to get advice from a licensed structural engineer rests with the building owner (or the building department), not with the contractor called on to make repairs. If you sense that a structural evaluation is required and if none has been performed, raise that issue with the owner. For the purposes of this chapter, I'm going to assume that engineering issues have been resolved before you step on the site.

Most earthquake damage is obvious from the exterior — walls and walks will show signs of stress or collapse. Walk around the building and through the building interior and you'll see most of what has to be repaired or replaced. If you don't see damage at the foundation level, crawling under the building won't provide much additional information. If you see obvious damage to a cripple wall, investigate from the interior. Decide if it's practical to add bracing to the wall interior.

What applies to crawlspaces also applies to attics. True, an unfinished attic is the best place to inspect framing members without removing finish materials. But any earthquake damage to ceiling joists or rafters is likely to be obvious from the condition of walls and ceilings below the attic. Crawling around in the attic isn't likely to add much to your damage assessment.

Check joints where a slab meets the foundation wall. When a home is built partially on filled ground and partially on cut ground, it's common to see gaps open between the slab and the foundation. Check the slab perimeter for gaps anywhere the slab is exposed, such as in the garage or in closets. Roll back the carpets at the room perimeter. Where finish floors are hard tile, stone or wood, you'll see loose flooring if the slab has separated from the foundation stem wall.

A minor gap between a footing and a floor slab isn't a structural risk. Caulk the opening to help keep insects and moisture out of the building interior. If a crack is wider than  $1/4"$ , clean the opening of any foreign material and then fill the void with a masonry crack filler. If either side of the crack has been displaced up or down, finish the job with a coat of floor leveling compound.

### **Before Making Repairs**

Before removing any finishes, get an estimate of the year when the building was constructed. The Environmental Protection Agency's *Renovation, Repair and Painting (RRP)* rule sets standards for repair work done on homes built in 1978 or earlier. That was the last year lead-based paints were commonly used in residences. Full information on the rule can be found on the EPA site: <https://www.epa.gov/lead/lead-renovation-repair-and-painting-program>. If in doubt about the year of construction, test the paint for lead content. Many building supply stores sell inexpensive lead test kits that meet requirements of the RRP rule.

Cosmetic repair of earthquake damage such as surface cracks, nail pops and minor misalignment doesn't require a building permit in most communities. But some building departments require a permit if the cost of cosmetic repairs exceeds a specific percentage (such as 10 percent) of the cost of a new wall or ceiling.

## Repair of Foundations and Floor Slabs

Cracks up to  $1/32$ " wide (less than the thickness of a dime) in concrete and masonry are usually the result of shrinkage and are more a cosmetic issue than a structural risk. No repair is required. Wider cracks in patios and walkways can be repaired by grinding away raised edges and filling gaps with mortar mix. Where load-bearing capacity is important, such as in a driveway, floor slab or foundation, structural repair may be required.

Cracks in concrete can expose steel reinforcing embedded in the concrete. Steel exposed to the air will corrode. Badly corroded steel reinforcing or foundation bolts can result in structural failure. Corroded concrete reinforcing may be a more serious structural problem than fractures in the concrete itself. Fortunately, there's a good way to prevent corrosion and restore the load-carrying capacity of most concrete foundations and slabs.

After the Northridge, California earthquake on January 17, 1994, several insurance carriers agreed to pay for concrete crack repair done with injected epoxy. At the time, these repairs were controversial. In 1994, no structural testing had been done on reinforced concrete repaired with injected epoxy. Today, we know that injected epoxy can restore the original load-carrying capacity of concrete foundations and slabs with cracks up to about  $1/2$ " in width. Cracks wider than  $1/4$ " may require pre-packing with sand or aggregate.

### ***Epoxy Injection***

Before starting work, inquire at your building department about any special requirements. Your building department may require a building permit or other documentation for structural crack repair with epoxy.

Repair starts by drilling injection ports every 4" to 8" along the crack. Port depth depends on thickness of the concrete. Most slabs are 4" thick. Foundation stem walls are usually 8" thick. Spacing and diameter of the ports depend on the width of the crack and the thickness of the concrete. Tighter cracks and thicker concrete require more ports. The drill should have an attached vacuum system to keep concrete dust out of the repair area. When drilling is done, flush the crack with a stream of water or an air blast. Place a plastic injection cap over each drilled port. Then seal the entire surface of the crack with epoxy gel. When the gel has set enough to seal the crack, begin injecting epoxy resin through the port caps using a binary caulking gun. High pressure isn't required. A thin mix of epoxy will penetrate very small cracks even in cold weather.

Start filling ports at the lowest point. Inject epoxy until material begins to flow out of an adjacent port. Then move on to the next port.

One word of caution: A concrete wall or floor slab that doesn't have proper expansion joints can be put at risk by too much crack repair. Generally, walls and slabs need an expansion joint every 8 to 10 feet. Without joints, concrete walls and slabs will crack due to changes in temperature.

Epoxy injection can also be used to seal cracks that leak water into a basement. The application procedure is the same except that full penetration of epoxy into the cracks isn't essential.

### ***Floors Out of Level***

Earth movement can cause uneven settling of a foundation even when the foundation remains intact and structurally sound. No building is completely level. But if the floor above a conventional crawlspace foundation is out of level by more than 1" in 20 feet, it may be possible to re-level the home.

Before making repairs, satisfy yourself that future soil movement is unlikely. A soils engineer may recommend either pressure-injected grout or pipe piles. Both are expensive choices and may be impractical for most homes. The *National Construction Estimator* includes cost estimates for both pressure grouting and steel pipe piles.

Inspect the crawlspace under a home that's out of level. You'll probably find tilted support posts, floor beams that lack adequate support and fractured or slipping mudsills. If you plan to re-level a home, make repairs to posts, beams and sills part of the plan. Otherwise, the home isn't likely to remain level for long.

To re-level a home with a conventional crawlspace foundation, jack the floors back to level using bottle jacks and needle beams. Chapter 4 has details and cost estimates. Start by backing off the foundation bolts. Then set needle beams under floor joists and begin raising the floor. This should be a gradual process, no more than  $1/4$ " per day. When the floor is back to level, inject grout under the mudsills and shim other supports. Some cosmetic damage to interior finishes at wall corners and around wall openings is almost inevitable. Exterior walls will show cracks at the sill line.

### ***Framing Repairs***

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It's common for large beams to split and twist along the long axis as the wood dries. Frame walls tend to creep at least slightly out of square and plumb as lumber dries. Normal splitting and twisting of lumber is considered a natural event, not a structural problem. Earthquake damage to framing will be more serious — such as walls racked so far out of alignment that windows or doors no longer operate smoothly.

The Cape Mendocino earthquake of April 25, 1992 left the first floor of the home in Figure 18-13 displaced about 6 inches to the left. Notice the shape of the garage door opening.

You'll seldom see damage this obvious. Use a spirit level to check walls for plumb. Earthquake damage will usually leave most walls out of plumb in the same direction. Use a framing square to check openings for square. If windows or doors no longer fit the frame or bind when opened and closed, the wall probably needs to be straightened. In general, any 8' wall more than  $1/2$ " out of vertical alignment needs repair.

To straighten a wood-frame wall, remove the finish on one side. Set wedge bracing or jackposts and jack the wall back into alignment. (Notice the wedge brace at the left in Figure 18-13.) When re-aligned and when windows and doors operate normally, re-nail the framing connections and install either diagonal blocking, let-in wall bracing or structural grade shear panels. Shear panels nailed every 4" at the base and top of each panel should prevent similar damage from future earthquakes. Then re-install the wall finish.



(Photo courtesy of FEMA)

**Figure 18-13**

Racked first floor wall

## Cracks in Plaster and Stucco

Most movement of ground during an earthquake is lateral — left and then right. Lateral movement in a frame building creates horizontal cracks starting at the corners of framed openings such as doors and windows. On interior walls, you'll see a pattern of similar cracks on both sides of the wall. If you see cracks running at random or mostly vertical on a plaster or stucco wall, expect that the cause is settling or shrinkage of framing members rather than an earthquake.

Don't bother patching hairline cracks in stucco or plaster. A good coat of paint will fill and cover cracks no wider than the stroke from a ballpoint pen ( $1/64$ "). Any crack wide enough to insert the blade of a table knife is a candidate for repair.

Scribe out the crack with the tip of a screwdriver, putty knife or a linoleum blade. Cut deep enough to get down to the brown coat. On exteriors, fill the crack with premixed stucco patch. On interior surfaces, use premixed spackling compound. Several thin coats are better than a single thick coat. Sand when dry and then repaint.

According to *The General Guidelines for the Assessment and Repair of Earthquake Damage* published by CUREE (The Consortium of Universities for Research in Earthquake Engineering), building paper under a stucco finish is far more flexible than the stucco itself. Even where the stucco is badly fractured, tears in the building paper are unlikely. If the stucco can be repaired without being



(Photo courtesy of FEMA)

**Figure 18-14**

Factory-built firebox enclosed in frame walls

removed, don't worry about vapor barrier under the stucco. No inspection of the building paper is required.

### **Gypsum Drywall**

Minor cracks (to  $1/8$ " wide) usually show up at taped panel joints, at the corners of wall openings, at interior wall corners and where panels join corner bead or trim. Cut away any existing joint tape. Scrape off loose joint compound. Then re-tape, re-texture, sand smooth, and re-paint.

Nail head pops can happen anywhere in a panel. Pull the nail. Set a drywall screw about 1" from the original nail. Drive the replacement screw just deep enough to dimple but not tear the paper cover. Then re-texture, sand and re-paint.

When shaking is severe, drywall panels can buckle or work loose from the framing. Heavily stressed drywall panels develop an "X" pattern of ripples that extends diagonally from one corner to the opposite corner across the face of the board. If the surface of drywall has ripples or if cracks extend through the board, it's best to remove the damaged section. If a large section is damaged, remove the entire panel. If damage is limited to a small area, strip off a section 48" high and wide enough to expose the middle of the stud or joist on each side. Cut a section of board to fit the opening. Apply the replacement section with drywall screws. Tape, texture, sand and finish.

## **Fireplaces and Chimneys**

Masonry fireplaces and chimneys are usually built on a separate foundation and are intended to be self-supporting. Most masonry chimneys built before about 1930 have mortar made from lime rather than Portland cement. Lime mortar is weak. Any chimney with lime mortar is a good candidate for replacement. To check for lime mortar, scratch the surface of a joint with a screwdriver. If you cut into the joint, it's made with lime mortar.

Today, most fireplaces in seismic zones are prefabricated metal. An insulated sheet metal flue is enclosed with wood-frame walls. The finish can be stone or masonry veneer or stucco. A prefabricated firebox and chimney, such as in Figure 18-14, has little risk of earthquake damage.

Chimneys strapped to the main building, as in Figure 18-10, aren't likely to topple over. But a strapped chimney that isn't adequately reinforced can still fracture. If you see cracks in a chimney, shine a flashlight down the chimney to check the flue lining for visible damage. Broken flue tile will be a fire hazard the next time there's a fire in the fireplace.

A masonry firebox at the base of a chimney can develop minor cracks under stress from an earthquake. These cracks don't present a fire hazard. But stress from earth movement can snap masonry at the point where the fire box joins the chim-

ney. If you see cracks at this point or suspect damage to the chimney flue, build a smoky fire in the fireplace and check for smoke leaking from the chimney.

Masonry and concrete chimneys usually have a flashed, counter-flashed and caulked construction joint where the chimney joins the exterior finish. This joint allows the chimney to move independently of the remainder of the home during an earthquake. Even light ground-shaking can cause this joint to open. If the flashing is intact, running a new bead of caulk down the open joint will restore weather-resistance.

Repair of damaged masonry chimneys is usually prohibited in seismic zones. The chimney has to be removed completely and re-built to current code standards. Although the code permits adding a new metal chimney to an existing firebox, it's usually more practical to replace both the firebox and chimney with a new prefabricated unit.

## Mechanical, Electrical, and Plumbing Systems

The most likely damage to plumbing will be a water heater that's tumbled over or a water heater vent that's become dislodged. If the water heater remains upright, check the gas and water lines for evidence of a leak — especially if the connection is made with rigid metal pipe or tube. Proper restraints on the water heater and flex connections can prevent most earthquake damage.

Duct, flues, piping and electrical lines can rupture when framing is flexed by ground movement. But there's seldom a need to look for trouble. The problem will usually be obvious: A vent or duct that's blocked; an electrical circuit that's out; moisture leaking out of a concealed plumbing line; a suspended light fixture that's hanging by the electrical wire conductors; an appliance (such as a furnace) that's tumbled over and ruptured the connections. Unless displacement or shifting is obvious, it's usually safe to assume that plumbing and electrical lines, vents and duct have survived an earthquake intact.

There is one exception. Ground shaking can dislodge deposits that accumulate in water supply lines and water softeners. If there's a noticeable drop in pressure at a fixture or a water tap, suspect blockage in the line. Remove the screen filter or valve at the fixture. Then use water pressure to blow out the line.

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Foundation anchors.** Drilled through the blocking and mudsill of a frame wall and 5" into an existing reinforced concrete or masonry foundation. Attached with a 5/8" diameter and a steel 3" x 3" plate washer. Add the cost of removing and replacing wall finish materials, if required.

|   |         |     |       |       |       |       |
|---|---------|-----|-------|-------|-------|-------|
| Drill and set 5/8" wedge anchor bolt<br>5" in concrete    | BC@.667 | Ea  | 7.37  | 27.40 | 34.77 | 59.10 |
| Drill and set 5/8" adhesive<br>anchor bolt 5" in concrete | BC@.800 | Ea  | 10.90 | 32.80 | 43.70 | 74.30 |
| Equipment rental (rotary hammer drill and bits)           | —       | Day | 68.10 | —     | 68.10 | —     |

**Foundation brackets.** (UFP 10) Installed to secure the bottom plate of an existing frame wall to an existing reinforced concrete or masonry foundation. 7" x 10" bracket with five 3" wood screws. Each bracket requires two 5" drilled into the foundation

|   |         |      |       |       |       |       |
|---|---------|------|-------|-------|-------|-------|
| Drill and set foundation bracket<br>on a bottom plate | BC@.333 | Ea   | 25.70 | 13.70 | 39.40 | 67.00 |
| Drill and set two 5" wedge anchors, per bracket       | BC@.667 | Pair | 4.28  | 27.40 | 31.68 | 53.90 |

|   |   |     |       |   |       |   |
|---|---|-----|-------|---|-------|---|
| Equipment rental (rotary hammer drill and bits) | — | Day | 68.10 | — | 68.10 | — |
|---|---|-----|-------|---|-------|---|

**Cripple wall bracing.** Structural panels secured with 8d nails each 4" at panel edges and each 12" at intermediate supports. Add the cost of removing and replacing the existing wall cover, if required. Add the cost of hold-down straps, posts, shear blocking or extra studs, if required.

|  |         |    |     |      |      |      |
|--|---------|----|-----|------|------|------|
| 3/8" exterior plywood panel, in crawl spaces   | BC@.038 | SF | .72 | 1.56 | 2.28 | 3.88 |
| 3/8" exterior plywood panel, on exterior walls | BC@.025 | SF | .72 | 1.03 | 1.75 | 2.98 |
| 1/2" exterior plywood panel, in crawl spaces   | BC@.038 | SF | .78 | 1.56 | 2.34 | 3.98 |
| 1/2" exterior plywood panel, on exterior walls | BC@.025 | SF | .78 | 1.03 | 1.81 | 3.08 |
| 1/2" structural OSB panel, in crawl spaces     | BC@.038 | SF | .94 | 1.56 | 2.50 | 4.25 |
| 1/2" structural OSB panel, on exterior walls   | BC@.025 | SF | .94 | 1.03 | 1.97 | 3.35 |

**Hold-down anchors.** (HTT5) 2" x 16" high. Set with an anchor bolt drilled 5" into an existing reinforced concrete or masonry foundation and nailed to a corner stud. Add the cost of removing and replacing wall finish materials, if required.

|                                 |         |    |       |       |       |       |
|---------------------------------|---------|----|-------|-------|-------|-------|
| Drill and set wedge anchor bolt | BC@.667 | Ea | 2.14  | 27.40 | 29.54 | 50.20 |
| Install and secure hold-down    | BC@.400 | Ea | 30.20 | 16.40 | 46.60 | 79.20 |

|   |   |     |       |   |       |   |
|---|---|-----|-------|---|-------|---|
| Equipment rental (rotary hammer drill and bits) | — | Day | 68.10 | — | 68.10 | — |
|---|---|-----|-------|---|-------|---|

**Brace a water heater.** Using a galvanized water heater strap kit: two straps on a water heater under 75 gallons, three straps on a 75 gallon water heater and four straps on a 100 gallon water heater. Kit includes strapping, lag screws, washers, spacers and tension bolts. Cost per water heater braced.

|   |         |    |        |       |        |        |
|---|---------|----|--------|-------|--------|--------|
| Water heater under 75 gallons (2 straps)    | PM@.500 | EA | 54.70  | 24.00 | 78.70  | 134.00 |
| 75 gallon water heater (3 straps)           | PM@.750 | LF | 82.00  | 36.00 | 118.00 | 201.00 |
| 100 gallon water heater (4 straps)          | PM@1.00 | LF | 122.00 | 48.00 | 170.00 | 289.00 |
| Replace and gas lines with flex connections | PM@.750 | LF | 9.53   | 36.00 | 45.53  | 77.40  |

**Framing straps and braces.** Nailed to exposed wood framing.

L-straps, 12 gauge (L)

|                                      |         |    |       |      |       |       |
|--------------------------------------|---------|----|-------|------|-------|-------|
| 5" x 5", 1" wide (55L)               | BC@.132 | Ea | 2.89  | 5.42 | 8.31  | 14.10 |
| 6" x 6", 1-1/2" wide (66L)           | BC@.132 | Ea | 6.15  | 5.42 | 11.57 | 19.70 |
| 8" x 8", 2" wide (88L)               | BC@.132 | Ea | 8.26  | 5.42 | 13.68 | 23.30 |
| 12" x 12", 2" wide (1212L)           | BC@.165 | Ea | 10.80 | 6.77 | 17.57 | 29.90 |
| Add for heavy duty L-straps, 7 gauge | —       | Ea | 24.30 | —    | 24.30 | —     |

Long straps (MST), 12 gauge

|             |         |    |       |       |       |       |
|-------------|---------|----|-------|-------|-------|-------|
| 27" (MST27) | BC@.165 | Ea | 7.66  | 6.77  | 14.43 | 24.50 |
| 37" (MST37) | BC@.165 | Ea | 12.10 | 6.77  | 18.87 | 32.10 |
| 48" (MST48) | BC@.265 | Ea | 13.00 | 10.90 | 23.90 | 40.60 |
| 60" (MST60) | BC@.265 | Ea | 23.40 | 10.90 | 34.30 | 58.30 |
| 72" (MST72) | BC@.285 | Ea | 34.70 | 11.70 | 46.40 | 78.90 |

|  | <b>Craft@Hrs</b> | <b>Unit</b> | <b>Material</b> | <b>Labor</b> | <b>Total</b> | <b>Sell</b> |
|--|------------------|-------------|-----------------|--------------|--------------|-------------|
| Plate and stud straps (FHA), galvanized, 1-1/2" wide, 12 gauge |                  |             |                 |              |              |             |
| 6" (FHA6)  | BC@.100          | Ea          | .50             | 4.11         | 4.61         | 7.84        |
| 9" (FHA9)  | BC@.132          | Ea          | .61             | 5.42         | 6.03         | 10.30       |
| 12" (FHA12)  | BC@.132          | Ea          | .84             | 5.42         | 6.26         | 10.60       |
| 18" (FHA18)  | BC@.132          | Ea          | 1.04            | 5.42         | 6.46         | 11.00       |
| 24" (FHA24)  | BC@.165          | Ea          | 1.38            | 6.77         | 8.15         | 13.90       |
| 32" (FHA32)  | BC@.165          | Ea          | 1.71            | 6.77         | 8.48         | 14.40       |
| Tie straps (ST)  |                  |             |                 |              |              |             |
| 2-1/16" x 9-5/16" 20 ga. (ST292)                               | BC@.132          | Ea          | 1.62            | 5.42         | 7.04         | 12.00       |
| 3/4" x 16-5/16" 20 ga. (ST2115)                                | BC@.046          | Ea          | 1.46            | 1.89         | 3.35         | 5.70        |
| 2-1/16" x 16-5/16" 20 ga. (ST2215)                             | BC@.132          | Ea          | 2.44            | 5.42         | 7.86         | 13.40       |
| 2-1/16" x 23-5/16" 16 ga. (ST6224)                             | BC@.165          | Ea          | 4.39            | 6.77         | 11.16        | 19.00       |
| 2-1/16" x 33-13/16" 14 ga. (ST6236)                            | BC@.165          | Ea          | 6.43            | 6.77         | 13.20        | 22.40       |
| T-straps, 14 gauge (T)   |                  |             |                 |              |              |             |
| 6" x 6", 1-1/2" wide (66T)                                     | BC@.132          | Ea          | 6.15            | 5.42         | 11.57        | 19.70       |
| 12" x 8", 2" wide (128T)                                       | BC@.132          | Ea          | 10.80           | 5.42         | 16.22        | 27.60       |
| 12" x 12", 2" wide (1212T)                                     | BC@.132          | Ea          | 15.20           | 5.42         | 20.62        | 35.10       |
| Add for heavy-duty T-straps, 7 gauge                           | —                | Ea          | 20.50           | —            | 20.50        | —           |
| Wall braces (WB), diagonal, 1-1/4" wide, 16 gauge              |                  |             |                 |              |              |             |
| 10' long, corrugated or flat (WB106C or WB106)                 | BC@.101          | Ea          | 16.10           | 4.15         | 20.25        | 34.40       |
| 12' long, flat (WB126)   | BC@.101          | Ea          | 18.50           | 4.15         | 22.65        | 38.50       |
| 14' long, flat (WB143C)  | BC@.101          | Ea          | 25.70           | 4.15         | 29.85        | 50.70       |
| Wall braces (CWB), diagonal, 18 gauge, 1" wide                 |                  |             |                 |              |              |             |
| 10' long, L-shaped (CWB106)                                    | BC@.125          | Ea          | 17.30           | 5.13         | 22.43        | 38.10       |
| 12' long, L-shaped (CWB126)                                    | BC@.125          | Ea          | 20.30           | 5.13         | 25.43        | 43.20       |

**Repair concrete cracks.** Structural repair using injected epoxy. Drilling an injection port every 4" to 8" along a crack and injecting low viscosity epoxy resin with a minimum bond strength of 7,000 P.S.I. Add the cost of excavation or removal of surface materials if required to expose the cracked concrete. Equipment is an electric drill with a swivel chuck, hollow drill bits, oil-free compressed air and a two component epoxy injection gun. Add the cost of concrete coring if core samples are required to confirm that all voids are filled.

Remove foreign material from within

|   |         |     |       |       |       |       |
|---|---------|-----|-------|-------|-------|-------|
| 2" of the crack   | CF@.060 | LF  | —     | 2.36  | 2.36  | 4.01  |
| Drill 4" slab and set an injection port, per port       | CF@.330 | Ea  | 1.16  | 13.00 | 14.16 | 24.10 |
| Drill 8" foundation and set an injection port, per port | CF@.500 | Ea  | 1.15  | 19.60 | 20.75 | 35.30 |
| Flush out debris, air blast, per port                   | CF@.040 | Ea  | —     | 1.57  | 1.57  | 2.67  |
| Mix and apply 1/8" thick epoxy gel surface sealer       | CF@.050 | LF  | 1.50  | 1.96  | 3.46  | 5.88  |
| Inject epoxy into port, per port                        | CF@.100 | Ea  | 5.42  | 3.93  | 9.35  | 15.90 |
| Remove ports and excess material                        | CF@.030 | LF  | —     | 1.18  | 1.18  | 2.01  |
| Add for equipment rental (drill, bits, air and gun)     | —       | Day | 60.80 | —     | 60.80 | —     |

**Grind off a raised concrete seam.** Taper a raised joint or crack in a concrete walk or slab to not more than a 7-1/2 degree incline (1" in 12") using an 8" gas-powered walk-behind concrete planer. Per linear foot of seam tapered.

|  |         |     |        |      |        |       |
|--|---------|-----|--------|------|--------|-------|
| Taper 1/4" raised seam, 3" wide            | OE@.050 | LF  | —      | 2.35 | 2.35   | 4.00  |
| Taper 1/2" raised seam, 6" wide            | OE@.083 | LF  | —      | 3.91 | 3.91   | 6.65  |
| Taper 3/4" raised seam, 9" wide            | OE@.125 | LF  | —      | 5.89 | 5.89   | 10.00 |
| Taper 1" raised seam, 12" wide             | OE@.167 | LF  | —      | 7.86 | 7.86   | 13.40 |
| Add for equipment rental (planer and fuel) | —       | Day | 347.00 | —    | 347.00 | —     |

**Level a concrete slab.** Apply concrete patching and leveling compound with a trowel. 25 pound bag covers 25 square feet at 1/4" depth.

|   |         |    |     |     |      |      |
|---|---------|----|-----|-----|------|------|
| Per SF of surface covered at 1/4" depth | BF@.016 | SF | .86 | .61 | 1.47 | 2.50 |
|---|---------|----|-----|-----|------|------|

|   | Craft@Hrs | Unit | Material | Labor | Total  | Sell  |
|---|-----------|------|----------|-------|--------|-------|
| <b>Straighten a frame wall.</b> Using wedge braces and jack posts to restore a wall to vertical alignment. Add the cost of removing and reinstalling wall finish materials, if required. Vertical jacks may be required to relieve the weight on a load-bearing wall. Add the cost of installing wall straps and shear panels once the wall is plumb. |           |      |          |       |        |       |
| Set and remove diagonal brace, per brace  | B3@.350   | Ea   | —        | 12.60 | 12.60  | 21.40 |
| Set and remove vertical jack, per jack  | B3@.350   | Ea   | —        | 12.60 | 12.60  | 21.40 |
| Wedge the wall into vertical alignment, per LF of wall  | B3@.200   | LF   | —        | 7.18  | 7.18   | 12.20 |
| Straighten one stud, cut saw kerf and drive shim or screw into the kerf, reinforce with a plywood scab  | BC@.300   | Ea   | —        | 12.30 | 12.30  | 20.90 |
| Remove and replace a badly warped stud  | BC@.300   | Ea   | 5.12     | 12.30 | 17.42  | 29.60 |
| Adjustable jack post, 20,000 lb., purchase  | —         | Ea   | 115.00   | —     | 115.00 | —     |
| Wedge braces, 3 uses, #2 and better lumber  |           |      |          |       |        |       |
| 2" x 4" x 12'   | B3@.012   | Ea   | 2.26     | .43   | 2.69   | 4.57  |
| 2" x 6" x 12'   | B3@.018   | Ea   | 3.40     | .65   | 4.05   | 6.89  |

**Straighten a window opening.** Remove a damaged window from a wood-frame wall opening and straighten the framed opening to accept a replacement window. Includes prying off window trim, removing the stops and sash, removing exterior finish to expose the jamb, pulling or cutting nails securing the window frame, lifting out the damaged window and restoring the opening to square with braces, extended bar clamps or corner clamps. Add the cost of straps, braces, the replacement window and patching the exterior wall finish.

|                                     |         |    |   |       |       |        |
|-------------------------------------|---------|----|---|-------|-------|--------|
| Remove an existing damaged window   | BC@1.50 | Ea | — | 61.60 | 61.60 | 105.00 |
| Re-square the window frame and sill | BC@.500 | Ea | — | 20.50 | 20.50 | 34.90  |

**Plaster and stucco repair.** Using hand tools and working from a ladder.

Scribe cracked plaster or stucco to 1/4" depth and fill the crack with:

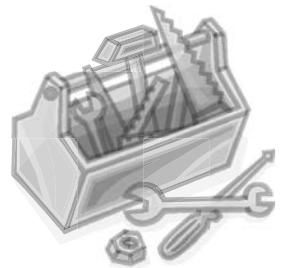
|   |         |    |      |       |       |       |
|---|---------|----|------|-------|-------|-------|
| Elastomeric caulk, per linear foot filled   | CF@.033 | LF | —    | 1.30  | 1.30  | 2.21  |
| Elastomeric patch and caulk, 10 oz. tube  | —       | Ea | 6.82 | —     | 6.82  | —     |
| Patch hole in exterior stucco. Chip and wire brush loose stucco, moisten surface, apply stucco patch with a trowel, per 4" x 4" patch | CF@.250 | Ea | .74  | 9.82  | 10.56 | 18.00 |
| Premixed stucco patch, quart  | —       | Ea | 8.96 | —     | 8.96  | —     |
| Touch-up painting to match  | PT@.333 | Ea | 5.88 | 14.00 | 19.88 | 33.80 |

**Gypsum drywall repair.** Cost estimates for removing, repairing and replacing interior finishes appear in chapter 10 beginning on page 242.

**Fireplaces and chimneys.** Cost estimates for removing, repairing and replacing fireplaces and chimneys appear in chapter 6 beginning on page 115.

# Water Damage and Mold Remediation

19



The first part of this chapter focuses on cost estimates for dryout (also known as *restorative drying*). The second part covers mold remediation. The two topics (dryout and mold remediation) are often complementary. Prompt dryout avoids mold. Even when mold isn't the direct result of a flood or a leak, much of the work required for mold remediation is similar to what's needed when a building is flooded. The estimates in this chapter cover both dryout and mold remediation from beginning to end.

Three notes of caution:

- ❖ *First*, some states license either dryout contractors or mold remediation contractors, or both. Be sure you have the license or certification required in your community before taking on a dryout or mold remediation job.
- ❖ *Second*, mold may be a problem on some dryout jobs. If you see evidence of mold when handling a dryout job, address the mold issue before starting to move air (and mold spores) around the premises.
- ❖ *Third*, most dryout and mold remediation won't be covered by insurance. For example, melting snow, leaks from a wornout roof, dry rot, and rising water aren't usually covered. The owner probably has coverage for sudden and accidental losses like a broken pipe, wind-driven rain or an overflowing toilet.

## Building Dryout

Flooding affects a home in at least three ways:

1. Water will damage most construction materials. For example, wallboard disintegrates when wet for too long. Wood can swell, warp and rot. Electrical parts can short out and corrode. Wet fiber insulation loses nearly all insulating value.
2. Mud, silt and waterborne contaminants create a health hazard.
3. Dampness promotes growth of mildew, mold and fungus.

A wet building and the contents should be dried out as soon as possible, whether moisture is from flooding (rising water) or casual water (such as from a broken pipe or roof leak), or the result of fighting a fire.

We're going to assume that damage was caused by clean water. If floodwater is contaminated with sewage, chemical or biological pollutants, Occupational Safety and Health Administration (OSHA) rules require personal protective gear and containment. Even clean water should be treated as contaminated after 72 hours. You may need the advice of an industrial hygienist, as explained the section that follows on mold remediation.

Start work when floodwater has receded or the leak has stopped. Begin at the exterior. Check the building perimeter for a gas leak, toxics (such as a sewage spill) or a downed power line. Check for obvious structural damage: a cracked foundation, supports or framing that have failed, buckling, or subsidence. Some communities require a sign-off by the building inspector before repairs can begin on a flooded building. When flood damage exceeds 50 percent of the market value of a home, the building department may require demolition and rebuilding above flood level. The code in some flood-prone areas may not permit rebuilding at all.

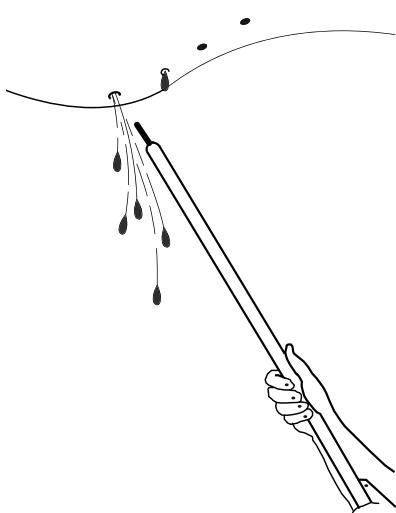
If flooding is extensive, turn the power off at the main breaker, even if power is already off in the neighborhood. You don't want power to come back on without warning while work is under way. Turn off gas at the meter. Close the valve to any fuel oil or propane tank. Be alert for leaking water pipes. If necessary, shut off the water valve at the main.

### ***Begin Interior Work***

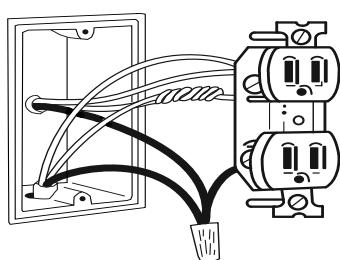
Start with the ceiling. Look for anything that seems likely to collapse. Wet plaster or wallboard is dangerous when it falls. If the ceiling is sagging, drive a nail into the end of a broomstick and poke holes in the plaster or wallboard. See Figure 19-1. Use hand tools to knock down a sagging ceiling. Check for loose flooring, cabinets or tall furniture that might be ready to fall. Remove mirrors and heavy pictures from wet walls. They won't stay up for long on saturated wallboard.

When it's safe to work inside, unplug all appliances and lamps. Remove the cover plates on wall switches and outlets that got wet. Either disconnect the wiring or leave the wires connected and pull the fixture out of the box, as in Figure 19-2.

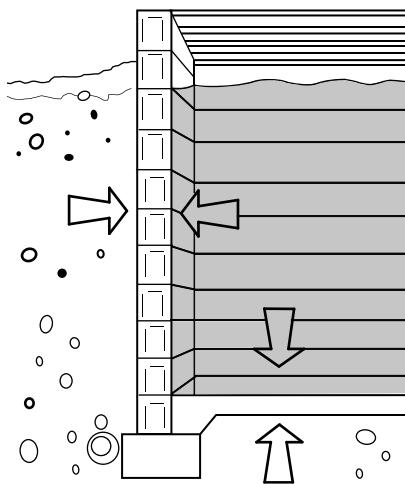
*Secure the valuables.* If a restoration specialist isn't available, wash and blow dry high value items (securities and jewelry) and anything irreplaceable (photographs, art, insurance papers). Then pack in cardboard cartons. You'll need several box sizes, including wardrobe boxes, bubble wrap and sealing tape. Label or number each box. Create a written inventory of everything boxed for pack-out. That saves time, both when the owner needs to find some item in storage and when moving the contents back into the dried-out building. For insurance proof of loss purposes, note the item name, room where located at the time of loss and condition after the loss.



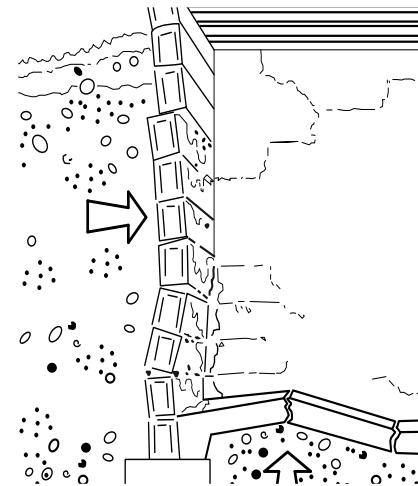
**Figure 19-1**  
Release trapped moisture



**Figure 19-2**  
Pull the fixture out of the box



**Figure 19-3**  
Flooded basement with equal pressure



**Figure 19-4**  
Dry basement with unequal pressure

*Relocate heavy items.* The best choice for relocating building contents is another room on site, a second floor or a storage container placed temporarily in the driveway. If there's going to be a delay in moving some heavy items, set foam blocks or plastic sheeting under legs or supports to eliminate contact with anything that's wet. Moisture will "wick" up wood furniture legs, discoloring the wood as it goes. If appliances and plumbing fixtures have to be moved, cap waste and supply lines (water, electric and gas). If a water heater has to be moved, start draining the tank right away.

*Get the mud and debris out.* Clear out the mud before it dries. Shovel or squeegee as much mud as possible. If you have water pressure, hose out the interior. Clean the mud out of electrical outlets, switch boxes and light sockets.

Remove the vents and registers from a flooded HVAC system. Duct in a flooded basement or crawl space will be contaminated. Remove a section of duct to get access to all areas. Then thoroughly wash out all flooded duct. When the mud is out, clean the duct with a disinfectant or sanitizer. Don't restart the HVAC system until you're sure it's free of contaminants.

*Drain the basement carefully.* Don't be in a hurry to pump out a flooded basement. Here's why. Groundwater around the exterior puts pressure on basement walls. As long as there's water in the basement, pressure will be approximately equal on both sides of the wall. See Figure 19-3.

If you drain the basement too quickly, the pressure won't be equal. See Figure 19-4. Basement walls or the floor can crack or deflect. To avoid problems, follow these steps:

- ❖ Delay pumping until soil around the exterior of the basement is free of standing water.
- ❖ Then pump the water level down 2 or 3 feet. Mark the level and wait overnight.

- ❖ If water rises to the original level by the next day, it's still too early to drain the basement.
- ❖ Wait a day or two. Then pump basement water down several feet again.
- ❖ When water stops rising in the basement, pump the water down another 2 feet.
- ❖ Wait overnight. Then pump another 2 feet each day until the basement is dry.

The water in a flooded basement is sure to be dirty — not suitable for a clean water pump. You'll need a trash pump with a screened inlet.

*Start the drying.* There are six ways. You'll probably need to use all six:

1. Use air movers to get the air circulating. Don't use central air conditioning or the furnace blower until you're sure ducting is free of contaminants. Carpet saturated with clean water can usually be salvaged by "floating" the carpet and pad on a stream of dry air. Raise the carpet on blocks in several places. Then use an air mover to force air under the carpet.
2. Use dehumidifiers. A high-capacity dehumidifier can reduce excess moisture very quickly.
3. Open closet and cabinet doors. Remove drawers to promote air circulation. Wood drawers swell when wet. Some may be stuck shut. You should be able to open stuck drawers once drying has started.
4. Begin drying ceiling and wall cavities. We'll cover structural drying later in this chapter.
5. Use desiccants. Materials that absorb moisture are particularly useful when drying an enclosed area with limited air circulation. Desiccants include chemicals, cat litter made of clay, and calcium chloride pellets. Hang the desiccant in a pillowcase, nylon stocking or other porous bag. Put a bucket under the bag to catch any dripping water. Then close the closet or cabinet being dried.
6. If the humidity is lower than indoors, and if weather and security conditions permit, consider opening up the house. Use a hygrometer to check indoor and outdoor humidity. Opening all the doors and windows can exchange moist indoor air for drier outdoor air. Close up the house at night or any time humidity is higher outdoors.

*Be patient.* Even with plenty of equipment, drying a home will take several days. Until the home is reasonably dry, damage caused by mildew and decay will continue. The musty odor will remain until the home is thoroughly dry.

## Dryout by type of material

How you restore saturated floors, ceilings and walls depends on the materials involved.

*Wallboard.* Ceilings and walls in most homes built after about 1950 are finished with gypsum wallboard. “Gypboard” acts like a sponge, drawing moisture up the wall above flood level. Any mud or contaminants in the floodwater will bond to the gypsum, making the wallboard a permanent health hazard. Wallboard soaked in a flood usually has to be removed and discarded. If flooding hasn’t soaked more than the lower 2 or 3 feet of board, consider removing just the lower 4 feet of each panel. Toenail 2" x 4" wood blocks horizontally between the studs 4 feet above the floor. Then hang 4' x 8' sheets of gypsum board with the long edge horizontal, as in Figure 19-5.

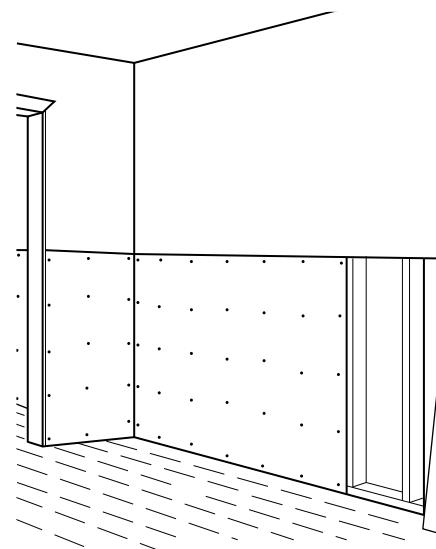
Wallboard on interior walls that’s been soaked with clean water will be worth saving if drying starts within the first 48 hours. After that, gypsum board deflects, gets fragile and will usually need to be replaced.

*Stucco and plaster* will survive a flood better than gypsum wallboard. You’ll have to remove stucco or plaster wall finish only if finish coats have separated from the lath below or if saturated insulation in the wall has to be removed. Vapor barrier in the wall won’t be damaged by flooding. If a plaster or stucco wall is in good shape and doesn’t include saturated insulation, follow the following instructions for structural drying of stud cavities. Drying stucco or plaster is slow work, even with plenty of air drying equipment.

*Insulation.* Flooded foam insulation board usually requires only a rinse down. Wet fiberglass batts should be removed and discarded so the rest of the wall can dry. Once the wall is dry, install new batts. Cellulose insulation will hold moisture for weeks. Even when dry, most of the antifungal and fire retardant rating will be gone. Plan to replace saturated cellulose insulation.

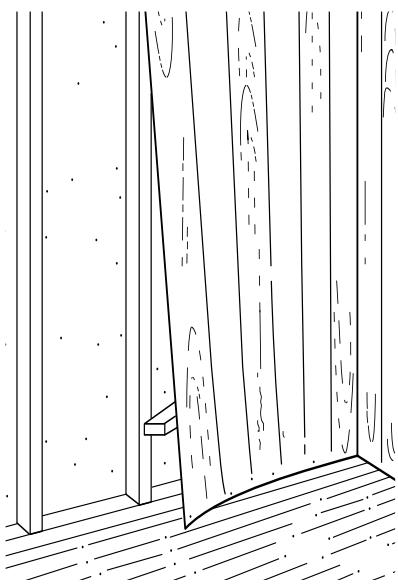
*Wood.* Wood framing lumber in an existing home usually has a water content of about 10 percent. Lumber that’s been submerged can have a water content of 30 percent or more. The extra moisture causes swelling which warps lumber out of shape. If allowed to dry, most wood framing will return to the original condition. Wet studs and sills that swell out of shape won’t need to be torn out. But wood framing soaked in contaminated water will need to be treated before being covered with finish materials.

A moisture meter will be useful when drying wood, especially wood flooring. Most moisture meters have two thin probes. Hold the probes against the material being tested to find the moisture content. Moisture meters work on carpet, wallboard, wood, brick, and concrete.



**Figure 19-5**

Drywall hung horizontally

**Figure 19-6**

*Wedge paneling away from the wall*

Most hollow wood doors have cardboard spacers between the two veneers. Even if the veneer surfaces survive a flood intact, the cardboard core will expand, causing the door to deflect. Saturated hollow-core doors usually have to be replaced.

**Laminated wood** (such as plywood) tends to delaminate when the layers dry at different rates. Composition sheathing and underlayment (such as oriented strand board) start to disintegrate when soaked. Plywood or OSB that has lost nail-holding ability should be replaced.

**Concrete block.** The cavities in a concrete block wall will drain on their own. Water held temporarily in concrete wall cavities won't do any damage.

**Wallcovering.** Vinyl wallcover seals the wall and prevents drying. Wallpaper paste supports growth of mold and mildew. In most cases, you'll want to remove and discard wallcover that gets wet. But you may be able to save vinyl wallcover that's only loose at the base of the wall. Peel vinyl off the wall up to flood level. When the wall is dry and clean, reapply the vinyl.

**Paneling.** Carefully pry the bottom of each panel away from the wall. See Figure 19-6. Then wedge a block between the panel and the framing so air can circulate into the wall cavity. Once the wall is dry, re-nail the panels. On an exterior wall filled with wet insulation, you'll have to remove paneling to get access to the insulation.

**Floor cover.** Small throw rugs and loose-lay indoor/outdoor carpet can be hosed off and hung up to dry. Persian carpet may be worth professional cleaning. Wall-to-wall carpet submerged under rising water should be discarded. Cut the carpet and pad into strips that are easy to carry. Also remove and discard tack strips laid around the room perimeter. You'll need solvent and a spudding tool to remove the residue from foam-back carpet laid in adhesive.

Wall-to-wall carpet soaked by clean water can be float-dried in place. But note that saturated carpet may shrink when it dries. You'll need a professional carpet kicker if you plan to re-install float-dried carpet. Resilient flooring (tile, linoleum or seamless vinyl) doesn't have to be removed unless loose from the floor or unless the subfloor or underlayment has to be replaced.

Prices for floor cover vary widely. If you're discarding expensive carpet, be sure to save a couple of square feet for a sample the owner can give the adjuster.

**Floors.** If a crawl space is flooded, pump it out. Remove any vapor barrier or insulation from below the floor. Both will have to be replaced when the floor system is completely dry. Then begin circulating air both above and below the floor.

**Basement.** If a basement ceiling was flooded, you'll have to remove the ceiling finish to get access to insulation between the floor joists. If wet insulation isn't a problem, drill a hole through the ceiling finish into each framing cavity. Then dry joist cavities as explained in the next section. Avoid cutting or drilling near electric lines or pipes.

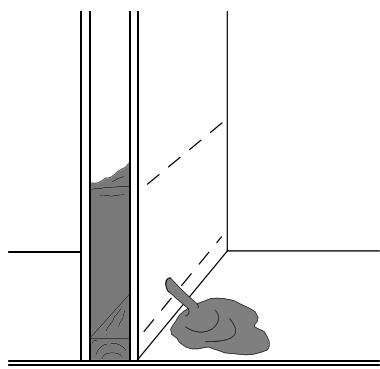
*Gas and oil appliances.* If a furnace, water heater, stove or other gas or oil appliances was flooded to the level of the burner, the appliance may have a cracked heating element. The appliance should be cleaned and checked by an expert. If you decide to restart a gas appliance, first be sure the room is well-ventilated and that there is no open flame. Turn on the gas valve and let the gas flow for a few seconds. That should clear any air or impurities out of the pipe. Then shut the valve for a minute so gas in the air can escape. Finally, try lighting the appliance.

Oil appliances have an oil pump. If the pump was flooded, it should be cleaned and checked by a professional. Look for any sign that supply piping or the oil tank moved during the flood. Oil tanks, even buried oil tanks, will float when flooded. When the electricity is back on, open the main oil valve and turn the pump on.

*The electric system.* Most building codes require that electrical work be done by a licensed electrician. For example, a service entrance box that was flooded should be cleaned and checked by an electrician. But an electrician isn't required to clean flooded circuits.

1. Be sure the power is still off. Switch all breakers off or remove the fuses.
2. Wash out any mud or dirt you find in switch boxes, outlets boxes and light fixtures.
3. Clean or replace any contaminated or corroded switch, outlet or light fixture. You can clean most switches, outlets and light fixtures in a pail of tap water. Allow 24 hours for drying.
4. Plastic-covered copper wire survives submersion, even for long periods. But replace aluminum wiring that's been flooded by salt water. Replace any fabric-covered wire that has been submerged.
5. When drying is complete, re-install the switches, outlets and light fixtures.
6. Test the circuits one at a time. Turn all circuits off. Then turn on the main. Energize the circuits one at a time. If a breaker trips or a fuse blows on any circuit, there's a short somewhere. Walk through the building searching for signs of sparking or the smell of charring. Get help from an electrician if the source of the short isn't obvious.
7. Bathroom, kitchen and outdoor circuits are usually protected by a GFCI (ground fault circuit interrupter), either at the breaker box or at a wall outlet. If a circuit doesn't come back on line, the GFCI is probably tripped. Look for a popped GFCI button somewhere on the circuit. A single GFCI can serve several outlets in several rooms.

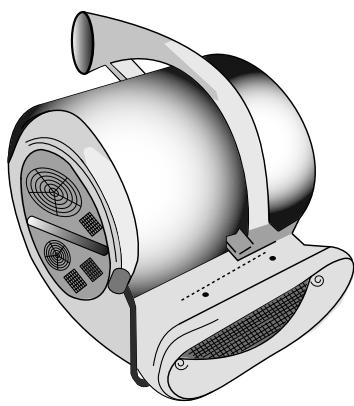
Dry electric motors, switches and receptacles with a blow dryer. Then spray on a moisture displacement such as WD-40 to stop corrosion. Appliance motors may have to be disassembled for a thorough cleaning.



**Figure 19-7**  
Drain wall cavities



**Figure 19-8**  
Air drying manifold



**Figure 19-9**  
Air mover

### Structural Drying

The quickest way to dry wall and ceiling cavities is to remove the finish material — wallboard, plaster, paneling, sheathing, etc. — and the insulation. But that's expensive and may not be necessary, especially on interior walls and ceilings that don't have sheathing and aren't insulated. If the finish material is in good condition, there's a better choice. If it's an insurance job, don't do any demolition without clearance by the adjuster.

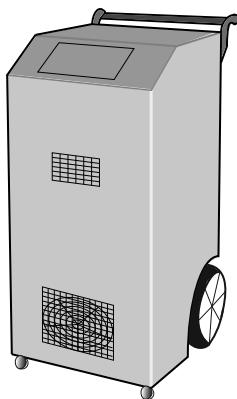
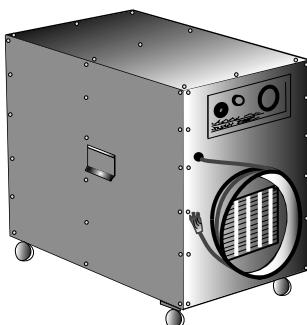
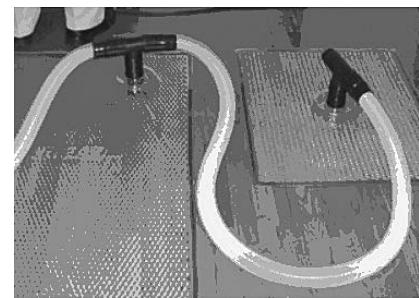
*Ceilings.* Plan to replace a wallboard ceiling that's been covered by floodwater. A plaster ceiling won't have to be replaced unless there are too many cracks or sags. If the ceiling was flooded by a roof leak or water from an upper floor, punch or drill holes in the ceiling to drain away puddled water. If you have access to attic crawl space over the ceiling, gather up any wet insulation. Then install air-moving equipment in the crawl space to exhaust excess moisture. If you don't have access above the ceiling, dry the ceiling cavity as explained next for stud walls.

*Walls.* Start by removing the baseboard. Drill or puncture a hole in the wallboard about 2 inches above the floor (just above the sill plate). See Figure 19-7. The hole should be large enough to drain standing water and accommodate the air tube you'll insert into each stud cavity. When drilling, be careful to avoid wiring. Most wiring will be at about the same wall height as the electrical outlets.

If walls are plaster, use a drill to create these holes. A chisel would shatter the plaster. If a flooded home or office has steel framing, the bottom sill will collect water like a trough. Drill a hole at floor level to drain water from the bottom channel.

The size of the hole depends on the type of air manifold you plan to use. Some equipment distributes air through  $1/8$ " spaghetti tube. Other systems, such as in Figure 19-8, use hose up to  $5/8$ " in diameter. Each will be effective if used according to the manufacturer's instructions. Some air injection systems come with an air blower. Others attach to a standard air mover, as in Figure 19-8.

The most basic dryout tool is an air mover. These units can dry any wet surface, including carpets, floors, walls, drapes and upholstery. Most can be installed in several positions, operate at several speeds and are designed for continuous service over long periods. See Figure 19-9. You'll need at least one air mover for each room or flooded area. A typical job requires one air mover for each 150 square feet of floor. A one horsepower air mover rated at 3,500 cubic feet per minute draws about 10 amps of power when running at full speed. When run at full speed, you won't be able to connect more than one of these units on a 15-amp circuit. Kitchens and laundry rooms usually have 20-amp circuits. A temporary power distribution panel (*spider box*) can tap into the 220-volt outlet behind an electric range or clothes dryer and deliver 110-volt GFCI-protected power to several air movers.

**Figure 19-10***Portable Dehumidifier***Figure 19-11***Negative Air Scrubber***Figure 19-12***Mat drying a hardwood floor*

Air movers remove water from wet materials through evaporation. Air moving across the wet surface collects available moisture in the form of vapor. Dehumidifiers wring water out of the vapor by passing moist air over cooling coils or desiccant. Refrigerant coils in a dehumidifier collect moisture like a cold glass collects water droplets on a humid day. Desiccant dehumidifiers cost more but are more effective in cold temperatures. The portable dehumidifier in Figure 19-10 weighs about 125 pounds and will extract about 100 pints a day when the air temperature is 80 degrees and relative humidity is 60 percent.

A negative air scrubber will be needed when working with toxics in a containment structure. (See Figure 19-11) The scrubber draws air out of a room or containment structure so air flows continually from outside the room or structure to the interior. That prevents escape of airborne toxics from the area where work is being done. The scrubber has to be placed inside the containment area. A HEPA filter in the scrubber traps nearly all airborne particles before exhausting air through 12" or 14" flex duct, either to the exterior or outside the containment structure. Some negative air scrubbers also include an odor absorption filter. Other units can be reversed to provide clean positive air to a room that has to be kept free of airborne particles. A single 1,400-CFM scrubber will provide one clean air change a minute in a 12- x 14-foot room.

Scrubbers usually have two or three filters. The primary filter should be replaced daily. The secondary filter, if there is one, should be replaced every three to five days. The HEPA filter will require replacement after 500 to 1,000 hours, depending on conditions.

*Hardwood flooring* presents a special problem. Hardwood swells and cups at the edges when wet for more than a few hours. Drying the floor promptly will prevent most damage. It's easy to remove water standing on a hardwood floor. Any wet-vac or sponge mop will work fine. But it's harder to remove water that's soaked through wood seams into the subfloor. Mat drying, as in Figure 19-12, is one good solution. A vacuum extracts moist air from under mats laid over wet portions of the floor. A hardwood floor with 30 percent moisture should dry to a

normal moisture level (under 10 percent) in four or five days. Cupping and swelling will disappear as the floor dries, leaving a floor that may need refinishing but won't have to be torn out.

Most engineered wood floors, such as parquet and laminate, include synthetic materials that absorb water selectively, causing the material to swell and distort unevenly. Drying is difficult and may not be successful. It's usually better to tear out and replace a wet engineered wood floor.

For good coverage of the equipment needed for dryout work and how to use that equipment to best advantage, see *Insurance Restoration Contracting: Startup to Success*. An order form is at the back of this book. Or go to <http://Craftsman-Book.com> on the Web.

### ***Cleanup***

The last step is cleaning all affected surfaces. You'll need: brooms, mops, brushes, sponges, buckets, hose, rubber gloves, rags, cleaner, disinfectants, lubricating oil, trash bags and a hair dryer. The best cleaner for dryout is a non-sudsing household cleaner. A good second choice is laundry soap or detergent. Many commercial disinfectants are available. Look on the ingredients list for quaternary, phenolic, or pine oil. Two ounces of laundry bleach in a gallon of water makes a good disinfectant. To inhibit mold, apply a mildew remover or mildewcide. Milban 1-2-3 is a disinfectant, cleaner, mildewstat, sanitizer, virucide and deodorizer. A second choice for removing mold is five tablespoons of tri-sodium phosphate in a gallon of water.

Tackle one room at a time. A two-bucket approach is most efficient. One bucket has rinse water and the other has cleaner. Rinse out your sponge, mop, or cleaning cloth in the rinse bucket. Wring it as dry as possible. Keep it rolled up tight until submerged in the cleaner bucket. Then let it unroll and absorb the cleaner. Using two buckets keeps most of the dirty rinse water out of your cleaning solution. Replace the rinse water frequently.

*Walls.* Start cleaning walls at the bottom or where damage is the worst. If you had to remove the wallboard or plaster, wash and disinfect the framing. If you didn't remove the wall finish, wash the wall to remove flood residue and discoloration. Then apply a disinfectant.

*Furniture.* Solid wood furniture usually requires only a cleaning. Wood alcohol or turpentine applied with a cotton ball may remove white mildew spots on wood. Use a cream wood restorer with lanolin to restore the finish. Upholstered furniture that has soaked up contaminants should be either discarded or cleaned by a professional.

*Paper and books.* Valuable papers such as photographs or a stamp collection can be salvaged with a great deal of effort. The owner may want to put valuable papers in a frost-free freezer or commercial meat locker until time is available to do page-by-page drying with a blow dryer. Don't try to force wet pages of paper apart. Just

keep drying. Consider making copies of valuable papers. Contaminants in flood-water can turn to dark stains as the paper dries.

If a computer hard drive, cellphone, hand-held computer or memory card has been flooded, rinse in clear water and put it in a plastic bag in the refrigerator. Most information can be salvaged by a data recovery specialist. Search on the Web for a computer data recovery service. Consider using a countertop ultrasonic cleaning unit to remove contaminants from dishes, jewelry and art objects.

## Mold Remediation

Mold thrives everywhere there is air, moisture and something organic to feed on. Mold spreads from microscopic spores. What's obvious to the eye will be discoloration on framing, sheathing, flooring, drywall, carpet, insulation or in HVAC duct. It's impossible to eliminate all mold and mold spores from a building. The goal is to reduce mold levels to about what exists outside the building. Once high concentrations of mold are gone, eliminating excess moisture will prevent regrowth.

Cleaning away mold is easy. The hard part is doing that cleanup without spreading mold spores throughout the building. Spores float anywhere air can penetrate, including into unprotected lungs and eyes. There are thousands of types of mold. Only a few are known to create toxins. But some people are more sensitive to mold spores than others. High concentrations of mold spores can make anyone sick.

Any home improvement project can turn into a mold remediation job. Mold may not be obvious until you start removing drywall, wallpaper, paneling, ceiling tile, sheathing or carpet. Pipe chases, walls behind cabinets and plumbing fixtures, condensate drain pans, porous duct liners and roof sheathing are favorite habitats for mold. Vinyl wall cover creates a vapor barrier, trapping moisture that supports growth of mold in the wall. Stripping vinyl cover from a wall can release a cloud of spores into the building.

If you discover a mold problem, you have an obligation to inform the owner. After that, you have several choices:

- ❖ Pack up your tools and walk off the job, advising the owner to call when the mold problem is solved.
- ❖ Develop a plan for dealing with the mold and getting on with the job.
- ❖ Offer to get quotes from remediation subcontractors.

The owner, of course, has to make the decision. But most owners will be eager to get your advice on:

- ❖ The extent of the problem, including a rough estimate of what's required and the cost.
- ❖ Insurance coverage. Generally, mold remediation isn't an insured loss. Still, the owner should check for coverage.

- ❖ Licensing. If you don't have a license that's required for mold removal, make that point clear.

### ***Mold Remediation by Job Size***

The Environmental Protection Agency hasn't set standards for mold contamination. But the EPA does suggest a classification system for mold remediation work based on the square feet affected.

- ❖ Small — less than 10 square feet.
- ❖ Medium — More than 10 square feet but less than 100 square feet.
- ❖ Large — More than 100 square feet or where there is greater risk of spreading mold during remediation.

The cleaning method recommended by the EPA is essentially the same for all three classes:

- ❖ Wet vacuum to remove excess moisture.
- ❖ Hand wash.
- ❖ HEPA vacuum when the surface is dry.

The chief difference among the three job sizes is in the containment structure and the personal protective equipment (PPE) required. Larger jobs need more containment and more PPE.

The EPA classification system makes sense. Larger jobs usually have a greater mold density and take longer to remediate. But the EPA also recommends using professional judgment when deciding how to handle a remediation job. For example:

- ❖ Access to the mold may be easy or difficult. A 20-foot-long wall finished in vinyl and concealing concentrations of mold would qualify as a "large" job by EPA standards. But the vinyl can be stripped a little at a time and cleaned immediately. Access is easy. The job shouldn't take more than a few hours for a crew of two. Building a full containment structure would be overkill.
- ❖ The job described above might warrant full containment if mold also contaminates the framing, especially if an occupant in the home is elderly or has respiratory problems.

Obviously, your good judgment is required. If in doubt, get the advice of an industrial hygienist, as described later in this chapter.

Here's what the EPA recommends for each of the three job classifications:

- ❖ Small jobs don't require containment. The only PPE needed will be an N-95 respirator, gloves and goggles.
- ❖ Medium jobs require polyethylene sheeting from ceiling to floor around the affected area. Provide a slit entry and a covering flap.

Use double-sided tape to secure poly sheeting to the floors, walls and ceiling. Seal off cracks and openings, HVAC vents and registers. Maintain negative air pressure with a HEPA scrubber. PPE should include gloves, an N-95 respirator or half-face respirator with HEPA filter, disposable overalls and goggles.

- ❖ Large jobs require containment made from two layers of fire-retardant poly supported on a frame made of framing lumber or PVC pipe. The containment structure should include an egress pathway from where work is done all the way to the building exterior. Seal off cracks and openings, HVAC vents and registers. Maintain negative air pressure with a HEPA scrubber that vents to the exterior. Those working in the containment structure will need full PPE: gloves, disposable full-body clothing, head cover, foot cover, and a full-face respirator with HEPA filter. Provide an airlock chamber large enough for changing into and out of PPE. All contaminated PPE, except respirators, should be placed in a sealed bag when leaving the airlock. Your crew should wear respirators until outside the airlock chamber.

### ***Sampling and Your Protocol***

Sampling isn't necessary on most jobs. But recommend sampling to the owner if:

- ❖ Litigation is expected,
- ❖ The source of contamination isn't clear,
- ❖ Health concerns are a problem,
- ❖ Cleanup is going to take more than a few days.

An industrial hygienist can collect samples and arrange for testing. The lab report will show spore count (by fungal type) at each of the locations tested. When cleanup is done, a second sample should confirm that spore count inside and outside the building are approximately the same. From a contractor's perspective, the second test is proof positive that work was done correctly.

All samples should be tested under standards published by the American Industrial Hygiene Association (AIHA) or the American Conference of Governmental Industrial Hygienists (ACGIH).

An industrial hygienist will also draft a *protocol*, the plan for remediation work. Even if the owner elects to skip sampling, it's good practice to have a protocol for any but the most routine mold remediation jobs. The protocol will describe the containment required, the PPE recommended, what has to be removed, the cleaning procedure, the chemicals, and the equipment to use. In short, the protocol is to mold remediation what plans and specs are to a home improvement job. Most construction professionals feel comfortable following plans. You'll feel better about the job with a good written protocol.

## Cleaning Methods

Non-porous materials (such as metals, glass and hard plastics) are easy to clean. Semi-porous materials (such as wood, concrete, and masonry) should be cleaned if structurally sound. It's usually better to discard more porous materials (such as ceiling tile, insulation and drywall). If you try to clean drywall, keep cleaning at least 6 inches beyond where the board is discolored by mold. Before you decide to clean the face of drywall, check the back side. The back may have a higher concentration of mold than the front side.

Start breakout of what's to be discarded by misting the surface to minimize release of spores. Keep using a HEPA vacuum to collect spores as work continues. Seal everything you remove in 6-mil plastic bags while inside the containment structure. Wipe the exterior of each bag before removing it from containment. Bag disposal doesn't require any special handling once bags are out of the building.

The best liquid for mold cleaning is a gallon of warm water mixed with two to four ounces of a disinfectant-sanitizer. Again, mist the surface to minimize release of spores. Use a mister with a coarse spray tip. Scrape any gross filth or heavy soil off the surface. Keep the surface moist for 10 minutes so the disinfectant-sanitizer has time to work. Then wipe the surface clean using two buckets, the first with plain water for rinsing and the second with the diluted disinfectant-sanitizer. Gentle cleaning helps minimize release of spores. Clean beyond the area where you see signs of mold. When fully dry, go over the area cleaned with a HEPA vacuum. Change filters as recommended by the manufacturer. Do filter changes *inside* the containment area. Dispose of filters in sealed plastic bags.

Abrading (sanding and scraping) may be required on semi-porous surfaces. Where access is difficult, such as in a crawl space or attic, blasting is usually more practical than sanding and scraping by hand. It might take 120 manhours to sand and scrape a mold-infested attic. Blasting could reduce the labor by half. Blasting done with sand, glass beads or bicarbonate of soda leaves a residue which has to be cleaned up with a HEPA filter vacuum. You'll need both an air source and a scrubber when blasting inside a containment structure.

Blasting with dry ice leaves much less residue. Dry-ice pellets are soft. They don't scratch the surface as much as other blasting materials. Instead, sudden cooling makes the mold easy to flake off. The dry ice simply evaporates, leaving no chemical residue.

Regardless of the cleaning method, some mold residue will remain on semi-porous surfaces such as concrete, masonry or framing. Once the surface is clean and dry, encapsulate any mold that remains on the surface with an anti-microbial coating, either by brush, roller or spray.

When done with the containment structure, run a damp cloth or sponge mop over the entire interior, including the airlock. When dry, vacuum the interior with a HEPA vacuum. Dispose of the containment structure's poly sheeting and air lock in 6-mil bags. The entire area should be left dry and visibly free from mold, dust and debris.

| Craft@Hrs | Unit | Material | Labor | Total | Sell |
|-----------|------|----------|-------|-------|------|
|-----------|------|----------|-------|-------|------|

**Water Extraction.** ("dry-out") Removing water from the interior of an existing building in compliance with The Clean Trust (IICRC) standards. Category 3 "black" water extraction (toxics, sewage) requires protective clothing. Some Cat 2 jobs require a respirator and gloves. See the sections that follow. Work done outside regular business hours (7 AM to 6 PM) may cost up to 50 percent more. These are costs to the dry-out contractor. Add overhead and profit.

**Emergency dry-out service call.** Includes dispatch of a van equipped for water extraction work, a crew of one certified dry-out technician and one helper, equipment setup, two hours of work and demobilization when work is complete. These are minimum charges for job requiring extraction of category 1 clean water (roof leak or broken water pipe) or category 2 (gray) water such as from a flood. For category 3 (black) water, add the cost of personal protection equipment (PPE) from the section that follows. For larger jobs, add the cost of pre-drying, structural water extraction (walls and ceilings), demolition, repairs, disposal of debris, consumables and equipment rental from the sections that follow.

|   |         |      |   |       |        |        |
|---|---------|------|---|-------|--------|--------|
| Minimum charge, 100 SF job              | —       | Ea   | — | —     | 273.00 | 464.00 |
| Charge per SF beyond 100 SF             | B8@.016 | Ea   | — | .64   | .64    | 1.09   |
| Charge per crew hour beyond 2 hours     | —       | Hour | — | —     | 109.00 | 185.00 |
| Delivery of dry-out equipment, per load | B8@1.00 | Ea   | — | 40.20 | 40.20  | 68.30  |

**Structural water extraction.** Category 1 or category 2 water extraction. Based on a 1,000 SF water map with 200 LF of wall saturated to 6" maximum water height. Job duration is four to six days using two dehumidifiers, 10 air movers and 200 LF of wall manifold. Crew is one dry-out technician and one helper. Add the cost of pre-drying, demolition, cleanup after extraction, consumables, personal protection gear and air scrubbers, if required. Larger jobs and jobs with hardwood floors, flooding deeper than 6" or black (category 3) water will cost more. No equipment decontamination is required on Cat 1 jobs.

|  |         |    |   |        |          |          |
|--|---------|----|---|--------|----------|----------|
| Equipment, deliver, install and startup          | B8@4.00 | Ea | — | 161.00 | 161.00   | 274.00   |
| Equipment monitoring (1 hour per day for 5 days) | B8@5.00 | Ea | — | 201.00 | 201.00   | 342.00   |
| Equipment rental, 6 days                         | —       | Ea | — | —      | 2,350.00 | 4,000.00 |
| Equipment demobilization                         | B8@2.00 | Ea | — | 80.40  | 80.40    | 137.00   |
| Equipment decontamination, per job               | B8@2.00 | Ea | — | 80.40  | 80.40    | 137.00   |
| Total cost per 1,000 SF of floor                 | —       | LS | — | 522.80 | 2,872.80 | 4,880.00 |
| Total cost per SF of floor                       | —       | LS | — | .52    | 2.87     | 4.88     |

**Pre-drying.** Preparing a building interior for water extraction.

Block and pad furniture in preparation for moving. Add the cost of tape and furniture pads from the section Consumables for water extraction and mold remediation.

|             |         |    |   |       |       |       |
|-------------|---------|----|---|-------|-------|-------|
| Small room  | B8@.268 | Ea | — | 10.80 | 10.80 | 18.40 |
| Bedroom     | B8@.448 | Ea | — | 18.00 | 18.00 | 30.60 |
| Larger room | B8@.627 | Ea | — | 25.20 | 25.20 | 42.80 |

Move room contents to a new location on the same site. Add the cost of boxes and bubble wrap from the section Consumables for water extraction and mold remediation.

|  |         |    |   |       |       |       |
|--|---------|----|---|-------|-------|-------|
| Box and hand-carry small items   | B8@.322 | Ea | — | 12.90 | 12.90 | 21.90 |
| Small room   | B8@.483 | Ea | — | 19.40 | 19.40 | 33.00 |
| Bedroom  | B8@.725 | Ea | — | 29.10 | 29.10 | 49.50 |
| Larger room  | B8@.145 | Ea | — | 5.83  | 5.83  | 9.91  |
| Large items (sofa, table, etc.), per item  | —       | %  | — | 100.0 | —     | —     |
| Add for replacing contents after dry-out   | —       | %  | — | —     | —     | —     |
| Deduct when room contents can be shifted to another side of the same room                                    | —       | %  | — | -50.0 | —     | —     |
| Pack out inventory of items removed, by description, condition and packing box number, with report, per item | B8@.012 | Ea | — | .48   | .48   | .82   |

Remove accumulated debris, mud or silt. Load in a 5 C.F. wheelbarrow with a shovel, move 100' and dump.

|                        |         |    |   |      |      |      |
|------------------------|---------|----|---|------|------|------|
| Per cubic foot removed | BL@.056 | CF | — | 1.87 | 1.87 | 3.18 |
|------------------------|---------|----|---|------|------|------|

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell  |
|--|-----------|------|----------|-------|-------|-------|
| Pressure wash building interior. Add the cost of equipment rental.   |           |      |          |       |       |       |
| Floors and walls, per SF washed  | B8@.002   | SF   | —        | .08   | .08   | .14   |
| HVAC vent or register  | B8@.033   | Ea   | —        | 1.33  | 1.33  | 2.26  |
| Deploy and remove a 6" high re-usable plastic berm at the building perimeter   | B8@.010   | LF   | 1.96     | .40   | 2.36  | 4.01  |
| Ultrasonic cleaning of building contents, dishes, jewelry, art objects, etc. Using a 10 gallon countertop ultrasonic cleaner. 1.3 CF basket. Add the cost of equipment rental. |           |      |          |       |       |       |
| Per load, 5 minute cleaning cycle  | B8@.167   | Ea   | —        | 6.71  | 6.71  | 11.40 |
| Cleaning solution, per diluted gallon  | —         | Gal  | 7.44     | —     | 7.44  | —     |

**Remove appliances.** Disconnect, wrap unit in a pad, mount on a hand dolly and move to a new location on the same site for cleaning or disposal. Removal of gas and oil appliances includes closing and locking the gas or oil line. Per appliance.

|                                  |         |    |   |       |       |       |
|----------------------------------|---------|----|---|-------|-------|-------|
| Most electric appliances         | B8@.485 | Ea | — | 19.50 | 19.50 | 33.20 |
| Most gas and oil appliances      | B8@.667 | Ea | — | 26.80 | 26.80 | 45.60 |
| Water heater, drain and remove   | B8@.667 | Ea | — | 26.80 | 26.80 | 45.60 |
| Undercounter dishwasher          | B8@.900 | Ea | — | 36.20 | 36.20 | 61.50 |
| Undercounter trash compactor     | B8@.250 | Ea | — | 10.10 | 10.10 | 17.20 |
| Undercounter refrigerator        | B8@.250 | Ea | — | 10.10 | 10.10 | 17.20 |
| Wall oven or microwave           | B8@.450 | Ea | — | 18.10 | 18.10 | 30.80 |
| Range hood                       | B8@.500 | Ea | — | 20.10 | 20.10 | 34.20 |
| Garbage disposer                 | B8@.600 | Ea | — | 24.10 | 24.10 | 41.00 |
| Add for re-installing appliances | —       | %  | — | 90.0  | —     | —     |

**Remove fixtures.** Includes turning off the water, disconnecting the drain, capping supply and waste lines, disconnecting faucets and fittings and stack on site.

|   |         |    |   |       |       |        |
|---|---------|----|---|-------|-------|--------|
| Self-rimming sink                           | B8@1.00 | Ea | — | 40.20 | 40.20 | 68.30  |
| Ledge-type or hudee ring sink               | B8@1.65 | Ea | — | 66.30 | 66.30 | 113.00 |
| Self-rimming sink with disposer             | B8@1.50 | Ea | — | 60.30 | 60.30 | 103.00 |
| Ledge-type or hudee ring sink with disposer | B8@2.00 | Ea | — | 80.40 | 80.40 | 137.00 |
| Bathtub                                     | B8@2.00 | Ea | — | 80.40 | 80.40 | 137.00 |
| Toilet or bidet                             | B8@.550 | Ea | — | 22.10 | 22.10 | 37.60  |
| Vanity cabinet with sink                    | B8@1.25 | Ea | — | 50.30 | 50.30 | 85.50  |
| Electric switch or receptacle and plate     | B8@.110 | Ea | — | 4.42  | 4.42  | 7.51   |
| Pendent, wall or recessed light fixture     | B8@.295 | Ea | — | 11.90 | 11.90 | 20.20  |
| Add for re-installing fixtures              | —       | %  | — | 90.0  | —     | —      |

#### HVAC system cleaning.

|  |         |    |       |       |       |        |
|--|---------|----|-------|-------|-------|--------|
| Heat pump, disconnect, unbolt, remove                                | B8@2.33 | Ea | —     | 93.70 | 93.70 | 159.00 |
| Air handler, clean and dry out interior, replace filters             |         |    |       |       |       |        |
| lubricate fan bearing, perform test                                  | B8@.450 | Ea | 10.20 | 18.10 | 28.30 | 48.10  |
| Air handler, disconnect, unbolt, remove                              | B8@.750 | Ea | —     | 30.20 | 30.20 | 51.30  |
| Register or drop, clean  | B8@.240 | Ea | —     | 9.65  | 9.65  | 16.40  |
| HVAC duct, clean per NADCA standards. Per LF of duct.                |         |    |       |       |       |        |
| Typical home has 150 LF of duct.                                     | B8@.050 | LF | —     | 2.01  | 2.01  | 3.42   |
| Environmental control, remove, dry, clean, inspect, replace and test | B8@.500 | Ea | —     | 20.10 | 20.10 | 34.20  |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| <b>Carpet removal.</b> Remove saturated carpet or pad. Cut and roll into manageable sizes and remove to the exterior for disposal. (35 SY per CY)   |           |      |          |        |        |        |
| Carpet, loose lay or on 2-sided tape  | B8@.040   | SY   | —        | 1.61   | 1.61   | 2.74   |
| Loose lay pad   | B8@.035   | SY   | —        | 1.41   | 1.41   | 2.40   |
| Carpet laid on tack strips  | B8@.056   | SY   | —        | 2.25   | 2.25   | 3.83   |
| Remove carpet tack ("tackless") strip   | B8@.011   | LF   | —        | .44    | .44    | .75    |
| Replace pad, 6 lb., rebond urethane   | B8@.025   | SY   | 5.35     | 1.01   | 6.36   | 10.80  |
| Replace carpet, 40 oz., standard grade  | B8@.120   | SY   | 30.80    | 4.82   | 35.62  | 60.60  |
| Remove saturated foam-backed carpet laid in adhesive. Move debris to the exterior for disposal. Add the cost per square foot to the cost per linear foot of room perimeter. (35 SY per CY)  |           |      |          |        |        |        |
| Per square foot of carpet   | B8@.010   | SF   | —        | .40    | .40    | .68    |
| Per linear foot of room perimeter   | B8@.004   | LF   | —        | .16    | .16    | .27    |
| Add for removing adhesive residue using hot water   | B8@.012   | SF   | —        | .48    | .48    | .82    |
| <b>Water extraction.</b> When required by toxic conditions, add the cost of personal protection equipment (jumpsuit, protective gloves, waterproof boots with steel toes, eye protection goggles and respirators). Add the cost of personal protection equipment (PPE) from the section that follows. |           |      |          |        |        |        |
| Hard surface floors (concrete, tile, wood, sheet goods). Remove debris and standing water. Per 1,000 SF. Add the cost of equipment, if required. For equipment costs, see the sections that follow.   |           |      |          |        |        |        |
| Light (squeegee and mop only)   | B8@1.56   | MSF  | —        | 62.70  | 62.70  | 107.00 |
| Medium (squeegee, rinse and wet-vac)  | B8@2.50   | MSF  | —        | 101.00 | 101.00 | 172.00 |
| Heavy (remove silt, rinse and wet-vac)  | B8@3.50   | MSF  | —        | 141.00 | 141.00 | 240.00 |
| Shovel mud, rinse and wet-vac   | B8@4.50   | MSF  | —        | 181.00 | 181.00 | 308.00 |
| Carpeted floors with no pad. Remove standing water and surface moisture with a truck-mounted vacuum. For equipment costs, see the sections that follow.   |           |      |          |        |        |        |
| 800 SF per hour   | B8@1.25   | MSF  | —        | 50.30  | 50.30  | 85.50  |
| Carpeted floors with pad. Remove standing water and sub-surface water. For equipment costs, see the sections that follow.   |           |      |          |        |        |        |
| Remove standing water, 13 CF per hour   | B8@.182   | CF   | —        | 7.32   | 7.32   | 12.40  |
| Light work, moist (155 SF per hour)   | B8@6.45   | MSF  | —        | 259.00 | 259.00 | 440.00 |
| Medium work, saturated (105 SF per hour)  | B8@9.52   | MSF  | —        | 383.00 | 383.00 | 651.00 |
| Heavy work, puddled (78 SF per hour)  | B8@12.8   | MSF  | —        | 515.00 | 515.00 | 876.00 |
| Small Water Claw (200 SF per hour)  | B8@5.00   | MSF  | —        | 201.00 | 201.00 | 342.00 |
| Medium Water Claw (333 SF per hour)   | B8@3.00   | MSF  | —        | 121.00 | 121.00 | 206.00 |
| Large Water Claw (500 SF per hour)  | B8@2.00   | MSF  | —        | 80.40  | 80.40  | 137.00 |
| Hydro Xtreme water extraction. Self-propelled. With Hydro-X Vacuum pack. No carpet removal required. For equipment costs, see the sections that follow.   |           |      |          |        |        |        |
| Equipment setup, per room   | B8@.250   | Ea   | —        | 10.10  | 10.10  | 17.20  |
| Extracting at 500 SF per hour   | B8@2.00   | MSF  | —        | 80.40  | 80.40  | 137.00 |
| Float carpet. Lift and block carpet to allow air circulation. Add the cost of air moving equipment and monitoring. For equipment costs, see the sections that follow. Cost per room.  |           |      |          |        |        |        |
| Small room, under 150 SF, per room  | B8@.655   | Ea   | —        | 26.30  | 26.30  | 44.70  |
| Most rooms, 150 SF to 300 SF, per room  | B8@1.05   | Ea   | —        | 42.20  | 42.20  | 71.70  |
| Room over 300 to 600 SF, per room   | B8@1.57   | Ea   | —        | 63.10  | 63.10  | 107.00 |
| Room over 600 SF, per 1,000 SF  | B8@2.33   | MSF  | —        | 93.70  | 93.70  | 159.00 |
| Add for re-installation (carpet stretching)   | —         | %    | —        | 90.0   | —      | —      |
| Hang dry Oriental rug at remote carpet dry cleaning plant. Including transportation to and from the plant site. Add the cost of carpet removal and reinstallation. 40 oz., standard grade   |           |      |          |        |        |        |
| Minimum charge  | —         | Ea   | —        | —      | 250.00 | 425.00 |
| Per square yard of carpet or rug  | —         | SY   | —        | —      | 3.57   | —      |
| Anti-mold, anti mildew sanitizer, Milban 1-2-3 sprayed on wet areas (gallon covers 1,600 SF)  | B8@.500   | MSF  | 18.10    | 20.10  | 38.20  | 64.90  |

|  | Craft@Hrs | Unit | Material | Labor | Total  | Sell   |
|--|-----------|------|----------|-------|--------|--------|
| Clean and deodorize carpet, no water extraction,<br>no furniture moving, subcontract   | —         | MSF  | —        | —     | 167.00 | 284.00 |
| Scotchgard post-extraction cleaner concentrate,<br>(gallon covers 3,200 SF)  | —         | MSF  | 14.10    | —     | 14.10  | —      |
| <b>Drywall repairs.</b> Remove and replace drywall on ceilings and walls. Remove the damaged drywall with hand tools at heights to 9' and handle debris to a trash bin on site. Add the cost of debris disposal. 250 SF of demolished drywall debris weighs about 600 pounds and has a loose volume of about one cubic yard. |           |      |          |       |        |        |
| Remove saturated drywall panels. Includes the cost of pulling or driving the old fasteners.  |           |      |          |       |        |        |
| On ceilings  | B8@.014   | SF   | —        | .56   | .56    | .95    |
| On walls   | B8@.012   | SF   | —        | .48   | .48    | .82    |
| Replace full drywall panels. Includes joint tape, three coats of joint compound and sanding.   |           |      |          |       |        |        |
| 1/2" board on walls, taped and finished  | B8@.018   | SF   | .53      | .72   | 1.25   | 2.13   |
| 1/2" board on ceilings, taped and finished   | B8@.024   | SF   | .53      | .96   | 1.49   | 2.53   |
| Add for job setup, per room  | B8@.200   | Ea   | —        | 8.04  | 8.04   | 13.70  |
| Repair damaged drywall section. Cost per replacement section to 4' x 4'. Includes drywall, joint tape, three coats of joint compound and sanding.  |           |      |          |       |        |        |
| Cut out damaged section  | B8@.432   | Ea   | —        | 17.40 | 17.40  | 29.60  |
| Add 2" x 4" blocking at section edge   | B8@.350   | Ea   | 4.66     | 14.10 | 18.76  | 31.90  |
| Cut, fix and secure replacement section  | B8@.490   | Ea   | 8.43     | 19.70 | 28.13  | 47.80  |
| Tape and finish joints   | B8@.160   | Ea   | .50      | 6.43  | 6.93   | 11.80  |
| Total cost per section to 4' x 4'  | B8@1.29   | Ea   | 13.60    | 51.90 | 65.50  | 111.00 |
| Total cost per linear foot of repair   | B8@.323   | Ea   | .85      | 13.00 | 13.85  | 23.50  |
| Patch hole to 6" diameter using repair clips   | B8@.750   | Ea   | 6.76     | 30.20 | 36.96  | 62.80  |
| Add for work done in containment and PPE   | —         | %    | —        | 50.0  | —      | —      |

**Demolition.** Remove damaged, contaminated or saturated building components as part of the water extraction process. Includes breaking materials into manageable pieces with hand tools and handling debris to a trash bin on site. Figures in parentheses show the approximate "loose" volume and weight of the materials after demolition. No salvage of materials except as noted. Add the cost of disposal of debris. Add 50% for work done in personal protective equipment.

**Wall Finish Demolition.** See also Drywall repairs above.

|   |         |    |   |      |      |      |
|---|---------|----|---|------|------|------|
| Ceramic tile, using hand tools,<br>(25 SY per CY and 34 lbs. per SY)            | BL@.029 | SF | — | .97  | .97  | 1.65 |
| Ceramic tile and backer, using hand tools,<br>(12 SY per CY and 70 lbs. per SY) | BL@.058 | SF | — | 1.93 | 1.93 | 3.28 |
| Plywood sheathing to 1" thick,<br>(200 SF per CY and 2 lbs. per SF)             | BL@.017 | SF | — | .57  | .57  | .97  |
| Wood board sheathing,<br>(250 SF per CY and 2 lbs. per SF)                      | BL@.030 | SF | — | 1.00 | 1.00 | 1.70 |
| Metal siding,<br>(200 SF per CY and 2 lbs. per SF)                              | BL@.027 | SF | — | .90  | .90  | 1.53 |
| Stucco,<br>(150 SF per CY and 8 lbs. per SF)                                    | BL@.036 | SF | — | 1.20 | 1.20 | 2.04 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
| Plywood or insulation board,<br>(200 SF per CY and 2 lbs. per SF)                                      | BL@.018   | SF   | —        | .60   | .60   | 1.02 |
| Plywood or plank paneling,<br>(200 SF per CY and 2 lbs. per SF)  | BL@.017   | SF   | —        | .57   | .57   | .97  |
| Insulation, fiberglass batts or rolls, per square foot of coverage<br>(500 SF per CY and .3 lb per SF) | BL@.003   | SF   | —        | .10   | .10   | .17  |
| Plaster and lath<br>(150 SF per CY and 8 lbs. per SF)  | BL@.023   | SF   | —        | .77   | .77   | 1.31 |
| Plaster, lath and furring<br>(130 SF per CY and 10 lbs. per SF)  | BL@.032   | SF   | —        | 1.07  | 1.07  | 1.82 |
| Wall mirror, remove in salvage condition   | BL@.025   | SF   | —        | .83   | .83   | 1.41 |
| Wallpaper, scrape off up to 2 layers<br>(1,000 SF per CY and .12 lbs. per SF)                          | BL@.015   | SF   | —        | .50   | .50   | .85  |
| Baseboard molding  |           |      |          |       |       |      |
| Single member base, no salvage   | BL@.022   | LF   | —        | .73   | .73   | 1.24 |
| Base and base shoe, no salvage   | BL@.038   | LF   | —        | 1.27  | 1.27  | 2.16 |
| Remove and salvage single member base  | BL@.035   | LF   | —        | 1.17  | 1.17  | 1.99 |
| Remove and salvage base and base shoe  | BL@.050   | LF   | —        | 1.67  | 1.67  | 2.84 |
| Drill injection port at wall base  | B8@.045   | Ea   | —        | 1.81  | 1.81  | 3.08 |
| Add for work done in containment and PPE   | —         | %    | —        | 50.0  | —     | —    |

**Ceiling demolition.** Heights to 9'. Add 25 percent to the labor cost for work from ladders. See also Drywall repairs above.

Plaster ceiling (typically 175 to 200 SF per CY). Includes the cost of protecting the floor from falling debris.

|                              |         |    |   |     |     |      |
|------------------------------|---------|----|---|-----|-----|------|
| Including lath and furring   | BL@.025 | SF | — | .83 | .83 | 1.41 |
| Plaster suspension grid only | BL@.020 | SF | — | .67 | .67 | 1.14 |

Acoustic tile ceiling (typically 200 to 250 SF per CY).

|  |         |    |   |     |     |      |
|--|---------|----|---|-----|-----|------|
| Including suspended grid                 | BL@.010 | SF | — | .33 | .33 | .56  |
| Including grid in salvage condition      | BL@.019 | SF | — | .63 | .63 | 1.07 |
| Tile glued or stapled to ceiling         | BL@.015 | SF | — | .50 | .50 | .85  |
| Tile on strip furring, including furring | BL@.025 | SF | — | .83 | .83 | 1.41 |

Insulation, loose fill, fiberglass batts or rolls in attic, per square foot of coverage.

|                                  |         |    |   |     |     |     |
|----------------------------------|---------|----|---|-----|-----|-----|
| (500 SF per CY and .3 lb per SF) | BL@.005 | SF | — | .17 | .17 | .29 |
|----------------------------------|---------|----|---|-----|-----|-----|

**Flooring demolition.** Per square yard of flooring removed. (1 square yard = 9 square feet).

|   |         |    |   |       |       |       |
|---|---------|----|---|-------|-------|-------|
| Ceramic tile, using hand tools,<br>(25 SY per CY and 34 lbs. per SY)            | BL@.263 | SY | — | 8.76  | 8.76  | 14.90 |
| Ceramic tile and backer, using hand tools,<br>(12 SY per CY and 70 lbs. per SY) | BL@.522 | SY | — | 17.40 | 17.40 | 29.60 |
| Hardwood, nailed,<br>(25 SY per CY and 18 lbs. per SY)                          | BL@.288 | SY | — | 9.59  | 9.59  | 16.30 |
| Hardwood, glued,<br>(25 SY per CY and 18 lbs. per SY)                           | BL@.503 | SY | — | 16.80 | 16.80 | 28.60 |
| Floating laminated hardwood flooring,<br>(25 SY per CY and 15 lbs. per SY)      | BL@.025 | SF | — | .83   | .83   | 1.41  |
| Sheet vinyl or linoleum,<br>(30 SY per CY and 3 lbs. per SY)                    | BL@.056 | SY | — | 1.87  | 1.87  | 3.18  |
| Resilient tile,<br>(30 SY per CY and 3 lbs. per SY)                             | BL@.096 | SY | — | 3.20  | 3.20  | 5.44  |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| Loose lay sheet flooring,<br>(30 SY per CY and 3 lbs. per SY)  | BL@.012   | SY   | —        | .40   | .40   | .68    |
| Vinyl cove base, for salvage   | BL@.025   | LF   | —        | .83   | .83   | 1.41   |
| Flooring underlay,<br>(200 SY per CY and 3 lbs. per SF)  | BL@.017   | SF   | —        | .57   | .57   | .97    |
| Subfloor,<br>(120 SY per CY and 4 lbs. per SF)   | BL@.023   | SF   | —        | .77   | .77   | 1.31   |
| <b>Interior demolition.</b>  |           |      |          |       |       |        |
| Remove, dry and re-hang wood door to 4' x 8'   | BL@.300   | Ea   | —        | 9.99  | 9.99  | 17.00  |
| Door trim only, remove two sides, per opening  | BL@.450   | Ea   | —        | 15.00 | 15.00 | 25.50  |
| Remove hollow metal door and door frame in a masonry wall. (2 doors per CY)  |           |      |          |       |       |        |
| Single door to 4' x 8'   | BL@1.00   | Ea   | —        | 33.30 | 33.30 | 56.60  |
| Two doors, per opening to 8' x 8'  | BL@1.50   | Ea   | —        | 50.00 | 50.00 | 85.00  |
| Remove wood door and door frame in a wood frame wall. (2 doors per CY)   |           |      |          |       |       |        |
| Single door to 4' x 8'   | BL@.500   | Ea   | —        | 16.70 | 16.70 | 28.40  |
| Two doors, per opening to 8' x 8'  | BL@.750   | Ea   | —        | 25.00 | 25.00 | 42.50  |
| Remove window, frame and hardware, per SF of window.   |           |      |          |       |       |        |
| Metal or vinyl (36 SF per CY)  | BL@.058   | SF   | —        | 1.93  | 1.93  | 3.28   |
| Wood (36 SF per CY)  | BL@.063   | SF   | —        | 2.10  | 2.10  | 3.57   |
| <b>Cabinet demolition.</b> Per linear foot of cabinet face or back (whichever is longer). The cost of removing base cabinets includes the cost of removing the countertop. |           |      |          |       |       |        |
| Wall cabinets, wood  | BL@.250   | LF   | —        | 8.33  | 8.33  | 14.20  |
| Wall cabinets, metal   | BL@.350   | LF   | —        | 11.70 | 11.70 | 19.90  |
| Base cabinets, wood  | BL@.400   | LF   | —        | 13.30 | 13.30 | 22.60  |
| Base cabinets, metal   | BL@.550   | LF   | —        | 18.30 | 18.30 | 31.10  |
| Cabinet door only  | BL@.250   | Ea   | —        | 8.33  | 8.33  | 14.20  |
| Remove and reinstall cabinet door  | BL@.580   | Ea   | —        | 19.30 | 19.30 | 32.80  |
| Remove countertop only   | BL@.080   | SF   | —        | 2.66  | 2.66  | 4.52   |
| Built-in shelving, per SF of face  | BL@.070   | SF   | —        | 2.33  | 2.33  | 3.96   |
| <b>Cleanup after water extraction.</b> Removing water residue using a sponge or mop and commercial cleaning products.  |           |      |          |       |       |        |
| Cabinets, per linear foot of cabinet face. Wall or base cabinet, bathroom, kitchen, pantry or linen.   |           |      |          |       |       |        |
| Clean inside and outside   | BL@.048   | LF   | .21      | 1.60  | 1.81  | 3.08   |
| Add for polish, exposed surfaces only  | BL@.033   | LF   | .19      | 1.10  | 1.29  | 2.19   |
| Countertops, per linear foot of front, including the sink.   |           |      |          |       |       |        |
| Marble, granite, laminated or composition  | BL@.012   | LF   | .19      | .40   | .59   | 1.00   |
| Tile, including grout joints   | BL@.020   | LF   | .26      | .67   | .93   | 1.58   |
| Painted surfaces, wipe down by hand.   |           |      |          |       |       |        |
| Baseboard, trim or molding   | BL@.003   | LF   | .15      | .10   | .25   | .43    |
| Cased openings   | BL@.060   | Ea   | .14      | 2.00  | 2.14  | 3.64   |
| Ceilings, painted  | BL@2.00   | MSF  | 12.10    | 66.60 | 78.70 | 134.00 |
| Walls, painted or papered  | BL@1.50   | MSF  | 11.30    | 50.00 | 61.30 | 104.00 |
| Window sills   | BL@.004   | LF   | .13      | .13   | .26   | .44    |
| Ceramic tile, including grout cleaning.  |           |      |          |       |       |        |
| Walls to 6'6" high   | BL@.004   | SF   | .19      | .13   | .32   | .54    |
| Floors   | BL@.003   | SF   | .19      | .10   | .29   | .49    |
| Doors, painted or stained.   |           |      |          |       |       |        |
| Cleaned two sides, including casing  | BL@.150   | Ea   | .24      | 5.00  | 5.24  | 8.91   |

|   | Craft@Hrs | Unit | Material | Labor  | Total  | Sell   |
|---|-----------|------|----------|--------|--------|--------|
| Floors, per 1,000 SF.   |           |      |          |        |        |        |
| Vacuum carpet or sweep floor  | BL@.650   | MSF  | —        | 21.70  | 21.70  | 36.90  |
| Mop floor   | BL@1.25   | MSF  | .94      | 41.60  | 42.54  | 72.30  |
| Shampoo carpet  | BL@3.30   | MSF  | 8.57     | 110.00 | 118.57 | 202.00 |
| Hardwood floor, clean, wax and polish   | BL@5.50   | MSF  | 14.30    | 183.00 | 197.30 | 335.00 |
| Plumbing fixtures.  |           |      |          |        |        |        |
| Bar sink, including faucet  | BL@.285   | Ea   | .28      | 9.49   | 9.77   | 16.60  |
| Bathtub, including tub surround   | BL@.560   | Ea   | .28      | 9.49   | 9.77   | 16.60  |
| Shower stall, including door  | BL@.560   | Ea   | .61      | 18.70  | 19.31  | 32.80  |
| Kitchen sink, including faucets   | BL@.375   | Ea   | .32      | 12.50  | 12.82  | 21.80  |
| Lavatories, including faucets   | BL@.375   | Ea   | .32      | 12.50  | 12.82  | 21.80  |
| Toilets, including seat and tank  | BL@.450   | Ea   | .32      | 15.00  | 15.32  | 26.00  |
| Sliding glass doors, clean both sides including track and screen.                         |           |      |          |        |        |        |
| Up to 8' wide   | BL@.650   | Ea   | .20      | 21.70  | 21.90  | 37.20  |
| Over 8' wide  | BL@.750   | Ea   | .26      | 25.00  | 25.26  | 42.90  |
| Venetian blinds, horizontal or vertical slats, remove, pressure wash, dry and re-install. |           |      |          |        |        |        |
| Window blinds to 20 SF, per window  | BL@.500   | Ea   | —        | 16.70  | 16.70  | 28.40  |
| Larger blinds, per SF blind   | BL@.025   | Ea   | —        | .83    | .83    | 1.41   |
| Windows, clean inside or outside, first or second floors, per SF cleaned.                 |           |      |          |        |        |        |
| Sliding, casement or picture windows  | BL@.003   | SF   | .12      | .10    | .22    | .37    |
| Jalousie type   | BL@.004   | SF   | .12      | .13    | .25    | .43    |
| Remove screen, hose wash, replace   | BL@.100   | Ea   | —        | 3.33   | 3.33   | 5.66   |
| Mirrors, per SF of face   | BL@.003   | SF   | .12      | .10    | .22    | .37    |
| Add for work done in containment and PPE  | —         | %    | 25.0     | 50.0   | —      | —      |

**Mold inspection.** Work done by a certified mold remediation professional or an industrial hygienist. Includes an inspection for microbial activity, water stains, moisture intrusion and musty odors. May include testing with a moisture meter or thermal imaging. If the full extent of mold infestation can not be identified by inspection, a battery of samples will be collected from the air and surfaces (by swab or tape). The lab report will identify the type of mold, levels of mold and probable exposure symptoms.

|  |   |    |   |   |        |   |
|--|---|----|---|---|--------|---|
| Visual inspection                          | — | LS | — | — | 213.00 | — |
| Mold inspection,                           |   |    |   |   |        |   |
| visual and indoor/outdoor sampling         | — | LS | — | — | 382.00 | — |
| Air sampling, per sample                   | — | Ea | — | — | 136.00 | — |
| Air sampling in wall cavities, per sample  | — | Ea | — | — | 164.00 | — |
| Surface sampling, swab or tape, per sample | — | Ea | — | — | 136.00 | — |
| Deduct additional samples of the same type | — | Ea | — | — | -54.60 | — |
| Add for post-remediation testing           | — | %  | — | — | 100.0  | — |

**Mold remediation protocol.** Prepared by a licensed mold assessment consultant. Specifies the materials to be remediated, the recommended remediation method, the PPE and containment required and the criteria for clearance. Larger and more complex jobs will cost more.

|                                      |   |    |   |   |        |   |
|--------------------------------------|---|----|---|---|--------|---|
| Remediation protocol, small job      | — | LS | — | — | 436.00 | — |
| Remediation protocol, larger job     | — | LS | — | — | 709.00 | — |
| Hourly rate for industrial hygienist | — | Hr | — | — | 125.00 | — |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell   |
|--|-----------|------|----------|-------|-------|--------|
| <b>Containment structure.</b> Polyethylene sheeting to enclose the contaminated area. For a large job, containment should extend from the affected area to the building exterior. Includes fabrication, cleaning, removal and typical loss due to waste. Cost of the support frame assumes five uses of materials.   |           |      |          |       |       |        |
| Typical medium job, 600 CF enclosure, 15 feet x 5 feet x 8 feet 4 mil poly taped to walls, ceiling and floor, per cubic foot enclosed  | B8@.006   | CF   | .17      | .24   | .41   | .70    |
| Sealing surface cracks.  |           |      |          |       |       |        |
| To 1/4" wide   | B8@.025   | LF   | .07      | 1.01  | 1.08  | 1.84   |
| To 1/2" wide   | B8@.033   | LF   | .09      | 1.33  | 1.42  | 2.41   |
| Poly sheeting, clear.  |           |      |          |       |       |        |
| 4 mil, single layer  | B8@.003   | SF   | .10      | .12   | .22   | .37    |
| 6 mil, single layer  | B8@.003   | SF   | .12      | .12   | .24   | .41    |
| Flame retardant, 6 mil, double layer   | B8@.006   | SF   | .26      | .24   | .50   | .85    |
| Double-sided tape.   |           |      |          |       |       |        |
| 1" wide, 60 Ft roll  | B8@.003   | LF   | .26      | .12   | .38   | .65    |
| 2" wide, 60 Ft roll  | B8@.003   | LF   | .32      | .12   | .44   | .75    |
| Containment frame, 2" x 4" lumber, assumes five uses of material.  |           |      |          |       |       |        |
| Top and bottom wall plates, per LF of wall   | B8@.024   | LF   | .60      | .96   | 1.56  | 2.65   |
| Wall studs 48" O.C., per SF of wall  | B8@.008   | SF   | .05      | .32   | .37   | .63    |
| Containment frame, 1" PVC pipe, assumes five uses of materials.  |           |      |          |       |       |        |
| Per LF of 1" PVC pipe  | B8@.006   | LF   | .36      | .24   | .60   | 1.02   |
| Per 1" PVC pipe fitting  | B8@.020   | Ea   | .45      | .80   | 1.25  | 2.13   |
| Poly adhesive zipper, ZipWall  | B8@.250   | Ea   | 9.97     | 10.10 | 20.07 | 34.12  |
| Doorway kit, 3' x 7' opening   | B8@.250   | Ea   | 35.00    | 10.10 | 45.10 | 76.67  |
| Adjustable support rods, 63" to 113" high  | B8@.083   | Ea   | 42.00    | 3.34  | 45.34 | 77.08  |
| Ceiling support rail, 63" long, with clips   | B8@.167   | Pair | 66.50    | 6.71  | 73.21 | 124.46 |
| <b>Antimicrobial cleaning.</b> Using a sprayer, sponge and sponge mop on non-porous or semi-porous surfaces. Cost per 100 square feet (CSF) of surface sprayed or cleaned. An open wall or ceiling cavity has about 1.5 SF of surface area for each square foot of wall or ceiling. Spraying assumes the surface is kept moist for 10 minutes. Add the cost of an EPA-registered disinfectant-sanitizer-cleaner (bactericidal, virucidal, tuberculocidal, fungicidal). Work done in containment and personal protective equipment (PPE) will take about 50 percent longer. |           |      |          |       |       |        |
| Spray surfaces only.   |           |      |          |       |       |        |
| Using a hand sprayer   | B8@.063   | CSF  | —        | 2.53  | 2.53  | 4.30   |
| Using a garden sprayer   | B8@.038   | CSF  | —        | 1.53  | 1.53  | 2.60   |
| Clean floors.  |           |      |          |       |       |        |
| By sponge mop  | B8@.083   | CSF  | —        | 3.34  | 3.34  | 5.68   |
| By hand with a sponge  | B8@.150   | CSF  | —        | 6.03  | 6.03  | 10.25  |
| Clean walls or wall cavities.  |           |      |          |       |       |        |
| By sponge mop  | B8@.104   | CSF  | —        | 4.18  | 4.18  | 7.11   |
| By hand with a sponge  | B8@.168   | CSF  | —        | 6.75  | 6.75  | 11.48  |
| Clean ceiling or ceiling cavity.   |           |      |          |       |       |        |
| By sponge mop  | B8@.113   | CSF  | —        | 4.54  | 4.54  | 7.72   |
| By hand with a sponge  | B8@.250   | CSF  | —        | 10.10 | 10.10 | 17.17  |
| Disinfectant-sanitizer-cleaner, 1,600 SF per gallon.   |           |      |          |       |       |        |
| ShockWave, \$55 per gallon   | —         | CSF  | 3.41     | —     | 3.41  | 5.80   |
| Milban 1-2-3, \$25 per gallon  | —         | CSF  | 1.81     | —     | 1.81  | 3.08   |
| Add for work done in containment and PPE   | —         | %    | —        | 50.0  | —     | —      |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Remove mold by abrading.** Manually remove mold spores from semi-porous surfaces by sanding, brushing or scraping. Includes removal of abraded residue with a HEPA filter vacuum but not the cost of a HEPA vacuum. Work done in containment and personal protective equipment (PPE) will take about 50 percent longer.

|  |         |    |   |      |      |      |
|--|---------|----|---|------|------|------|
| Light contamination (33 SF per manhour)  | BL@.030 | SF | — | 1.00 | .92  | 1.56 |
| Medium contamination (29 SF per manhour) | BL@.035 | SF | — | 1.17 | 1.07 | 1.82 |
| Heavy contamination (25 SF per manhour)  | BL@.040 | SF | — | 1.33 | 1.22 | 2.07 |
| Add for work done in containment and PPE | —       | %  | — | 50.0 | —    | —    |

**Dry ice blasting.** Per square foot of surface blasted. Assumes work is done on framing materials in a confined area (attic or crawl space). Add the cost of a dry ice blaster and dry ice. Includes removal of the blasted residue with a HEPA filter vacuum but not the cost of the vacuum.

|                                    |         |    |   |       |     |      |
|------------------------------------|---------|----|---|-------|-----|------|
| Smooth face (50 SF per manhour)    | B8@.020 | SF | — | .80   | .74 | 1.26 |
| Rough face (40 SF per manhour)     | B8@.025 | SF | — | 1.01  | .92 | 1.56 |
| Deduct for work done in open areas | —       | %  | — | -50.0 | —   | —    |

|  | Day | Week | Month |
|--|-----|------|-------|
|--|-----|------|-------|

**Dry ice blaster rental.** Blaster with a 40 lb. hopper, hoses and nozzle. Feed rate in pounds per minute (ppm) of dry ice.

|                                    |        |          |           |
|------------------------------------|--------|----------|-----------|
| Aero 40, 20 to 140 psi, 0 to 4 ppm | 504.00 | 1,240.00 | 2,950.00  |
| Aero 40, 20 to 250 psi, 0-4 ppm    | 455.00 | 1,140.00 | 3,060.00  |
| Aero 80, 30 to 140 psi, 0-7 ppm    | 750.00 | 1,850.00 | 5,300.00  |
| Aero 100, 20 to 140 psi, 1-7 ppm   | 576.00 | 1,630.00 | 38,400.00 |

|  | Craft@Hrs | Unit | Material | Labor | Total | Sell |
|--|-----------|------|----------|-------|-------|------|
|--|-----------|------|----------|-------|-------|------|

**Dry ice pellets.** 1/8" (2.9mm) high density dry ice pellets. Usage can vary from 1 pound per minute to 7 pounds per minute. Estimate 3 pounds per minute on most jobs. As a rule of thumb, allow 1,000 pounds of blasting ice per 8 hour shift. At 3 pounds per minute, 1,000 pounds of blasting ice will provide 5-1/2 hours of uninterrupted blasting.

|  |   |    |     |   |     |      |
|--|---|----|-----|---|-----|------|
| 1/8" (2.9 mm) high density dry ice pellets | — | Lb | .79 | — | .79 | 1.34 |
|--|---|----|-----|---|-----|------|

**Encapsulation.** Encapsulation of pre-cleaned surfaces to seal mold residue and inhibit future growth.

Fungicide, Foster Full Defense 40-25, per 100 square feet coated (CSF).

|  |   |        |       |   |       |   |
|--|---|--------|-------|---|-------|---|
| Purchase, per gallon                     | — | Gallon | 94.00 | — | 94.00 | — |
| Semi-porous surface, 200 SF per gallon   | — | CSF    | 47.00 | — | 47.00 | — |
| Non-porous or surface, 250 SF per gallon | — | CSF    | 37.60 | — | 37.60 | — |

Anti-microbial, Caliwel™ with BNA, per 100 square feet coated (CSF).

|  |   |     |       |   |       |   |
|--|---|-----|-------|---|-------|---|
| Purchase, per gallon                   | — | Ea  | 89.00 | — | 89.00 | — |
| Semi-porous surface, 200 SF per gallon | — | CSF | 44.50 | — | 44.50 | — |
| Non-porous surface, 250 SF per gallon  | — | CSF | 35.60 | — | 35.60 | — |

Apply mold sealer on semi-porous (unprimed) surfaces.

|                         |         |     |   |       |       |       |
|-------------------------|---------|-----|---|-------|-------|-------|
| Brush, 140 SF per hour  | B8@.717 | CSF | — | 28.80 | 28.80 | 48.96 |
| Roller, 220 SF per hour | B8@.450 | CSF | — | 18.10 | 18.10 | 30.77 |
| Spray, 575 SF per hour  | B8@.173 | CSF | — | 6.95  | 6.95  | 11.82 |

Apply mold sealer on non-porous (or primed) surfaces.

|                         |         |     |   |       |       |       |
|-------------------------|---------|-----|---|-------|-------|-------|
| Brush, 175 SF per hour  | B8@.567 | CSF | — | 22.80 | 22.80 | 38.76 |
| Roller, 275 SF per hour | B8@.363 | CSF | — | 14.60 | 14.60 | 24.82 |
| Spray, 700 SF per hour  | B8@.143 | CSF | — | 5.75  | 5.75  | 9.78  |

|  | Craft@Hrs | Unit     | Material   | Labor       | Total  | Sell |
|--|-----------|----------|------------|-------------|--------|------|
| <b>Consumables for water extraction and mold remediation.</b> Purchase.  |           |          |            |             |        |      |
| Adhesive spray, 10 ounce aerosol can   | —         | Ea       | 13.00      | —           | 13.00  | —    |
| Duct tape, 2" wide roll, 60 yards  | —         | Ea       | 9.06       | —           | 9.06   | —    |
| Dumpster, 3 CY, rented and emptied once  | —         | Ea       | —          | —           | 179.00 | —    |
| Dumpster, 14 CY low boy, per load  | —         | Ea       | —          | —           | 359.00 | —    |
| Furniture pad, 72" x 80", purchase   | —         | Ea       | 8.95       | —           | 8.95   | —    |
| Stretch wrap, 5" x 1,000' roll   | —         | Ea       | 12.00      | —           | 12.00  | —    |
| Bubble wrap, 12' x 250' roll   | —         | Ea       | 40.00      | —           | 40.00  | —    |
| Poly furniture bag, 2-mil, 72" x 48"   | —         | Ea       | 2.12       | —           | 2.12   | —    |
| Poly trash bag, 6-mil, 38" x 64"   | —         | Ea       | 3.62       | —           | 3.62   | —    |
| Packing boxes. The average room requires eight small boxes, eight medium boxes and four large boxes. No salvage value assumed. |           |          |            |             |        |      |
| Small box, 1 cubic foot  | —         | Ea       | 2.48       | —           | 2.48   | —    |
| Medium box, 2 cubic feet   | —         | Ea       | 3.48       | —           | 3.48   | —    |
| Large box, 3.5 cubic feet  | —         | Ea       | 4.98       | —           | 4.98   | —    |
| Wardrobe box, metal rod  | —         | Ea       | 18.00      | —           | 18.00  | —    |
| Box sealing tape, 660 yard roll  | —         | Ea       | 5.68       | —           | 5.68   | —    |
| Typical cost per room for packing boxes  | —         | Ea       | 59.70      | —           | 59.70  | —    |
| Storage area, climate controlled, monthly cost per square foot.  |           |          |            |             |        |      |
| 10' x 10'  | —         | Mo       | —          | —           | 1.91   | —    |
| 10' x 20'  | —         | Mo       | —          | —           | 1.63   | —    |
| 20' x 20'  | —         | Mo       | —          | —           | 1.81   | —    |
| <b>Personal protection equipment.</b> Purchase.  |           |          |            |             |        |      |
| Whole body suit, disposable  | —         | Ea       | 7.58       | —           | 7.58   | —    |
| Gloves, hazmat, per pair   | —         | Ea       | 15.30      | —           | 15.30  | —    |
| Eye protection   | —         | Ea       | 9.97       | —           | 9.97   | —    |
| Respirator, half-face  | —         | Ea       | 21.00      | —           | 21.00  | —    |
| Respirator, full-face  | —         | Ea       | 197.00     | —           | 197.00 | —    |
| HEPA P100 filter for respirator, per pair  | —         | Ea       | 7.83       | —           | 7.83   | —    |
| Respirator, N-95   | —         | Ea       | 2.20       | —           | 2.20   | —    |
|  |           | Purchase | Rental Day | Rental Week |        |      |
| <b>Dehumidifiers.</b> Rating in pints per day by Association of Home Appliance Manufacturers standard.                         |           |          |            |             |        |      |
| Atlantic, 140 pints, low grain   |           | 3,630.00 | 145.00     | 579.00      |        |      |
| DrizAir 110, 58 pints, conventional  |           | 1,530.00 | 69.30      | —           |        |      |
| DrizAir 1200, 64 pints, conventional   |           | 2,100.00 | 81.20      | 334.00      |        |      |
| DrizAir 2000, 110 pints, low grain   |           | 3,640.00 | 155.00     | —           |        |      |
| DrizAir 2400, 140 pints, low grain   |           | 3,740.00 | 171.00     | —           |        |      |
| DrizAir 80DX, 40 pints, conventional   |           | 1,170.00 | 33.40      | 197.00      |        |      |
| DrizAir Evolution, 70 pints, low grain   |           | 2,490.00 | 53.80      | 309.00      |        |      |
| Dry Pro 5000, 54 pints, conventional   |           | 1,210.00 | 43.40      | 176.00      |        |      |
| Dry Pro 7000, 70 pints, conventional   |           | 2,430.00 | 84.00      | —           |        |      |
| Ebac Triton, 51 pints, conventional  |           | 1,230.00 | 31.60      | —           |        |      |
| Phoenix 200 HT, 140 pints, low grain   |           | 2,660.00 | 62.10      | 348.00      |        |      |
| Phoenix 200 Max, 133 pints   |           | 3,060.00 | 62.10      | 348.00      |        |      |
| Phoenix 300, 176 pints   |           | 4,520.00 | 269.00     | —           |        |      |
| Phoenix R175, 92 pints, low grain  |           | 2,450.00 | 61.80      | 410.00      |        |      |
| Ultimate 340, 145 pints, low grain   |           | 2,970.00 | 101.00     | 443.00      |        |      |

|  | Purchase  | Rental Day | Rental Week |       |        |      |
|--|-----------|------------|-------------|-------|--------|------|
| <b>Air movers.</b> By rated cubic feet per minute.   |           |            |             |       |        |      |
| B-air Cub, 375 CFM   | 200.00    | 19.90      | 88.90       |       |        |      |
| Dri-Eaz Ace, 1,881 CFM   | 593.00    | 44.80      | 193.00      |       |        |      |
| Dri-Eaz Vortex, 2,041 CFM  | 778.00    | 90.50      | 366.00      |       |        |      |
| Dri-Eaz Jet CXV, 3,200 CFM   | 584.00    | 35.80      | —           |       |        |      |
| Dri-Eaz Sahara HD, 3,500 CFM   | 715.00    | 35.60      | 99.90       |       |        |      |
| Dry Air Force 9  | 557.00    | 58.70      | 193.00      |       |        |      |
| Dry Air Gale Force, 2,260 CFM  | 396.00    | 66.20      | —           |       |        |      |
| Dry Air Tempest, 230V  | 236.00    | 17.20      | 52.20       |       |        |      |
| Dry Air Twister, 110V  | 236.00    | 17.20      | 77.50       |       |        |      |
| Dry Air Typhoon  | 274.00    | 31.60      | 109.00      |       |        |      |
| Phoenix CAM Pro, 2,700 CFM   | 413.00    | 17.20      | 78.80       |       |        |      |
| Viking 2200EX, 2,200 CFM   | 309.00    | 21.50      | 96.90       |       |        |      |
| Viking AX3000, 3,000 CFM   | 561.00    | 24.60      | 136.00      |       |        |      |
| Viking Windjammer 2,300 CFM  | 321.00    | 21.50      | 96.90       |       |        |      |
| <b>Wall Cavity Dryer.</b> No air movers included except as noted.  |           |            |             |       |        |      |
| Adaptidry 9-port, 4" manifold, with hose   | 1,400.00  | 61.60      | —           |       |        |      |
| Adaptidry 5-port, 4" manifold, with hose   | 955.00    | 61.90      | —           |       |        |      |
| Dri-Eaz Turbo Vent 48" wall cavity dryer   | 274.00    | 13.10      | 69.70       |       |        |      |
| Dri Force Drying System, 90 LF of wall, with blower  | 2,750.00  | 214.00     | —           |       |        |      |
| Injectidry HP60i wall drying system, with blower/vacuum  | 4,460.00  | 260.00     | 898.00      |       |        |      |
| Injectidry floor or wall panel, 30" x 46"  | 818.00    | 161.00     | —           |       |        |      |
| Octi-Dry 8' wall manifold, add for a blower  | 536.00    | 17.20      | 77.50       |       |        |      |
| <b>Floor Drying System.</b> No air movers included except as noted.  |           |            |             |       |        |      |
| Dri-Eaz AirWolf floor dryer, with duct and clamps  | 714.00    | 161.00     | 650.00      |       |        |      |
| Dri-Eaz Rescue Mat System, 15 SF of mat, per set   | 854.00    | 162.00     | 656.00      |       |        |      |
| Injectidry water separator   | 178.00    | —          | —           |       |        |      |
| Injectidry HEPA inline filter  | 595.00    | —          | —           |       |        |      |
| <b>Negative Air/Scrubbers.</b> Prevents escape of contaminated air during water extraction. Exhausts air through a 99.97 percent HEPA filter to maintain negative (or positive) air pressure. By maximum rated cubic feet per minute of air filtration. A 900 CFM scrubber will provide six air changes an hour in an 8,000 cubic foot (25' x 40' x 8') space. |           |            |             |       |        |      |
| Abatement Tech PAS2400, 1,950 CFM  | 5,200.00  | 204.00     | —           |       |        |      |
| ACSI Force Air 700 (used), 700 CFM   | 886.00    | 61.30      | —           |       |        |      |
| ACSI Force Air 2000, 1,975 CFM   | 1,450.00  | 189.00     | —           |       |        |      |
| Dri-Eaz 500, 500 CFM   | 1,310.00  | 68.60      | 307.00      |       |        |      |
| Novair 2000, 2,000 CFM   | 1,360.00  | 26.40      | 428.00      |       |        |      |
| Phoenix Guardian HEPA System, 1,400 CFM  | 2,640.00  | 214.00     | 599.00      |       |        |      |
|  | Craft@Hrs | Unit       | Material    | Labor | Total  | Sell |
| <b>Consumables.</b>  |           |            |             |       |        |      |
| HEPA filter replacement for negative air units   |           |            |             |       |        |      |
| Typical pre-filter   | —         | Ea         | 2.69        | —     | 2.69   | —    |
| Typical second stage filter  | —         | Ea         | 274.00      | —     | 274.00 | —    |
| Activated carbon filter (odor control)   | —         | Ea         | 300.00      | —     | 300.00 | —    |

|  | <b>Purchase</b> | <b>Rental Day</b> | <b>Rental Week</b> |
|--|-----------------|-------------------|--------------------|
| <b>Other Dryout and Mold Equipment.</b>  |                 |                   |                    |
| Temporary power distribution (spider) box, 100 amps  | 1,690.00        | 93.40             | 480.00             |
| Environmental control unit, cool/heat  | 998.00          | 58.40             | 227.00             |
| Submersible trash pump, 1/2 HP, 1-1/2" to 2" outlet  | 349.00          | 65.70             | 264.00             |
| Wheelbarrow, 2-wheel, 5 cubic foot capacity  | 114.00          | 14.60             | 75.90              |
| Ultrasonic cleaner, 10 gallon, 1.3 CF  | 2,180.00        | 143.00            | 570.00             |
| HEPA filter vacuum, 100 CFM  | 579.00          | 68.60             | 307.00             |
| Power generators. Drying equipment draws approximately 1.2 KW for each 100 SF of water extraction map. |                 |                   |                    |
| 5 KW, gasoline   | 961.00          | 84.50             | 332.00             |
| 15 KW, diesel  | 3,000.00        | 162.00            | 542.00             |
| 60 KW, diesel, towable   | 44,000.00       | 346.00            | 1,050.00           |
| Water Claw extractor   |                 |                   |                    |
| Small, 8" x 14"  | 387.00          | —                 | —                  |
| Medium, 10" x 17" (650 SF per hour)  | 513.00          | —                 | —                  |
| Large, 12" x 21" (1,000 SF per hour)   | 626.00          | —                 | —                  |
| Van with truck-mounted blower-vacuum package, add \$1 per mile for travel                              |                 |                   |                    |
| 23 HP, 288 CFM, 150' hose  | 17,600.00       | 20.70             | 116.00             |
| 26 HP, 330 CFM, 250' hose  | 13,900.00       | 23.40             | 132.00             |
| 29 HP, 495 CFM, 300' hose  | 26,700.00       | 25.90             | 150.00             |
| Pressure washer  |                 |                   |                    |
| 2,000 PSI, electric  | 250.00          | 29.50             | 72.30              |
| 3,000 PSI, gas, hot water  | 3,330.00        | 187.00            | 949.00             |

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| Baseboard heater, electric | 384     | enamaled steel                          | 346      | Blank cover                       |          | non-metallic round conduit | 408          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Baseboard molding          |         | Freestanding                            | 346      | 2 gang                            | 408      | rectangular                |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| MDF                        | 261     | removal                                 | 346      | handy box                         | 404      | weatherproof               | 407          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Basement doors             | 226     | Walk-in                                 | 347      | weatherproof                      | 408      | Super Blue non-metallic    |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Basement HVAC restoration  | 92      | wall surround kit                       | 347      | Blasting                          |          | three gang                 | 402          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Basement post removal      | 63      | Bathtub & shower units                  | 348      | dry ice                           | 517      | Super Blue non-metallic    |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Basement storm windows     | 165     | Bathtub door                            |          | Bleach kit                        |          | two gang                   | 402          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Basin strainer             |         | bypass                                  | 347      | wood                              | 467      | welded square              | 405          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Basket strainer            |         | Bathtub filler                          | 347      | Blinds                            |          | Box adapter                | 401          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| garbage disposal           | 328     | Bathtub framing                         | 375      | painting                          | 461-462  | Box cover                  | 406          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| junior                     | 331     | Bathtub wall                            | 347      | Block Furniture                   | 509      | blank handy                | 404          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| kitchen sink               | 328-329 | Bathtub, wall kit                       |          | Block masonry                     |          | finished                   | 405          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Basket strainer washer     |         | three-piece                             | 347      | painting                          | 456      | square surface             | 405          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| kitchen sink               | 329     | Batt insulation                         | 84       | Block molding                     |          | Box for ceiling fan        | 405          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Basswood molding           | 259     | Batten tileboard                        | 251      | corner                            | 262      | pancake                    | 405          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bath accessories           | 369     | Bay vent channel                        |          | rosette                           | 259      | Box room contents          | 509          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| ceramic tile               | 290     | rafter                                  | 88       | Blocking                          |          | Boxes                      |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bath accessory set         |         | Bay window roof                         | 164      | fire                              | 66       | cardboard                  | 518          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| porcelain                  | 301     | Bay windows                             | 158, 164 | fireblocks                        | 68       | Brace plate                |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bath cabinet               |         | Bead                                    |          | Blow-in cellulose insulation      | 85       | installation               | 92           |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| framed                     | 366     | bullnose corner                         | 247      | Blue Board insulation             | 85       | Braces                     |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| stainless steel            | 366     | corner                                  | 248      | Blueboard                         | 245      | wall                       | 493          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| storage                    | 367     | drywall                                 | 248      | Board                             |          | Bracing                    |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| swing door                 | 367     | drywall corner                          | 247      | blue                              | 245      | carpentry                  | 67           |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| top lighted                | 367     | glazing                                 | 170      | forming                           | 45       | cripple wall               | 492          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bath ceiling blower        | 362     | inside corner                           | 247      | sheathing                         | 66       | temporary                  | 67           |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bath fan                   | 362-364 | L-trim                                  | 248      | Board insulation                  | 80, 85   | Bracket                    |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| ceiling                    | 365     | metal J-trim                            | 248      | fire resistance                   | 80       | foundation                 | 492          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| ceiling & wall             | 362     | outside corner                          | 247      | polystyrene                       | 80       | non-metallic low voltage   |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| ceiling or wall            | 363     | plastic                                 | 248      | polyurethane                      | 80       | mounting                   | 402          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| chain-operated             | 364     | tape on                                 | 247      | Board siding                      |          | Bracket, hanger            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Designer Series            | 365     | Bead molding                            | 263      | cedar                             | 108      | lavatory                   | 353          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| exhaust                    | 364     | primed finger joint                     | 260      | pine                              | 108      | Brass                      |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| exhaust with heater        | 365     | Bead, corner                            |          | repair                            | 105      | storm doors                | 205          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| exhaust with light         | 364     | spray adhesive                          | 249      | Board, cement                     | 245      | Brass Craft                | 327, 350-351 |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Heat-A-Lamp                | 365     | Beaded Cape Cod plank                   | 252      | Bobcats                           | 40       | Breaker                    |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| QuieTTTest                 | 364     | Beaded paneling                         | 251      | Boiler                            |          | arc fault, HomeLine        | 417          |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| solitaire                  | 365     | Beams                                   |          | GFCI                              | 417      | timer switch               | 366          | ceiling         | 68 | ground fault interrupter |     | Ultra Silent | 363 | collar        | 75  | plug-on circuit        | 420 | vertical discharge      | 363 | grade                | 49  | HomeLine           | 417 | with heater, infrared | 365 | needle                 | 62  | main circuit            | 418 | with light | 364-365 | Bed molding        | 263     | QO miniature circuit | 419 | Bath heater      |     | Bedding mortar |     | tandem circuit  | 419 | exhaust fan   | 365     | CustomFloat | 302 | Breaker box      |     | Heat-A-Lamp | 365 | foundation      |  | ground bar kit | 420     | infrared bulb | 365 | toilet tank    | 352 | Bath light bar | 421 | Bolt          |     | Breaker, paving |     | Bath vent kit | 366 | bolt kit       | 320 | Bathrobe hook     | 369 | foundation         | 492 | rental        | 29  | Bathroom accessories |     | toilet      |     | Brick             |    | ceramic tile soap dish | 300 | Beveled mirror bath bar | 421 | cleaning            | 115 | towel bar, ceramic | 301 | Bidet            |     | demolition       | 31  | Bathroom sink | 353 | hot & cold         | 350 | painting | 457-458 | drop-in             | 353 | Bidet faucet set | 350 | pointing                   | 115 | Bathroom vanity    |     | Bi-fold doors | 219-221 | repointing                              | 115 | top                               | 360 | hardware                   | 221 | Brick masonry      |     | Bathrooms                 |     | Metal                                   | 220 | painting labor                    | 456 | additions              | 339 | mirrored           | 221 | Brick molding             | 195 | conversions        | 340 | Bilco | 226 | Brick molding set      |    | exterior additions | 342      | Bin, trash | 30 | primed finger joint | 260 | floor plans | 343 | Biocidal coating | 92 | Brick paver tile | 296      | in basements | 341 | Birch doors |  | Bridging |  | in garages | 342 | Birch paneling | 252 | carpentry | 65 | naming conventions | 339 | Birdstop | 140 | Broan Manufacturing |  | space minimums | 344 | Bitumen adhesive, modified | 133 | 337, 362-366 |  | Bathtub |  | Bitumen cold process adhesive, modified | 133 | Brookfield cast iron kitchen sink | 323 | alcove steel | 346 | Bituminous roofing | 132 | Brookstone birch paneling | 252 | Drop-in | 347 |  |  | Broom finish, concrete | 50 |  |  |  |  | Brown coat plaster | 114 |  |  |  |  | Bruce | 274, 278 |
| timer switch               | 366     | ceiling                                 | 68       | ground fault interrupter          |          |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Ultra Silent               | 363     | collar                                  | 75       | plug-on circuit                   | 420      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| vertical discharge         | 363     | grade                                   | 49       | HomeLine                          | 417      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| with heater, infrared      | 365     | needle                                  | 62       | main circuit                      | 418      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| with light                 | 364-365 | Bed molding                             | 263      | QO miniature circuit              | 419      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bath heater                |         | Bedding mortar                          |          | tandem circuit                    | 419      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| exhaust fan                | 365     | CustomFloat                             | 302      | Breaker box                       |          |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Heat-A-Lamp                | 365     | foundation                              |          | ground bar kit                    | 420      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| infrared bulb              | 365     | toilet tank                             | 352      | Bath light bar                    | 421      | Bolt                       |              | Breaker, paving |    | Bath vent kit            | 366 | bolt kit     | 320 | Bathrobe hook | 369 | foundation             | 492 | rental                  | 29  | Bathroom accessories |     | toilet             |     | Brick                 |     | ceramic tile soap dish | 300 | Beveled mirror bath bar | 421 | cleaning   | 115     | towel bar, ceramic | 301     | Bidet                |     | demolition       | 31  | Bathroom sink  | 353 | hot & cold      | 350 | painting      | 457-458 | drop-in     | 353 | Bidet faucet set | 350 | pointing    | 115 | Bathroom vanity |  | Bi-fold doors  | 219-221 | repointing    | 115 | top            | 360 | hardware       | 221 | Brick masonry |     | Bathrooms       |     | Metal         | 220 | painting labor | 456 | additions         | 339 | mirrored           | 221 | Brick molding | 195 | conversions          | 340 | Bilco       | 226 | Brick molding set |    | exterior additions     | 342 | Bin, trash              | 30  | primed finger joint | 260 | floor plans        | 343 | Biocidal coating | 92  | Brick paver tile | 296 | in basements  | 341 | Birch doors        |     | Bridging |         | in garages          | 342 | Birch paneling   | 252 | carpentry                  | 65  | naming conventions | 339 | Birdstop      | 140     | Broan Manufacturing                     |     | space minimums                    | 344 | Bitumen adhesive, modified | 133 | 337, 362-366       |     | Bathtub                   |     | Bitumen cold process adhesive, modified | 133 | Brookfield cast iron kitchen sink | 323 | alcove steel           | 346 | Bituminous roofing | 132 | Brookstone birch paneling | 252 | Drop-in            | 347 |       |     | Broom finish, concrete | 50 |                    |          |            |    | Brown coat plaster  | 114 |             |     |                  |    | Bruce            | 274, 278 |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bath light bar             | 421     | Bolt                                    |          | Breaker, paving                   |          |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bath vent kit              | 366     | bolt kit                                | 320      | Bathrobe hook                     | 369      | foundation                 | 492          | rental          | 29 | Bathroom accessories     |     | toilet       |     | Brick         |     | ceramic tile soap dish | 300 | Beveled mirror bath bar | 421 | cleaning             | 115 | towel bar, ceramic | 301 | Bidet                 |     | demolition             | 31  | Bathroom sink           | 353 | hot & cold | 350     | painting           | 457-458 | drop-in              | 353 | Bidet faucet set | 350 | pointing       | 115 | Bathroom vanity |     | Bi-fold doors | 219-221 | repointing  | 115 | top              | 360 | hardware    | 221 | Brick masonry   |  | Bathrooms      |         | Metal         | 220 | painting labor | 456 | additions      | 339 | mirrored      | 221 | Brick molding   | 195 | conversions   | 340 | Bilco          | 226 | Brick molding set |     | exterior additions | 342 | Bin, trash    | 30  | primed finger joint  | 260 | floor plans | 343 | Biocidal coating  | 92 | Brick paver tile       | 296 | in basements            | 341 | Birch doors         |     | Bridging           |     | in garages       | 342 | Birch paneling   | 252 | carpentry     | 65  | naming conventions | 339 | Birdstop | 140     | Broan Manufacturing |     | space minimums   | 344 | Bitumen adhesive, modified | 133 | 337, 362-366       |     | Bathtub       |         | Bitumen cold process adhesive, modified | 133 | Brookfield cast iron kitchen sink | 323 | alcove steel               | 346 | Bituminous roofing | 132 | Brookstone birch paneling | 252 | Drop-in                                 | 347 |                                   |     | Broom finish, concrete | 50  |                    |     |                           |     | Brown coat plaster | 114 |       |     |                        |    | Bruce              | 274, 278 |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bathrobe hook              | 369     | foundation                              | 492      | rental                            | 29       |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bathroom accessories       |         | toilet                                  |          | Brick                             |          |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| ceramic tile soap dish     | 300     | Beveled mirror bath bar                 | 421      | cleaning                          | 115      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| towel bar, ceramic         | 301     | Bidet                                   |          | demolition                        | 31       |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bathroom sink              | 353     | hot & cold                              | 350      | painting                          | 457-458  |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| drop-in                    | 353     | Bidet faucet set                        | 350      | pointing                          | 115      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bathroom vanity            |         | Bi-fold doors                           | 219-221  | repointing                        | 115      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| top                        | 360     | hardware                                | 221      | Brick masonry                     |          |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| Bathrooms                  |         | Metal                                   | 220      | painting labor                    | 456      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| additions                  | 339     | mirrored                                | 221      | Brick molding                     | 195      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| conversions                | 340     | Bilco                                   | 226      | Brick molding set                 |          |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| exterior additions         | 342     | Bin, trash                              | 30       | primed finger joint               | 260      |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
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| in basements               | 341     | Birch doors                             |          | Bridging                          |          |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
| in garages                 | 342     | Birch paneling                          | 252      | carpentry                         | 65       |                            |              |                 |    |                          |     |              |     |               |     |                        |     |                         |     |                      |     |                    |     |                       |     |                        |     |                         |     |            |         |                    |         |                      |     |                  |     |                |     |                 |     |               |         |             |     |                  |     |             |     |                 |  |                |         |               |     |                |     |                |     |               |     |                 |     |               |     |                |     |                   |     |                    |     |               |     |                      |     |             |     |                   |    |                        |     |                         |     |                     |     |                    |     |                  |     |                  |     |               |     |                    |     |          |         |                     |     |                  |     |                            |     |                    |     |               |         |   |     |                                   |     |                            |     |                    |     |                           |     |   |     |                                   |     |                        |     |                    |     |                           |     |                    |     |       |     |                        |    |                    |          |            |    |                     |     |             |     |                  |    |                  |          |              |     |             |  |          |  |            |     |                |     |           |    |                    |     |          |     |                     |  |                |     |                            |     |              |  |         |  |   |     |                                   |     |              |     |                    |     |                           |     |         |     |  |  |                        |    |  |  |  |  |                    |     |  |  |  |  |       |          |
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| Peel & Patch            | wood                      | 276          | Pocket doors              |          | Porches                 |        |
| waterproofing           | Plank paneling            | 252-253      | edge pull                 | 222      | additions               | 426    |
| Peep sights             | beaded                    | 252          | hangers                   | 222      | balustrades             | 428    |
| Pellets                 | Edge-V                    | 252          | hardware                  | 222      | columns and posts       | 427    |
| dry ice                 | Plaster                   |              | jamb                      | 222      | elevated decks          | 428    |
| Penetrating stains      | demolition                | 35, 242, 312 | kit, converging           | 222      | Porches and decks       |        |
| Penetrating wood finish | demolition, wet           | 513          | Pointing trowel           | 287      | choices in floor plank  | 430    |
| Preserva-Wood           | painting                  | 460-461      | Pointing, masonry         | 115      | inspecting for decay    | 425    |
|                         | repair                    | 494          |                           |          | maintenance             | 431    |
|                         | veneer                    | 246          |                           |          |                         |        |

|                                 |                                |     |                             |          |                          |     |
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| stucco .....                    | 114                            |     | DWV .....                   | 388      | Ready-mix concrete ..... | 47  |
| Post                            | base, plinth.....              | 435 | PVC service                 |          | Rebar.....               | 45  |
|                                 | brick.....                     | 260 | entrance cap .....          | 402      | Rebond.....              | 304 |
| Posts                           | chair rail.....                | 260 | Pyro-Kure paper .....       | 88       | Receptacle               |     |
| basement.....                   | crown.....                     | 261 | appliance flush mount...    | 415      |                          |     |
| cap.....                        | flute and reed .....           | 261 | CO/ALR duplex .....         | 415      |                          |     |
| carpentry .....                 | quarter round.....             | 261 | duplex.....                 | 415      |                          |     |
| deck.....                       | Primed tilt double-hung        |     | duplex straight blade ..... | 414      |                          |     |
| jack posts .....                | windows.....                   | 163 | GFCI.....                   | 415      |                          |     |
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| Pouring                         | bonding.....                   | 473 | side-wired single .....     | 415      |                          |     |
| insulation .....                | clean metal.....               | 476 | Receptacle cover            |          |                          |     |
| Power attic gable vents .....   | concrete.....                  | 473 | GFCI, wet location.....     | 408      |                          |     |
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| Power massage                   | flooring.....                  | 281 | weatherproof .....          | 408      |                          |     |
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| Power vent                      | latex.....                     | 471 | Recessed lighting .....     | 420      |                          |     |
| gas water heater .....          | metal.....                     | 476 | Recoating .....             | 441      |                          |     |
| Power ventilators               | resilient flooring .....       | 281 | Rectangular weatherproof    |          |                          |     |
| attic gable .....               | rusty metal.....               | 476 | box.....                    | 407      |                          |     |
| roof-mount.....                 | water-based.....               | 472 | Recycler fees.....          | 30       |                          |     |
| Power washing .....             | Primer sealer .....            | 474 | Red cedar                   |          |                          |     |
| PowerStar.....                  | oil-based.....                 | 473 | western, siding .....       | 108      |                          |     |
| PowerStream.....                | stainblocker .....             | 474 | Red Dot .....               | 407-408  |                          |     |
| Power-vent                      | Privacy latchset,              |     | Red oak                     |          |                          |     |
| water heater .....              | egg knob .....                 | 213 | plank flooring.....         | 276      |                          |     |
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| Pre-drying .....                | Propane water heater .....     | 385 | Red rosin sheathing .....   | 87       |                          |     |
| Prefinished molding             | Propane-fired water            |     | RedGard waterproofing       |          |                          |     |
| chair rail.....                 | heater .....                   | 385 | membrane .....              | 301      |                          |     |
| Prefinished paneling .....      | Protection                     |     | Reducer                     |          |                          |     |
| Prehung doors .....             | tile edge .....                | 299 | bamboo .....                | 276      |                          |     |
| double.....                     | Protector                      |     | carpet .....                | 280      |                          |     |
| exterior .....                  | wood.....                      | 470 | floor molding.....          | 274-275  |                          |     |
| fire-rated .....                | ProtectoWrap .....             | 303 | laminate flooring .....     | 280      |                          |     |
| French .....                    | Protocol                       |     | Reducer floor               |          |                          |     |
| hardboard .....                 | mold remediation.....          | 515 | molding.....                | 275-276  |                          |     |
| heater closet .....             | Provisa range hood .....       | 336 | Reducer strip               |          |                          |     |
| installation .....              | P-trap                         |     | tile.....                   | 300      |                          |     |
| interior .....                  | remove & replace .....         | 346 | vinyl flooring .....        | 288      |                          |     |
| oak.....                        | Pull bar .....                 | 277 | Reducing                    |          |                          |     |
| pantry .....                    | Pull plates, door.....         | 213 | window opening size ....    | 156      |                          |     |
| patio, steel.....               | Pulling elbow, 90-degree ..... | 403 | Reducing bushing            |          |                          |     |
| steel.....                      | Pulls                          |     | non-metallic .....          | 400      |                          |     |
| 199-200                         | Drawer.....                    | 320 | rigid or IMC.....           | 410      |                          |     |
| steel, exterior, with           | edge, pocket door .....        | 222 | Redwood                     |          |                          |     |
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| 198                             | water.....                     | 520 | vents .....                 | 90       |                          |     |
| steel, half lite .....          | Pump mix concrete .....        | 47  | Reed & flute molding .....  | 261      |                          |     |
| steel, installation.....        | Pumps                          |     | Refinishing in-ground       |          |                          |     |
| 197                             | sewer.....                     | 370 | spa.....                    | 440      |                          |     |
| Prelude .....                   | Purlins                        |     | Reinforcing                 |          |                          |     |
| 255                             | carpentry .....                | 76  | bars .....                  | 45       |                          |     |
| Premium Plus .....              | Putty                          |     | membrane, fiberglass .....  | 136      |                          |     |
| 475                             | finishing .....                | 279 | slab .....                  | 48       |                          |     |
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| Preserva products .....         | Schedule 40 .....              | 400 | primed finger joint.....    | 195      | Appliance.....           | 510 |
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| Primed finger joint molding     |                                |     |                             |          |                          |     |
| base.....                       |                                |     |                             |          |                          |     |
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|                         |     |                             |         |                       |          |                          |         |
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| Remover                 |     | Ring type meter socket      | 417     | Roof cement           | 135      | sheets                   | 138     |
| adhesive                | 278 | Rings                       |         | wet patch             | 135      | shingle remover          | 136     |
| flooring adhesive       | 281 | towel                       | 369     | Wet-Stick             | 135      | shingle starter strip    | 131     |
| Rental                  |     | Rivets                      | 255     | Roof coating          |          | shingles,                |         |
| air mover               | 519 | paneling                    | 253     | acrylic               | 137      | algae-resistant          | 130     |
| dehumidifiers           | 518 | Robe hook                   | 369     | aluminum              | 137      | shingles, architectural  | 131     |
| dry ice blaster         | 517 | Roberts                     | 278     | elastomeric           | 137      | shingles,                |         |
| floor drying system     | 519 | Rock                        |         | fibered               | 137      | asphalt fiberglass       | 130-131 |
| generator               | 520 | recycling                   | 30      | silicone              | 137      | shingles, hip and ridge  | 131     |
| gypsum panel lift       | 250 | Rocker switch               |         | Snow Roof             | 137      | slate                    | 139     |
| negative air scrubber   | 519 | Decora AC quiet             | 414     | Roof covers           | 164      | tar                      | 132     |
| remediation equipment   | 518 | Rockwool insulation         | 87      | Roof deck             |          | tear-off                 | 129     |
| wall cavity dryer       | 519 | Rod clamp                   |         | removal               | 129      | tile                     | 140     |
| Repainting a home       | 446 | ground                      | 412     | repair                | 129      | tile, clay               | 139     |
| Repair                  |     | Roll                        |         | walking               | 140      | tools                    | 136     |
| shingles, tin           | 144 | screen                      | 168     | Roof edge flashing    | 143-144  | Roofing cement           | 133     |
| Repair clips, drywall   | 249 | Roll flashing               |         | Roof exhaust vent     |          | built-up                 | 133     |
| Repair kit              |     | aluminum                    | 141     | Roof flashing         |          | Roofing fabric           |         |
| drywall                 | 248 | copper                      | 141     | chimney               | 380-381  | asphalt                  | 131     |
| toilet                  | 352 | Roll roofing                | 134     | service entrance      | 412      | Roofing louver           |         |
| Repair mesh             |     | mineral surface             | 133     | Roof framing          | 75       | galvanized               | 145     |
| crack                   | 248 | Roll valley                 |         | jacking               | 75       | Roofing material         |         |
| Repair patch, drywall   | 248 | flashing                    | 143     | Roof jack             | 145      | built-up                 | 127     |
| Repairs                 |     | Roller                      |         | rubber                | 145      | modified bitumen         |         |
| door                    | 191 | extendable                  | 287     | Roof loading          | 140      | (APP and SBS)            | 127     |
| Replace-A-Vent          | 89  | painting labor              | 448     | Roof openings         |          | new roof                 | 122     |
| Replacement screen      |     | Roller spline tool          | 168     | cut for skylights     | 172      | shingles, asphalt-       |         |
| doors                   | 203 | Rollers                     |         | Roof overhang         |          | fiberglass (composition) | 124     |
| Replacement windows     |     | door, patio                 | 216     | adding                | 61       | shingles, wood           | 123     |
| vinyl                   | 157 | Roll-on                     |         | painting              | 459-460  | Roofing materials, life  |         |
| vinyl double-hung       | 157 | texture, acoustic           | 473     | Roof patch            |          | expectancy               | 121     |
| vinyl single-hung       | 158 | texture, stucco             | 473     | cotton                | 136      | Roof-mount               |         |
| Replastering            |     | Rollup doors                |         | rubberized            | 135      | power ventilator         | 92      |
| pool                    | 440 | garage                      | 223     | Roof patching cement  |          | Roofs                    |         |
| spa                     | 440 | Roman tub                   |         | white                 | 135      | flashing leaks           | 118     |
| Resilient flooring      |     | filler                      | 347     | Roof repair           | 58       | how to measure           |         |
| sheet vinyl             | 270 | Romex                       | 392     | Roof sheathing        | 60       | roof area                | 128     |
| Resilient tile          |     | Romex sheathed cable        |         | Roof turbine vent     | 146      | repairs                  | 121     |
| adhesive                | 286 | indoor                      | 397-398 | Roof turbine vents    | 91       | source of leaks          | 117     |
| demolition              | 36  | indoor & outdoor            | 398     | Roof vent             |          | Roof-to-wall flashing    | 144     |
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| Reversible flute & reed |     | demolition                  | 34      | repair                | 129      | Rosewood                 |         |
| molding                 |     | flashing                    | 88      | replace               | 130      | flooring trim            | 275     |
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| casing                  | 264 | insulation                  | 86      | base sheet            | 133      | rental                   | 29      |
| R-Gard insulation       | 86  | louver                      | 91, 145 | broom with scraper    | 136      | Rough carpentry          | 53      |
| RhinoBoard              | 291 | membrane                    | 132     | built-up              | 132, 134 | backing and nailers      | 73      |
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| Ribbons, carpentry      | 73  | patch, shingle              | 137     | built-up, tear-off    | 129      | ceiling joists           | 73      |
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| Ridge vent              | 144 | sagging ridge board         | 59      | concrete tile         | 140      | collar ties              | 75      |
| aluminum                | 90  | sheathing, OSB              | 70, 77  | demolition            | 34       | curbs                    | 75      |
| Cobra Rigid             | 145 | sheathing, plywood          | 77      | felt                  | 133      | dormer studs             | 75      |
| coil                    | 90  | silicone coating            | 141     | fiber-cement slate    | 139      | floor joists             | 64      |
| rigid                   | 145 | tile, clay                  | 139     | fiberglass panels     | 140      | floor trusses            | 65      |
| shingle-over            | 145 | tile, concrete              | 140     | furring               | 72       | girders                  | 62      |
| VentSure                | 144 | trusses                     | 76      | flashing, removal     | 134      | joists                   | 68      |
| Rigid conduit           |     | trusses, repair             | 76      | galvanized            | 138      | ledger strips            | 73      |
| coupling                | 409 | trusses, rough carpentry    | 76      | granules              | 136      | plates                   | 67      |
| strap                   | 411 | underlay                    | 88      | gravel                | 132      | posts                    | 63      |
| Rigid insulation        | 85  | urethane spray foam         | 140     | membrane              | 132      | purlins                  | 76      |
| Rigid steel conduit     |     | Roof and foundation coating |         | mop                   | 136      | rafters                  | 75      |
| elbow                   | 409 | non-fibered                 | 129     | patch                 | 135      | ribbons                  | 73      |
| galvanized              | 409 | Roof apron                  | 143     | roll                  | 133-134  | roof trusses             | 76      |
| installation            | 409 | Roof caulk                  | 136     | sheet metal           | 138      | sill plates              | 64      |
| removal                 | 409 |                             |         |                       |          |                          |         |

|                                 |              |  |              |   |     |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
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| studding.....                   | 66-67        | Saturated cotton roof patch asphalt..... | 136          | sill.....                               | 86  | Sheathed cable indoor .....  | 398      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| subflooring.....                | 66           | Savannah lavatory faucet...              | 357          | tile.....                               | 304 | indoor & outdoor .....       | 398      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| trimmers .....                  | 75           | Sawing                                   |              | tile & stone .....                      | 303 | Romex.....                   | 398      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| wall openings .....             | 72           | concrete slab.....                       | 51           | water-based.....                        | 472 | Type NM-B Romex..            | 397-398  |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| wall studs .....                | 66           | SBS field adhesive .....                 | 134          | Sealer primer                           |     | <b>Sheathing</b>             |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| window openings.....            | 72           | ScapeWel window .....                    | 172          | stainblocker .....                      | 474 | board .....                  | 66, 70   |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Round conduit box               |              | Schedule 40 PVC                          |              | water-base.....                         | 474 | carpentry .....              | 66       |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| non-metallic.....               | 408          | conduit.....                             | 400          | Sealer's Choice 15 Gold ...             | 303 | demolition .....             | 35       |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Round edge stop                 |              | Schedule 80 PVC                          |              | Sealing conduit locknut                 |     | insulated .....              | 85       |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| molding.....                    | 261          | membrane .....                           | 304          | steel.....                              | 410 | plywood .....                | 70, 77   |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Royal Mouldings.....            | 264          | Schluter Ditra polyethylene              |              | Seal-Krete.....                         | 475 | roof .....                   | 70, 77   |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Royelle vinyl sheet             |              | membrane .....                           | 304          | Seam coating kit.....                   | 287 | T 1-11 .....                 | 111      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| flooring.....                   | 283          | Schluter Systems .....                   |              | Seats                                   |     | <b>Sheathing paper</b> ..... | 87       |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rub, carborundum.....           | 51           | .....                                    | 299-300, 304 | toilet, plastic .....                   | 352 | <b>Sheet</b>                 |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rubber                          |              | Scotchgard .....                         | 512          | toilet, wood .....                      | 352 | acrylic .....                | 171      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| mallet.....                     | 287          | Scratch coat, plaster.....               | 114          | SEBS styrene-ethylene- butylene-styrene |     | mirrored .....               | 171      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| roof jack.....                  | 145          | Screed                                   |              | asphalt.....                            | 135 | Plexiglas .....              | 171      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| wall base .....                 | 288          | rental .....                             | 40           | Security doors .....                    | 205 | <b>Sheet flooring</b>        |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| wet patch roof cement .....     | 135          | Screen                                   |              | heavy-duty.....                         | 205 | adhesive .....               | 286      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rubber studded tile .....       | 286          | aluminum rolls .....                     | 168          | Security doors,                         |     | removal.....                 | 274      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rubber tile adhesive.....       | 286          | fiberglass rolls .....                   | 168          | Paradise-style.....                     | 205 | vinyl .....                  | 282-283  |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rubberized                      |              | frame kit .....                          | 167          | Security gates, folding .....           | 205 | <b>Sheet metal</b>           |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| roof patch .....                | 135          | patch.....                               | 168          | Security light .....                    |     | gutters, downspouts ....     | 146      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rust resistant finish .....     | 476          | porch enclosure.....                     | 438          | motion sensor.....                      | 423 | roofing .....                | 138      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rustic oak plank flooring.....  | 276          | spline .....                             | 168, 439     | Security storm doors .....              | 205 | <b>Sheetrock</b>             |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rustic siding                   |              | window .....                             | 168          | Seekure paper.....                      | 88  | ceiling panel .....          | 257      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| pine.....                       | 108, 110     | Screen doors                             |              | Seismic safety standards,               |     | demolition .....             | 242      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Rust-Oleum .....                | 468-469, 476 | hardware .....                           | 203          | earthquakes.....                        | 477 | fire code .....              | 243      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| <b>S</b>                        |              | installation .....                       | 202-203      | Self-stick                              |     | flexible .....               | 244      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sack finish .....               | 51           | metal.....                               | 203          | parquet flooring, oak .....             | 278 | installation .....           | 242, 244 |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Saddle & sill.....              | 296          | steel, replacement.....                  | 203          | vinyl wall base.....                    | 289 | painting .....               | 463-464  |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Safety                          |              | vinyl .....                              | 203          | wall base .....                         | 289 | repair .....                 | 242      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| respirator mask .....           | 250          | wood.....                                | 203          | Self-storing storm doors .....          | 204 | water resistant .....        | 243      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Safety Zone vinyl floor         |              | Screen frame .....                       | 438          | Self-tapping screws .....               | 141 | <b>Sheets, roofing</b> ..... | 138      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| tile.....                       | 285          | Screen vents .....                       | 89           | Semco .....                             | 301 | <b>Shelf</b>                 |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sahara ceiling panels .....     | 256          | Screen wire .....                        | 438          | Semi-gloss .....                        |     | bath, with glass .....       | 369      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Saltillo                        |              | Screens                                  |              | latex paint.....                        | 473 | corner .....                 | 300      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| ceramic floor tile .....        | 295          | patio door .....                         | 216          | wall enamel .....                       | 472 | painting .....               | 448      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| grout mix .....                 | 303          | window .....                             | 160          | Senco .....                             | 249 | <b>Shellac</b>               |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Salvage, demolition .....       | 36           | Screw gun, drywall .....                 | 249          | SensAire wall control                   |     | amber .....                  | 470      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sampling                        |              | Screwdriver, drywall .....               | 249          | switch .....                            | 366 | ShellGard RTU .....          | 92       |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| mold.....                       | 515          | Screwdriver bit, drywall .....           | 250          | Sentinel Products .....                 | 281 | <b>Shelves</b>               |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| San Marino ceiling fan.....     | 424          | Screw-in connector, flex... 406          |              | Sentinel sheet vinyl                    |     | painting labor .....         | 448      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sand                            |              | Screws                                   |              | flooring.....                           | 283 | Sherwin-Williams .....       | 470      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| fill.....                       | 41, 50       | deck.....                                | 439          | Septic disposal cartridge .....         | 333 | Shield, ice & water .....    | 88       |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sand & Kleen .....              | 251          | drywall .....                            | 249          | Sequentia .....                         | 253 | Shim shingles .....          | 138      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sandblasting                    |              | drywall to steel .....                   | 249          | Service entrance                        |     | Shims                        |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| manhours .....                  | 447          | drywall to wood .....                    | 249          | cap .....                               | 412 | flooring .....               | 62       |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| masonry.....                    | 115          | lag, drill tip .....                     | 255          | cap, PVC .....                          | 402 | stud .....                   | 67       |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sanded grout.....               | 303          | self-tapping.....                        | 141          | device, combination .....               | 418 | <b>Shingle</b>               |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sander                          |              | Screws & clips,                          |              | elbow .....                             | 412 | flashing .....               | 144      |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| drywall .....                   | 250          | sink mount .....                         | 322          | Shingle and shake siding .....          | 100 | gypsum wallboard .....       | 251      | Scribing felt ..... | 287 | furring, estimating ..... | 100 | Sanding |  | Scrubber ..... |  | Shingle panels ..... | 113 | hardwood floor ..... | 277 | negative air..... | 519 | Shingle siding ..... | 113 | Sanding sealer |  | Seal ..... |  | cedar ..... | 113 | waterborne ..... | 469 | garage door ..... | 223 | Shingle starter strip ..... | 131 | Sanding sponge ..... | 250 | Seal & tile gloss..... | 304 | Shingles |  | Sanding system |  | Sealant ..... |  | algae-resistant ..... | 130 | drywall ..... | 251 | laminate flooring ..... | 279 | architectural ..... | 131 | dustless ..... | 251 | Sealer ..... |  | asphalt ..... | 130 | Sanding, paint prep |  | concrete..... | 475 | asphalt, repair ..... | 130 | manhours ..... | 446-447 | exposed aggregate ..... | 475 | cedar ..... | 138 | Sand-Texture wall texture ..... | 473 | grout ..... | 304 | demolition ..... | 34 | Sash |  | high-gloss finish ..... | 303 | fiberglass asphalt ..... | 131 | balance ..... | 166 | oil-based..... | 473 | hip and ridge ..... | 131 | cord repair ..... | 156 | painting ..... | 463-464 | interlocking ..... | 130 | lift..... | 166 | primer ..... | 473 | laminite ..... | 130 | locks ..... | 166 | sanding ..... | 469 | panelized ..... | 113 | springs, wood window .. | 166 | Sealed |  | roofing ..... | 130 | window, repair ..... | 156 | asphalt ..... | 475 | siding ..... | 113 |  |  | water-based ..... | 475 | siding, replacement ..... | 105 |
| gypsum wallboard .....          | 251          | Scribing felt .....                      | 287          | furring, estimating .....               | 100 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sanding                         |              | Scrubber .....                           |              | Shingle panels .....                    | 113 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| hardwood floor .....            | 277          | negative air.....                        | 519          | Shingle siding .....                    | 113 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sanding sealer                  |              | Seal .....                               |              | cedar .....                             | 113 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| waterborne .....                | 469          | garage door .....                        | 223          | Shingle starter strip .....             | 131 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sanding sponge .....            | 250          | Seal & tile gloss.....                   | 304          | Shingles                                |     |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sanding system                  |              | Sealant .....                            |              | algae-resistant .....                   | 130 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| drywall .....                   | 251          | laminate flooring .....                  | 279          | architectural .....                     | 131 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| dustless .....                  | 251          | Sealer .....                             |              | asphalt .....                           | 130 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sanding, paint prep             |              | concrete.....                            | 475          | asphalt, repair .....                   | 130 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| manhours .....                  | 446-447      | exposed aggregate .....                  | 475          | cedar .....                             | 138 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sand-Texture wall texture ..... | 473          | grout .....                              | 304          | demolition .....                        | 34  |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| Sash                            |              | high-gloss finish .....                  | 303          | fiberglass asphalt .....                | 131 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
| balance .....                   | 166          | oil-based.....                           | 473          | hip and ridge .....                     | 131 |                              |          |                     |     |                           |     |         |  |                |  |                      |     |                      |     |                   |     |                      |     |                |  |            |  |             |     |                  |     |                   |     |                             |     |                      |     |                        |     |          |  |                |  |               |  |                       |     |               |     |                         |     |                     |     |                |     |              |  |               |     |                     |  |               |     |                       |     |                |         |                         |     |             |     |                                 |     |             |     |                  |    |      |  |                         |     |                          |     |               |     |                |     |                     |     |                   |     |                |         |                    |     |           |     |              |     |                |     |             |     |               |     |                 |     |                         |     |        |  |               |     |                      |     |               |     |              |     |  |  |                   |     |                           |     |
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| Thermal sill                | 195      | parquet floor           | 278     | T-molding                | 276     | Trash                        |          |
| Thermoplastic siding        | 107      | paver                   | 295     | bamboo                   | 276     | bins                         | 30       |
| Thermostat                  |          | Place n Press floor     | 285     | hardwood                 | 275     | Trash compactor              |          |
| floor warming system        | 301      | Polyethylene membrane   | 304     | wood floor               | 275     | removal                      | 311      |
| Thermostat cable            | 413      | quarry                  | 295     | Toggle switch            |         | Trash pump                   | 520      |
| THHN copper wire            |          | reducer strip           | 300     | AC quiet                 | 414     | Travertine                   |          |
| gauge                       | 412      | repair, mortar          | 302     | Toilet base plate cover  | 351     | floor tile                   | 295      |
| Thin-set mortar             | 302      | resilient, demolition   | 36      | Toilet bowl              |         | stone tile                   | 294      |
| CustomBlend                 | 302      | roofing                 | 140     | gasket                   | 351     | Treads                       |          |
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| Thoro                       | 475      | sealer, high-gloss      | 303     | remove & replace         | 346     | Tree removal                 | 30       |
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| coating                     | 475      | setting with mortar     | 290     | cast iron                | 351     | rental                       | 40       |
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| Three gang box              |          | thin-set mortar         | 289     | Toilet repair kit        | 352     | hand                         | 41       |
| Super Blue,                 |          | travertine floor        | 295     | Toilet seat              |         | Trim                         |          |
| non-metallic                | 402      | travertine stone        | 294     | molded wood              | 352     | aluminum siding              | 114      |
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| Ties                        |          | porcelain               | 301     | hook-up kit for low-boy  | 351     | latex satin                  | 472      |
| collar                      | 75       | Tile adhesive           |         | one-piece                | 350     | Trim pack                    |          |
| Tile                        |          | ceramic                 | 289     | two-piece                | 350     | wood paneling                | 252      |
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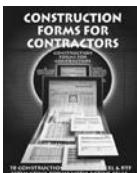
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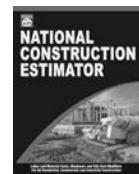
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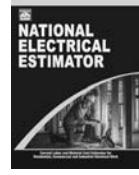
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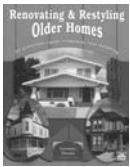


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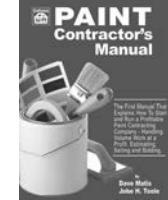


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