ShopNotes Special Collector's Edition

BONUS
PROJECT PLANS
100+ SHOP TIPS
AND MORE!
See Back Cover For Details

small shop Solutions

Projects, Plans, Tips, & Techniques

OVER 350+ ILLUSTRATIONS & PHOTOS

PLUS!

BEFORE & AFTER ULTIMATE SHOP MAKEOVER

MUST-HAVE ADD-ONS & ACCESSORIES

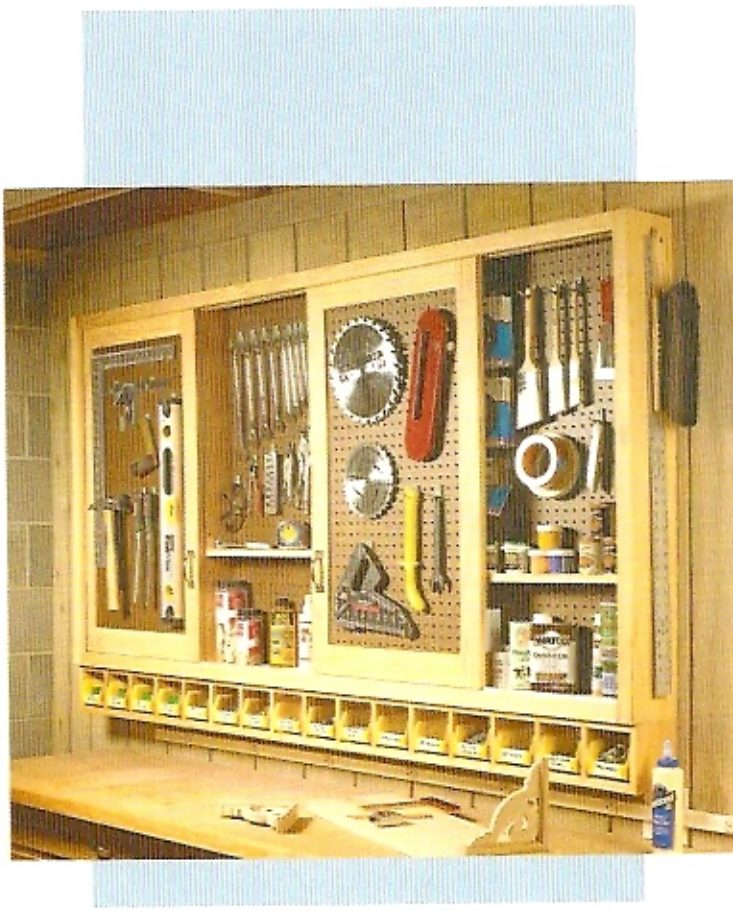
SPACE-SAVING STORAGE SOLUTIONS

HANDY SHOP-BUILT UPGRADES

A Publication of August Home Publishing

Woodsmith® ShopNotes®

EDITOR'S NOTE



Let's face it — just about every woodworker would like to have more shop space. But for most of us, a large, open workshop is only a dream. So the challenge is to make the space you have work harder. This will make the time you spend in your shop more productive and enjoyable.

That's what this book is all about. Inside, you'll find exclusive project plans, space-saving tips, and easy-to-master techniques that will help you get the most out of your shop. For starters, check out the One-Wall Workshop on page 10. By combining pre-made cabinets with some innovative shop-built upgrades, you can create the ultimate workcenter. We've also gathered our top picks for other must-have shop projects. Each one will help you add storage space or help you get more out of your own power tools — and they're inexpensive and easy to build.

Finally, check out the extra tips and bonus project plans online. You can find out more about these on page 99.

Terry

makeovers

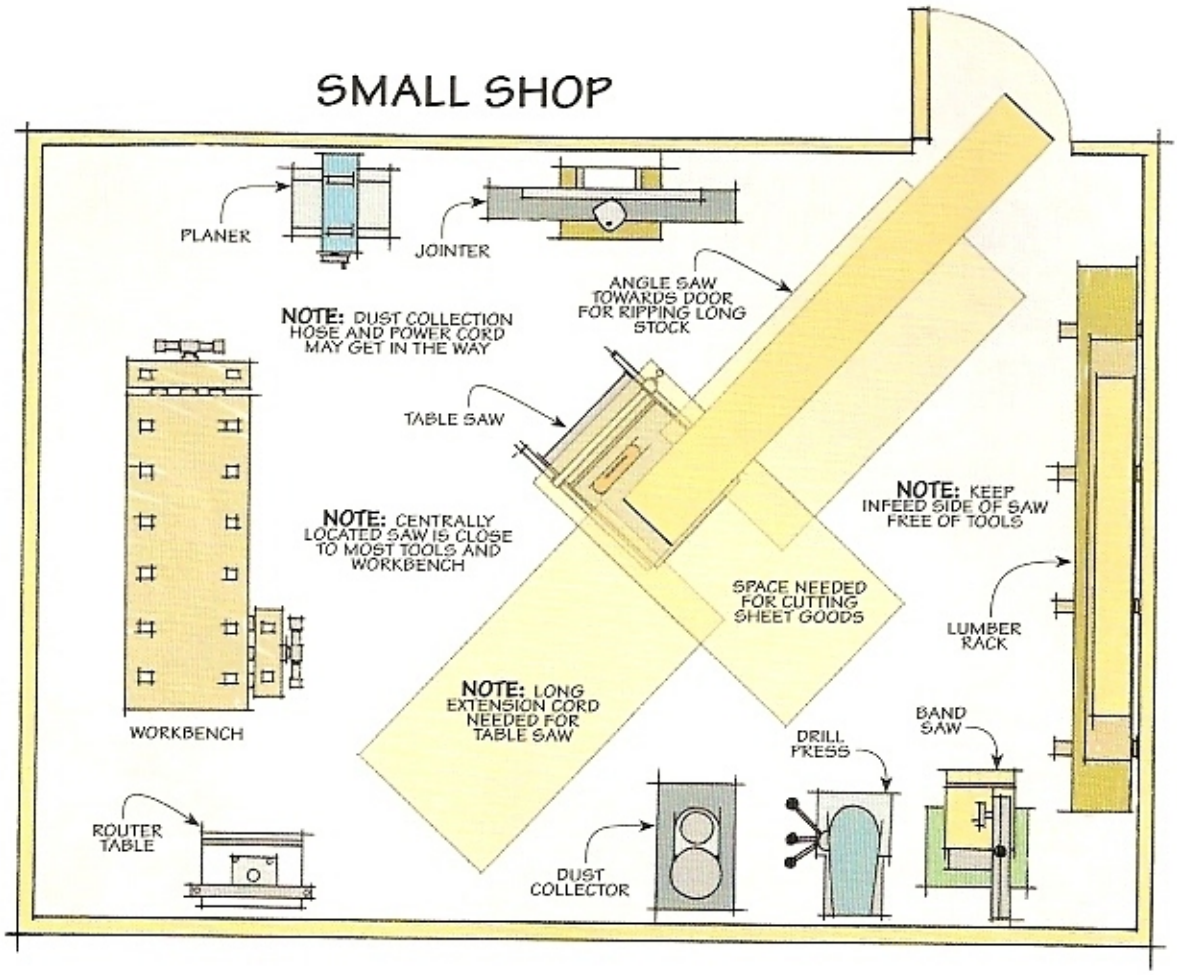
storage

add-ons

upgrades

Ultimate Shop Makeovers

Sometimes, a few layout changes are all it takes to get the most out of your shop space. Or you can transform a single wall into a full-featured workshop with plenty of storage and workspace.



Best Spot for your Table Saw

Locating this essential tool properly will go a long way toward making your workshop more efficient and enjoyable.

When it comes to power tools, the table saw is king in my shop. It's used for everything from breaking down sheets of plywood to cutting joinery. So finding the best place for this tool can have a big impact on how well your shop works.

Shops come in all shapes and sizes. But there are a few strategies you can use to help find the best place for your saw. The result will be getting the most from your saw and maximizing shop space.

FINDING THE SPACE. The first thing to think about is how much space you'll need. Table saws take up a lot of space. As you can see in the drawing above, I'm not just referring to the size of the saw. The amount of space a saw needs depends on the size of the stock you're working with. For example, cutting full sheets of plywood and other sheet goods means you'll need to allow about 9' or 10' in front of *and* behind the saw to work safely.

PLACING OTHER TOOLS. Where you place the table saw can affect other tools in your shop, too. For starters, I try to keep my workbench near the saw. Since you'll spend a lot of time using both, you can save some steps (and work more efficiently) by positioning the workbench close to the table saw.

I also like to keep the jointer and planer close to the saw. These three tools see quite a bit of action

at the beginning of a project when I'm sizing stock. Just make sure that any tools on the outfeed side are set at the same height or below the height of the saw table, like the jointer you see in the lower right drawing. This will prevent a workpiece from getting hung up in the middle of a cut.

The drawings you see on the opposite page and at the lower right show two ways to apply these ideas to common shop floor plans.

SMALL SHOP

In small shops, I've found the best place to locate the table saw is smack dab in the middle of the room, like you see in the drawing on the opposite page. There's a simple reason why this works so well: The saw has the most room all around it to handle just about any size workpiece. It also means the saw isn't very far from other tools.

If your shop space is small, you can make the room work "bigger" by angling the saw. This lets you take advantage of the longer diagonal dimensions of the room. Another way to maximize space is to position the infeed side of the saw near a door so you can "borrow" space from another room when ripping long stock.

MAKING IT WORK. Setting up the saw in the middle of the shop sounds like a great idea. But there are some other things you'll need to think about — power, lighting, and dust control to name a few.

Adding another light shouldn't be difficult. But the power cord and dust collection hose can cause some trouble. They may trail across the floor and get in the way occasionally. And the power cord for some saws might not reach to the wall, so you may need to buy (or make) a longer one.

NARROW SHOP

In a workshop that's long and narrow, I recommend taking a different approach. Instead of putting the table saw in the middle of the floor, set it against one of the long walls, like you see in the drawing at right. When you think about it, putting the saw against the wall makes a lot of sense.

With the saw in this position, you aren't limiting the capacity of the saw because you can't set the fence past the end of the rails anyway. Positioning the saw on a long wall gives you plenty of space for handling large workpieces. And it opens up the center of the workshop for assembly space and easier traffic flow.

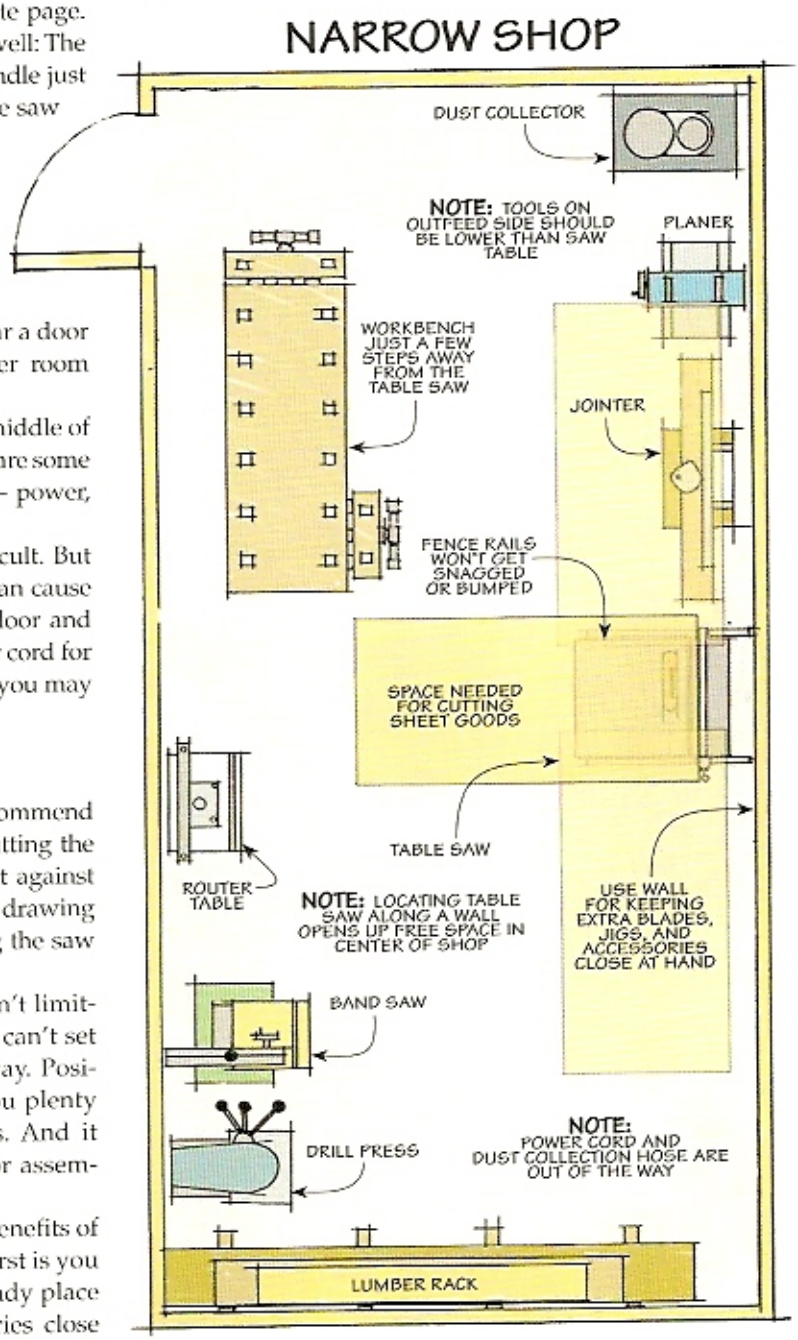
ADDED BENEFITS. There are a couple other benefits of positioning the table saw this way. The first is you can use the wall next to the saw as a handy place to keep extra blades, jigs, and accessories close at hand. This can save time and a few extra steps when changing the setup.

A second benefit you'll notice is that the saw's power cord and dust collection hose will have a shorter run to the wall (and be out of the way).

CHANGE YOUR SHOP. To help you get started putting your shop in order, check out ShopNotesSpecials.com to find scale drawings of common shop tools. With a floor plan of your shop and these drawings, you can rearrange the tools and worksurfaces in your shop until you find one that works — without actually having to move anything around.

ShopNotes GO ONLINE EXTRAS

To download scale tool drawings, go to our website: **ShopNotes-Specials.com**



One-Wall Workshop

Turn a wall into the ultimate workcenter with these easy-to-build cabinet add-ons.

The problem with most garage or basement shops is that they end up looking like the one you see in the inset photo on the opposite page. The challenges are finding enough storage, organization, and worksurfaces to work on projects.

ONE-WALL WORKSPACE. That's where the "one-wall workshop" you see in the main photo really fills the bill. It starts with standard garage shop cabinets, which you can purchase online or pick up from a local dealer. You can find more information about pre-fab shop cabinets in the article on page 22. They allow you to concentrate on organizing your shop and working on projects instead of spending time building basic storage cabinets and doors.

If you look closely, you'll see that I've "souped up" these cabinets with custom storage compartments, shelves, pegboard, and lighting.

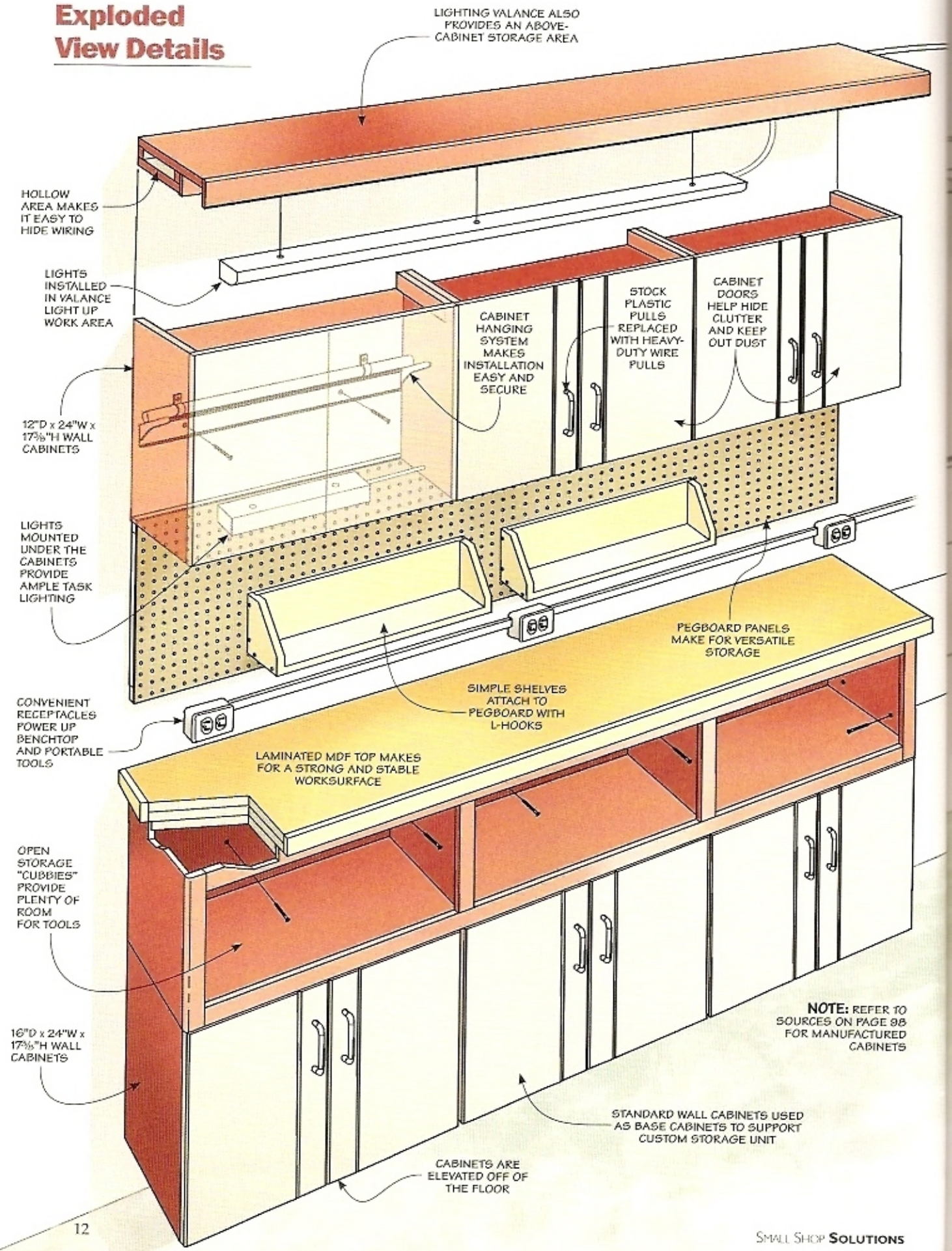
WORKBENCH. What I like best about this setup is the workbench. You can see in the photo that this bench has everything you need for building projects, including vises and a row of bench dog holes. And when you're done for the day, the front of the bench drops down out of the way like the leaf of a dining table.

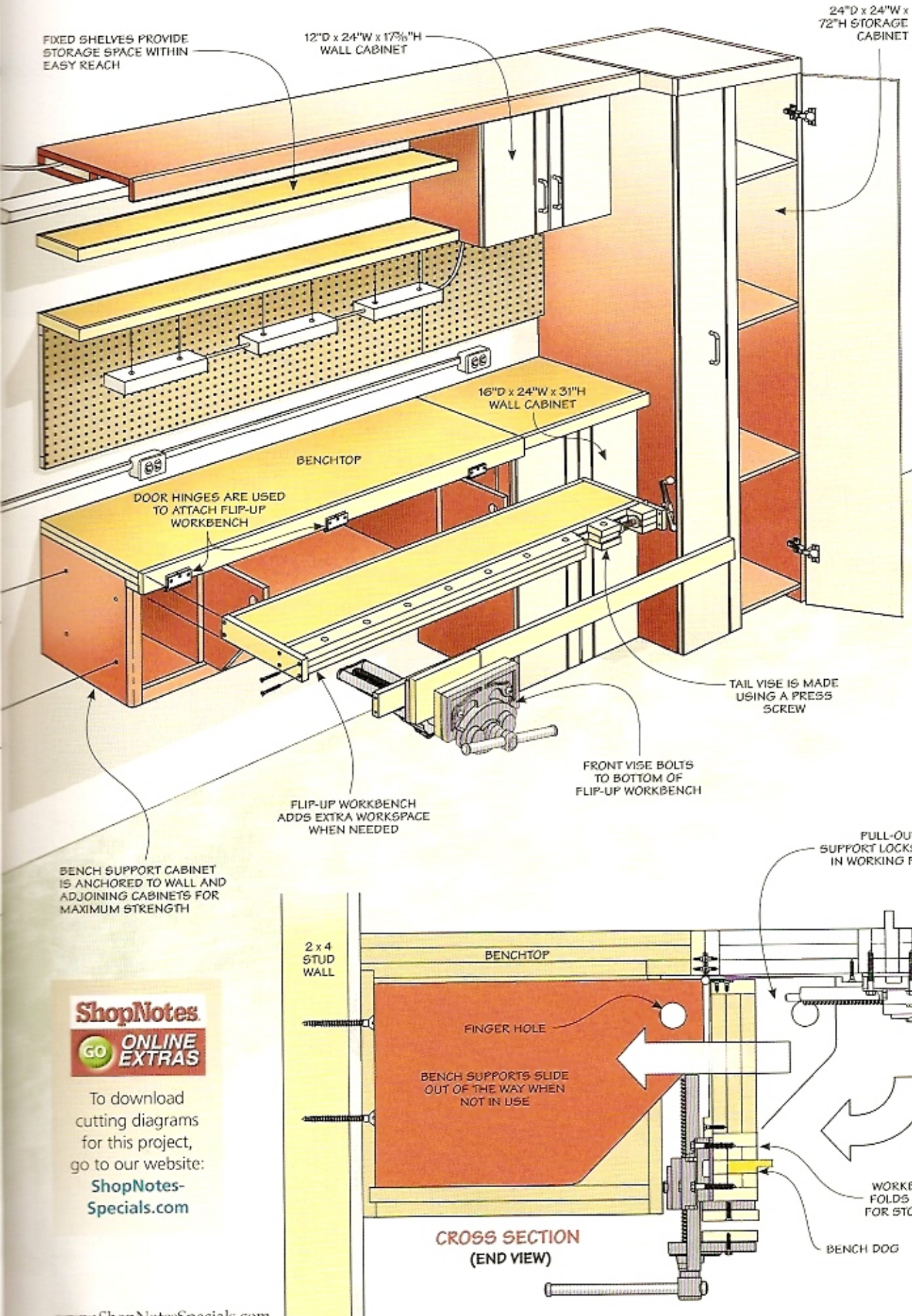
So, by starting with manufactured cabinets and adding some custom features, you can turn a single wall into a great shop area.

Planned Organization. With a little planning, you can turn any wall into an organized workspace. Manufactured garage cabinets form the foundation. Then customized storage, lighting, and workbench options are added.

Chaos. Shop organization is always a challenge and often takes a lower priority than projects in the shop.

Exploded View Details





ShopNotes GO ONLINE EXTRAS

To download cutting diagrams for this project, go to our website: ShopNotes-Specials.com

Main Workshop **Section**

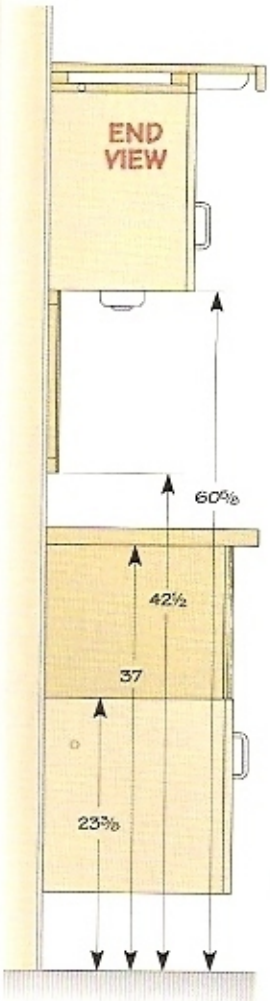
To get started on your own one-wall workshop, you'll need to choose and install a set of wall cabinets like you see on pages 12 and 13. Then you can build the accessories to fit them. (You may have to modify a few dimensions to fit the cabinets you use.) The drawing in the left margin shows the heights I used for mounting my cabinets.

You can start with the lower section, as shown in the photo above. To save space in my shop, I used wall cabinets mounted as base cabinets. They aren't as deep as standard base cabinets. Plus, I mounted them off the floor to prevent damage from moisture and to make it easier to clean underneath them.

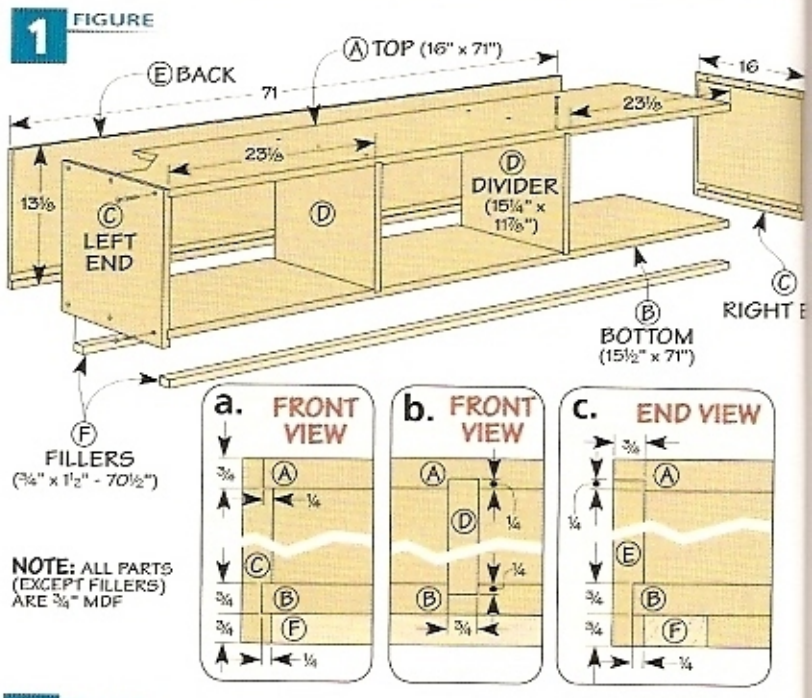
OPEN-FRONT STORAGE. The challenge with a small work area is finding a place to store tools like my bench grinder, circular saw, and router. That's where an open-front cabinet comes in handy. It fits on top of the three lower cabinets (photo above).

BUILDING A CASE. Figures 1 and 2 will show you everything you need to know to build the open-front cabinet. Dadoes and rabbets are used for all the joinery.

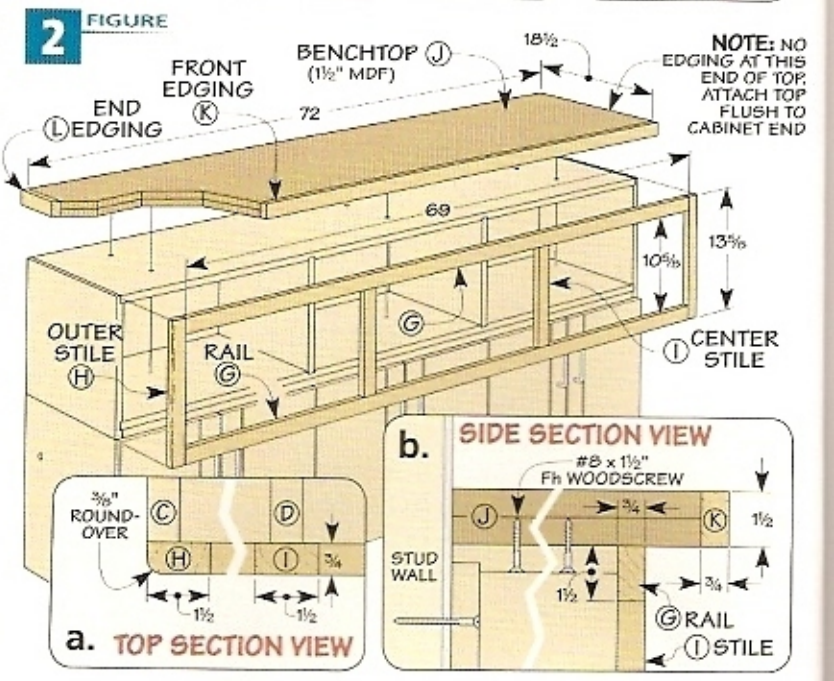
After gluing up the case, add the filler strips on the bottom. They give the screws a place to grab when you fasten the open-front cabinet to the cabinets below.

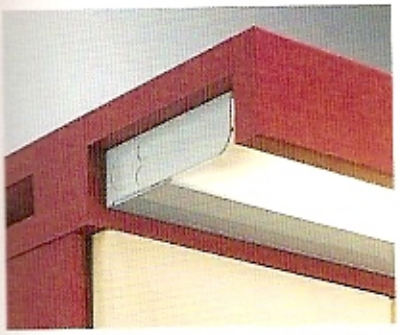


1 FIGURE

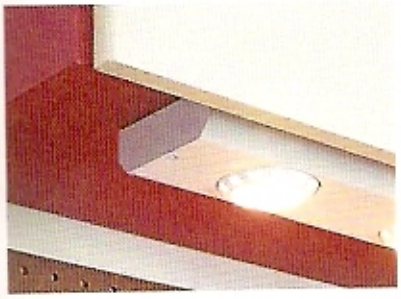


2 FIGURE



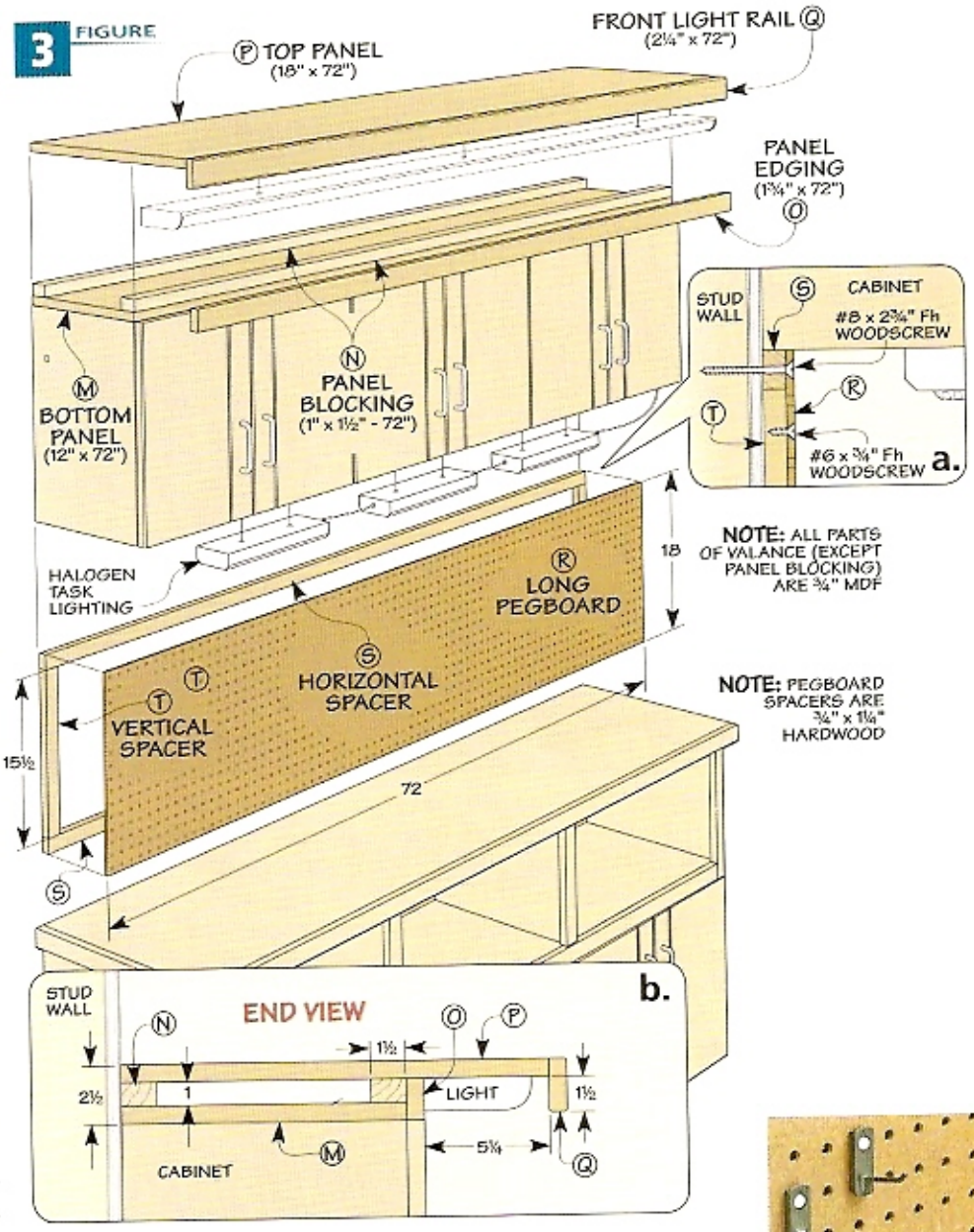


Overhead Lighting. Fluorescent lighting mounted in the valances lights up the whole workspace.



Task Lights. Halogen lights mounted under the upper wall cabinets are ideal for detailed tasks.

FIGURE 3



FACE FRAME. The face frame serves two purposes — it both protects and hides the edges of the case. You can simply cut each of the pieces to fit and glue them in place, as in Figure 2. I rounded the outside edges of the two end stiles before attaching them. After the face frame is complete, it's time to work on the benchtop.

LAMINATED TOP. The top of the cabinet consists of two pieces of MDF that are glued together (Figure 2). This makes a solid and smooth worksurface. Then it's just a matter of gluing hardwood edging on the front and left end. (The right end will butt up against the workbench section you'll build later.) Now you can fasten the top to the cabinets with screws (Figure 2b).

Before moving on, go ahead and install the three upper wall cabinets, as shown in Figure 3. You'll work on adding lighting and pegboard storage next.

PLENTY OF LIGHT. One thing most shops never have enough of is adequate lighting. To solve this problem, a valance is added to the top of the upper wall cabinets to hold fluorescent fixtures. They cast a bright, broad light into the work area. Then for those close-up tasks on the workbench, under-cabinet lighting is just the ticket (photos above).

BUILDING THE VALANCE. If you take a close look at Figure 3b, you'll see the valance is constructed like a hollow box. This creates a raceway for running the electrical wires for the fluorescent lighting.

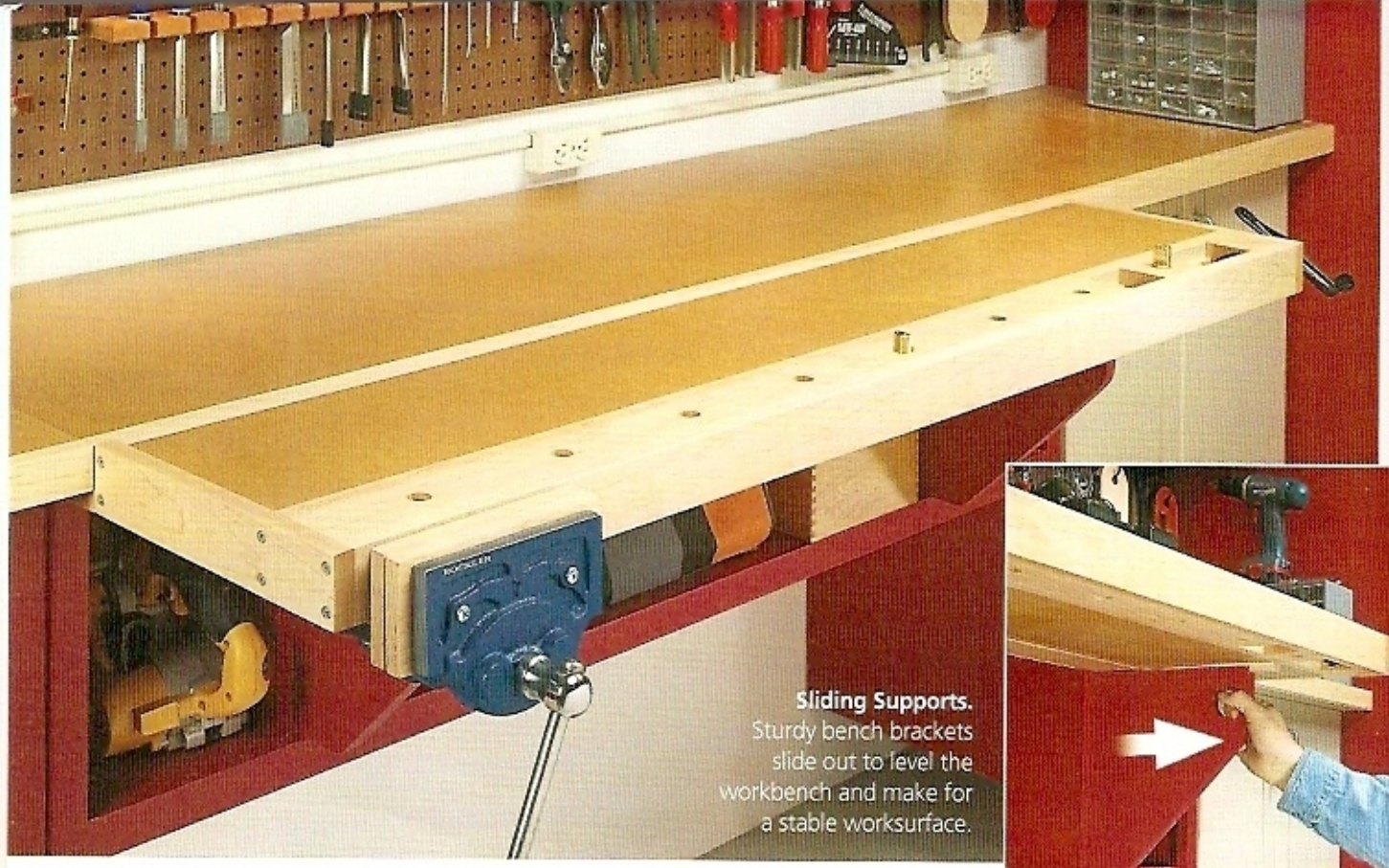
I added the front rail before attaching the valance to the cabinets. Then it's just a matter of mounting the lights and making the electrical connections.

UNDER-CABINET LIGHTS. Small, halogen fixtures provide task lighting under the wall cabinets (Figure 3). You can wire them to a switch or plug them into receptacles above the workbench.

PEGBOARD STORAGE. An easily accessible pegboard tool rack completes this section of the project. I glued ¾"-thick stock to the back of the pegboard before mounting it to the wall, as shown in Figure 3. This spaces the pegboard away from the wall to allow hooks to slip into place (margin photo).

With this section complete, you can move on to the center section with the workbench.

***Talon* Hooks.** Regular pegboard hooks tend to move around and fall out easily. But *Talon* hooks stay put for secure storage.



Sliding Supports. Sturdy bench brackets slide out to level the workbench and make for a stable worksurface.

Workbench **Cabinet**

The benchtop and storage on the previous page are great additions to any shop. But the centerpiece of this project is the workbench you see in the main photo.

For the flip-up design to stand up to woodworking tasks, it needs to have a stout support system. This cabinet does the job with the two pullout supports shown in the inset photo above.

Building the case starts with its partitions, then add the sliding supports and top. To help support the bench cabinet, you'll need to install another cabinet on the right end. Later, you can build and install the fold-up workbench. But first, you need to build the bench cabinet.

BUILDING THE CASE. If you look at Figure 4, you'll see the construction and joinery of the case for this cabinet is similar to the open-front cabinet on page 14. The only difference is the addition of the vertical dividers for the sliding supports (Figure 4b).

After you assemble the case with glue and screws, you can go on to build the two slide-out bench supports.

SLIDING SUPPORTS. The bench supports are pretty simple, as shown in Figures 4 and 4a. They're pieces of MDF cut to fit in the slots created by the partitions in the cabinet. A handy finger hole makes it easy to slide them in and out.

Once they're complete, you can finish the case by adding the cabinet face frame.

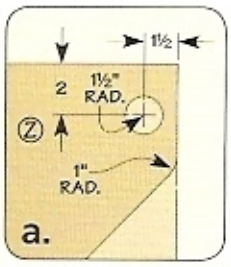
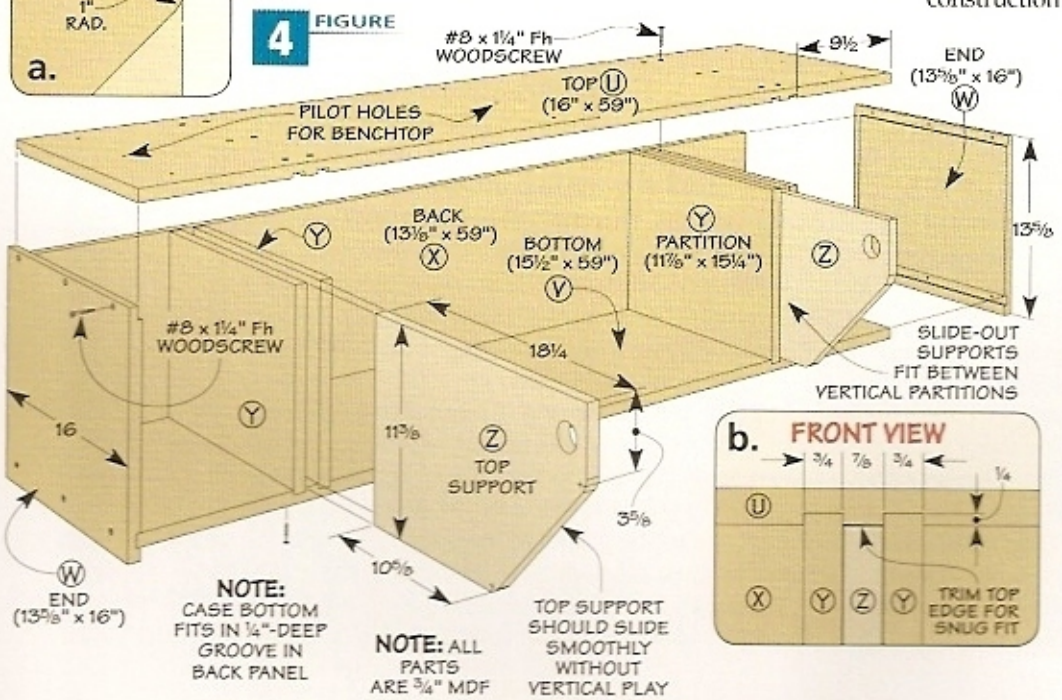


FIGURE 4



FACE FRAME. This face frame is a little different than the one on the storage cabinet you built earlier. There are only three pieces to make (Figure 5). I cut the two end pieces first. You'll need to cut these a little shorter than before to allow for a wide filler strip under the benchtop. Round over the outside edge of each before gluing them in place. Then it's just a matter of cutting the bottom piece to fit between them.

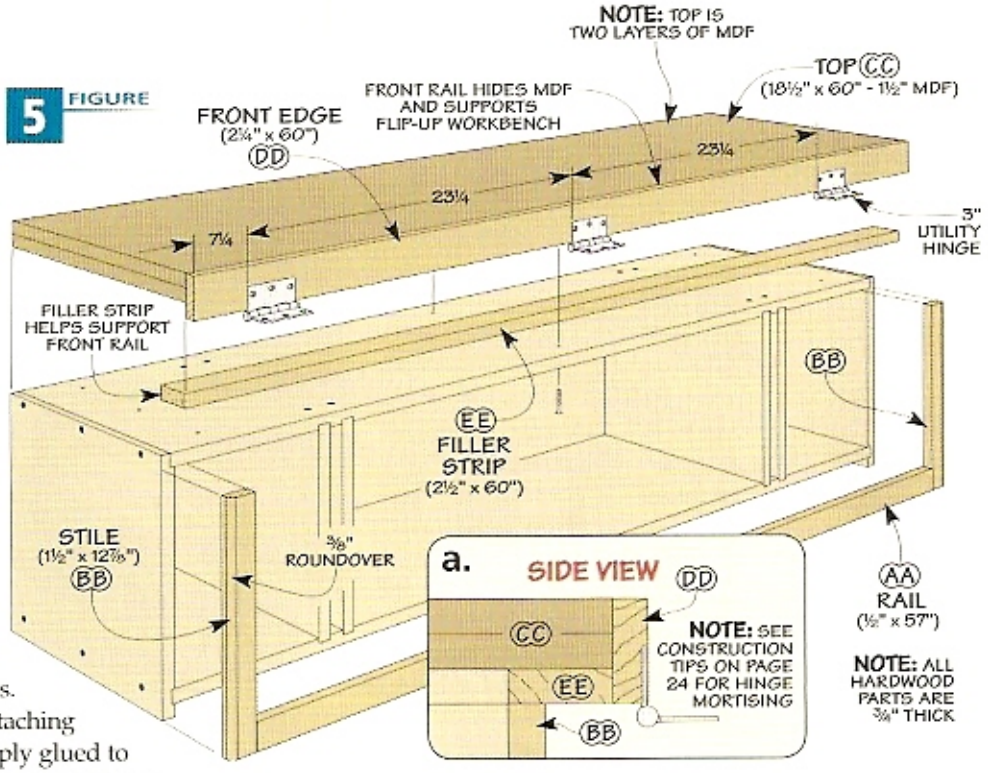
BENCHTOP. The benchtop is made from two pieces of MDF. But there's a filler strip that you'll need to add to the front (Figures 5 and 5a). This will help support the front rail where the folding bench section is attached with a set of hinges.

FRONT RAIL. There's not much to attaching the front rail to the benchtop. It's simply glued to the laminated MDF and filler strip. But MDF tends to soak up glue, so I first applied some glue to seal the edges of the MDF and waited a few minutes. Then I applied more glue and clamped the rail in place.

ATTACHING HINGES. Now's a good time to cut the mortises for the hinges and attach the hinges to the front rail. To see how to make the mortises and get a nice, tight fit, turn to the construction details on page 24.

ANCHORING THE CABINET. The bench is sure to see a lot of weight and pounding in use, so you want to make sure the cabinet is solidly anchored all around. In Figure 6, you'll see how the cabinet fits between the storage cabinet you built earlier and another manufactured cabinet. (Now is the time to mount the end cabinet, if you haven't already.) You'll want to be sure to leave room to fit the workbench cabinet snugly between the two end cabinets.

5 FIGURE

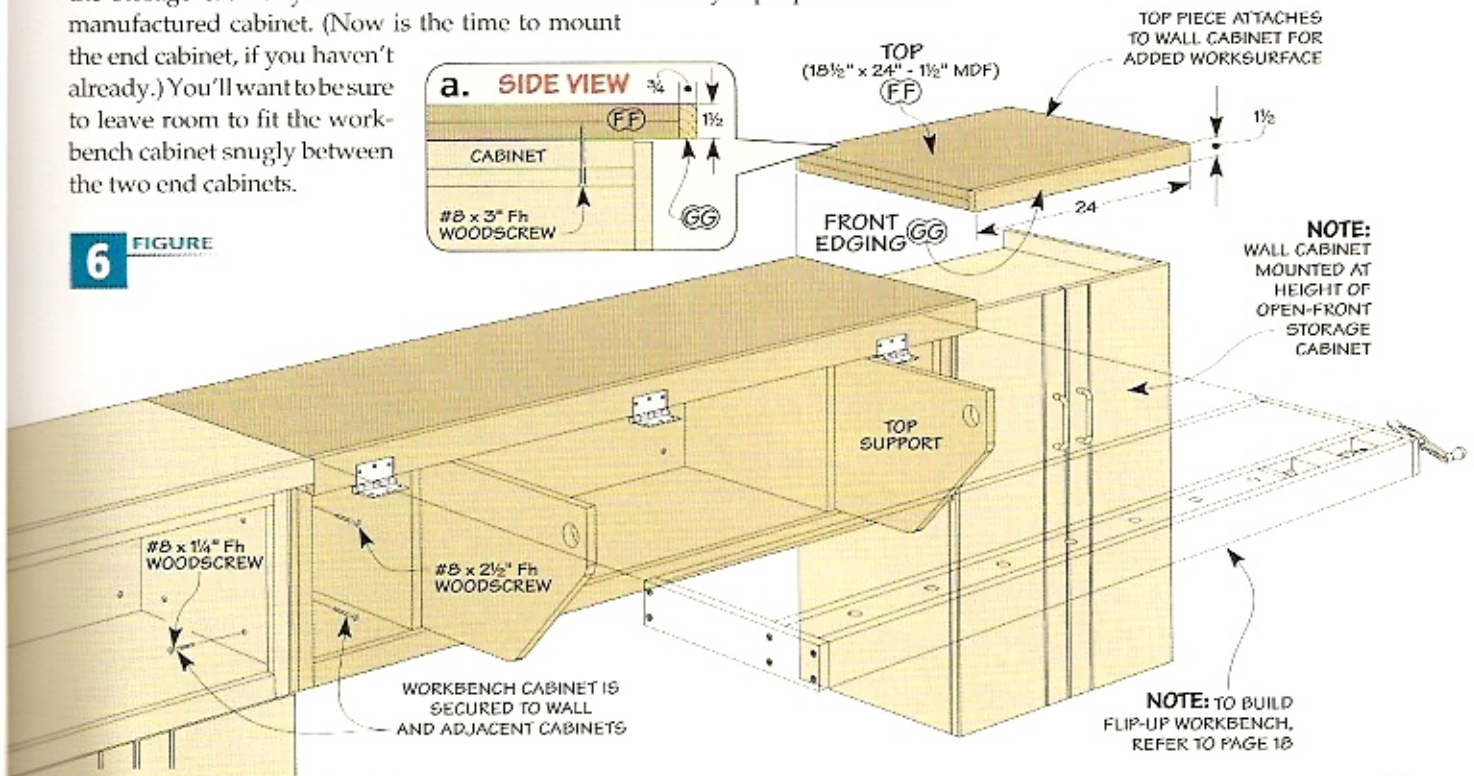


Go ahead and fasten the workbench cabinet to the two end cabinets with woodscrews. For extra strength, I also screwed through the back of the cabinet and into the wall studs.

SMALL TOP SECTION. Before working on the bench extension, there's one final piece to complete: the top for the cabinet at the end of the bench. It's just two pieces of MDF and hardwood edging (Figure 6a). A few screws are all you need to attach it to the cabinet.

Then, once the bench support cabinet is securely fastened in place, you're ready to work on the handy flip-up workbench.

6 FIGURE



Flip-Up **Workbench**

With the bench support cabinet anchored, you can get started on the flip-up bench. A face vise, tail vise, and dog holes make it ideal for woodworking projects. (To build a plain workbench without these features, take a look at the construction details on page 24.)

There's a lot going on here, but if you take it one piece at a time, you won't have any problems.

THREE-LAYER LAMINATION. Figure 7 gives you an idea of how the bench is put together. It consists of two main sections. There's a large MDF worksurface and a hardwood vise section along the front edge.

I started by gluing up and sizing the MDF section using three layers of MDF. Eventually, the whole bench will be wrapped in hardwood. But for now, I just attached the back rail and the inner rail.

Tail Vise. You can build your own tail vise using an inexpensive vise screw.

Face Vise. A bolt-on face vise is a handy addition to a bench. Wood jaws protect the workpiece.

ADDING THE VISES

As I mentioned, the vise section is made of hardwood and features a face vise, tail vise, and dog holes. These really transform this from a simple worksurface to a true woodworker's bench.

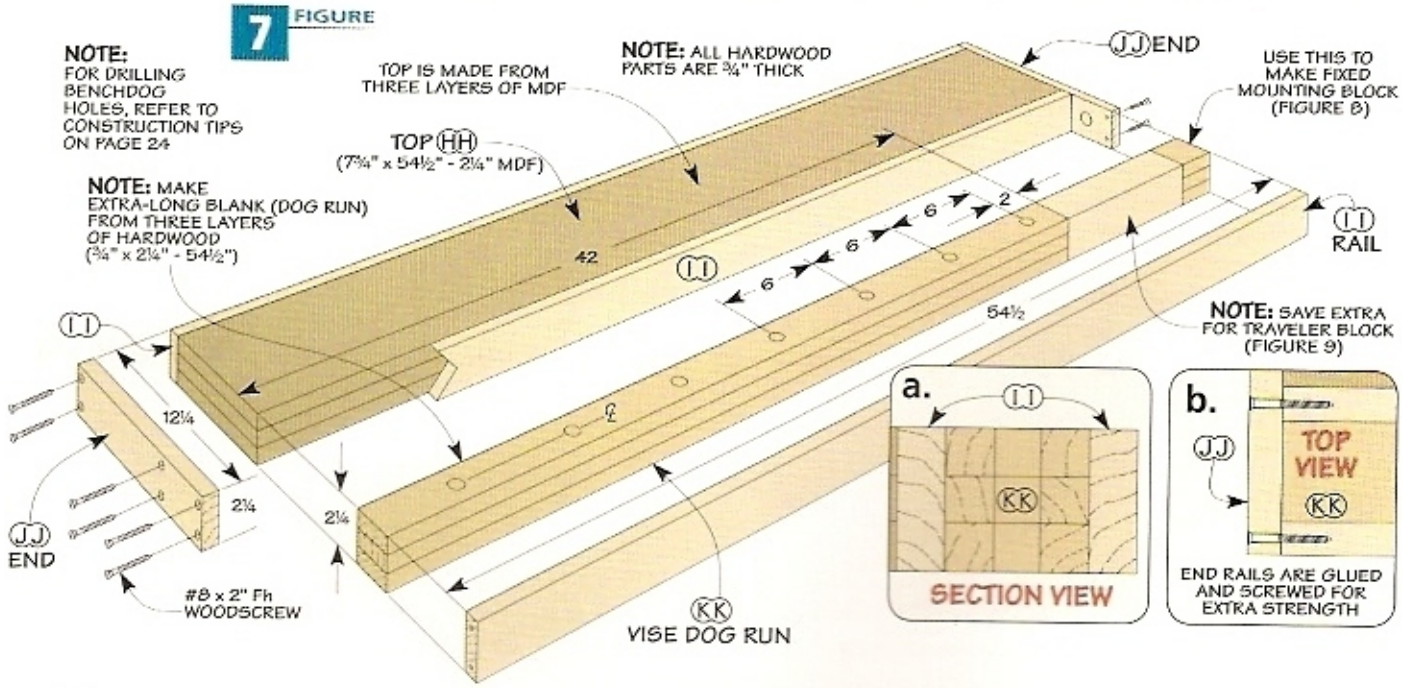
TAIL VISE ASSEMBLY. Building the vise section begins with laminating three hardwood pieces (Figure 7). I made this section the full length of the bench. One part will hold the bench dog holes and the face vise. Another part of the glueup will be cut off to make a mounting block and traveler for the tail vise, as you see in Figures 8 and 9 on the opposite page.

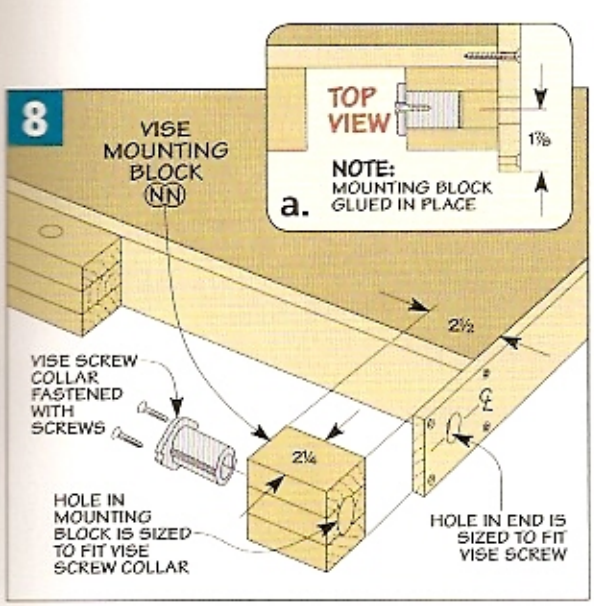
I drilled the dog holes after the bench was assembled (see Construction Details on page 24). So you can go ahead and glue the dog hole strip to the inner front rail, making sure the top face is flush with the benchtop, as in Figure 7a.

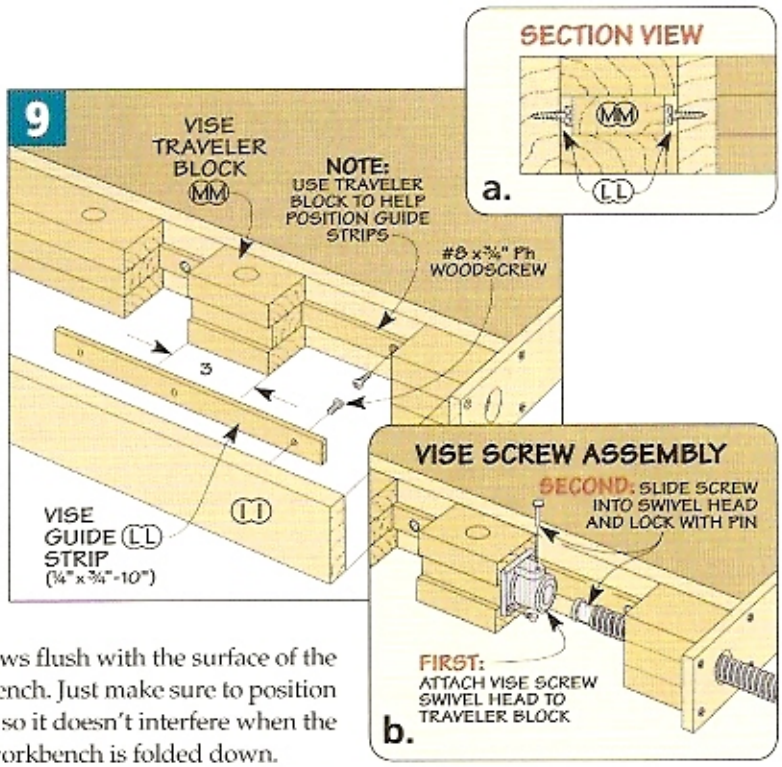
MOUNTING BLOCK. After gluing the dog hole strip in place, you can build the working parts of the tail vise. The mounting block is the "anchor point" for the vise screw, so I began with that (Figure 8).

Once it's cut to length, you can mark and drill the mounting block for attaching the vise screw.

7 FIGURE







Before gluing the block in place, you need to make the end rail and drill it to accommodate the vise screw. To make sure the hole is located correctly, clamp the block in position and mark the hole for the vise screw, as shown in Figure 8.

With the location marked, drill the hole for the vise screw through the end rail and attach the end rail and mounting block to the benchtop.

TRAVELER. The other part of the tail vise to make is the traveler, as you see in Figure 9. Besides drilling a dog hole in the traveler, you'll also need to cut a groove on each side. The grooves ride over guide strips as you operate the tail vise.

I cut the guide strips to fit the grooves in the traveler. You're looking for a smooth, sliding fit that isn't too loose.

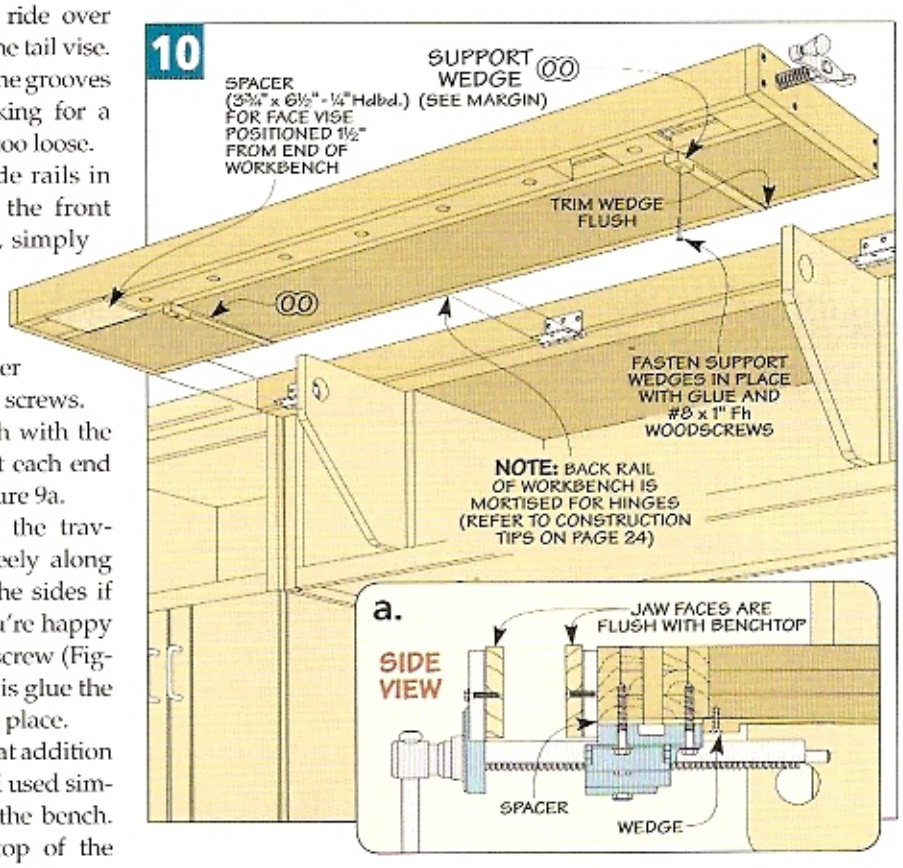
Before screwing the guide rails in place, you need to make the front rail of the bench. For now, simply clamp it in place to position the guides rails.

You can position the guides using the traveler before fastening them with screws. The traveler should be flush with the surface of the workbench at each end of the guide strips, as in Figure 9a.

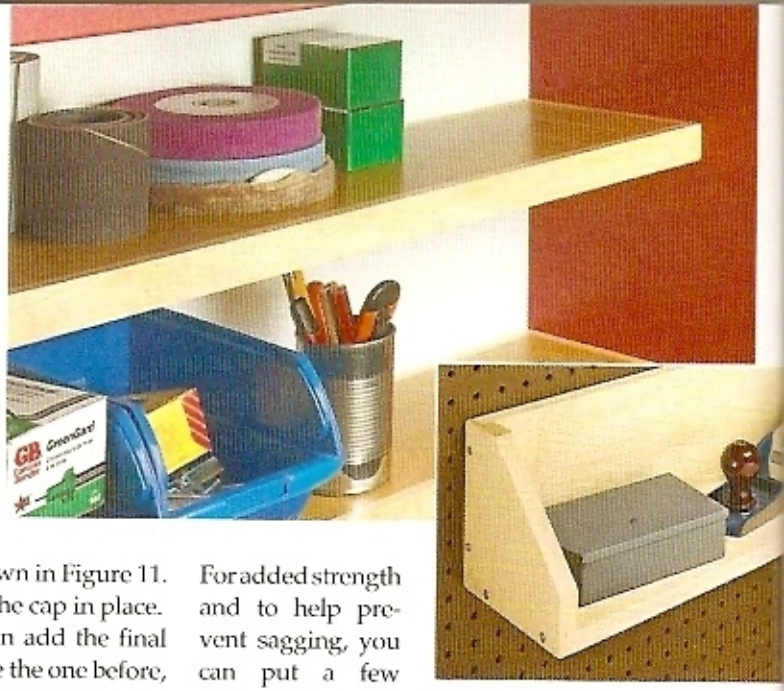
FINAL ASSEMBLY. Now check the traveler to see that it slides freely along the guide rails, and sand the sides if the fit is too tight. Once you're happy with the fit, attach the vise screw (Figure 9b). All that's left to do is glue the front rail and left end rail in place.

FACE VISE. A face vise is a great addition to any workbench. The one I used simply bolts to the bottom of the bench. And a spacer aligns the top of the jaws flush with the surface of the bench. Just make sure to position it so it doesn't interfere when the workbench is folded down.

WEDGES. The last thing to do is attach support wedges to the underside of the flip-up workbench, as illustrated in the right margin. With the bench extended, slip the wedges between the extension and the slide-out supports. When the bench is level, fasten the wedges with screws to complete the workbench.



Additional **Storage**



No matter how much storage you have, it doesn't take long to fill up the space. Here are some storage options you can add to your workspace. They range from a tall storage cabinet to small, portable pegboard shelves.

TALL CABINET AND CAP. To finish out the workshop, I added the tall cabinet you see in the photo on page 11 and built a cap for it, as shown in Figure 11. It just takes a few screws to secure the cap in place.

VALANCE AND PEGBOARD. Then, you can add the final valance piece. You'll build it just like the one before, using the dimensions shown in Figure 11.

And you can complete the pegboard storage by building two more panels, as shown below. These will fill the space between the panel you built earlier and the tall cabinet at the end of the workbench.

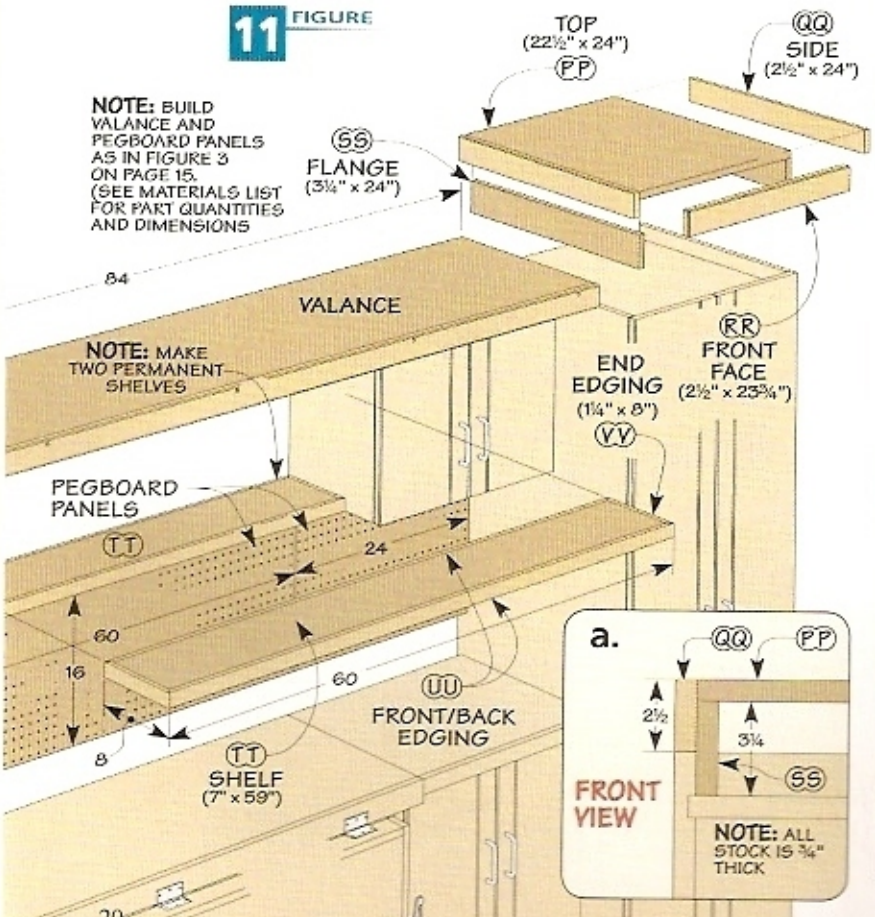
PERMANENT SHELVING. At this point, all that's left to do is add some shelving. I started with the fixed shelves shown in the photo above. They're a quick and easy solution for more storage space. Figures 11 and 12 show you how to put them together.

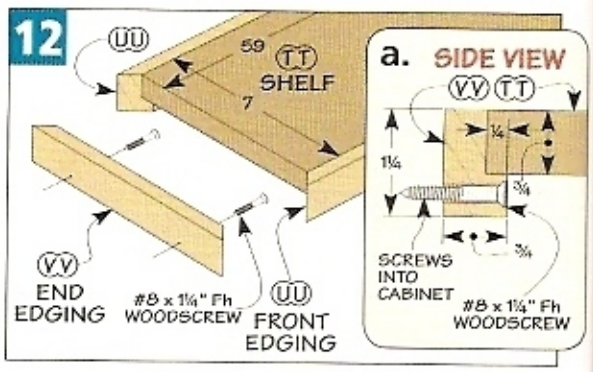
Once the edging is attached, use woodscrews to fasten the shelves to the adjacent cabinets. For added strength and to help prevent sagging, you can put a few screws through the back edging into the wall studs, too.

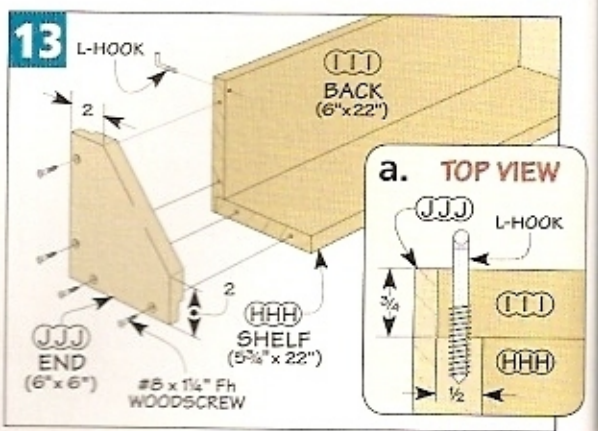
PEGBOARD SHELVING. If you look at the inset photo above, you'll see another storage option. These small shelves are really handy because they hang on the pegboard panels with L-hooks, so they're adjustable. Figure 13 below shows you everything you need to know to build these functional shelves. And check out page 24 for some construction details on adding the L-hooks and hanging the bins.

Now, the fun part of organizing your shop can begin. Once that's done, you can put the one-wall workshop to good use on all your future woodworking projects.

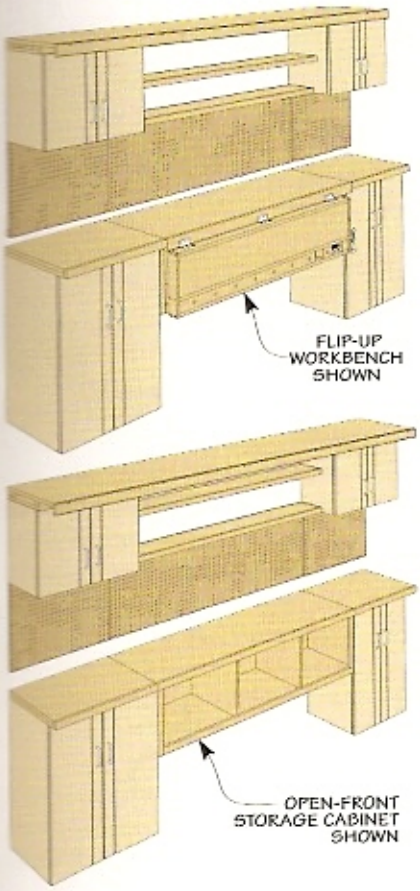
FIGURE 11







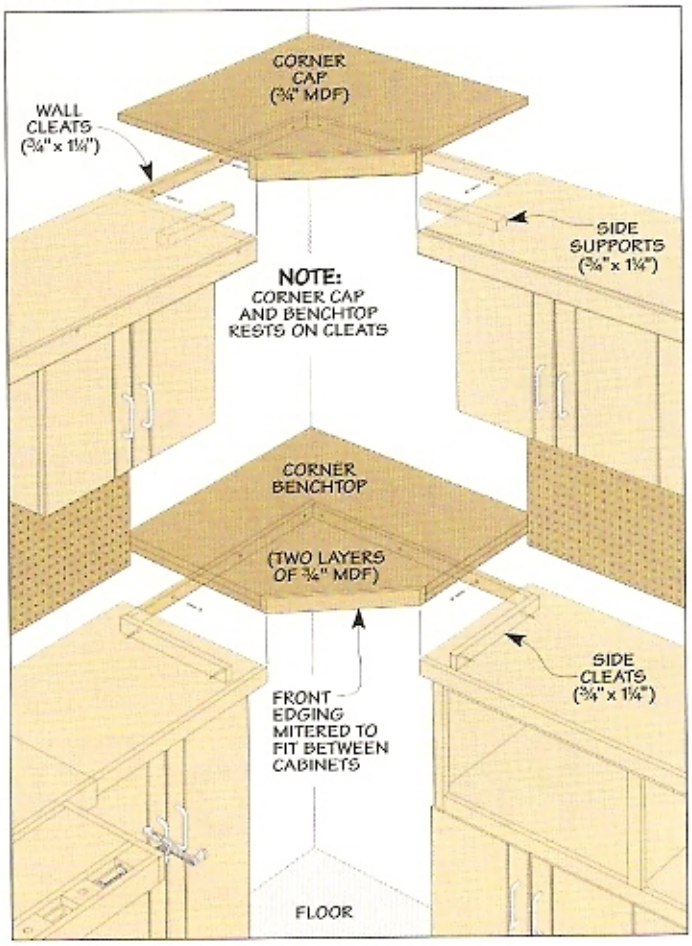
Floor Plan **Options**



Simple Bench. Short on wall space? You can build a smaller version of the one-wall workshop, complete with a flip-up workbench.

Corner Wrap. If your shop has the space, you can add corner pieces to wrap around and add more workspace.

Storage Only. Front-loading "cubbies" add plenty of storage in a small area.



laterials & Hardware

A	Top (1)	16 x 71 - ¾ MDF
B	Bottom (1)	15½ x 71 - ¾ MDF
C	Left/Right End (2)	13⅝ x 16 - ¾ MDF
D	Dividers (2)	11⅞ x 15¼ - ¾ MDF
E	Back (1)	13⅛ x 71 - ¾ MDF
F	Bottom Fillers (2)	¾ x 1½ - 70½
G	Face Frame Rails (2)	¾ x 1½ - 69
H	Face Frame Outer Stiles (2)	¾ x 1½ - 13⅝
I	Face Frame Center Stiles (2)	¾ x 1½ - 10⅝
J	Tops (2)	18½ x 72 - ¾ MDF
K	Front Edging (1)	¾ x 1½ - 72¾
L	End Edging (1)	¾ x 1½ - 19¼
M	Bottom Panel (1)	12 x 72 - ¾ MDF
N	Panel Blocking (2)	1 x 1½ - 72
O	Panel Edging (1)	1¾ x 72 - ¾ MDF
P	Top Panel (1)	18 x 72 - ¾ MDF
Q	Front Light Rail (1)	2¼ x 72 - ¾ MDF
R	Pegboard (1)	18 x 72 - ¼ Pgbd.
S	Horizontal Spacer (2)	¾ x 1¼ - 72
T	Vertical Spacers (2)	¾ x 1¼ - 15½
U	Top (1)	16 x 59 - ¾ MDF
V	Bottom (1)	15½ x 59 - ¾ MDF
W	Left/Right Ends (2)	13⅝ x 16 - ¾ MDF
X	Back (1)	13⅛ x 59 - ¾ MDF
Y	Partitions (4)	11⅞ x 15¼ - ¾ MDF
Z	Top Supports (2)	11⅜ x 18¼ - ¾ MDF
AA	Face Frame Rail (1)	¾ x 1½ - 57
BB	Face Frame Stiles (2)	¾ x 1½ -12⅞
CC	Tops (2)	18½ x 60 - ¾ MDF
DD	Front Edging (1)	¾ x 2¼ - 60
EE	Filler Strip (1)	¾ x 2½ - 60
FF	Tops (2)	18½ x 24 - ¾ MDF
GG	Front Edging (1)	¾ x 1½ - 24
HH	Top (3)	7¾ x 54½ - ¾ MDF
II	Rails (3)	¾ x 2¼ - 54½
JJ	Left/Right Ends (2)	¾ x 2¼ - 12¼
KK	Vise Dog Run (3)	¾ x 2¼ - 42
LL	Vise Guide Strips (2)	¾ x ¼ - 10
MM	Vise Traveler Block (3)	¾ x 2¼ - 3
NN	Vise Mounting Block (3)	¾ x 2¼ - 2½
OO	Support Wedges (2)	¾ x ½ - 9
PP	Top (1)	22½ x 24 - ¾ MDF
QQ	Sides (2)	2½ x 24 - ¾ MDF
RR	Front Face (2)	2½ x 23¾ - ¾ MDF
SS	Flange (2)	3¼ x 24 - ¾ MDF
TT	Shelves (2)	7 x 59 - ¾ MDF
UU	Front/Back Edging (4)	¾ x 1¼ - 60
VV	End Edging (4)	¾ x 1¼ - 8
WW	Bottom Panel (1)	12 x 84 - ¾ MDF
XX	Panel Blocking (2)	1 x 1½ - 84
YY	Panel Edging (1)	1¾ x 84 - ¾ MDF
ZZ	Top Panel (1)	18 x 84 - ¾ MDF
AAA	Front Light Rail (1)	2¼ x 84 - ¾ MDF
BBB	Pegboard (1)	18 x 24 - ¼ Pgbd.
CCC	Top/Bottom Spacers (2)	¾ x 1¼ - 24
DDD	End Spacers (2)	¾ x 1¼ - 15½
EEE	Pegboard (1)	18 x 60 - ¼ Pgbd.
FFF	Top/Bottom Spacers (2)	¾ x 1¼ - 60
GGG	End Spacers (2)	¾ x 1¼ - 15½
HHH	Shelves (2)	¾ x 5¾ - 22
III	Back Panels (2)	¾ x 6 - 22
JJJ	Ends (4)	¾ x 6 - 6

- (76) #8 x 1¼" Fh Woodscrews
- (42) #8 x 1½" Fh Woodscrews
- (4) #8 x 3" Fh Woodscrews
- (2) #8 x 1" Fh Woodscrews
- (38) #6 x ¾" Fh Woodscrews
- (6) #8 x ¾" Panhead Screws
- (3) 3" Utility Hinges
- (1) Face Vise
- (1) Vise Screw
- (3) 48" Fluorescent Light Fixtures
- (7) Under-cabinet Halogen Light Fixtures
- (18) Wire Pulls
- (2) 1" L-hooks
- (3) 16"D x 24"W x 17⅜"H Wall Cabinets
- (4) 12"D x 24"W x 17⅜"H Wall Cabinets
- (1) 16"D x 24"W x 31"H Wall Cabinet
- (1) 24"D x 24"W x 72"H Storage Cabinet

Finished Look. Modular cabinets can be configured for just about any look or layout.

Pre-Fab Shop Cabinets

Get the shop of your dreams without the hassle of building from scratch by using modular, manufactured cabinets.

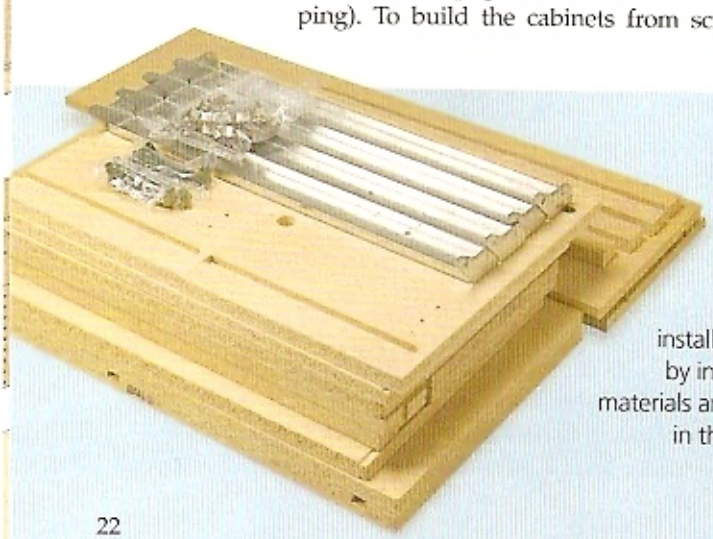
The one thing I never have enough of in my shop is time — there's always a list of projects waiting to be built. So when it came time to get things organized and build storage cabinets for the shop, I decided to save some time and order manufactured cabinets.

It's a tough choice for a woodworker to make, but when you look at the cost of building shop cabinets (including labor in the equation), you'll see there are good reasons to consider this option.

For example, the cabinets for the one-wall workshop on page 10 cost about $660 (plus shipping). To build the cabinets from scratch would have cost around $350, but would have added a couple weeks of shop time to the project. Having the parts cut and pre-drilled for hardware allowed me to put them together in no time.

DESIGNS. Another advantage is the design assistance available through many suppliers. All you do is identify the space you have available and your requirements for the cabinets, and a designer will put together a custom package for you.

The checklist on the opposite page is a starting point to help you figure out what questions to ask when shopping for a supplier.



What's in the Box?

Flat Pack. A successful installation begins by inspecting the materials and hardware in the packages.

Hardware. Kits include hinges, handles, and the screws required for assembly.

Hanging Base Cabinets. To avoid moisture damage and to make cleanup easier, it helps to mount the base cabinets just off the floor.

CUSTOMIZE YOUR SHOP. Saving time means you can spice up the cabinets with a few customized details you build yourself. In the one-wall workshop, I decided to add a flip-up workbench with a vise and pegboard panels between the cabinets. I also added the open "cubbies" above the lower cabinets to hold some of my frequently used tools and other items I wanted to have easily accessible. And in the photo above, you can see I used hanging wall cabinets to keep the storage up off the floor.

INSTALLATION

When your cabinets arrive, you'll be tempted to start assembling and hanging them right away. But there are a few things to do first.

INVENTORY. It's a good idea to take a quick inventory of the cabinet parts and hardware to make sure everything is included. If any of the pieces are missing or damaged, now is the time to notify the supplier and order a replacement.

READ THE INSTRUCTIONS. Once you're sure you have everything, the next step is to familiarize yourself with the assembly and installation. It's best to thoroughly understand the whole procedure before you begin.

You may also want to paint the pieces before you begin the installation. The box below has some handy painting tips.

THE RESULTS. Even counting the assembly and painting time, working with prefab cabinets is still much quicker than building cabinets from scratch. And that gives me the time to tackle a few other projects.

Cabinet Checklist ☑

REQUIREMENTS
- Do you have weight requirements?
- Do you need melamine surfaces?

DESIGN ASSISTANCE
- Does the manufacturer provide custom-built or modular units to fit your space?

CONSTRUCTION QUALITY
- What are they made of? Plywood, sheet metal, particleboard, or MDF?
- What hardware is used? Will you need to upgrade handles, latches, or hinges?

SHIPPING & DELIVERY
- Are the products delivered to your door, a local vendor, or a warehouse?
- What's the policy on replacing pieces that are damaged in shipping?

INSTALLATION
- What method is used to hang them?
- Does the company offer installation?

CUSTOM MODIFICATIONS
- How easily can you add your own features or upgrades to the cabinets?

Final Touch: Painting

The cabinets I used were made of particleboard. They're plenty strong, but can be a challenge to paint.

Fill the Edges. The first step in the finishing process is filling and smoothing the edges. For this, I used drywall joint compound.

You can start by applying the compound with a plastic putty knife, as shown in the left photo below.

Try to push the compound into the edges as much as possible and then even it out with the knife.

Primer Coat. The next step is to put on a coat of primer. You can use either a brush or roller for both priming and painting. I like to use gray primer because one coat covers the brown particleboard very well. It also makes it easier to see any spots you've missed.

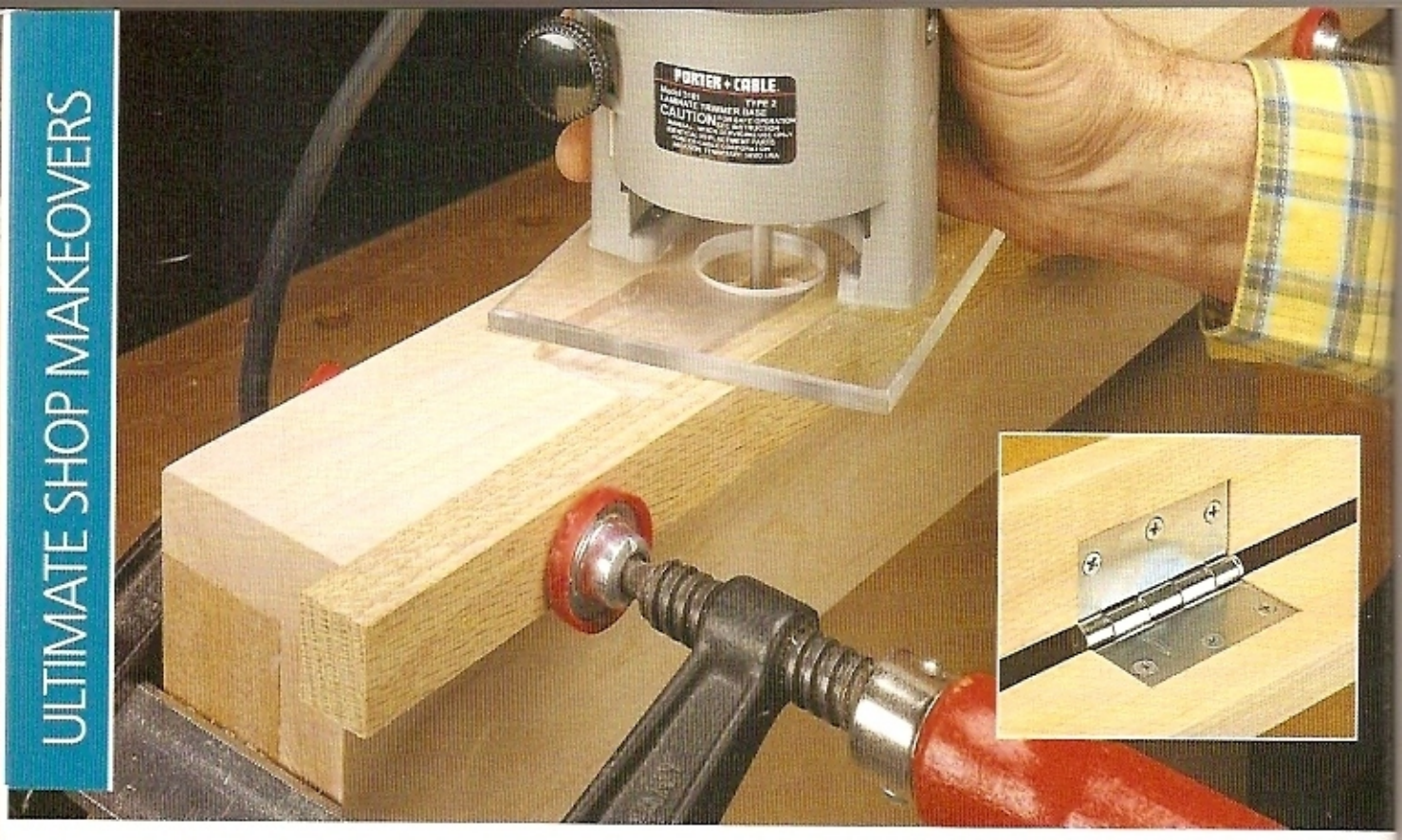
Apply the Final Color. When you select the paint for the finish coat, one thing to keep in mind is the type of paint you'll need. Remember that there will be a lot of sawdust flying around and you'll want to be able to clean the cabinets easily.

For that reason, I recommend a good-quality, interior paint. It's easy to wipe clean with a damp cloth and rugged enough to stand up in the shop.

Fill. To seal the edges, force drywall compound into the voids, then sand them smooth.

Prime. A coat of primer helps seal the porous surface before adding a final color coat.

Paint. Now you can finish with a coat (or two) of the color you've chosen for your cabinets.



Construction Details

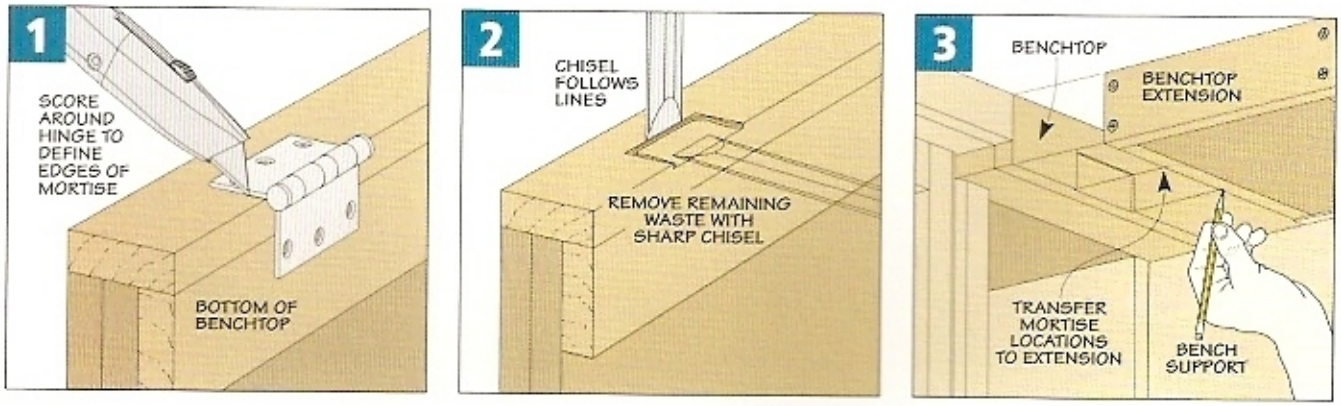
Routing Hinge Mortises

When making the hinge mortises for the bench extension on page 17, the benchtop and the extension should fit together tightly with the top faces flush. So, it's important to locate and install the hinges in each piece correctly (inset photo).

After locating and marking the mortises on the benchtop (Figure 1), you can start removing the waste. I used a trim router with a clear plastic base because of its small size and excellent visibility (main photo above). To provide stability for the router, it's a good idea to attach a support block while routing away the waste. The block also helps prevent chipout on the lower edge.

The next step is to clean up the edges with a chisel (Figure 2). The score marks you made to locate the mortises provide starting notches to guide the chisel.

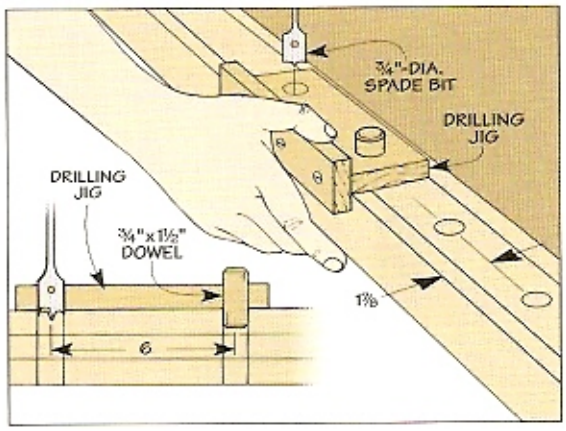
EXTENSION MORTISE. To locate the mortises on the extension, pull out the supports, set the extension on them, and butt it up to the benchtop. Then, transfer the location from the benchtop to the extension (Figure 3). Now, you can make the matching mortises using the same techniques as before.

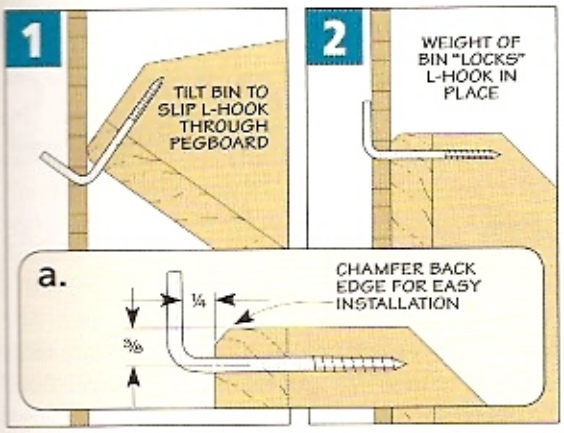


Accurate Dog Holes

The size and weight of the benchtop extension on page 18 make it too unwieldy to drill bench dog holes at the drill press. So, I used my hand drill instead. To keep the hole spacing consistent, as well as to guide the drill bit square to the benchtop, I made the simple indexing jig that you see in the drawing at right.

A cleat registers the jig along the edge of the extension. A ¾" dowel in one hole maintains the spacing while the next hole is drilled. Finally, rout a chamfer around each hole to soften the edges and prevent chipout when removing the bench dogs.





Bin Hangers

Making a few bins that hang on a pegboard rack is a handy storage option, as shown on page 20. And these bins are attached using versatile L-hooks.

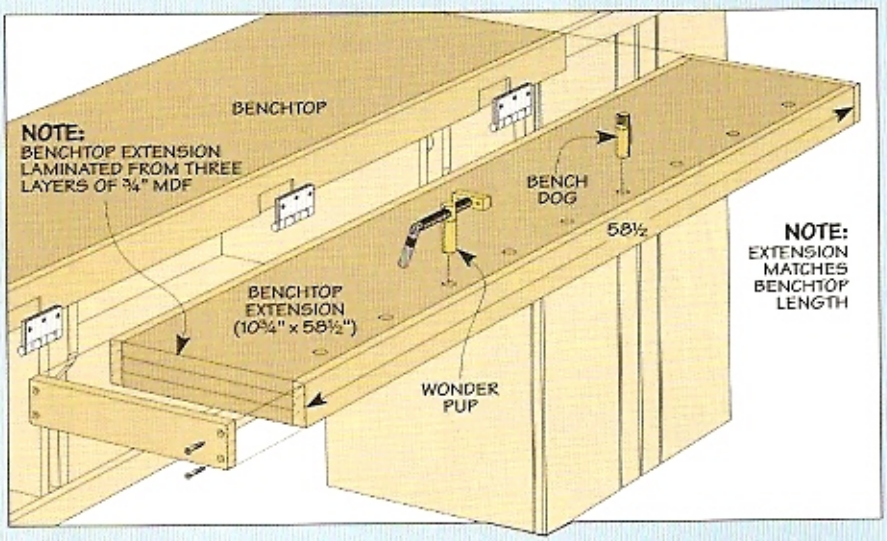
Detail 'a' shows how the L-hooks are installed in each bin. To hang the bin, tilt it so the L-hooks slip into the holes of the pegboard (Figure 1). Adding a chamfer helps with this. Then tip it down so the weight of the bin "locks" the L-hooks in place, as in Figure 2.

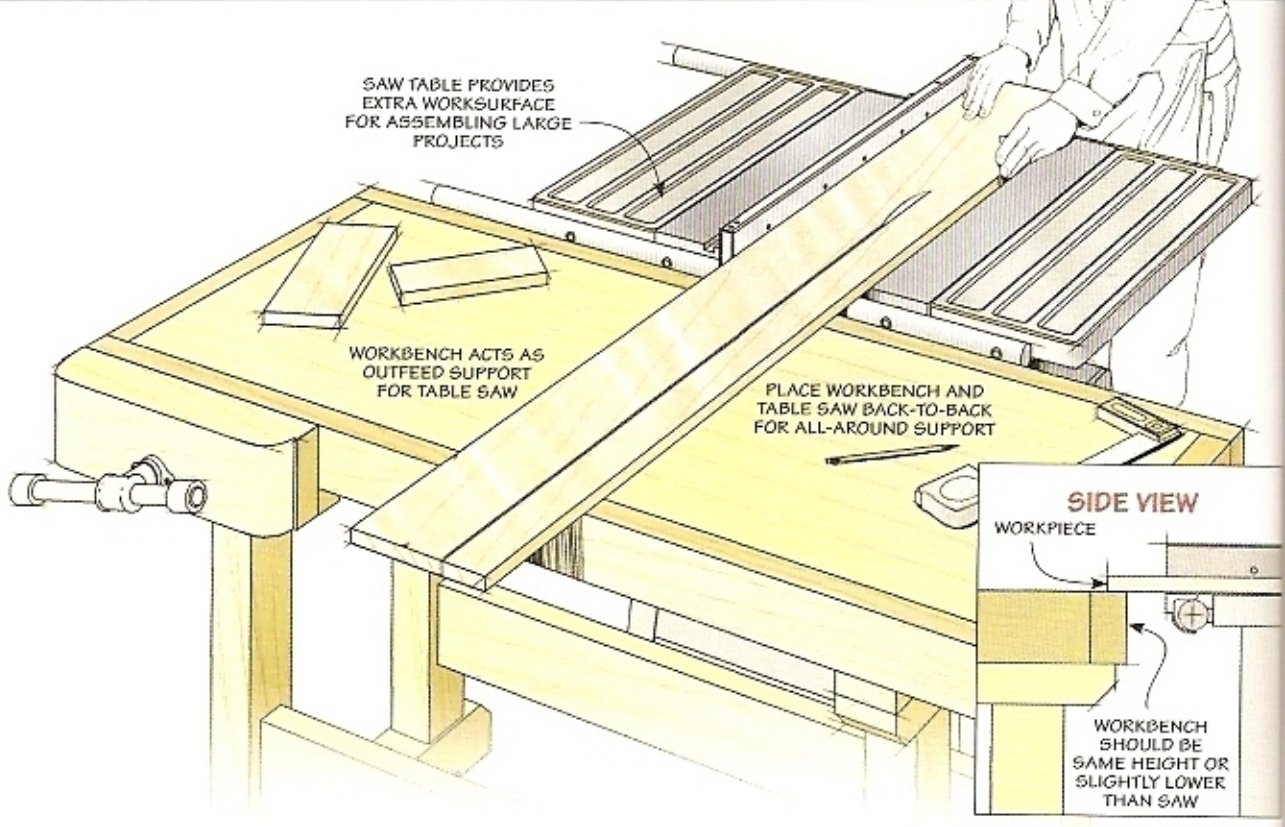
This makes it almost impossible for the bin to fall off of the pegboard, yet makes it easy to move it around as your storage needs change.

Bench Extension

Adding a tail vise to the benchtop extension, as shown on page 18, can be a lot of work. If you'd rather not install the vise, you can gain more work area by making the extension longer. This is just a matter of filling in the space originally used for the vise.

Even without a vise, it's still a good idea to drill some bench dog holes. You can drill the holes directly into the benchtop, using the indexing jig highlighted above. This allows you to use bench dogs and some other workbench accessories, like the *Veritas Wonder Pup*. The *Pup* is a clamping bench dog that acts like a small vise. (Refer to Sources on page 98).



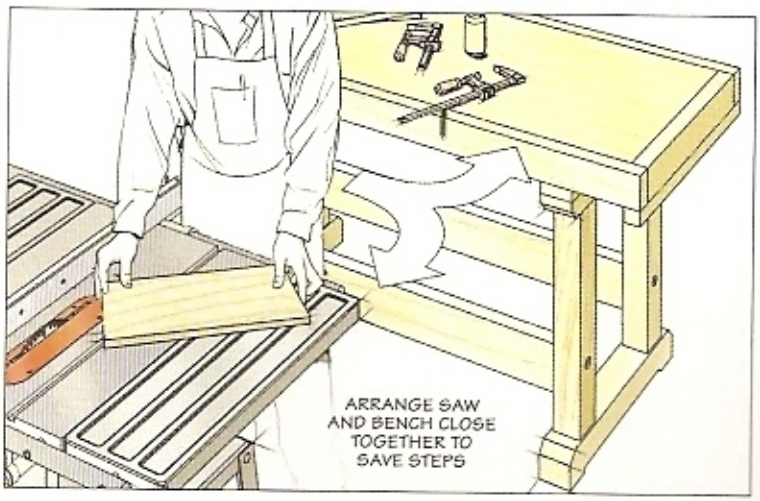


Shop Makeover Secrets

Gain some extra space in your shop by grouping your power tools and workbench in these efficient combinations.

A small shop can seem more like a maze than an enjoyable place to spend an afternoon. So, finding space for a power tool could be a real challenge. It may be easiest to simply place the tool anywhere it fits and get to work using it.

But after rearranging my shop a number of times over the years, I've finally come up with a few "combos" that make my shop more productive and easier to work in. The idea is to arrange tools in small, efficient groups. Take a look at these three solutions to get more out of your shop space.

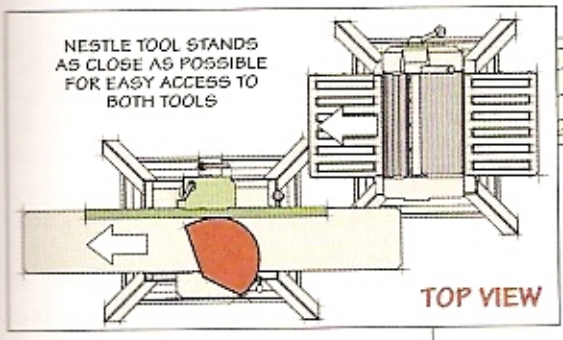


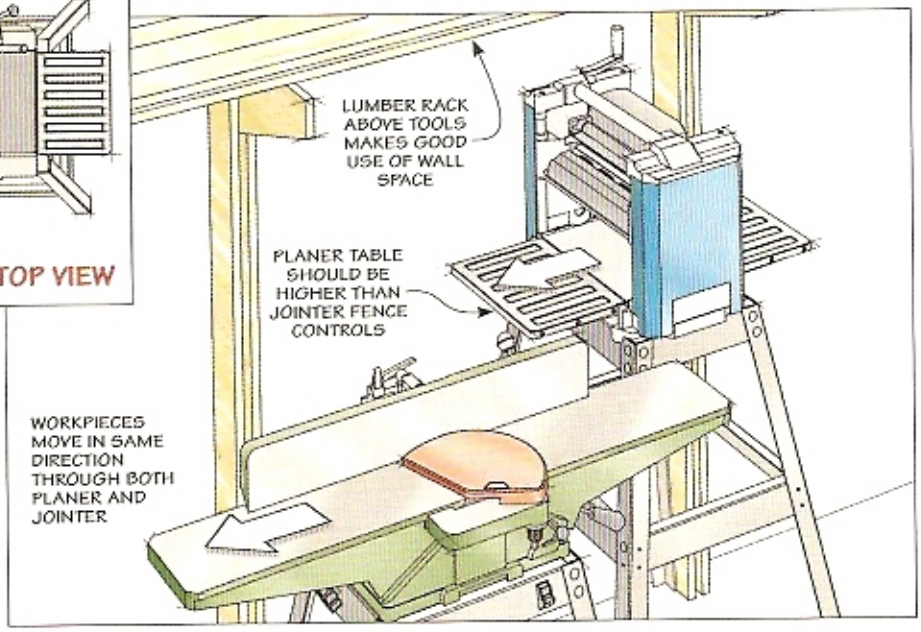
1 Central Workstation

When I started woodworking, the table saw and workbench were my first large "tools." So I placed them back-to-back in the center of the workshop, like you see in the drawing above.

BENEFITS. There are a few advantages to this setup. The first is that the bench can act as an outfeed support for cutting sheet goods. Just make sure your bench is the same height or a tad lower than your saw (inset drawing). Another plus is that the combined size of the saw table and the workbench makes an extra-large glue-up and assembly station.

ANOTHER OPTION. In the left drawing, you see another version of this pairing that might suit your needs better. Instead of placing the workbench behind the saw, they're positioned so you can work between them. It's like working in a galley kitchen. Plus, you can use the bench as an infeed table to support long boards and large sheets of plywood.





2 Prep Tool Duo

Another set of tools that works well as a pair is the planer and jointer. These aren't "everyday" machines. But, as you prepare your stock at the beginning of a project, they see some heavy use. And since boards run through each machine in the same direction, it makes sense that they should be near each other, too. If you position them along a wall under a lumber rack (drawing above), the setup won't take up much space.

Now you might think this arrangement looks awkward. But unless your jointer is very wide, you still have good access to both tools.

3 Shaping & Drilling Trio

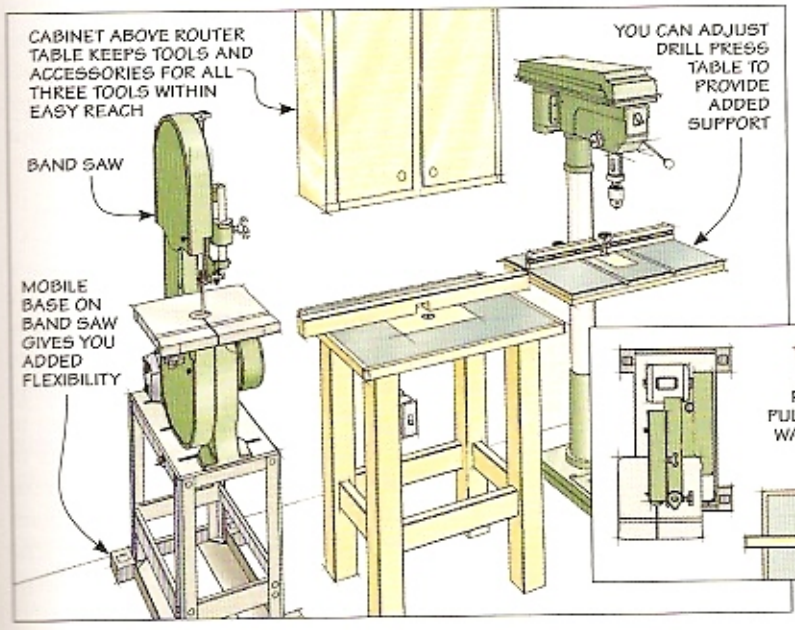
The trio of power tools you see in the drawing below may seem to be an odd mix. But there are a couple reasons I like them to be positioned close together.

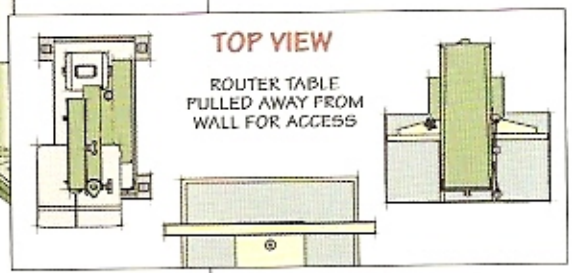
WORKING TOGETHER. First, each of these tools works well placed against a wall. And since the router table is usually lower than the band saw table and the drill press table, I position it between the other two. The advantage here is that the router table serves as a handy worksurface for holding parts or accessories while I'm working at either the drill press or band saw. You can also lower the height of the drill press table when working with large pieces and use it as an infeed support for the router table.

Depending on the size and shape of your tools, you may need to tweak this setup. For example, I repositioned my router table away from the wall slightly to gain some clearance space.

MOBILE BASES. There may be times when this three-in-a-row arrangement doesn't work. So I added a mobile base to my band saw. You can see how to do this on page 96. This way, I can create more room to work at the drill press or router table — or for working with long stock at the band saw.

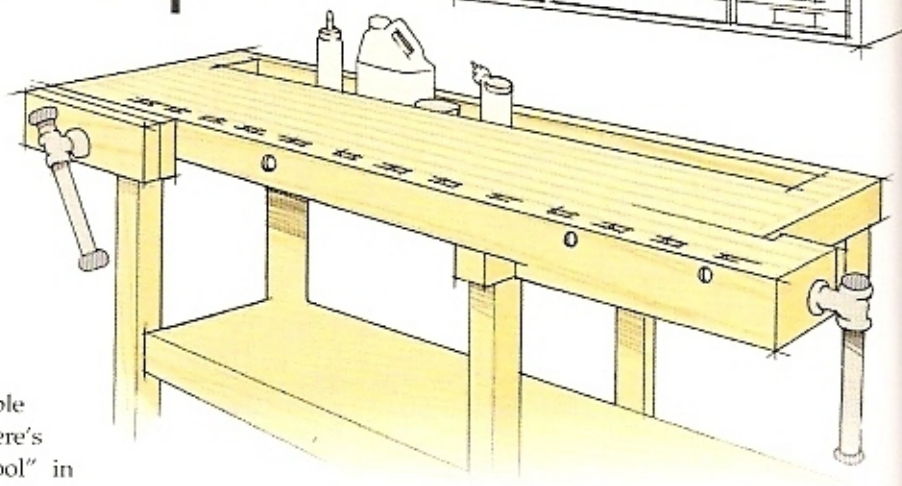
When setting up shop, think about how your tools can work together with more efficiency. In the end, you can save space, time, and trips across the shop.





Workbench Location Tips

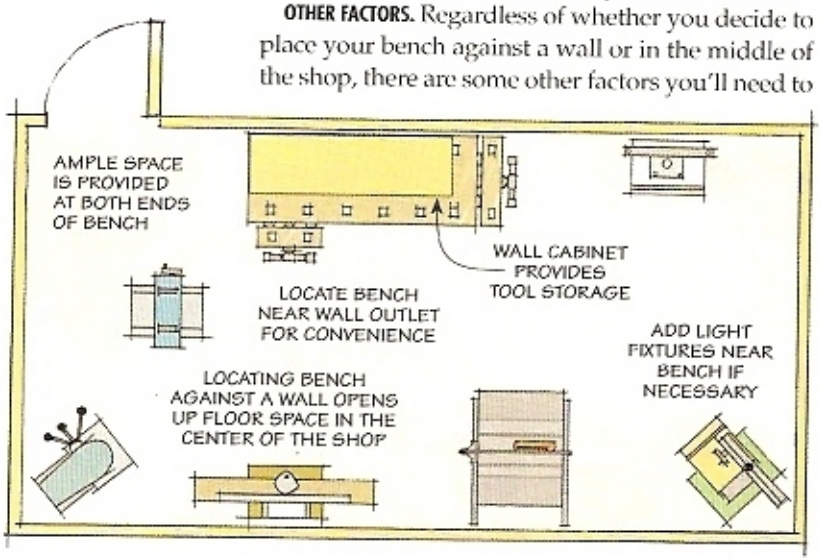
The first step to getting more out of your shop is choosing the best location for your workbench.



Aside from the table saw, I don't think there's a more important "tool" in my shop than my workbench. Sometimes I use it during each step of construction on a project and other times only for layout or assembly. But it's pretty safe to say that every project that comes out of my shop passes across my workbench at some point. And that's why deciding where to put your workbench is something that deserves a little extra thought — particularly if you have a small shop.

TWO CHOICES. When you get right down to it, there are really only two choices when it comes to locating a workbench. You can either position your workbench against the wall or out in the middle of the shop. Which of these two locations you choose has to do with the way you use your workbench.

OTHER FACTORS. Regardless of whether you decide to place your bench against a wall or in the middle of the shop, there are some other factors you'll need to consider as well. To get the most out of your workbench, you have to think about things like lighting, electrical outlets, and tool storage.



1 Against the Wall

For many woodworkers, a workbench serves as a "staging area" for setting out parts while using the table saw or other pieces of shop equipment. If this is the way you use your workbench, accessibility may not be as important as having the bench close to your major power tools. So, you may be able to locate the bench against a wall. Take a look at the sample floor plan at left to get an idea of some of the benefits of locating your workbench against a wall.

2 Front and Center

Some woodworkers see their workbenches as more than extra storage space. It's a tool in itself. It can be used to hold a workpiece while sawing, planing, or working on joinery. If you use hand tools regularly or do a lot of hand-cut joinery, you may want to give your workbench a place right in the center of the shop. This way, you can have easy access to the bench from all four sides, which is a great advantage when it comes to assembling a project. The sample floor plan on the opposite page shows some of the advantages of this type of layout.

3 Adequate Lighting

Lighting is one of the biggest considerations when it comes to positioning your bench. It's hard to beat natural light, which is why I like to locate my bench near a window if possible. If the window is behind the bench or to one side, you don't have to worry about creating shadows across your work as you stand at the bench.

Of course, if your shop is in a basement, or if you do most of your woodworking in the evening, you'll need artificial lighting. As with natural lighting, you want to make sure the lights are located so that you don't create shadows across your work. This may mean that you'll have to add some additional overhead light fixtures or task lamps.

4 Electrical Outlets

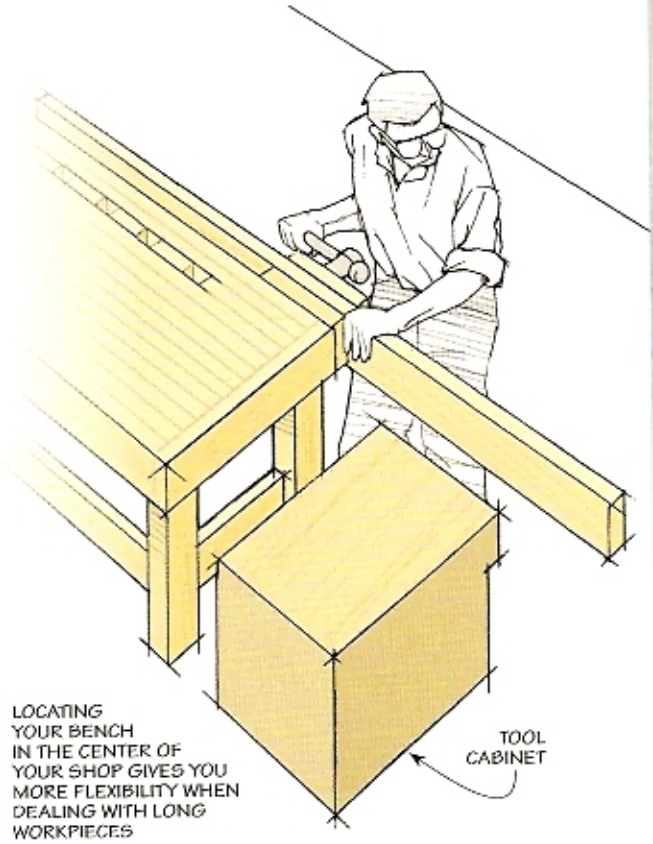
I do a lot of sanding and routing at my bench, so having electrical outlets handy is important. If you're placing your bench along a wall, you can make life a lot easier by selecting a spot near an outlet. This way, you won't have to walk across the shop every time you want to plug in a tool.

If you locate your workbench in the middle of the shop, finding a spot near an outlet is more of a problem. Unless you want to do some rewiring, you'll probably have to rely on extension cords. But they can be suspended overhead to keep them out of the way.

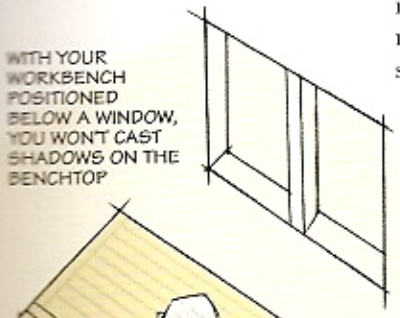
5 Tool Storage

Unless your workbench has built-in storage in the base, another major factor to consider when selecting a bench location is where you'll keep your tools. A common arrangement in many shops is to position the workbench against a wall and then mount a tool cabinet on the wall right above the bench. This is convenient because all your tools are within easy reach. But the downside is that the tool cabinet can get in the way. And if you have a deep workbench (over 24"), it can be a stretch to reach a hanging tool cabinet.

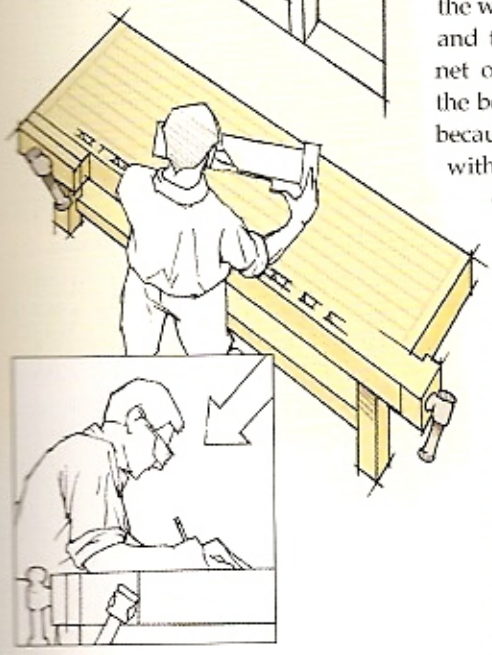
With a workbench located in the center of the shop, your tool storage options are even more limited. You can still store tools in a wall cabinet. Otherwise, you can build a short tool cabinet to place next to your bench.



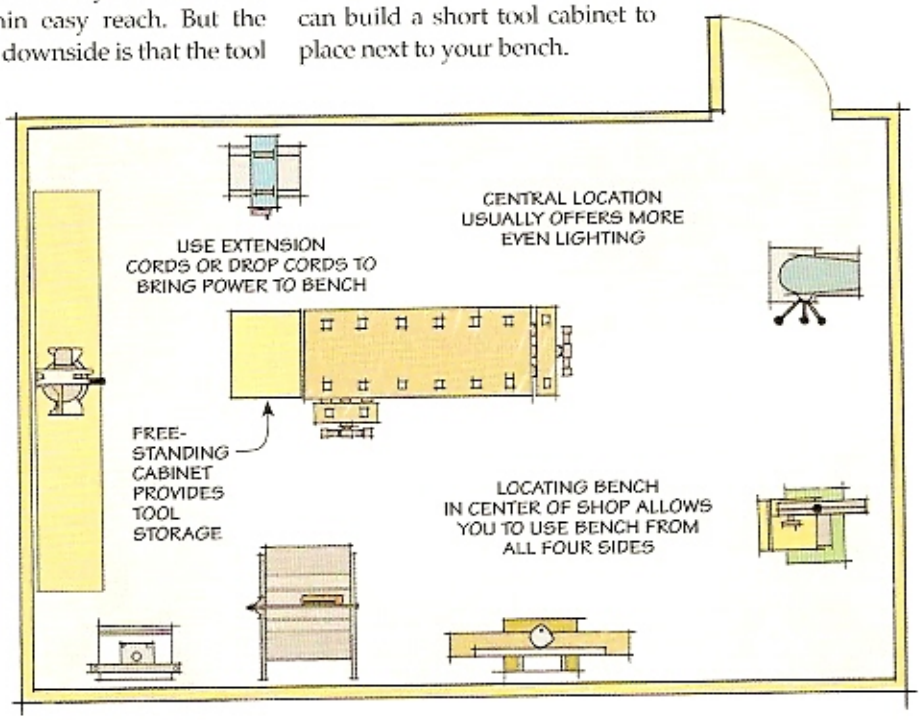
LOCATING YOUR BENCH IN THE CENTER OF YOUR SHOP GIVES YOU MORE FLEXIBILITY WHEN DEALING WITH LONG WORKPIECES



WITH YOUR WORKBENCH POSITIONED BELOW A WINDOW, YOU WON'T CAST SHADOWS ON THE BENCHTOP



Natural Lighting. It's hard to beat natural lighting in a shop — if you're lucky enough to have a window. But most of us have to rely on overhead light fixtures. Make sure that you locate the fixtures so you don't block the light when standing at your bench.

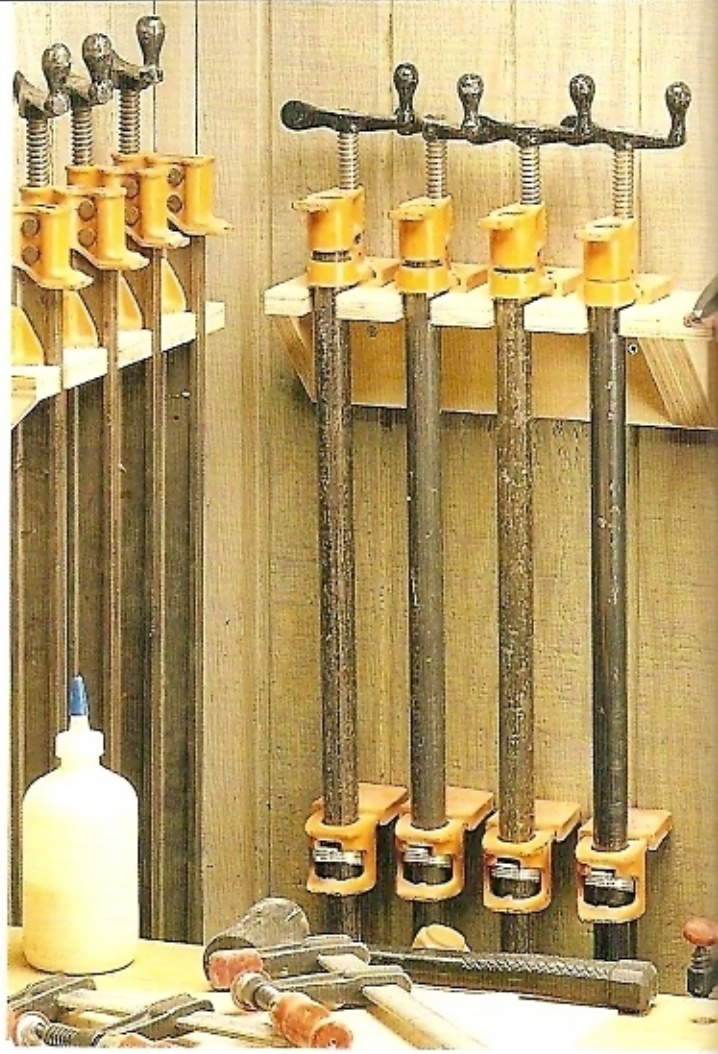



GOO GONE
Saw-Rite

Space-Saving Shop Storage

Organization is the key to an efficient workshop. Here are a few compact, shop-built storage projects that make it a quick, easy task to find all your tools and supplies.

Modular Clamp Storage



All you need to get your clamps organized is some scrap plywood and an empty bit of wall space.

There's an old saying that a woodworker can never have too many clamps. I know that over the years I've acquired quite a few. In fact, finding space to put my ever-growing collection was becoming an issue.

What I needed was a better way to store and organize my clamps. And the new "system" had to be easy to build and quick to add on to. That way, as I got more clamps, I'd be able to make additional racks for them.

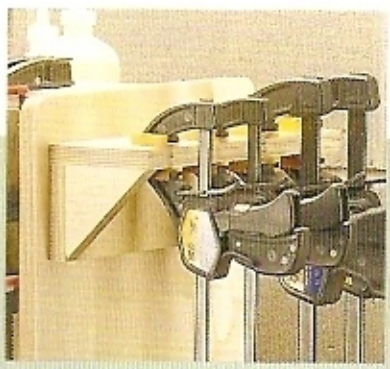
SIMPLE DESIGN. What I came up with is a rack that can be made from four small pieces of plywood — and it fits just about anywhere. A series of these racks can be customized to hold all types of bar and pipe clamps. And as you can see in the photos below, I even made a couple of extra racks to hold gluing supplies and C-clamps.

One thing all the racks have in common is that they're designed to screw to the wall. So you can fit clamp storage in any open bit of wall space.

ROLL-AROUND CART. If you're short on wall space, don't worry. The racks can also be attached to a handy roll-around cart, like the one shown on page 35. Even if you have plenty of wall space, you may want to consider building the cart. It holds all your clamps in one place and makes it easy to roll them right next to your project.

Storage Box. This box keeps glue and accessories organized. Mounting it near your clamps makes it handy.

C-Clamp Rack. This simple, easy-to-build rack can be customized to fit different sizes of clamps.



Grip Clamp Rack. These clamps can be cinched down on a rack, ready to grab and be put to work.

THE RACKS

The heart of this clamp storage system is an L-shaped rack braced at each end by a triangular support. Each rack is the same size, but the slots are customized for different types of clamps.

All of the pieces are made from ¾" plywood (although hardwood would work as well). I used scrap pieces that were too small for projects but too big to throw out.

To keep things simple, I made each rack 12½" long. That way they fit in small spaces as well as on the optional roll-around cart. But they can be made any length that accommodates your clamps.

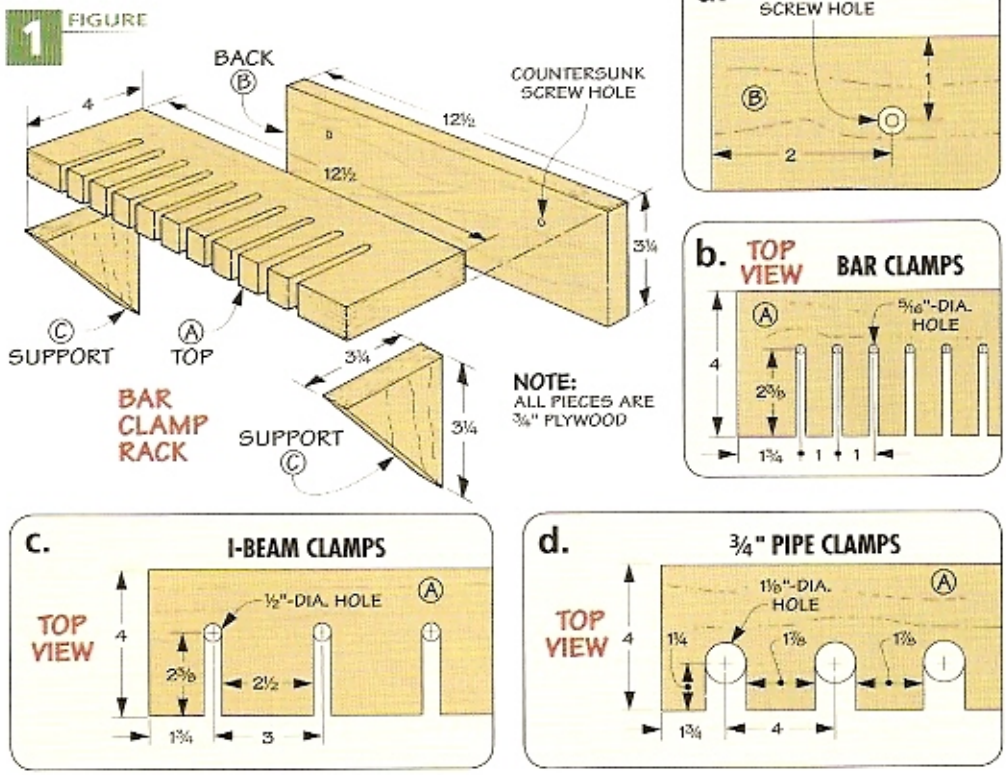
CUT PIECES. The first step is to cut a top, back, and two supports to size for each rack, like you see in Figure 1. Before assembling the racks, I took the time to drill a couple of countersunk holes in each back piece (Figure 1a). These are used to screw the completed rack in place.

SLOT LAYOUT. Next, lay out the slots for the clamps in each top piece. The detail drawings in Figure 1 show racks for the most common types of clamps. Note: Racks for pistol-grip clamps don't need slots.

CUT SLOTS. After the slots are laid out, you can start cutting them. I found the best way to do this is to drill a hole at the top of each slot first (Figure 2). Then the waste can be removed using the table saw. As Figure 3 shows, I attached an auxiliary fence to my miter gauge to support the workpiece and prevent the waste from kicking back.

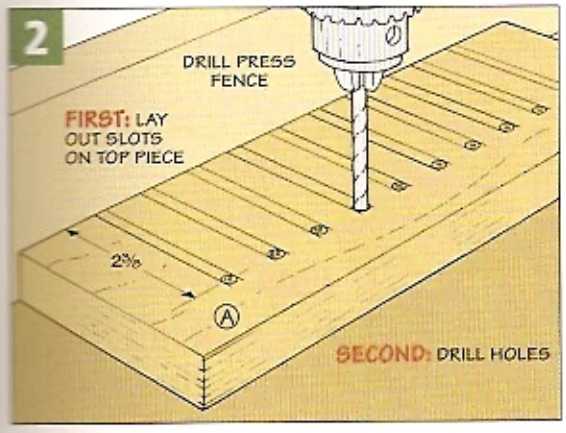
ASSEMBLY. Once the slots are cut, the rack can be glued up. The top is clamped to the top edge of the back. Then the supports are added.

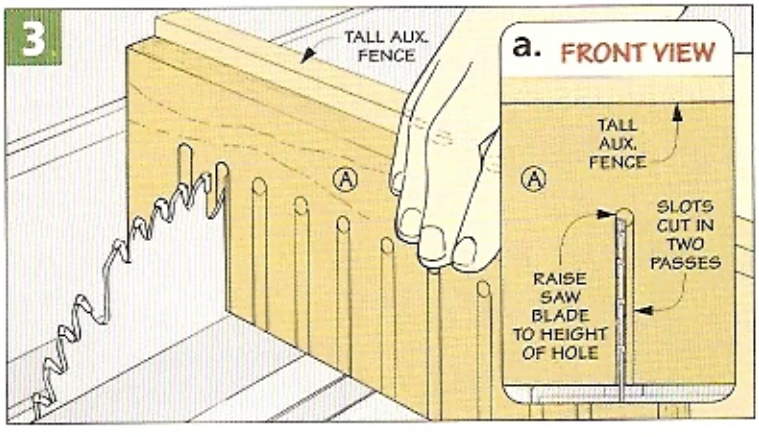
With my long clamps taken care of, I turned my attention to my C-clamps and accessories.



Materials & Hardware

A	Top (1)	12½ x 4 - ¾ Ply.
B	Back (1)	12½ x 3¼ - ¾ Ply.
C	Supports (2)	3¼ x 3¼ - ¾ Ply.
D	C-Clamp Back (1)	12½ x 3¼ - ¾ Ply.
E	Dowels (2)	5½ x ¾ dia.
F	Box Front (1)	12½ x 4 - ¾ Ply.
G	Box Back (1)	12½ x 4½ - ¾ Ply.
H	Box Sides (2)	4½ x 4 - ¾ Ply.
I	Box Bottom (1)	11 x 4½ - ¾ Ply.
J	Sides (2)	48 x 14 - ¾ Ply.
K	Bottom (1)	25½ x 14 - ¾ Ply.
L	Divider (1)	47½ x 25½ - ¾ Ply.
M	Base (1)	28 x 22 - ¾ Ply.





C-Clamp Rack. C-clamps hang neatly on this rack made of plywood and two dowels.

Storage Box. This simple box will hold gluing accessories and keep them close at hand during assembly.

C-CLAMP RACK

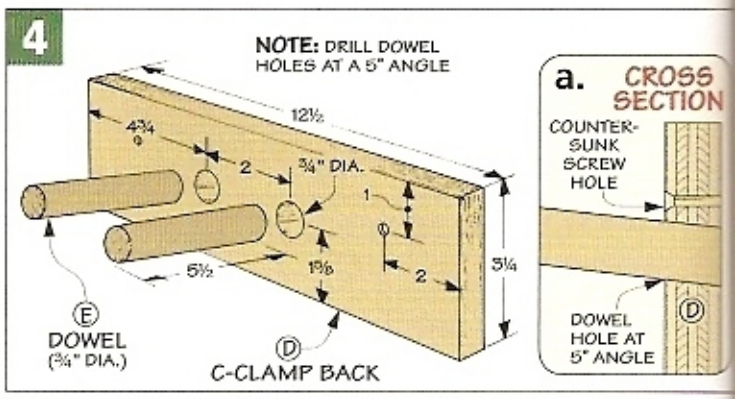
To keep 4" C-clamps in order, I made this small rack. It's nothing more than a pair of short ¾" dowels attached to a plywood back.

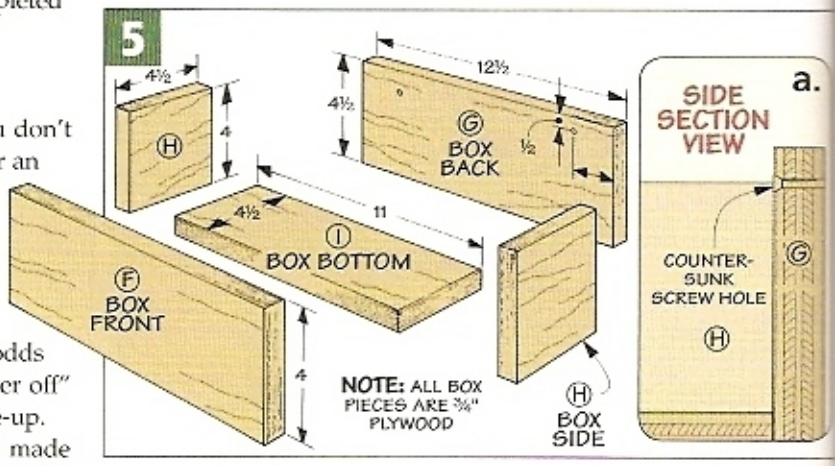
If you take a look at Figure 4a, you can see that the holes for the dowels are drilled at a slight angle. This keeps the clamps from sliding off the front. For larger or smaller C-clamps, just change the spacing between the dowels. The completed rack is then screwed in place.

STORAGE BOX

Once you start a glue-up, you don't really want to stop to hunt for an accessory you forgot. That's why I like this simple storage box. It gives me one convenient place to keep glue bottles, clamp pads, band clamps, brushes, and other odds and ends that seem to "wander off" just as I'm ready to start a glue-up.

Like the racks, the box is made from ¾" plywood. And keeping with the modular design of the storage system, the box is the same length as the racks. If you look at Figure 5, you can see one thing that's a little unusual about the box — the back is ½" taller than the front. This allows the mounting screws to be up higher so they can be reached easily with a screwdriver, as shown in Figure 5a. (It's a good idea to drill the holes for these screws before the box is glued up.)





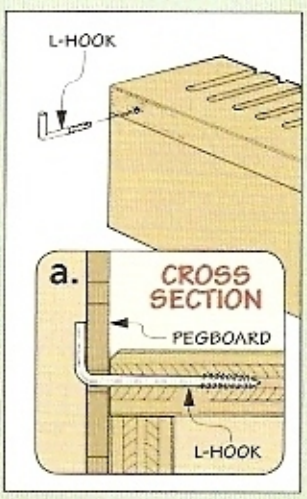
Alternative Mounting Options

The weight of the clamps that will hang on your racks plays a big part in where and how you mount them.

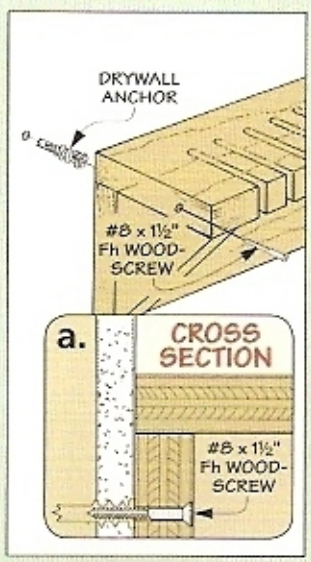
Pegboard will be suitable for a short rack with small clamps. But it may not be strong enough to hold a rack filled with long pipe clamps.

If you're fastening the racks to drywall, try to find one stud to screw into. The other end of the rack can be attached with a drywall anchor.

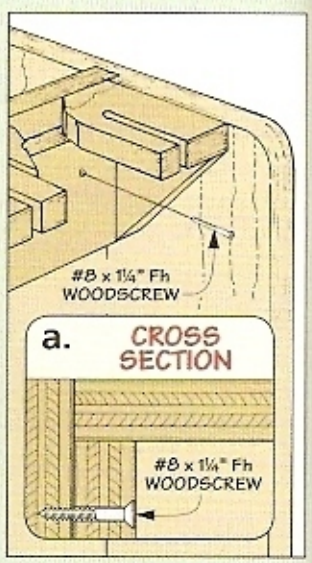
Solid wood or plywood (like on the cart on page 35) will provide the strongest mounting surface for heavy racks.



Pegboard. Hang a rack on pegboard by driving L-hooks into the edge of the top.



Drywall. Hollow wall hangers will hold a rack, but drive at least one screw into a stud.



Cart. To fasten racks to the cart, drill pilot and shank holes and use woodscrews.

OPTIONAL CLAMP CART

While the clamp racks are designed to be small enough to fit in just about any available wall space, you might also want to consider building this roll-around cart to hold them. It provides plenty of room to fasten clamp racks and storage boxes.

One of the best things about this cart is that it's mounted on locking swivel casters. So it's easy to roll it to wherever your project may be without worrying about cords or cracks in the floor. Using four swivel casters makes it easy to spin the cart and access the clamps and accessories on all four faces.

The cart can be made from a single sheet of plywood (and you'll have enough left over to make a few clamp racks and storage boxes, too). The pieces fit together easily with a series of dadoes and rabbets.

And it's sized to fit two clamp racks between the sides. As you see in the photos below, additional racks and boxes can be fastened to the outside faces.

CONSTRUCTION. There are only five pieces in the cart. So the place to start is by cutting the sides, bottom, divider, and base to size, as shown in Figure 6.

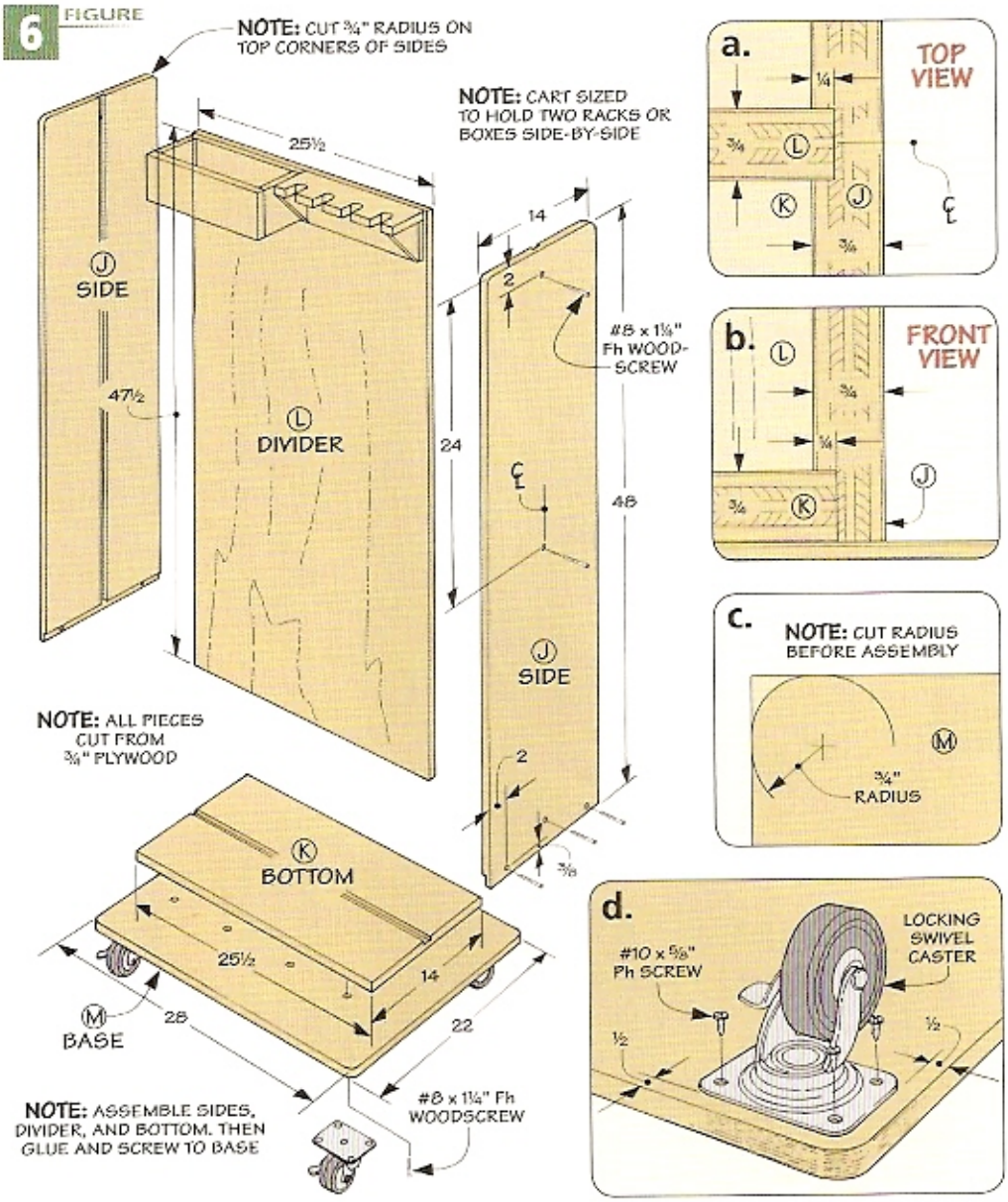
Next, cut dadoes in the sides and the bottom to fit the divider, like you see in Figure 6a. Then as Figure 6b shows, the side pieces receive a rabbet to accept the bottom.

Before assembling the cart, I rounded the corners of the base to make it "ankle friendly," as you can see in Figure 6c. And the top corners of the sides receive the same treatment.

ASSEMBLY. To assemble the cart, first glue the divider to the bottom panel and then add the sides. A few screws along the dadoes and rabbets help reinforce the joints for a rock-solid assembly.

There are just a few small things left. One is to screw a locking swivel caster to each corner of the base, as shown in Figure 6d. Then the cart assembly needs to be centered on the base and glued and screwed down. Finally, you can attach the racks and storage boxes, and fill them with your clamps and gluing accessories.

FIGURE 6



Take it for a Spin. The four casters on this cart make it mobile, so you can wheel it over to an assembly and have your clamps (and accessories) right at hand. Plus, the cart spins for quick access to the clamps all four sides.

Pegboard Storage

Open the doors of this compact rack and you'll find plenty of hidden room to hang tools and accessories.

At first glance, it's hard to imagine that you can organize a wall full of tools in this compact storage rack. But a closer look reveals the "hidden" storage space inside. The rack has two doors that have pegboard on both the front *and* the back. And to provide easy access to the tools on each side, the doors swing out in opposite directions, as you can see in the photo at the bottom of the page.

FRAME. The doors are supported by a sturdy frame made from "two-by" material (I used Douglas fir) and a ¾" plywood top and bottom, as shown in Figure 1. It's held together with simple (yet strong) lap joints that are made by cutting a series of interlocking notches in the frame pieces.

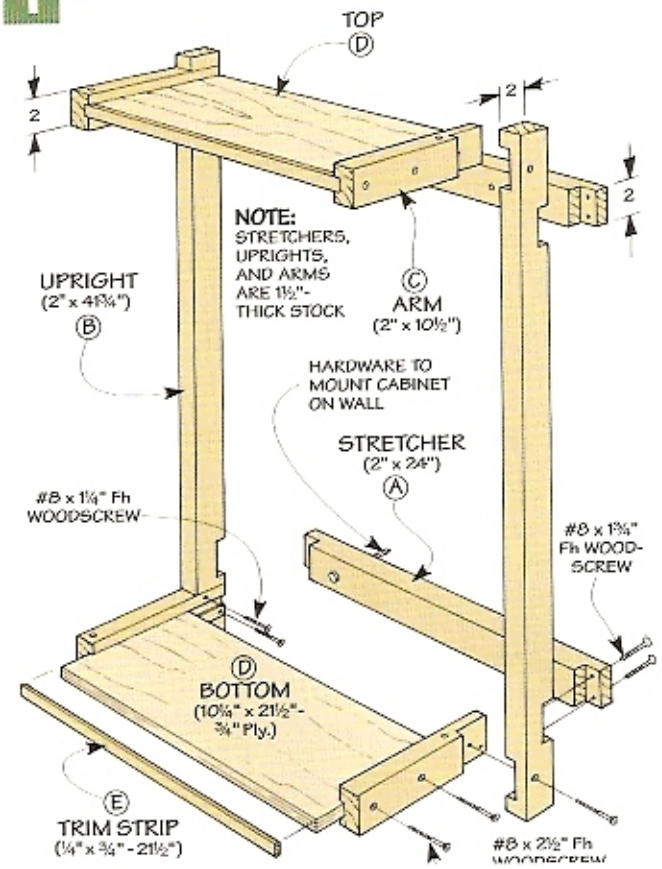
A pair of stretchers used to attach the rack to the wall are rabbeted on each end (Figure 2). These rabbets fit in dadoes cut in the back of the two uprights. Another pair of dadoes on the inside face accept short arms that are rabbeted on one end.

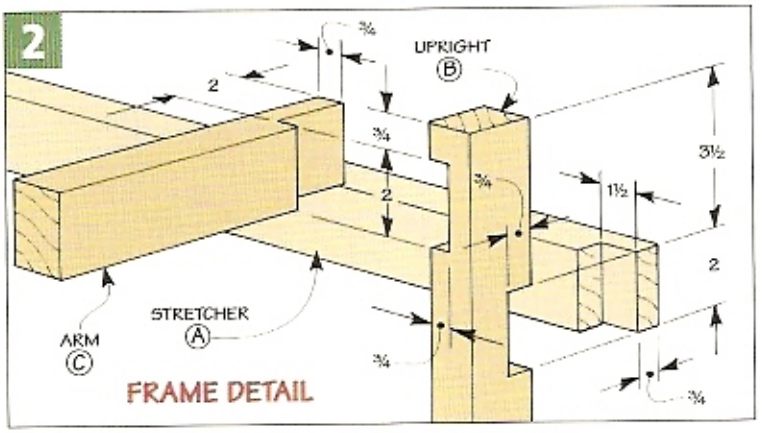
Before assembling the frame, it's easiest to drill a hole in each arm for a pin that will allow the doors to pivot (Figure 3). And a shallow groove is cut for the top and bottom pieces that are added later.

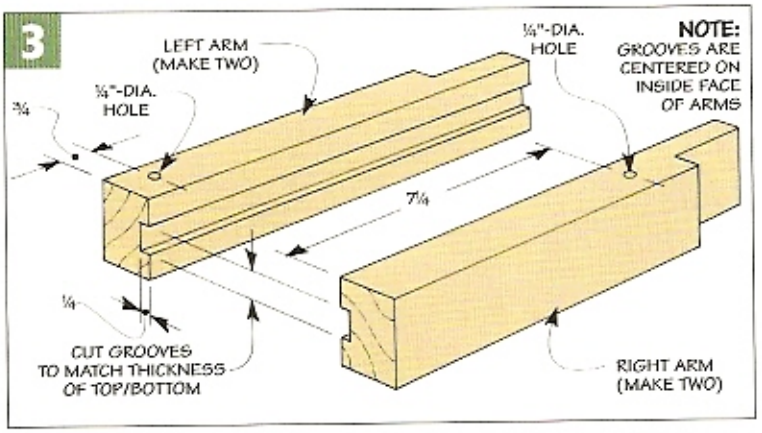
ASSEMBLY. Now you can assemble the frame, as shown in Figure 1. The stretchers, uprights, and arms are held together with glue and screws. To add rigidity to the frame, the plywood top and bottom are cut to fit between the grooves in the arms. But before gluing and screwing them in place, I added hardwood trim strips to cover the front edges.

Hidden Storage. Two doors open in opposite directions, so you can hang tools on both sides of each one. Plus, you have access to the wall behind the rack.

1 FIGURE







DOORS

Once the frame is complete, you're ready to add the two doors. They're just simple wood frames with pegboard on each side, like you see in Figure 4.

The overall height of both doors is the same. But the back door needs to be 1" narrower, so it can swing past the front door when you open it (Figure 4d).

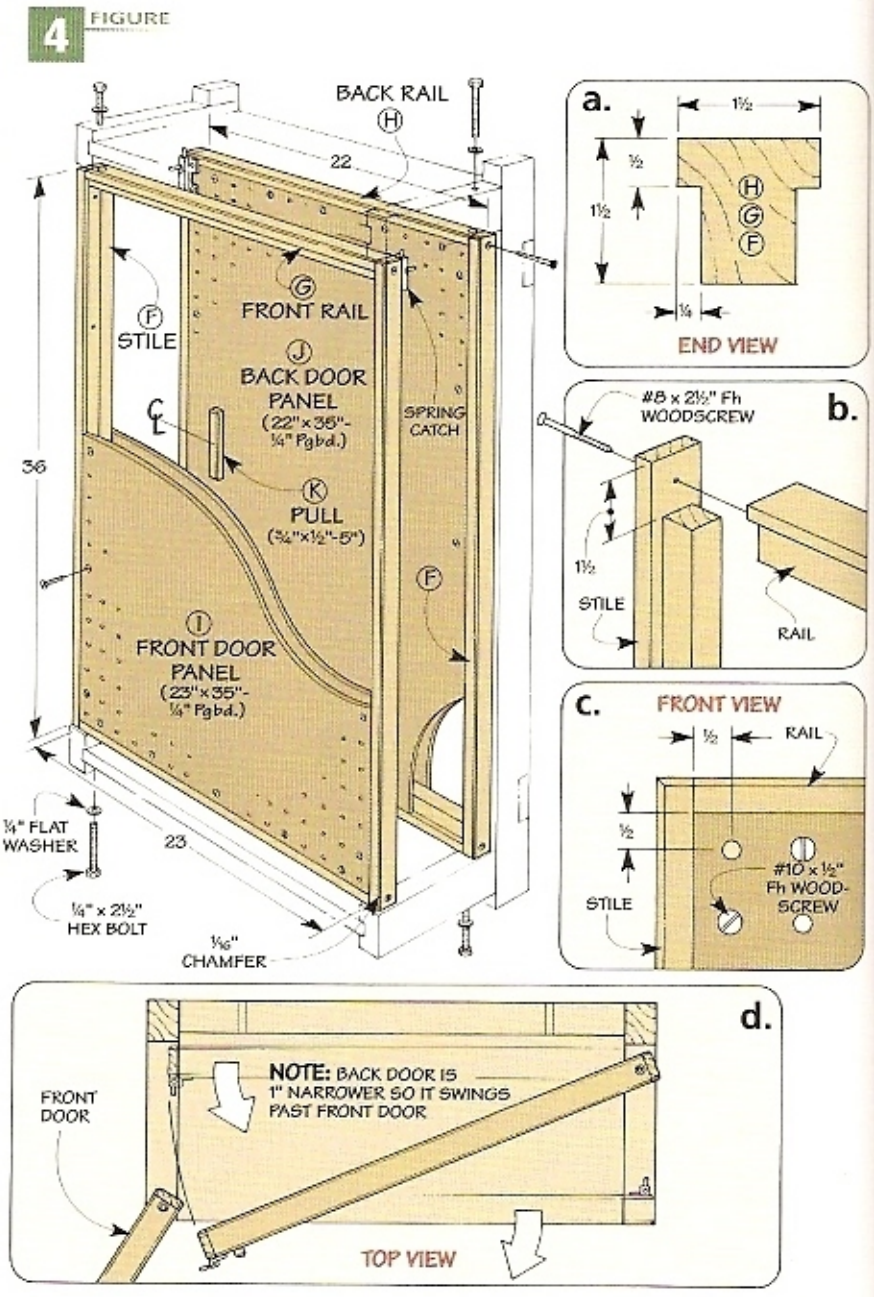
Determining the length of the frame pieces is easy. The stiles on each door are identical in length. (To provide an ⅛" clearance at the top and bottom, I cut them 36" long.) But the front rails are 1" longer than the back rails. (This takes into account the overall width of the doors and the joinery that holds them together.)

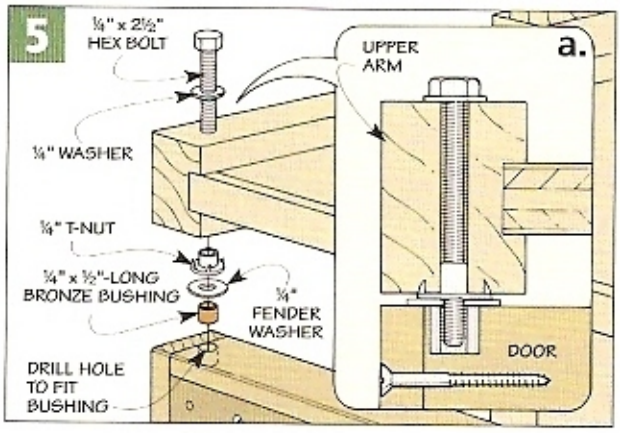
With the frame pieces cut to length, matching rabbets are cut on both sides to hold the pegboard panels, as shown in Figure 4a. And a notch in the ends of the stiles accepts the rails (Figure 4b).

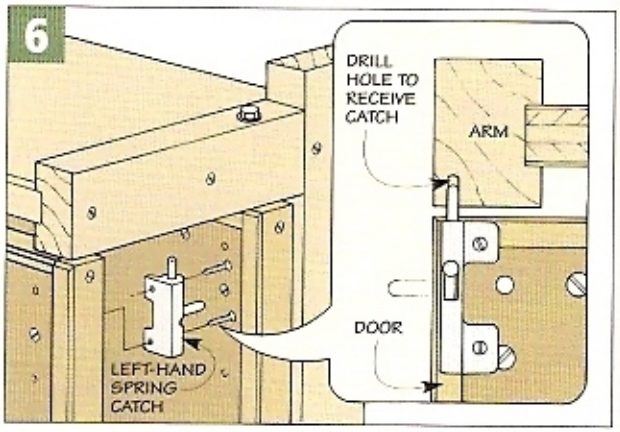
PANELS. After screwing the frame pieces together, it's just a matter of cutting front and back door panels to fit and screwing them in place (Figure 4c). And a scrap pull is glued to the front of the back door.

ATTACH DOORS. All that's left is to attach the doors. They pivot on two hex bolts that fit bronze bushings installed in the top and bottom edges of each one, as you see in Figures 5 and 5a. These bolts pass through holes in the arms (drilled earlier) and thread into T-nuts in the opposite edge of the arms.

Finally, to lock the doors in place, drill a hole in each upper arm for a spring-loaded catch, as shown in Figure 6. Note: One catch mounts to the back of the front door, and the other is on the front of the back door (Figure 4).







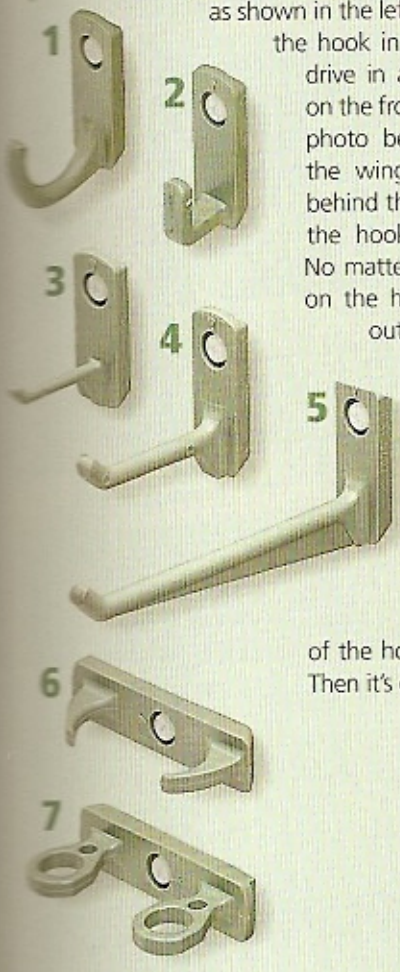
Talon Pegboard Hooks

When it comes to minor irritations, metal pegboard hooks rank right up there with mosquitoes, telemarketers, and getting a pebble stuck in your shoe. The problem with most hooks is that when you take a tool off the pegboard, the hook usually comes along with it and then drops to the floor. After this happens a few dozen times, you'll find yourself cringing every time you reach for a tool.

But a while back, I discovered a pegboard hook that actually stays put. They're called *Talon* hooks and they just may be the greatest thing to hit your shop since the invention of sandpaper. In fact, you may want to replace every pegboard hook in your shop with a *Talon* hook. They're really that good. Here's why.

Lock-On Design. *Talon* hooks work on a simple, yet ingenious, principle. On the back of each hook is a split peg that fits through a hole in the pegboard, as shown in the left photo below. With the hook in place, all you do is drive in a nylon screw that's on the front of the hook (right photo below). This expands the wings of the split peg behind the pegboard, locking the hook to the pegboard. No matter how hard you tug on the hook, it won't come out. (The pegboard will break first.)

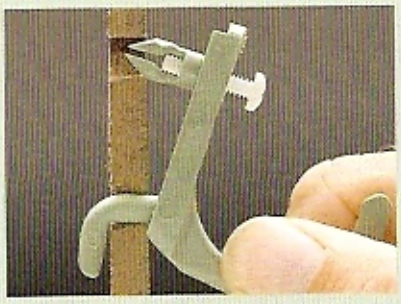
To remove a hook, just back out the screw. The expanding wings will spring back and you can pry the hook out of the holes in the pegboard. Then it's easy to reposition the hook and reattach it with the same screw.



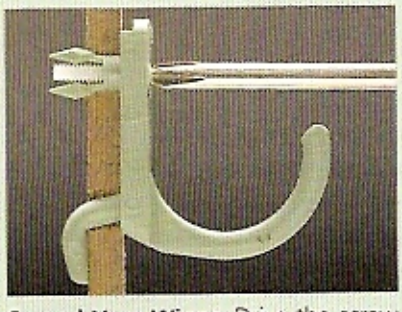
Hook Styles. Available in seven different styles, *Talon* hooks are designed to fit ¼" pegboard.

Strength. If you're used to metal hooks, you might be kind of skeptical the first time you pick up a *Talon* hook. (I know I was.) At first glance, they look like they're made out of cheap plastic. But they're actually made from a tough, unbreakable nylon material. I've found that they can easily handle just as much weight as my old metal hooks could.

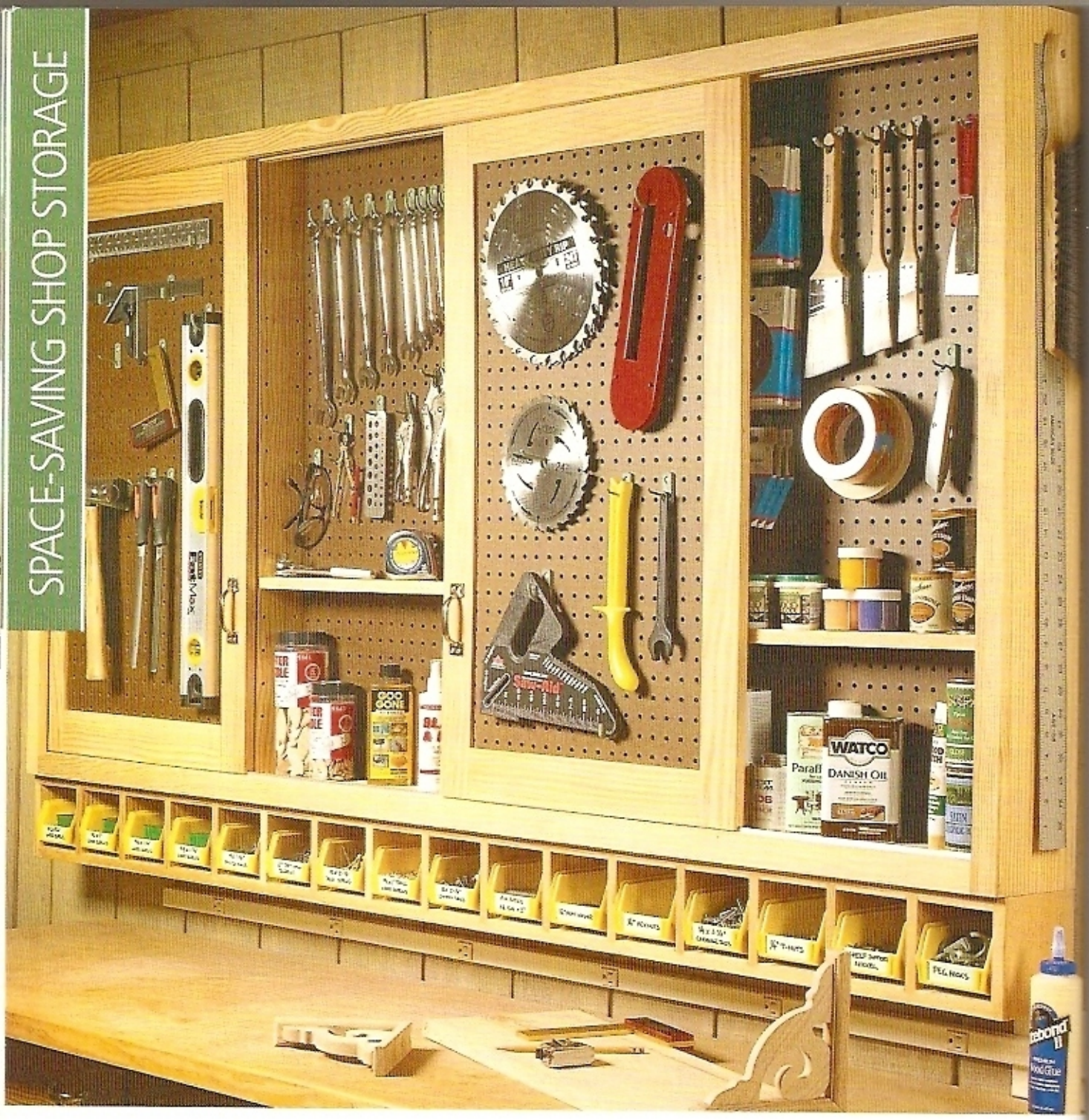
Styles. *Talon* hooks come in seven different styles to handle a variety of tools, as you see in the photos. You can purchase them in packs of all one type or as an assortment. (They range from about 60¢ to $1.00 apiece.) For sources, turn to page 98 or visit www.talonhooks.com.



Insert Hook. With the white, nylon screw backed out, slip the hook into a pair of holes in the pegboard.

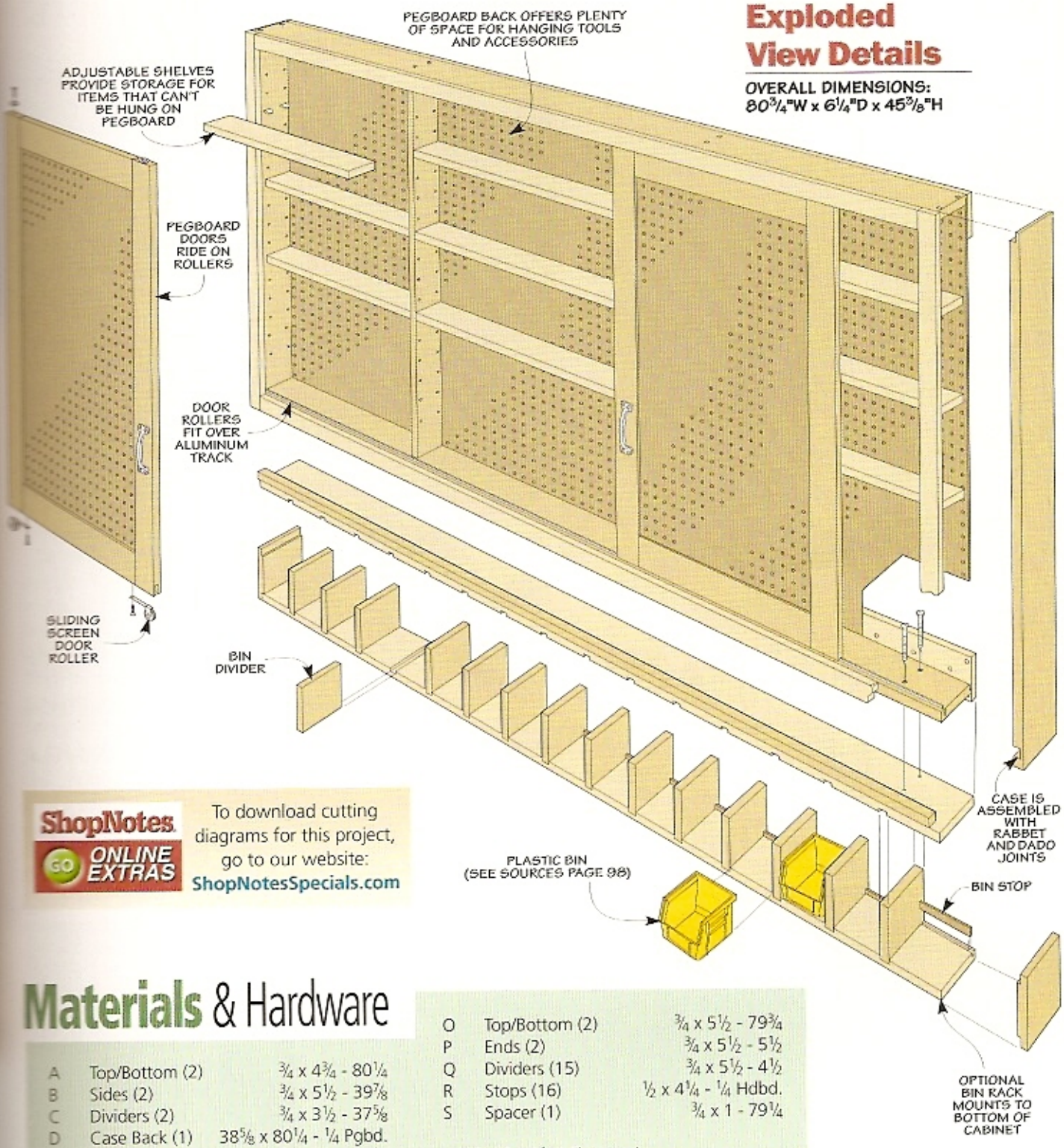


Spread Your Wings. Drive the screw in to spread the wings behind the pegboard and lock in the hook.



Sliding-Door Shop Cabinet

Sliding doors and a flexible design allow you to pack a lot of tools into little space.



Exploded View Details

OVERALL DIMENSIONS:
80 3/4"W x 6 1/4"D x 45 3/8"H

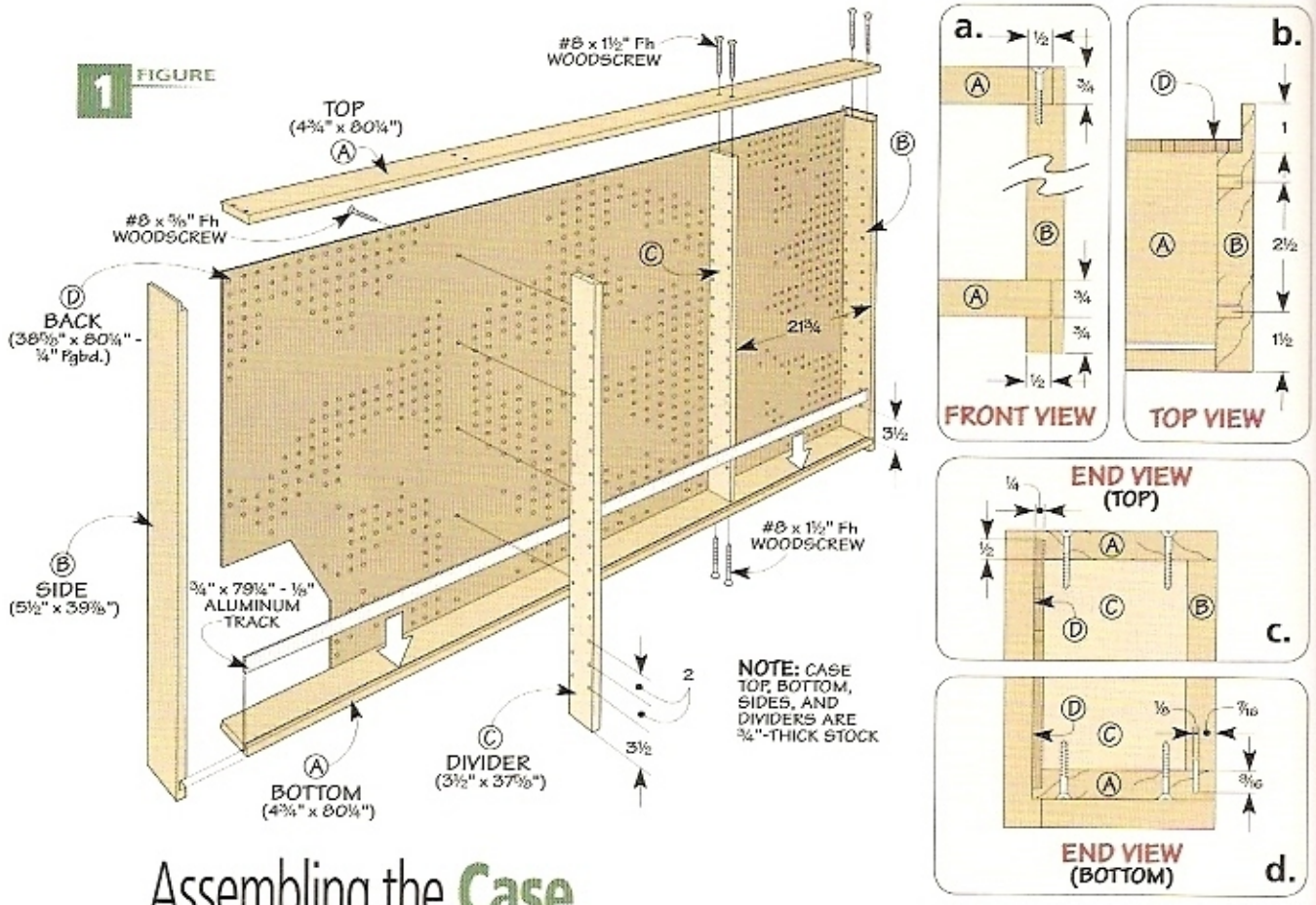
ShopNotes GO ONLINE EXTRAS

To download cutting diagrams for this project, go to our website: **ShopNotesSpecials.com**

Materials & Hardware

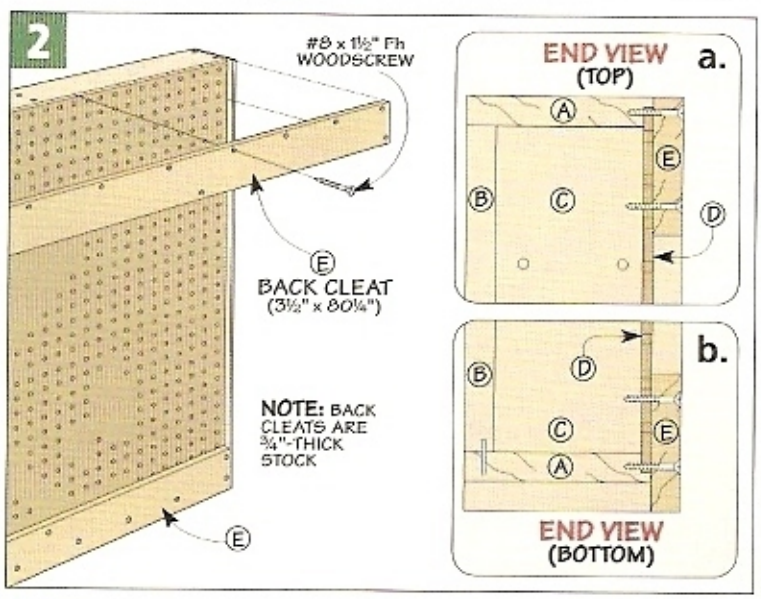
A	Top/Bottom (2)	3/4 x 4 3/4 - 80 1/4
B	Sides (2)	3/4 x 5 1/2 - 39 7/8
C	Dividers (2)	3/4 x 3 1/2 - 37 5/8
D	Case Back (1)	38 5/8 x 80 1/4 - 1/4 Pgbd.
E	Back Cleats (2)	3/4 x 3 1/2 - 80 1/4
F	Face Frame Rails (2)	3/4 x 1 1/2 - 77 3/4
G	Face Frame Stiles (2)	3/4 x 1 1/2 - 39 7/8
H	Side Shelves (6)	3/4 x 3 1/2 - 21 3/4
I	Center Shelves (6)	3/4 x 3 1/2 - 34 1/4
J	Door Stiles (4)	3/4 x 2 1/2 - 37
K	Door Rails (4)	3/4 x 2 3/4 - 18
L	Door Panels (2)	18 x 32 - 1/4 Pgbd.
M	Side Door Stops (2)	3/4 x 3/4 - 21 3/4
N	Center Door Stop (1)	3/4 x 3/4 - 34 1/4
O	Top/Bottom (2)	3/4 x 5 1/2 - 79 3/4
P	Ends (2)	3/4 x 5 1/2 - 5 1/2
Q	Dividers (15)	3/4 x 5 1/2 - 4 1/2
R	Stops (16)	1/2 x 4 1/4 - 1/4 Hdbd.
S	Spacer (1)	3/4 x 1 - 79 1/4

- (46) #8 x 1 1/2" Fh Woodscrews
- (16) #8 x 5/8" Fh Woodscrews
- (4) Sliding Screen Door Rollers w/screws
- (1) 1/8" x 3/4" Aluminum Bar (79 1/4" long)
- (2) 4" Drawer Pulls w/Screws
- (36) Shelf Pins
- (4) #8 x 1" Rh Woodscrews
- (4) 1"-dia. Fender Washers
- (10) #8 x 2" Fh Woodscrews
- (16) 4 1/8" x 5 3/8" Plastic Storage Bins



Assembling the Case

One of the objections to pegboard that I hear over and over again is that it doesn't hold very many tools for the amount of wall space it takes up. But this pegboard storage project is different. Instead of just a flat pegboard panel mounted to the wall, this project is a shallow cabinet. The back of the cabinet is made with pegboard for hanging tools. But in front of this are shelves and a couple of sliding pegboard doors. So you end up with nearly double the amount of storage area without taking up any additional wall space.



CASE. To build the cabinet, I started with the case. The main parts of the case — the top, bottom, and sides — are all cut from 1x6s. If you take a look at Figure 1b, you'll notice that the sides are wider than the top and bottom of the case. This has to do with how the pegboard back and cleats are attached to the case. (I'll explain more about that later.) For now, just cut the pieces to the dimensions shown. Then you can cut the rabbets and dadoes in the sides that will hold the top and bottom of the case (Figures 1 and 1a).

The pegboard panel that will serve as the back of the case fits into a rabbeted opening. But in order to create some clearance behind the pegboard for pegboard hooks, the back is set in about ¾" from the wall. To do this, you'll need to make the rabbets on the sides of the case wider than the rabbets on the case top and bottom. Take a look at Figures 1b, 1c, and 1d to see what I'm talking about.

Before you assemble the case, there are a few details to take care of. First, I drilled holes on the inside face of the case sides for some shelf pins. Then I cut a kerf near the front edge of the case bottom for a piece of aluminum that will be added later (Figure 1d). This serves as the "track" for the sliding door.

Finally, I drilled some countersunk screw holes in the case top and bottom for the screws that will

be used to attach the sides and dividers. It's easier to drill these holes on a drill press now, before assembling the case.

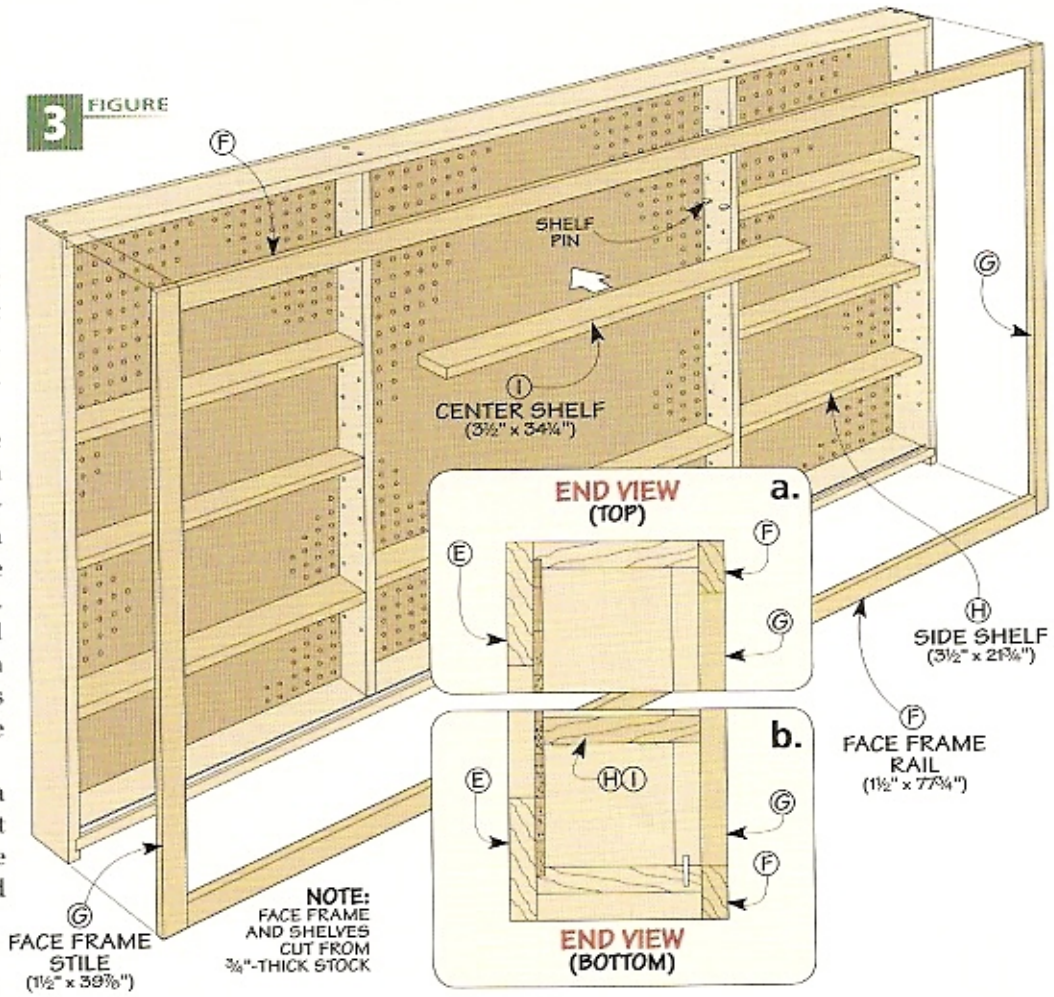
ASSEMBLY. The case is assembled with glue and screws. Just make sure to keep the front edges of the top, bottom, and sides of the case flush as you clamp everything together.

DIVIDERS. With the outer frame of the case complete, you can now add a couple of dividers. These are ripped to width and then cut to fit between the top and bottom of the case. But before they're glued and screwed into place, drill a double row of shelf pin holes in each divider, just as you see in Figure 1.

BACK & CLEATS. The back is just a piece of ¼" pegboard, cut to fit in the rabbeted opening in the back of the frame. It gets held in place with a few screws. Then a pair of cleats are screwed to the back of the case over the pegboard — one at the top and one at the bottom (Figure 2). These help strengthen the cabinet as well as provide support when screwing it to the wall.

With the back in place, I cut a strip of aluminum to fit in the kerf in the bottom of the case. My aluminum strip fit snug in the kerf, but if yours is a little loose, you can use some epoxy to hold it in place.

FIGURE 3



FACE FRAME. The last two steps to complete the case are to add the face frame and shelves — both are about as straightforward as could be. The rails and stiles for the face frame are cut to size and glued to the front edges of the case. Then the shelves are cut to width and length. If you take a look at Figure 3, you'll notice there are two different shelf lengths.

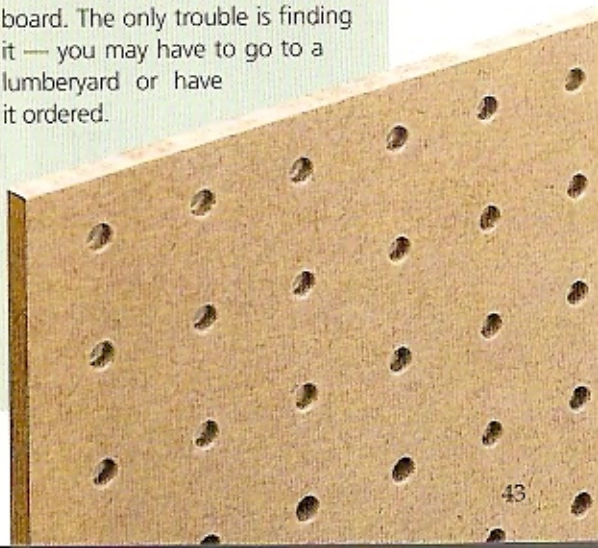
Shelf Pins. Removable shelf pins are used to support the adjustable shelves securely inside the pegboard storage cabinet.

Buying Pegboard

Pegboard (also called perfboard) is really nothing more than hardboard with holes drilled in it. But all pegboard isn't created equal. (Something you'll quickly discover when you start shopping for it.)

Thickness. You'll often find pegboard in ⅛", 3/16", and ¼" thicknesses. I like to use thicker pegboard because it's much stronger, making it a better choice for projects like the storage cabinet.

Grade. In addition to different thicknesses, there are also different grades of pegboard. I usually prefer to use service-tempered pegboard because it's harder and more durable than standard pegboard. The only trouble is finding it — you may have to go to a lumberyard or have it ordered.

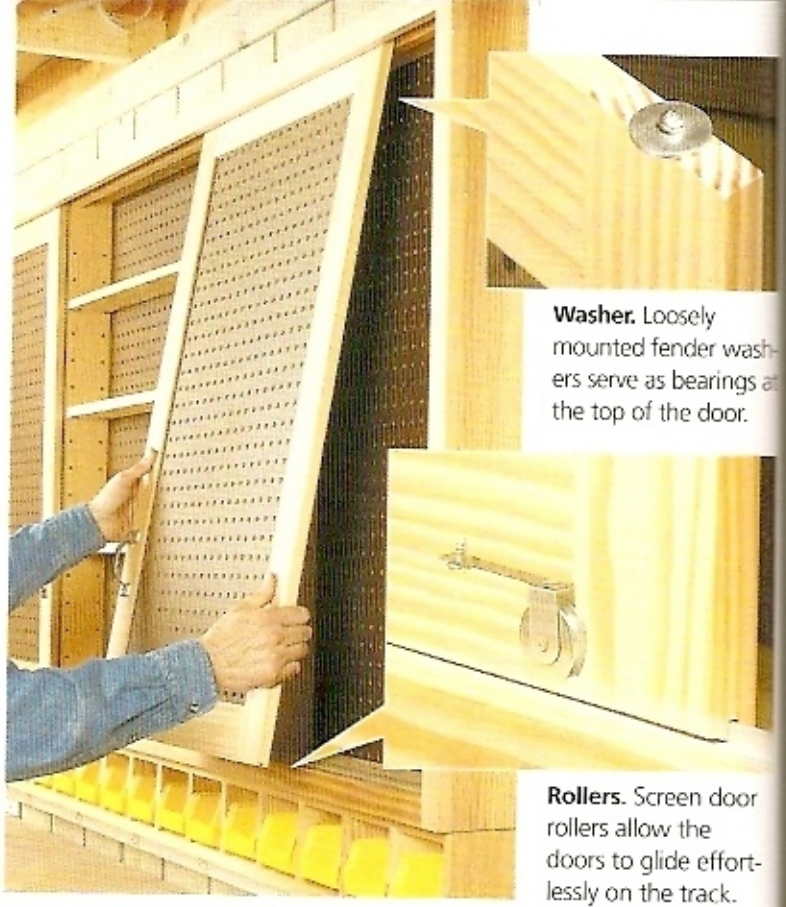


Sliding **Doors**

The sliding doors are what really make this cabinet special. Instead of simply sliding in a groove, these doors glide on roller mechanisms. Mounted into the bottom edge of each door are two sliding screen door rollers (lower inset photo at right). You can easily open the doors with one finger, even when they're loaded with tools.

Each door is just a wood frame with a pegboard panel, as you see in Figure 4. So I started by cutting the door rails and stiles.

The rollers fit into a deep groove that's cut in the bottom edge of the lower door rail before the door is assembled (Figure 4b). You'll also need to cut a shallow groove in the end of each door stile to allow the door to clear the aluminum track. After cutting the pegboard panel to size, you can glue up the doors and install the rollers.



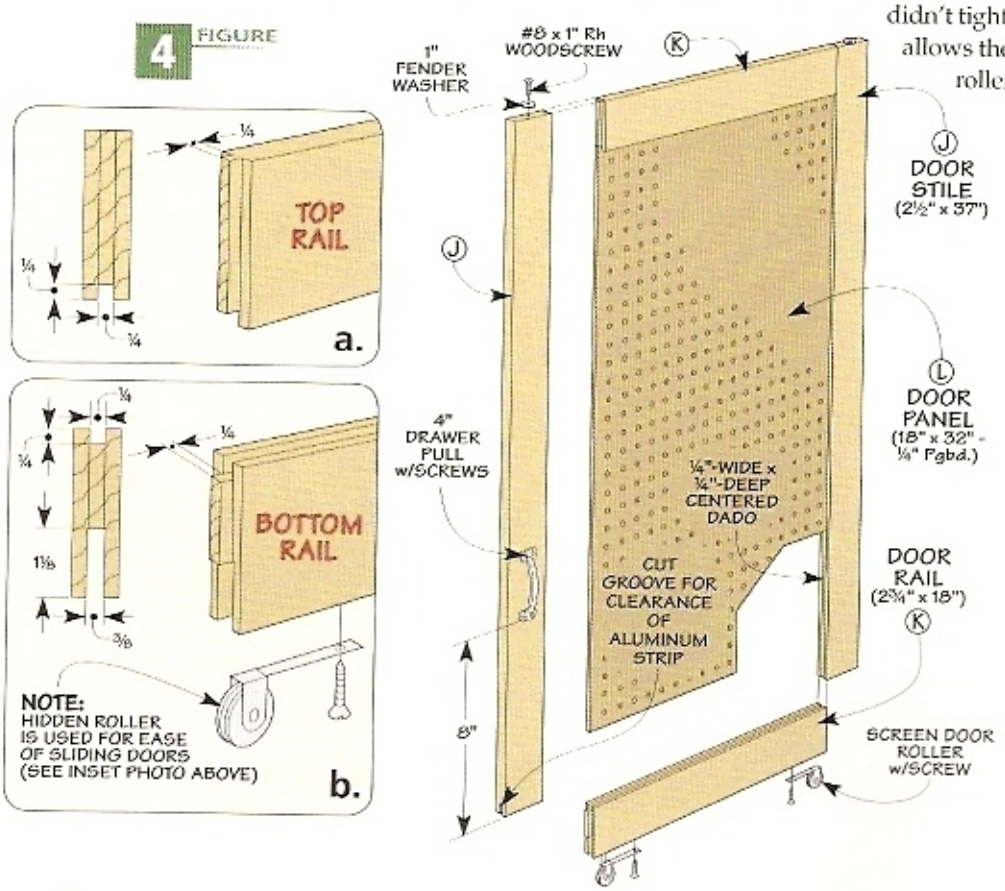
Washer. Loosely mounted fender washers serve as bearings at the top of the door.

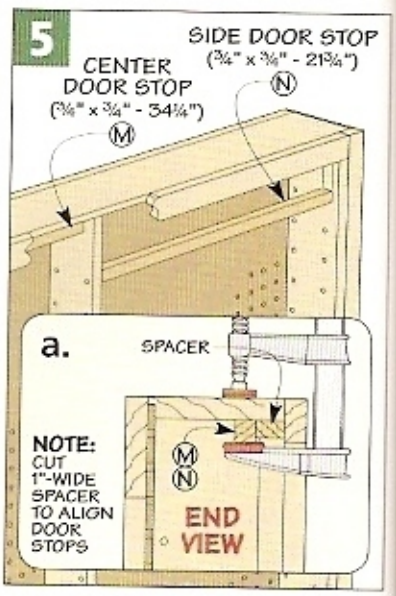
Rollers. Screen door rollers allow the doors to glide effortlessly on the track.

DOOR STOPS. Before you install the doors, there are a couple of details to take care of. To support the top of each door, I added some door stops to the inside of the case (Figure 5). I positioned the stops 1" away from the face frame. This creates a channel with plenty of clearance to help guide the door.

WASHERS. To keep the doors from rattling inside the case, I attached a couple of 1"-dia. fender washers to the top edge of each door (upper inset photo). But I didn't tighten the screws all the way down. This allows the washers to spin freely, so they act as roller bearings inside the channel.

After adding a handle to each door, simply slip the doors into the channel and over the aluminum track, as shown in the photo above.





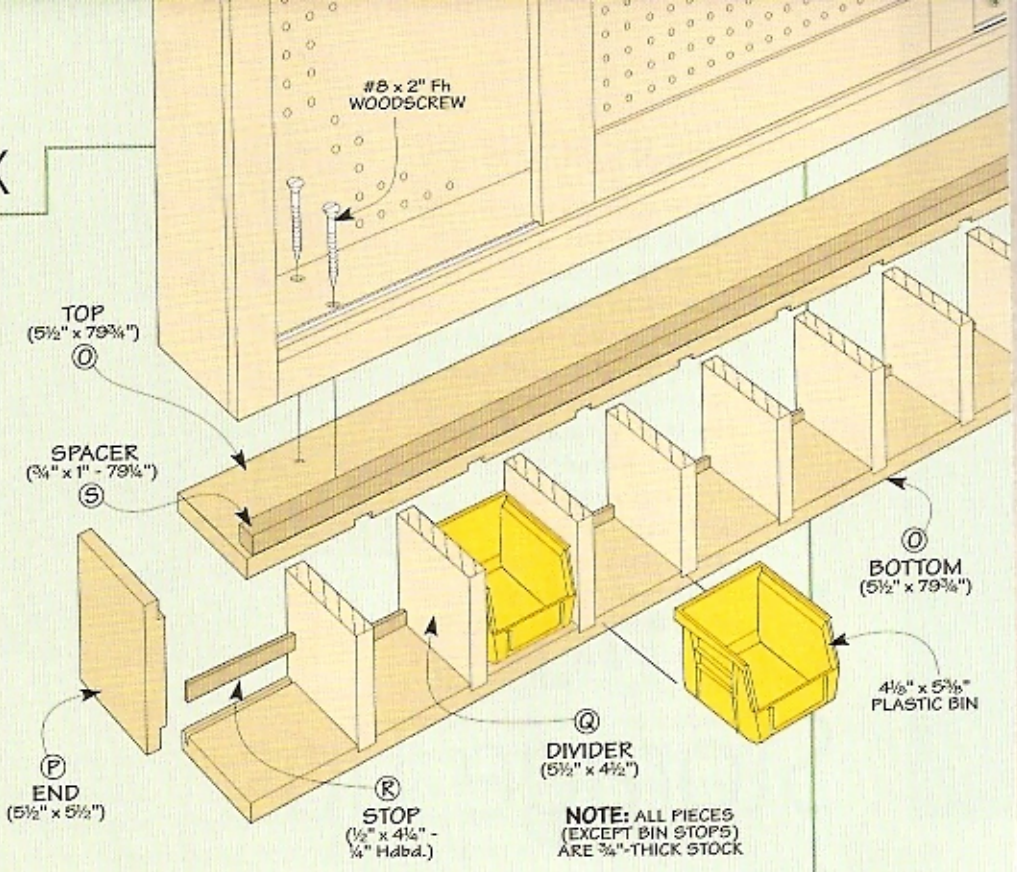
Hardware Bin Rack

The pegboard storage cabinet is great for tools and supplies. But if you want to get even more use out of the cabinet, you can build this optional hardware bin. Mounted to the underside of the cabinet, the bin rack is just a series of cubby holes that are sized to hold plastic storage bins.

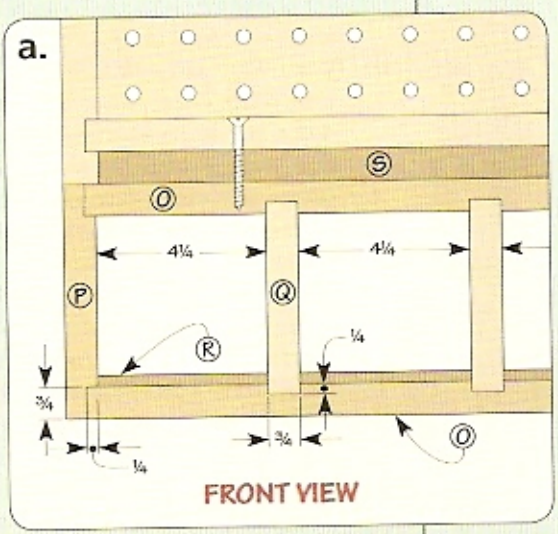
To make the bin rack, start by cutting the top and bottom to size. Then cut a series of evenly spaced dadoes on the inside face of each piece to hold the dividers (detail 'a'). The ends of the bin rack are rabbeted to hold the top and bottom. And the dividers are cut to fit in the dadoes.

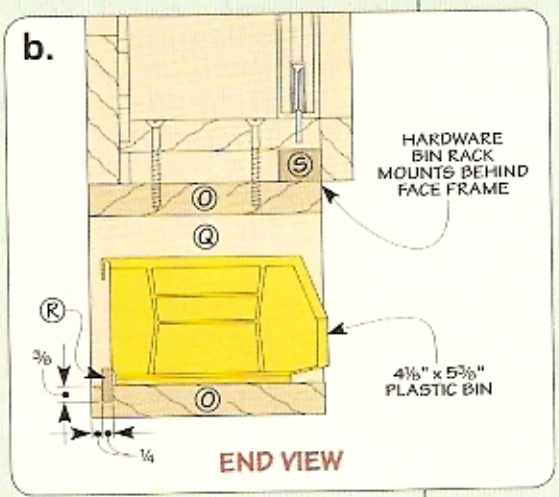
Before assembling the rack, I cut a kerf near the back edge of the bottom for some hardboard stops that will be added later. (The location of this kerf will depend on the size of the plastic storage bins that you're going to be using.)

Once the rack is assembled, cut some bin stops out of ¼" hardboard and glue them into the kerf all along the back of the rack.

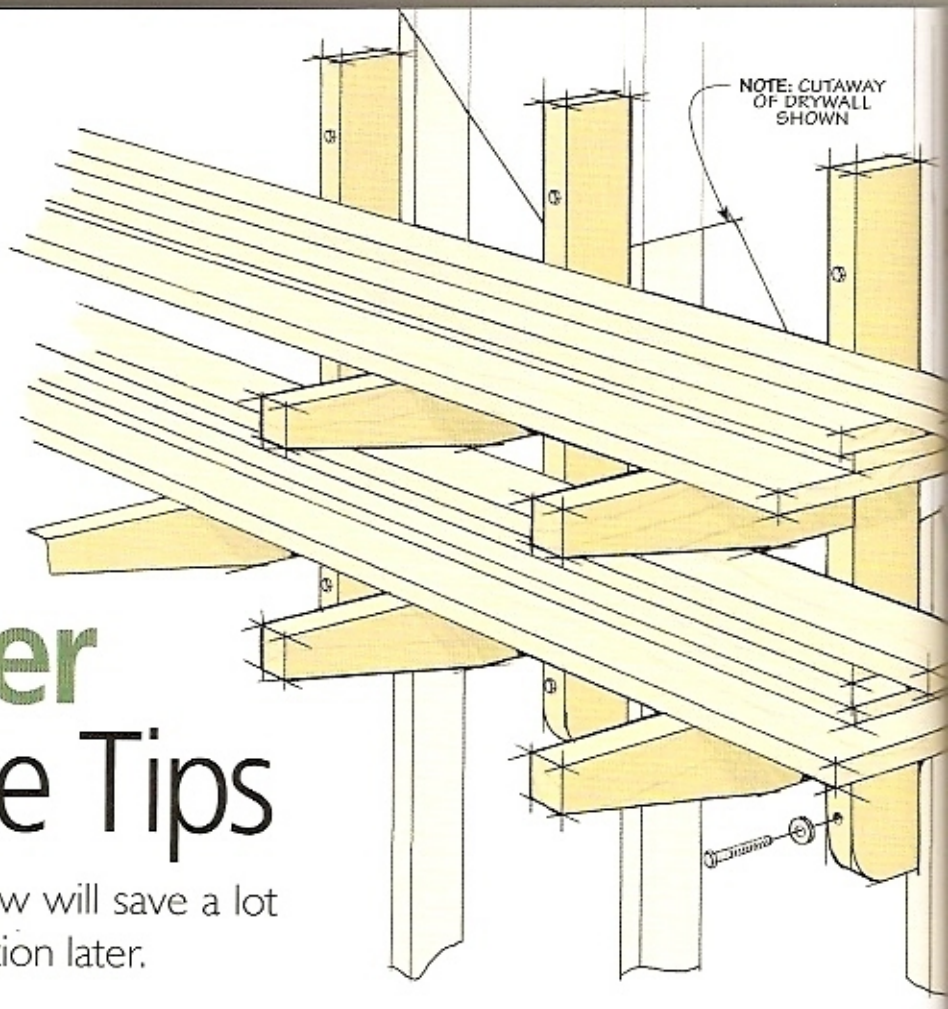


Before you can mount the bin rack to the storage cabinet, you'll need to add a strip of wood to the top of the rack to act as a spacer between the rack and the recessed bottom of the cabinet. Once this is done, go ahead and attach the rack to the cabinet with a few woodscrews.





Hardware Storage. This optional storage unit mounts to the bottom of the cabinet and holds up to sixteen plastic hardware storage bins.



Lumber Storage Tips

A little planning now will save a lot of time and frustration later.

Let's face it. Lumber storage isn't very glamorous. We're all proud to show off a new table saw or new shop cabinets, but no one gets very excited about the wood piled in the corner or along the wall.

But proper lumber storage is just as important as the placement of your tools. If your lumber ends up damp, warped, twisted, or cracked because of poor storage, even the best tools can't undo the damage. So, here are a few tips you may want to consider.

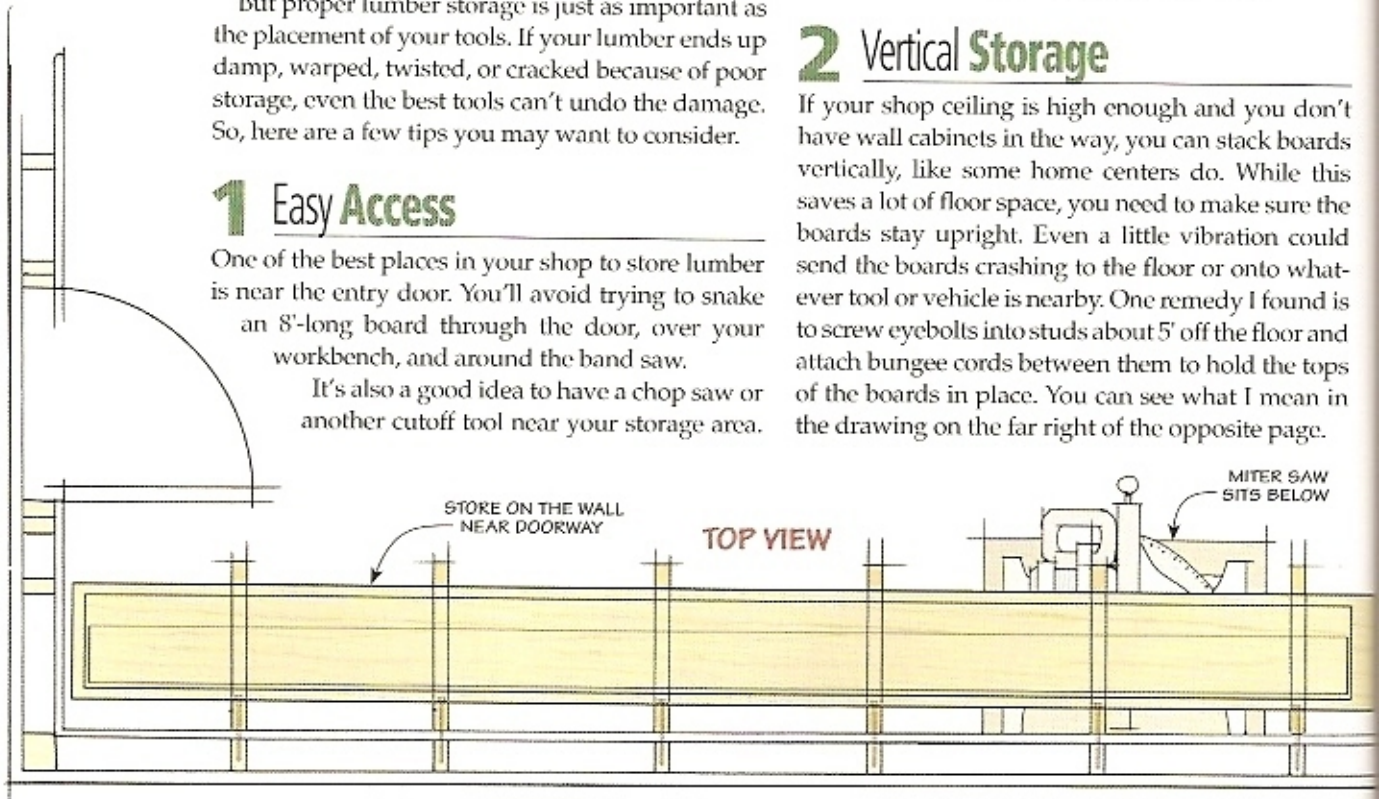
1 Easy Access

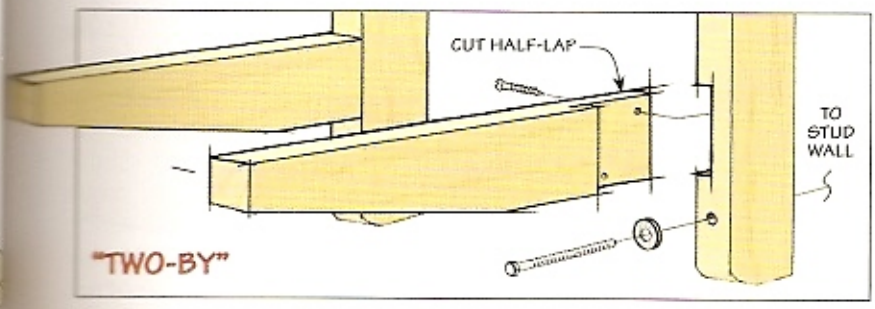
One of the best places in your shop to store lumber is near the entry door. You'll avoid trying to snake an 8'-long board through the door, over your workbench, and around the band saw.

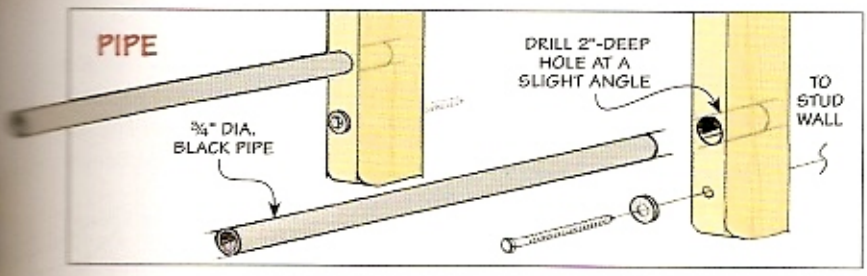
It's also a good idea to have a chop saw or another cutoff tool near your storage area. If you only need 2' of an 8' board, why tote that 8' board across your shop, cut it, and then have to take the remaining 6' back to the storage area? Keeping a cutoff tool close by eliminates a lot of work.

2 Vertical Storage

If your shop ceiling is high enough and you don't have wall cabinets in the way, you can stack boards vertically, like some home centers do. While this saves a lot of floor space, you need to make sure the boards stay upright. Even a little vibration could send the boards crashing to the floor or onto whatever tool or vehicle is nearby. One remedy I found is to screw eyebolts into studs about 5' off the floor and attach bungee cords between them to hold the tops of the boards in place. You can see what I mean in the drawing on the far right of the opposite page.





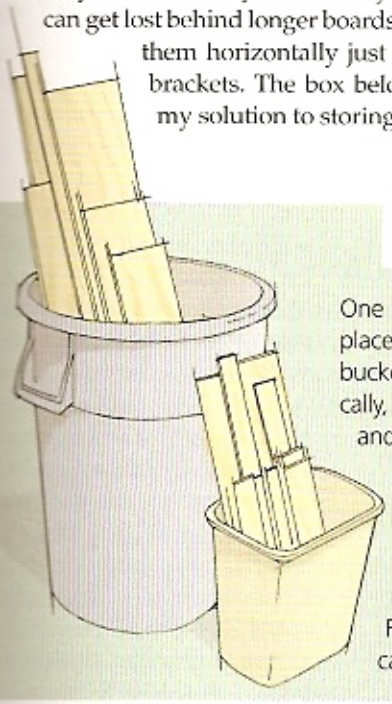


This drawing also shows a clamp about midway up the stack of lumber. Stacking lumber vertically can cause the boards to bow in the middle. By clamping the boards together, their combined thickness helps the stack stay flat and keeps the individual boards from sagging. And just to be on the safe side, I rotate the vertical stacks every so often.

3 Dealing with Cutoffs

If you're a packrat like me, you hate throwing away wood, even small pieces. You just never know when you might need that 2'-long strip of red oak.

The problem is that stacking small pieces vertically doesn't always work very well — they can get lost behind longer boards. And storing them horizontally just clutters your brackets. The box below illustrates my solution to storing cutoffs.



Storing Cutoffs

One answer to storing cutoffs is to place them in trash cans or 5-gallon buckets. The pieces will stand vertically, they'll be in a single location, and they'll be off the floor. For longer pieces, I prefer a heavy-duty 33-gallon plastic trash can. The metal ones can be noisy when pieces are thrown in and are all too easy to dent. For shorter pieces, a smaller trash can or empty bucket works great.

4 Horizontal Rack

Storing lumber horizontally, or flat, is a good option if you have enough wall space in your shop. Commercial storage systems are available, as well as lots of plans to make one yourself — just think of shelving systems without the shelves.

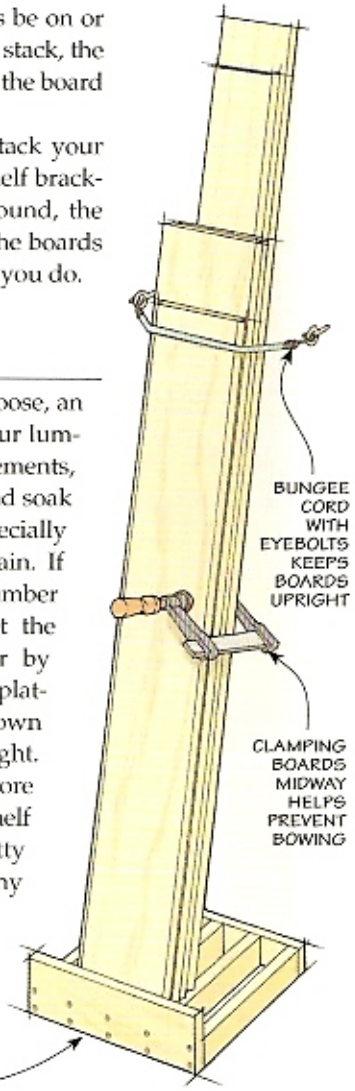
The two drawings at left show you a couple ideas for building your own horizontal storage system using either 2x4s or pipes for the supports. Just make sure to secure the storage system adequately to the wall studs. It doesn't take much lumber to make a heavy load.

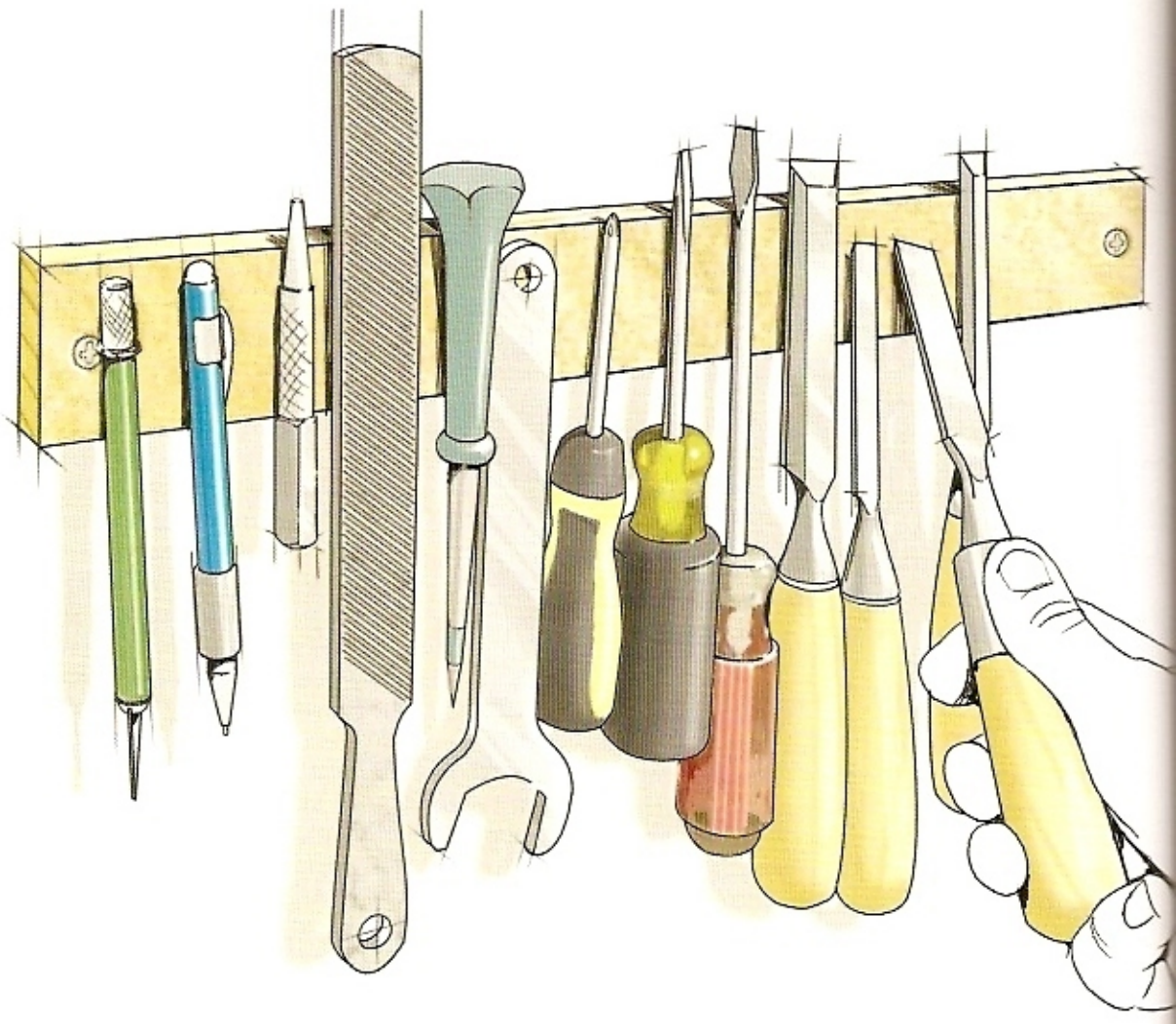
Another good reason to avoid stacking a lot of lumber on this particular storage system is that the board you really want will almost always be on or near the bottom of a stack. The higher the stack, the more boards you'll have to move to get to the board you're actually looking for.

This brings up another point. Don't stack your lumber across the entire depth of your shelf brackets. When you have to move boards around, the extra space will give you a place to put the boards you don't want, so you can get to the one you do.

5 Off the Floor

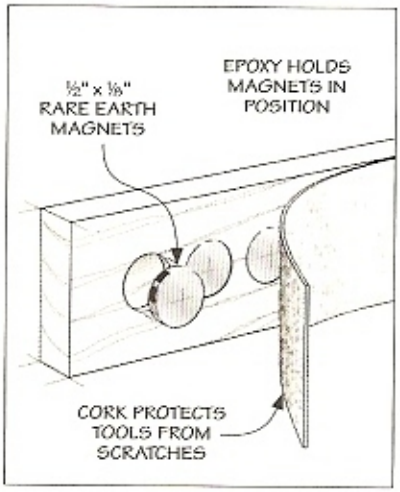
No matter which storage method you choose, an important thing to remember is to get your lumber off the floor. In many garages and basements, moisture can seep up through the floor and soak into your wood, especially through the end grain. If you stack your lumber vertically, try to get the boards off the floor by using some sort of platform, like the one shown in the drawing at right. Of course, if you store your lumber on shelf brackets, you've pretty much eliminated any moisture concerns.





Small Tool Storage

These handy, shop-made tool racks and pegboard solutions will keep the clutter off your workbench.



1 Wall-Mounted Magnetic Strip

A wall-mounted magnetic strip is a convenient way to store the various small hand tools you use frequently in the shop. But most commercial versions have an exposed metal strip that can scratch tools. The magnetic strip shown in the drawing above uses rare-earth magnets to hold the tools and a thin strip of cork to protect them from damage.

I started with a 2"-wide piece of ½"-thick stock. The length is based on the number of tools you want to store on the strip. Then you can drill ⅛"-deep holes with a Forstner bit to hold ½"-dia. magnets.

After epoxying the magnets in place, you can glue a 1/32"-thick strip of cork over them. You could also use a piece of rubber from an old bicycle inner tube.

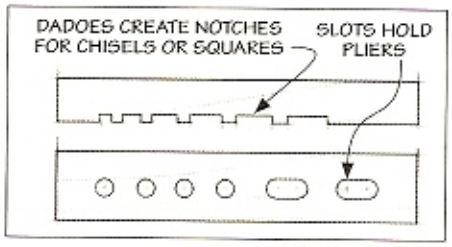
Now all that's left is to mount the strip on the wall. Or you can mount it to pegboard using the technique shown on the opposite

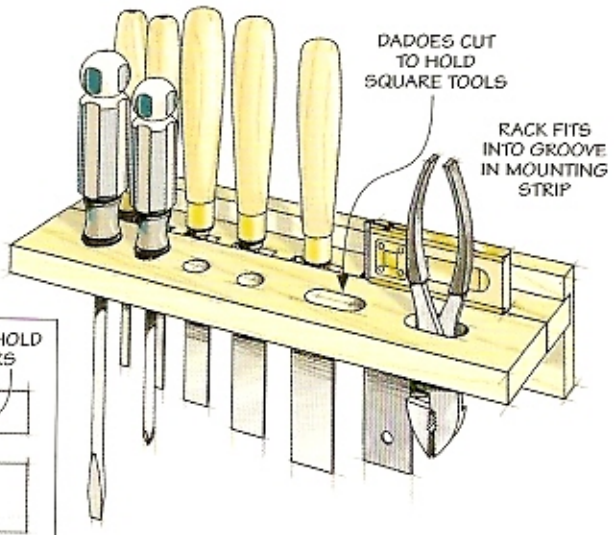
2 Tool Rack

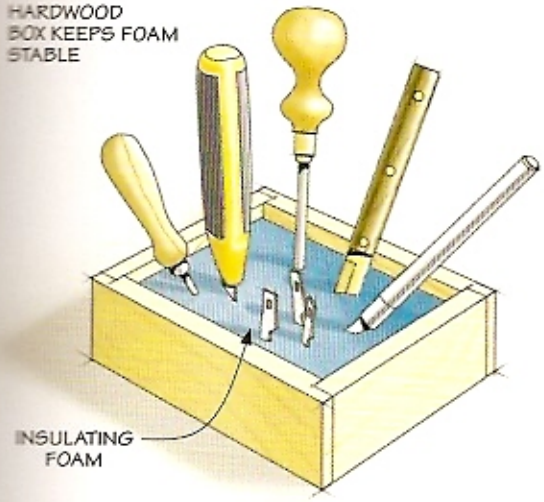
Finding a designated place to store each individual tool can be a challenge. This tool rack is a good way to keep tools off the workbench, but within easy reach.

The rack is just a piece of hardwood with holes and slots to hold the tools. I started by ripping a hardwood blank into two pieces. Then, with a dado blade, I cut notches for chisels and squares. You can also drill single holes for screwdrivers. And a series of holes smoothed with a chisel makes a good slot for pliers. Finally, glue the two strips back together.

To create a mounting strip for the rack, cut a groove in a second piece of hardwood. Then secure the rack to the strip with glue and screws.







3 Knife Box

For a safe place to store tools that have razor edges, like utility knives, marking knives, or *X-Acto* blades, I've found that a piece of foam insulation works well.

The low box that fits around the foam keeps it stable, as you can see in the illustration at left. The box can be stored on your workbench or easily mounted to pegboard. And to store the knives, all you need to do is push the blades into the foam insulation.

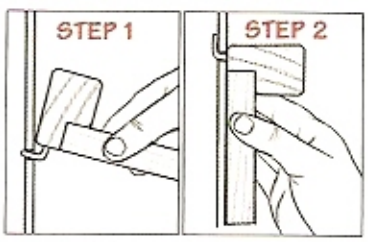
4 Pegboard Storage

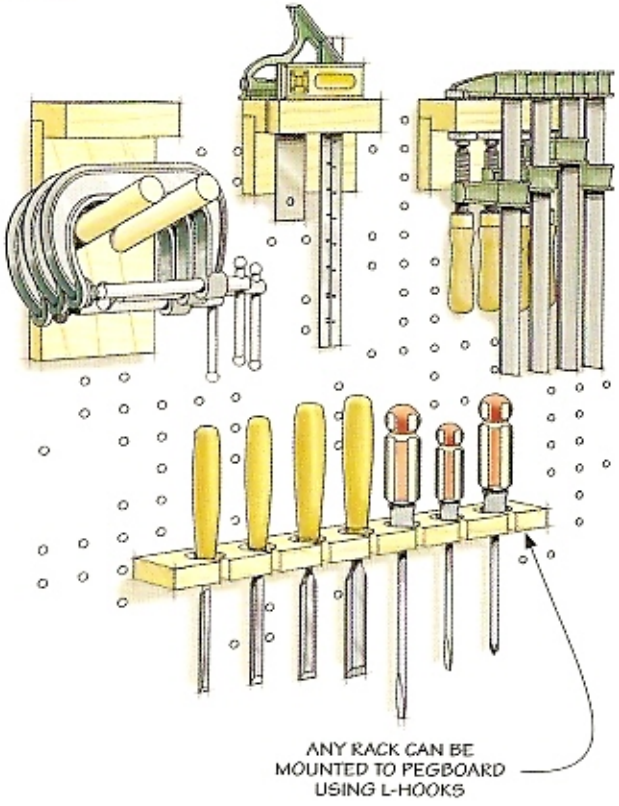
Pegboard is a handy storage solution in any workshop. But it's frustrating when you grab a tool and the hook comes off, too. So, I made separate tool racks mounted with L-hooks. All of these racks can help you organize your shop efficiently.

Attaching a frame to the back of the pegboard provides enough clearance to maneuver the hooks. It also keeps the pegboard stable on the wall.

After you attach the hooks, slide them in the holes of the pegboard and lower the holder against the pegboard, as shown on the right. The weight of the holder locks the L-hook in place. It's almost impossible for the holders to fall off, but you can still move them easily if you want to reconfigure the racks.

As you see at right, a variety of tool racks can be mounted to pegboard with L-hooks. You can hold bar clamps on a simple L-shaped rack, or cut a slot in the top to hold squares. If you add dowels to the front of a rack, it will hold C-clamps. And to hold chisels and screwdrivers, you just need to drill holes in a strip of wood and cut slots in the front.





Must-Have Add-Ons

Finding an available worksurface can be a hassle in a small shop. Our heavy-duty workbench may be what you need. We've also included sawhorses and a table that you can bring out as needed.

Heavy-Duty Workbench

With about $100 and a weekend, you can build a large, rock-solid workbench that's sure to last a lifetime.

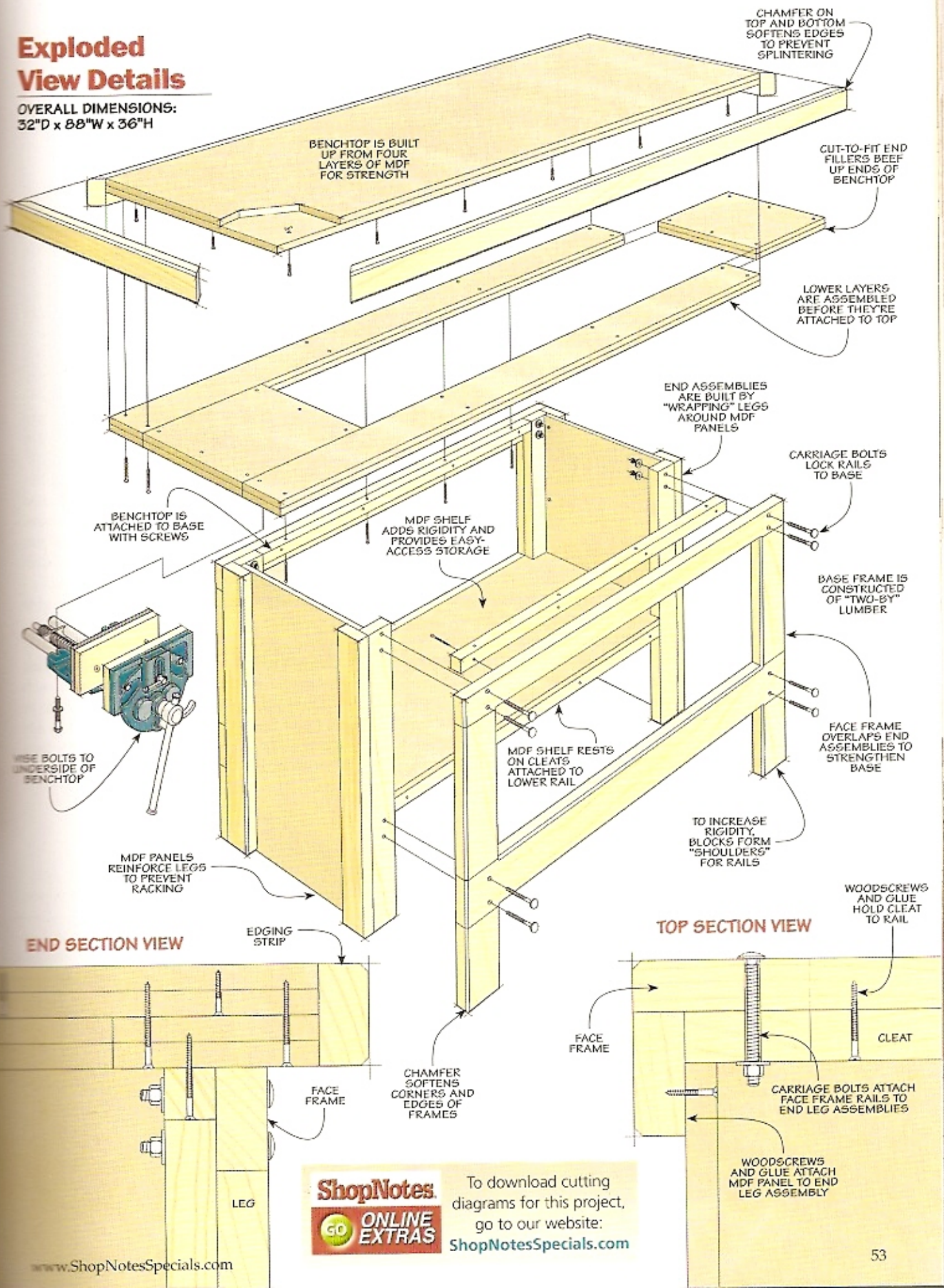
What goes into a great workbench? Most of us would agree it has to have a number of key features.

For starters, the base must be sturdy — no wobbling allowed. And it must have a large, flat worksurface that's rugged enough to stand up to years of hard use. Storage would be helpful, too. And to keep the cost down, it should be built out of materials that you can get anywhere. Finally, it would be great if you could put it together in a short time, like a weekend.

All these must-have features are built into the workbench shown above. Not only is it simple and quick to build, but it's solid, too. Using glue-and-screw joinery, each piece builds on the previous one to create a rock-solid bench. Plus, you can make it even more versatile by adding a bolt-on vise.

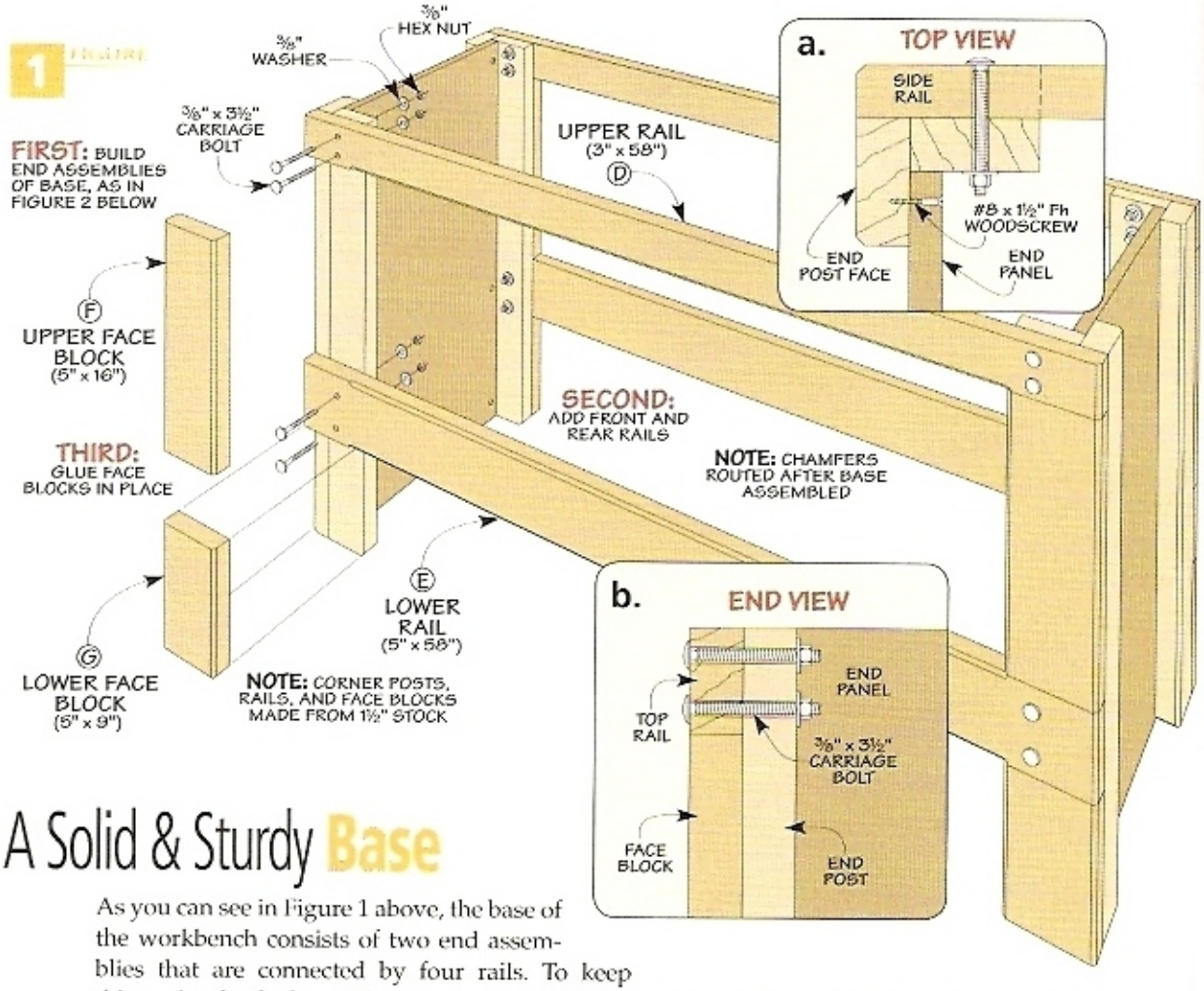
Exploded View Details

OVERALL DIMENSIONS:
32"D x 88"W x 36"H



ShopNotes GO ONLINE EXTRAS

To download cutting diagrams for this project, go to our website: ShopNotesSpecials.com



A Solid & Sturdy Base

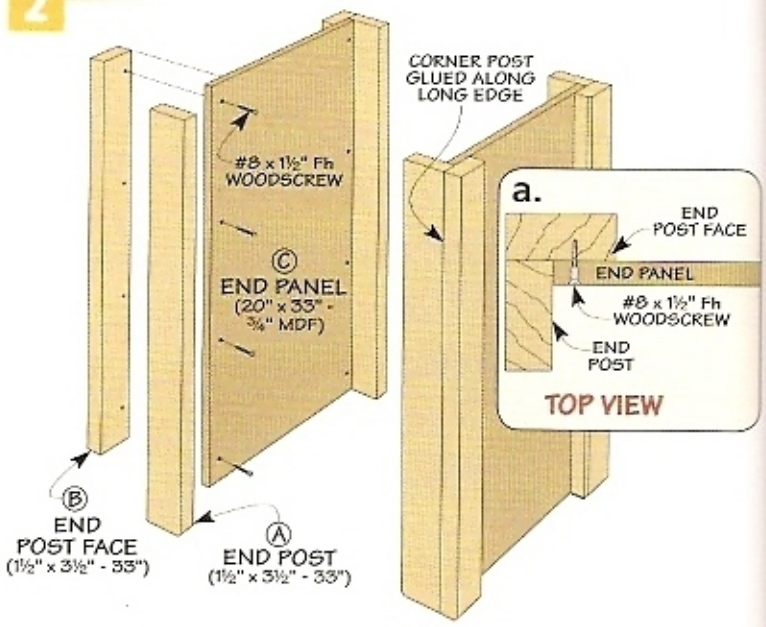
As you can see in Figure 1 above, the base of the workbench consists of two end assemblies that are connected by four rails. To keep things simple, the base is built in sections. I started with the end assemblies first.

END ASSEMBLIES. Unlike a traditional workbench with four legs, the two end assemblies act as the bench's legs. This does two things: First, it gives the bench a rigid base, and second, it makes the joinery simple.

If you take a look at Figure 2, you can see that each end assembly is made up of a pair of corner posts connected by an MDF panel. Each "post" consists of two identical pieces that wrap around the MDF panel. To make the posts, all you have to do is line up the parts along the edge and glue them together.

When the glue is dry, the corner posts will be ready for the MDF panels. Adding the panels is a good way to ensure the assemblies stay square and stable. The panels run the full length of the corner posts and are glued and screwed in place, like you see in Figure 2a. Once that's done, you're ready to attach the rails.

RAILS. The rails connect the end assemblies to create a sturdy base. After cutting them to size, line up the rails flush with the edges of the end assemblies. Some glue and a pair of carriage bolts hold each end of the rail to the end assemblies, as shown in Figures 1 and 1a. To provide a flat, solid surface for the benchtop, the upper rails are even with the tops of the corner posts. You can see this in Figure 1b.



FACE BLOCKS. Carriage bolts reinforce the joints pretty well, but for even more stability, I added face blocks between the rails (Figure 1). The blocks act like the shoulders of a mortise and tenon joint to give the framework more stability and prevent it from racking side to side.

With the base assembled, you can soften the outside edges by routing a ¼" chamfer, as you can see in the lower right photo. When you get near the carriage bolts with your router, you should take the bolts out temporarily. This way, they won't interfere with your router.

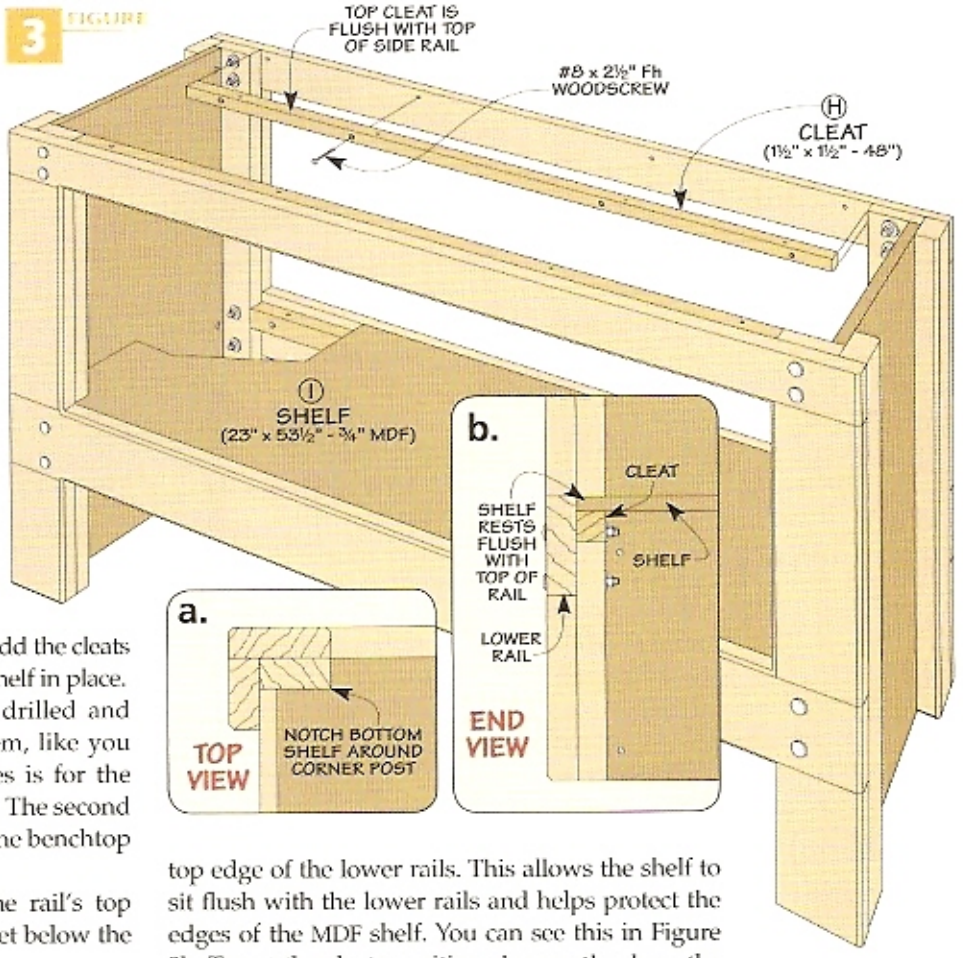
CLEATS. At this point, the base is almost complete. So now's the time to add the cleats that will hold the benchtop and lower shelf in place.

After cutting the cleats to size, I drilled and countersunk two sets of holes in them, like you see in Figure 3. The first set of holes is for the screws that hold the cleats to the rails. The second set is used for the screws that attach the benchtop (added later) and shelf to the cleats.

The top cleats align flush with the rail's top edges. But the lower pair of cleats is set below the top edge of the lower rails. This allows the shelf to sit flush with the lower rails and helps protect the edges of the MDF shelf. You can see this in Figure 3b. To get the cleats positioned correctly along the rail, I used a scrap piece of MDF as a spacer.

BOTTOM SHELF. There's one final task before moving on to the benchtop. The bottom shelf has to be cut to size, and the corners notched to fit around the posts (Figure 3a). Then, you can attach the shelf by installing screws through the cleats into the shelf.

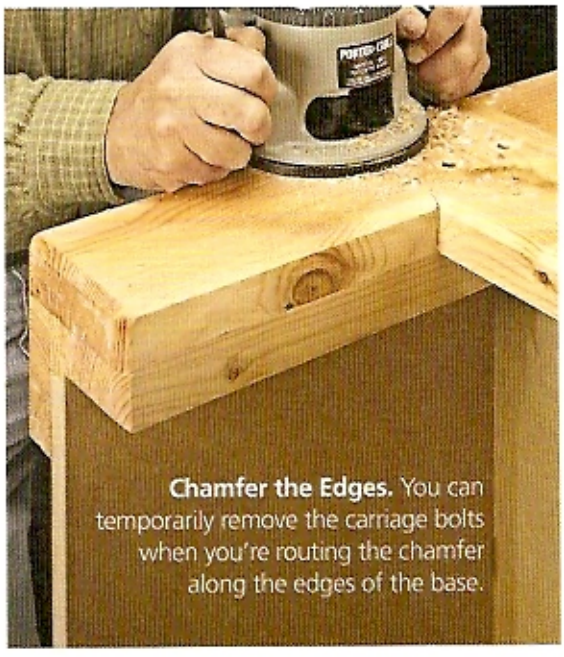
FIGURE 3



Materials & Hardware

A	End Posts (4)	1½ x 3½ - 33
B	End Post Faces (4)	1½ x 3½ - 33
C	End Panels (2)	20 x 33 - ¾ MDF
D	Upper Rails (2)	1½ x 3 - 58
E	Lower Rails (2)	1½ x 5 - 58
F	Upper Face Blocks (4)	1½ x 5 - 16
G	Lower Face Blocks (4)	1½ x 5 - 9
H	Cleats (4)	1½ x 1½ - 48
I	Shelf (1)	23 x 53½ - ¾ MDF
J	Top Layers (2)	29 x 85 - ¾ MDF
K	Top Edge Fillers (4)	6 x 85 - ¾ MDF
L	Top End Fillers (4)	17 x 17¼ - ¾ MDF
M	Front/Back Edging (2)	1½ x 3 - 88
N	End Edging (2)	½ x 3 - 32
O	Vise Spacer (1)	4¼ x 9 - ¼ Hdbd.
P	Vise Faces (2)	¾ x 4¼ - 9

- (71) #8 x 1½" Fh Woodscrews
- (24) #8 x 2" Fh Woodscrews
- (40) #8 x 2½" Fh Woodscrews
- (16) ⅜" x 3½" Carriage Bolts
- (1) 9" Bolt-on Vise
- (4) 3/16" x 3" Lag Screws
- (2) ¼" x 1" Lag Screws
- (2) Machine Screws (For Vise Face)
- (4) 3/16" Flat Washers



Chamfer the Edges. You can temporarily remove the carriage bolts when you're routing the chamfer along the edges of the base.

Build Up the Top

Flat Top. The benchtop has four layers of MDF, keeping the top flat and giving it strength.

All the effort put into building a strong base for the workbench would be wasted if it didn't have a sturdy, flat benchtop to match. If you take a look at Figure 4, you can see how I did this.

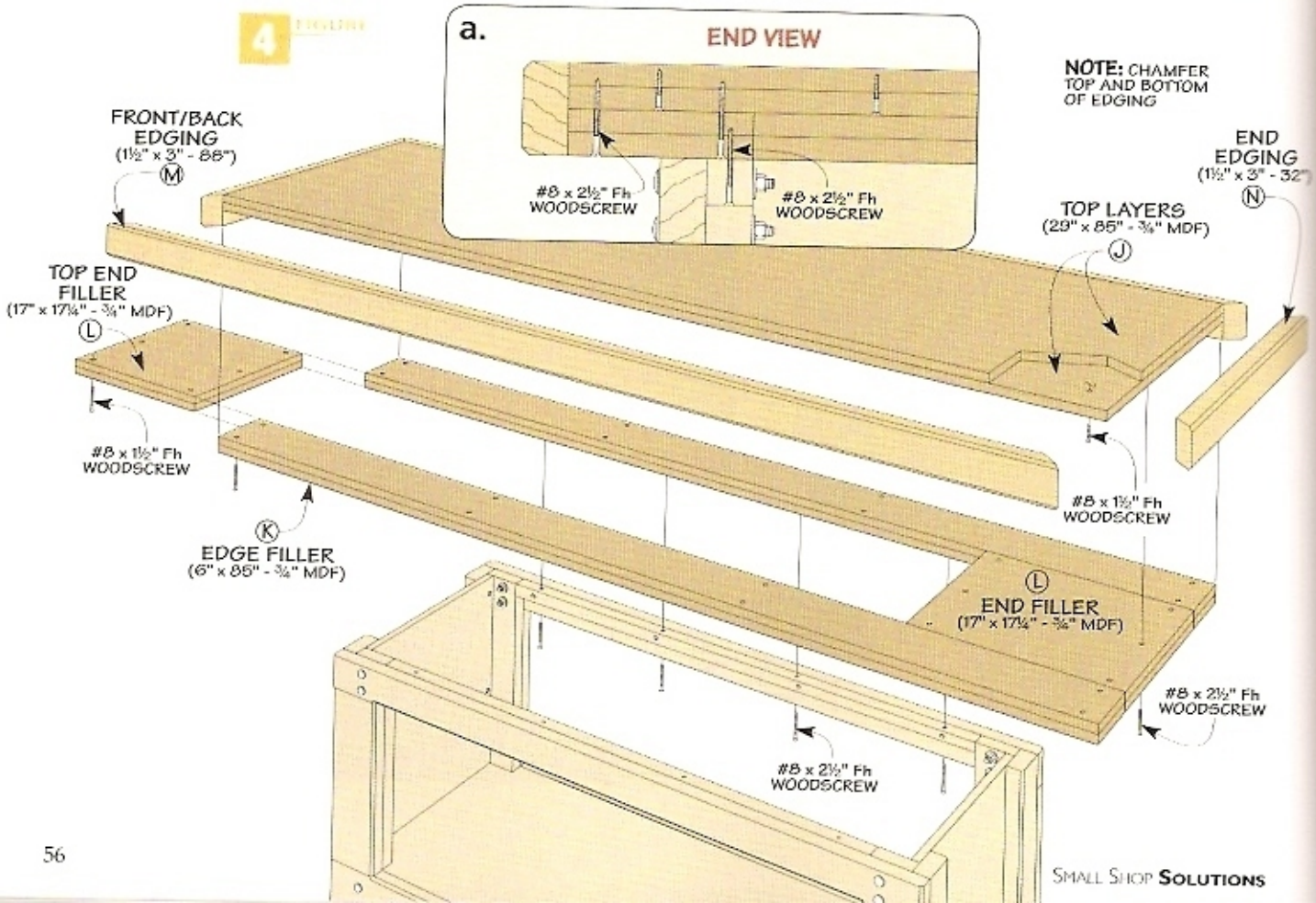
The first thing to note is that the top is made from "two-by" stock and MDF. Why MDF? For starters, it provides a smooth, flat surface. Second, it's heavy, which adds to the stability of the workbench. And finally, MDF is affordable.

LAYERS. As you can see in Figure 4, four layers of MDF are used to create a thick top. Not all the layers are full pieces of MDF, however. Only the two top layers are full size. The bottom two layers are large frames made of MDF.

By using pieces, I was able to get these extra "layers" from a single sheet of MDF. Installing these pieces just along the edges of the benchtop provides the extra thickness right where it's needed the most for clamping workpieces or adding accessories.

BENCHTOP ASSEMBLY. Just like I built the base in sections, I also assembled the benchtop in sections. The top two layers were cut to size and then glued and screwed together. The bottom two layers (assembled from pieces) were completed the same way. Once that's done, you can assemble the entire benchtop. The only thing to watch here is that you keep all the edges flush.

EDGING. MDF edges aren't all that durable. So to protect the edges of the benchtop and to give the workbench a more finished look, I attached edging made from "two-by" stock, as illustrated in Figures 4 and 4a. And to give the workbench



a clean, finished look, this edging is wrapped around the top with mitered corners.

The challenge here is clamping the edging in place across the long top. If you don't have long enough clamps available, you can "make" longer clamps using pipe couplers, or simply connect a series of clamps to reach from one end to the other.

INSTALLING A VISE. The workbench is ready to use at this point. But to make it even more versatile, you can add a bolt-on vise. The vise shown in the photo on the opposite page only requires four lag screws to attach it to the benchtop (Figure 5a). Depending on the size of the vise, you may have to install a spacer between the rear jaw and the benchtop.

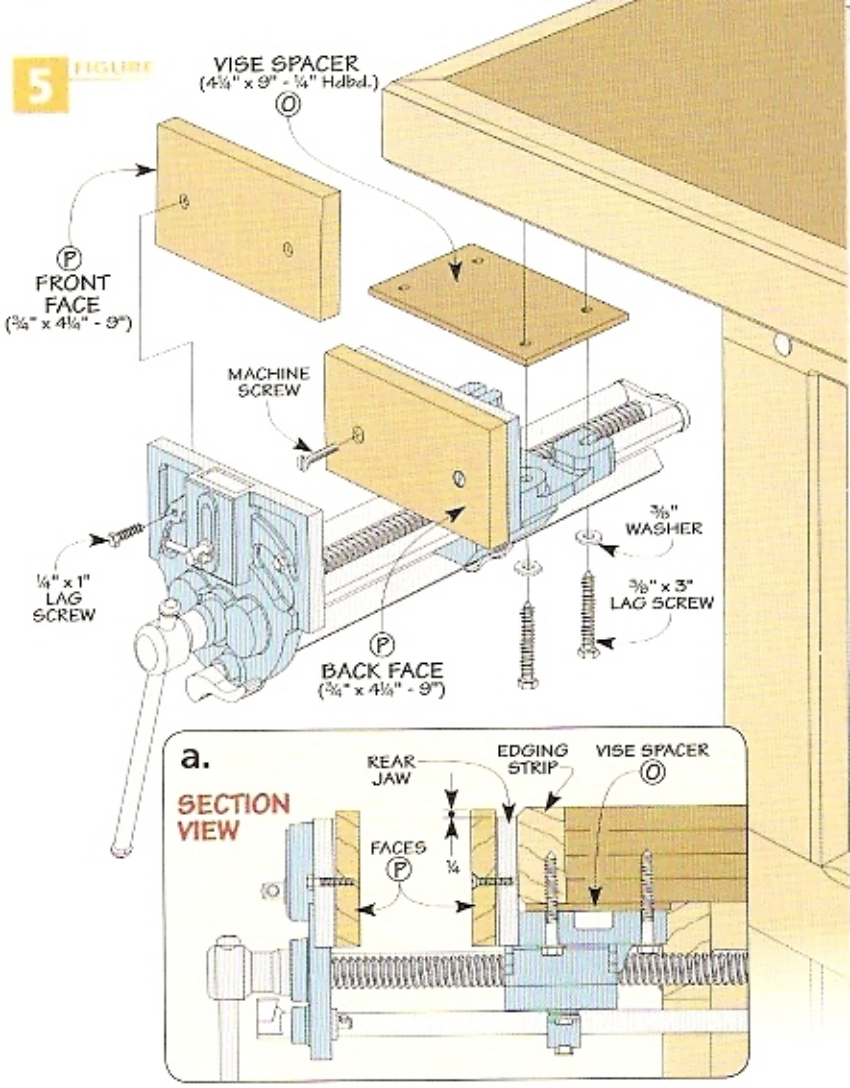
This spacer keeps the metal edge of the vise lower than the benchtop (Figure 5a), preventing any interference with a workpiece or possible damage to a tool. Mine was simply a piece of ¼" hardboard.

I also added a set of wood faces to the metal jaws. These faces provide a more secure grip on the workpiece without damaging it.

For a "cleaner" vise installation, there's another mounting option that buries the rear jaw of the vise behind the front edging strip of the benchtop. To learn more about this, take a look at the box below.

And that's it. The end result is a rock-solid workbench with handy, must-have features. It's ready for many years of serious woodworking.

FIGURE 5

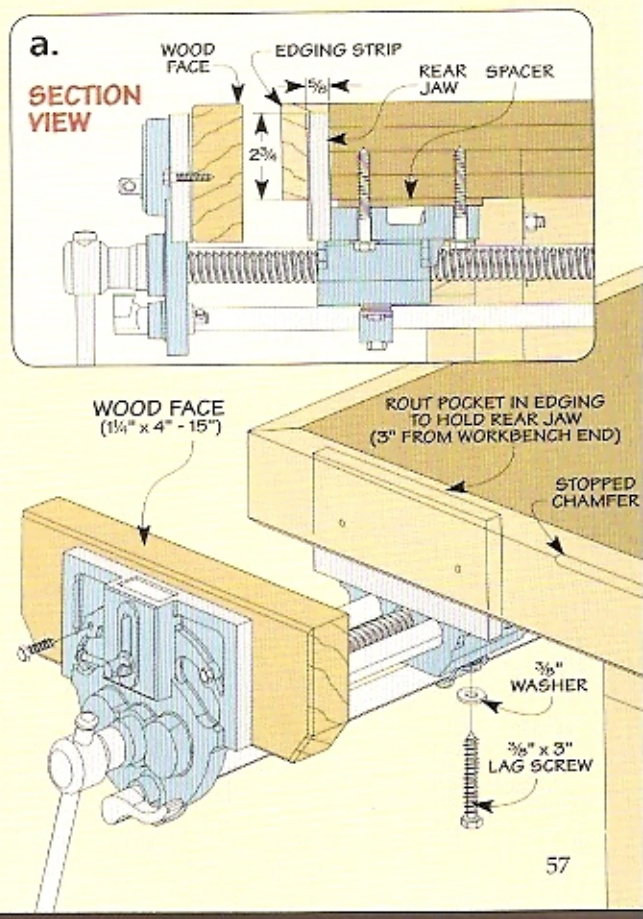


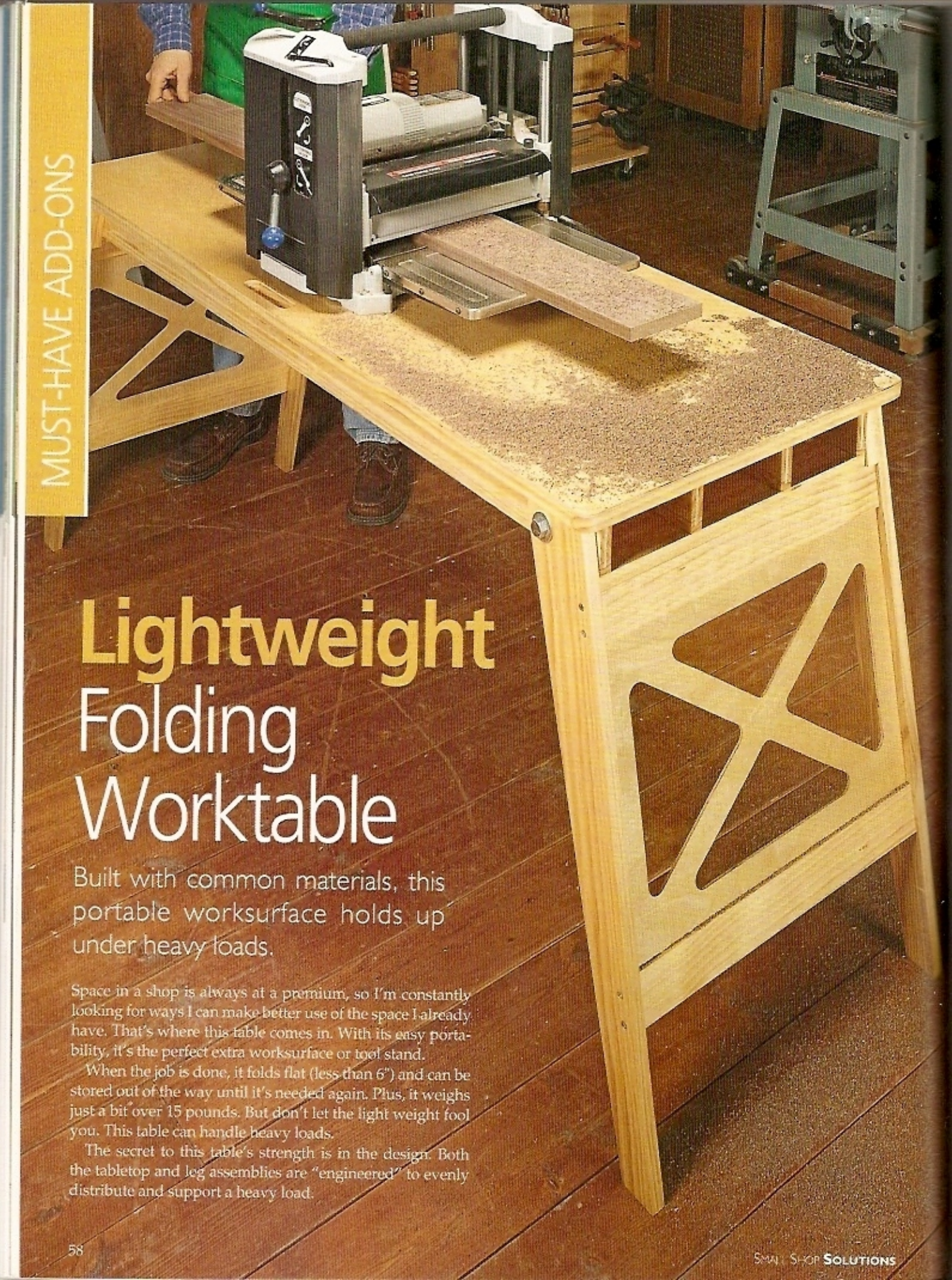
Optional Vise Mounting

Another way to mount a woodworking vise is to bury the rear jaw behind the edging, like you see in the photo. This allows you to clamp long pieces flat against the front of the workbench.

Installing a vise this way requires a little planning. Before you attach the edging, you'll need to rout a "pocket" in the edging that will house the rear jaw (detail 'a'). Once the edging is installed, you can slip the rear jaw of the vise into the pocket and secure it to the benchtop with lag screws. Here again, you'll need to place a spacer between the vise and benchtop (detail 'a').

The final detail is to add a wood face to the front jaw. To match the look of the edging, the thickness of the wood face is the same thickness as the edging. The face is also longer to provide more clamping surface against the edge of the bench.





Lightweight Folding Worktable

Built with common materials, this portable worksurface holds up under heavy loads.

Space in a shop is always at a premium, so I'm constantly looking for ways I can make better use of the space I already have. That's where this table comes in. With its easy portability, it's the perfect extra worksurface or tool stand.

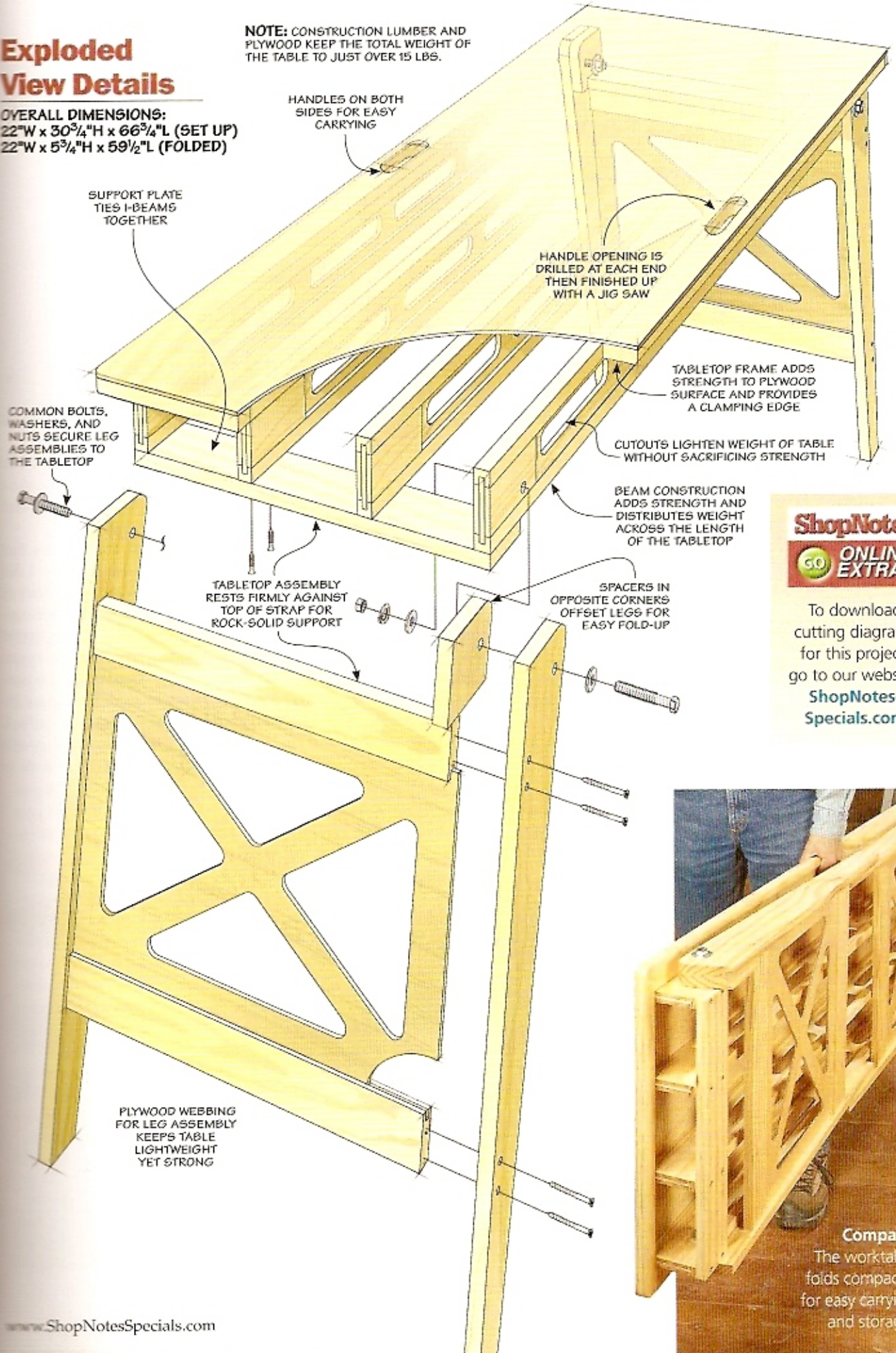
When the job is done, it folds flat (less than 6") and can be stored out of the way until it's needed again. Plus, it weighs just a bit over 15 pounds. But don't let the light weight fool you. This table can handle heavy loads.

The secret to this table's strength is in the design. Both the tabletop and leg assemblies are "engineered" to evenly distribute and support a heavy load.

Exploded View Details

OVERALL DIMENSIONS:
22"W x 30¾"H x 66¾"L (SET UP)
22"W x 5¾"H x 59½"L (FOLDED)

NOTE: CONSTRUCTION LUMBER AND PLYWOOD KEEP THE TOTAL WEIGHT OF THE TABLE TO JUST OVER 15 LBS.



ShopNotes GO ONLINE EXTRAS

To download cutting diagrams for this project, go to our website: **ShopNotes-Specials.com**

Compact. The worktable folds compactly for easy carrying and storage.

Rock-Solid I-Beam Tabletop

Most of the tabletops I make in the shop are just flat assemblies supported by a simple frame. Since this top is made of thin, lightweight plywood and edged with a solid-wood frame, I wanted to make sure I provided a little additional support underneath.

As you can see in the photo at right, I did this by adding shop-made "I-beams" directly under the top. Now don't worry, making the beams isn't difficult at all. Identical parts and a simple assembly make the overall construction a fairly easy task.

Heavy-Duty. A solid-wood frame and shop-made I-beams underneath the tabletop provide solid support.

TABLETOP

As I mentioned, I wanted to keep the worktable lightweight. So I started by making the top out of ¼" plywood, as you can see in Figure 1.

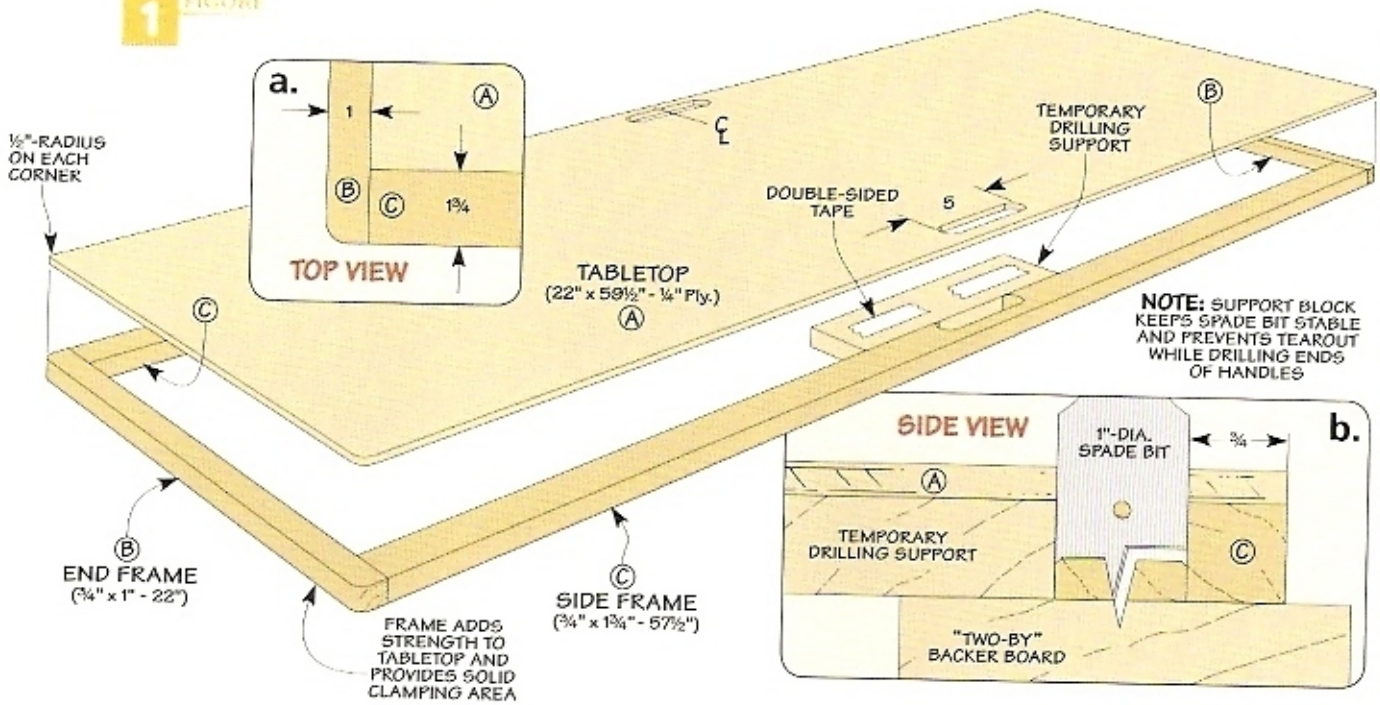
TOP & FRAME. After cutting the top to size, I added a solid-wood frame to the underside. This frame helps stiffen the plywood top and adds to the overall stability of the tabletop. You'll notice that the pieces for the sides of the frame are a little wider than the ends. This accomplishes two things. First, it provides a wider clamping area along the edges where you're most likely to use clamps. And second, it ensures there's enough material to form a handle to carry the worktable.

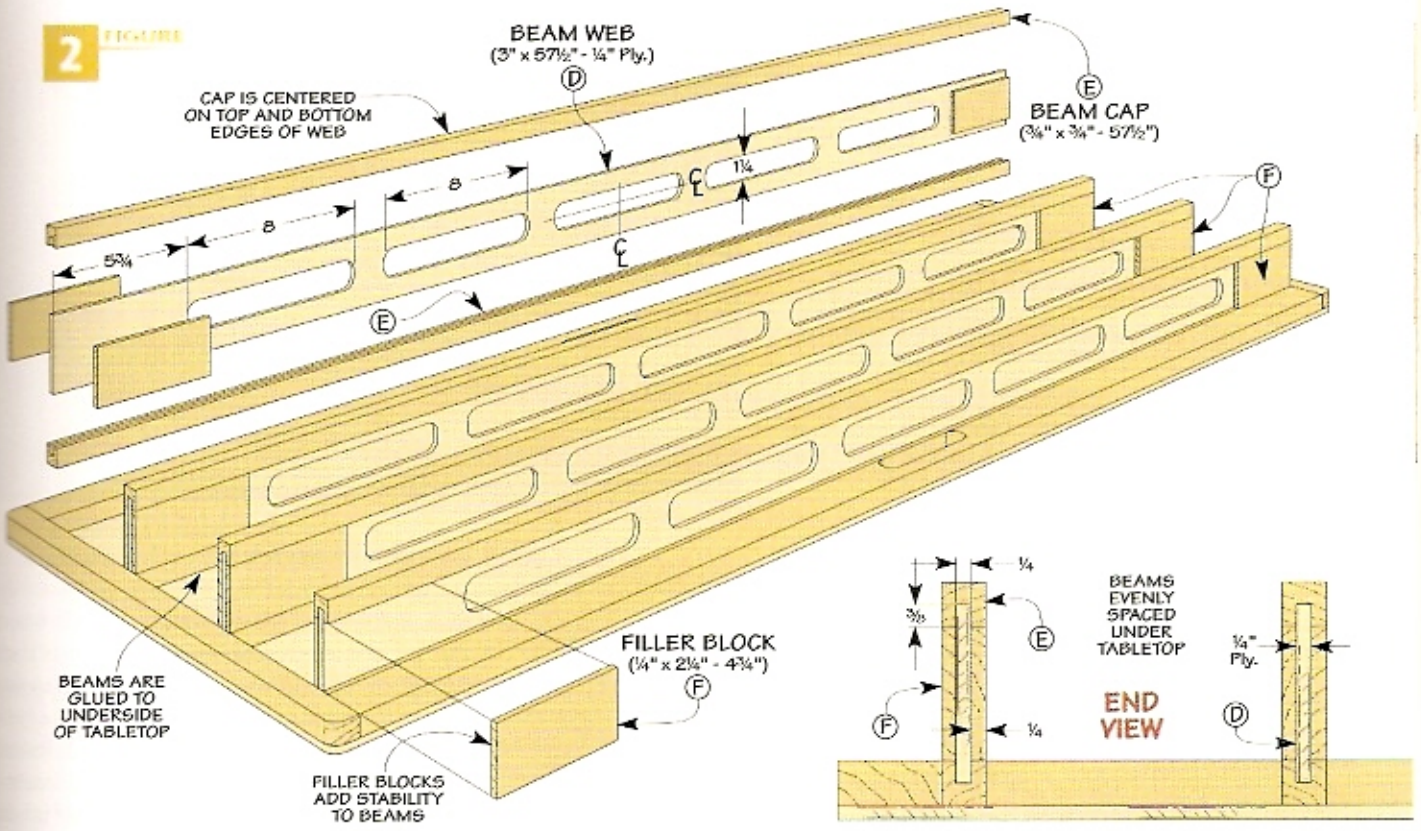
After the frame is glued to the plywood, you can round each corner of the tabletop. I found it easiest to knock off the sharp corners with a jig saw and then sand each corner to final shape.

HANDLES. The next step is to form the handles that allow you to carry the table. You can see how I did this in Figure 1. I started by drilling out the ends of the opening with a 1"-dia. spade bit. To provide support along the side as I drilled, I attached a piece of scrap with some double-sided tape, like you see in Figures 1 and 1b. And a backer board under the handle area helps reduce tearout, as shown in Figure 1b.

Once the ends for both handles were drilled, I used a jig saw to remove the waste and rough out the sides. A little sanding was all it took to smooth everything out.

FIGURE 1





BEAMS

The plywood tabletop and frame are lightweight. So, to make it sturdier, I added shop-made beams to the underside, like you see in Figure 2. The beams have three main parts: a single web, a pair of top and bottom caps, and filler blocks which fit at the ends between the caps.

WEB. The webs are made with cutouts along their length to keep the table lightweight without sacrificing sturdiness. The thin plywood is light, but cutting openings in each piece makes for an even lighter beam. To avoid laying out each web individually, I made one hardboard template and used it and a flush trim bit to rout the web openings.

BEAM CAPS. The caps on the top and bottom of the webs are what really add strength to the overall beam. Plus, they provide a lot of surface area for gluing the beams to the bottom of the tabletop.

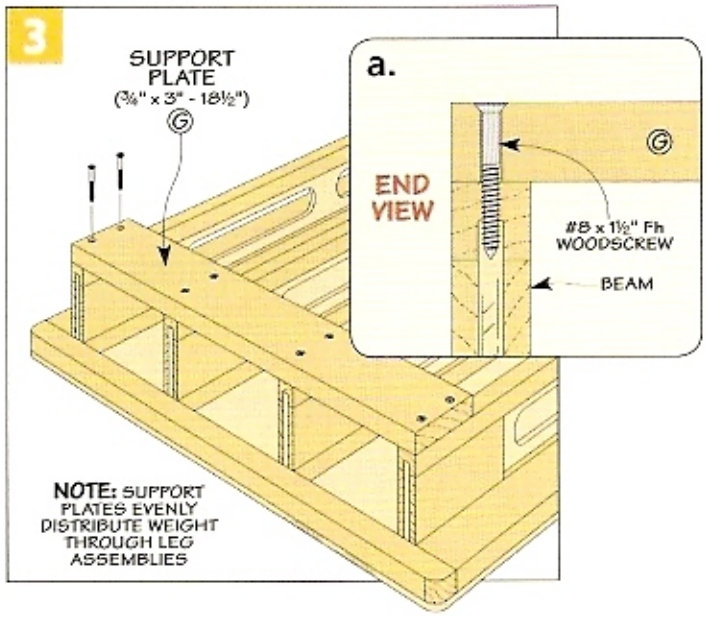
To add the caps to the web, you'll need to cut a centered groove in one edge of each cap. Just be sure to size the groove to match the actual thickness of your plywood webs, which may be less than ¼".

After the caps are glued to the webs, you can add the filler blocks to each end of the beam (Figure 2). The blocks keep the beams stable and add strength. Plus, the corner filler blocks provide a solid mounting point when you attach the leg assemblies later.

ATTACHING THE BEAMS. With the beams complete, you're ready to attach them to the bottom of the tabletop, as shown in the End View in Figure 2. Just keep in mind that the beams need to be evenly spaced.

Clamping the outer beams with ordinary clamps is easy, but you'll need to use cauls to hold the two inner beams in place. A caul is nothing more than a long scrap with a slight curve sanded in it. It ensures that adequate pressure is applied to the inner beams.

SUPPORT PLATES. The final step is attaching the support plates, as shown in Figure 3. There's one attached to each end of the table, flush with the ends of the beam. The support plates not only hold the beams in place, but provide a resting point for the leg assemblies later. After cutting them to length, they're glued and screwed in place.



Add a Set of Legs

With the top completed, all that's left is to add the leg assemblies. The leg assemblies are designed like the beams — lightweight, but sturdy. The webbing and stretchers in the center not only hold the legs together, but also add strength and stability.

The webbing and stretcher work together to distribute the load on the tabletop throughout the leg assembly.

Quick Setup. Folding and unfolding this table is just a simple matter of swinging each leg assembly into position.

START WITH THE LEGS

The webbing fits into a groove in the leg, so I started by making the four legs. After you cut the legs to final length and width, you're ready to cut a groove on one side of each leg for the webbing (Figure 4). To create a stopped groove, I cut the groove the length of the leg and then added filler strips at the top and bottom. You'll need to size the groove to match your plywood the same as you did for the beam webs. If you take a look at Figure 4, you'll see that once the filler strips are installed, it creates a stopped groove for the webs.

LEG ANGLES. Before you shape the legs, you'll want to cut the 10° angles on the top and bottom that allow the legs to spread under the table. Splaying the legs gives the table even more stability.

PREDRILL. Once the angles are cut, you can mark and drill the holes for the bolts that hold the leg assemblies. You can see where the hole is located in Figure 4. If you predrill the legs now, you'll have a starting point later when it's time to drill the holes in the beams to attach the leg assemblies.

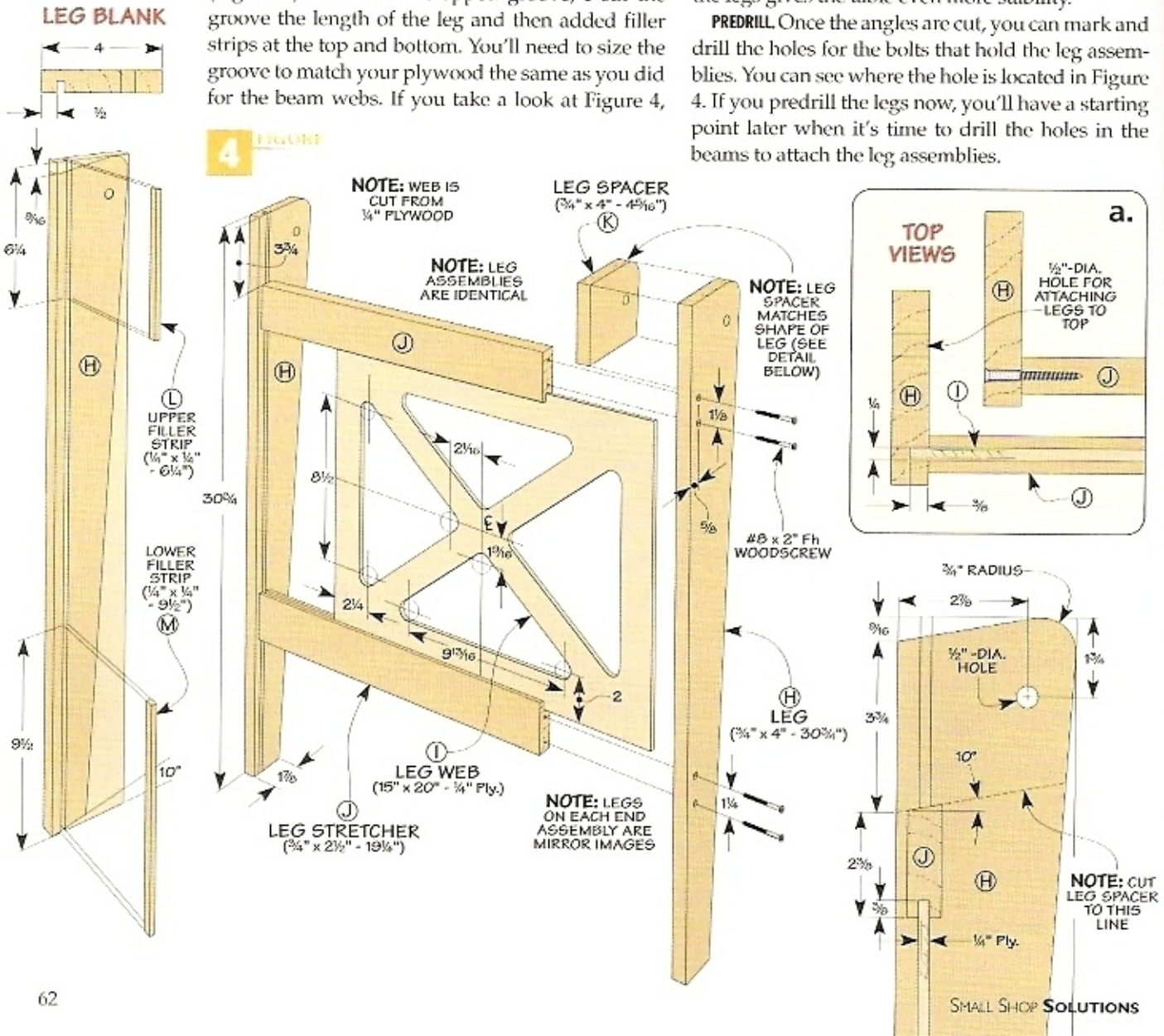


FIGURE 4

SHAPING. The next step for the legs is to shape the top outside edge. Finally, the legs are tapered to reduce the weight just a bit and give it a more refined look.

COMPLETE THE ASSEMBLY

With the legs shaped, turn your attention to the leg web that connects each pair of legs. Figure 4 shows the dimensions you need.

The leg stretchers are another key to the leg assemblies since they strengthen the entire structure. But they're pretty straightforward.

The top stretcher has a centered groove cut in the lower edge to hold the leg webbing and a bevel on the top to match the bottom of the leg. This top bevel rests against the support plate on the underside of the tabletop. The bottom stretcher is identical in size, but there's no need to cut the bevel.

ASSEMBLY. Now that all the parts are finished, you're ready to assemble the legs (Figure 4). Then, you can finish up the final details.

First, insert the webbing into the leg grooves. To lock the legs and web together, simply glue and screw the stretchers in place.

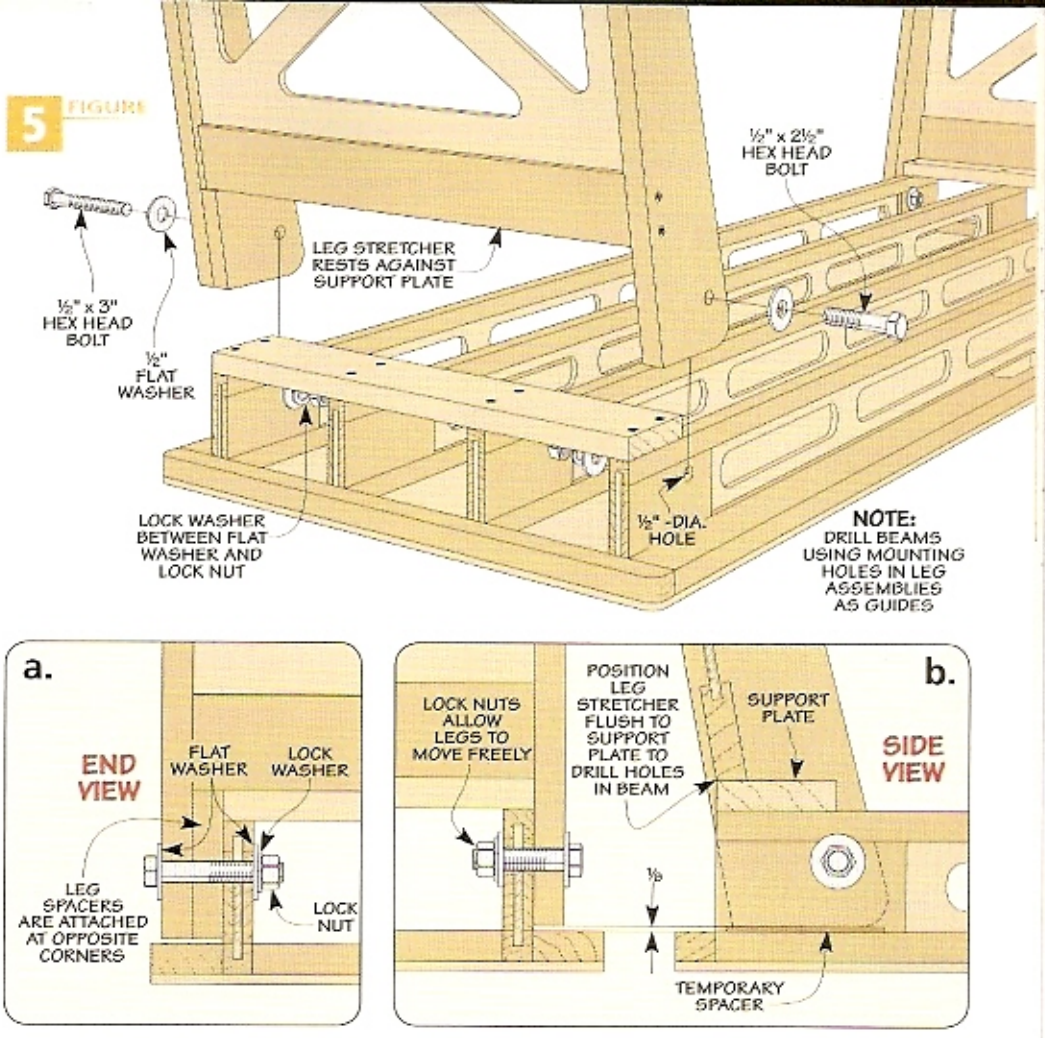
LEG SPACERS. At this point, the leg assemblies will fit loosely between the ends of the tabletop. So the next step is to add a spacer to each one to fill the gap. And by adding the spacers to opposite corners of each leg assembly, the legs are offset. This way, you can easily fold them flat against the tabletop.

You can make the spacers as shown in Figure 4. They're shaped the same as the top of the legs and rest against the top stretcher of the leg assembly.

ATTACH ASSEMBLIES. The leg assemblies are installed with a little clearance between the top of the legs and the tabletop (Figure 5b). This gap ensures that no stress is placed directly on the top of the leg or the bottom of the table. Plus, it allows each leg assembly to swing easily when you open and close it.

As you do this, you want to be sure that the support plate rests directly on the upper stretcher. (I used a small spacer to help align everything.) Then you can drill through the predrilled holes in the leg assemblies and the beams (Figure 5b).

The final step is to the attach the leg assemblies using the bolts, lock washers, and lock nuts. This setup allows the leg assemblies to move freely, but also stay snug enough to store the legs in the folded position. Just line up the holes, fasten the bolts, and your table is ready for heavy-duty use.

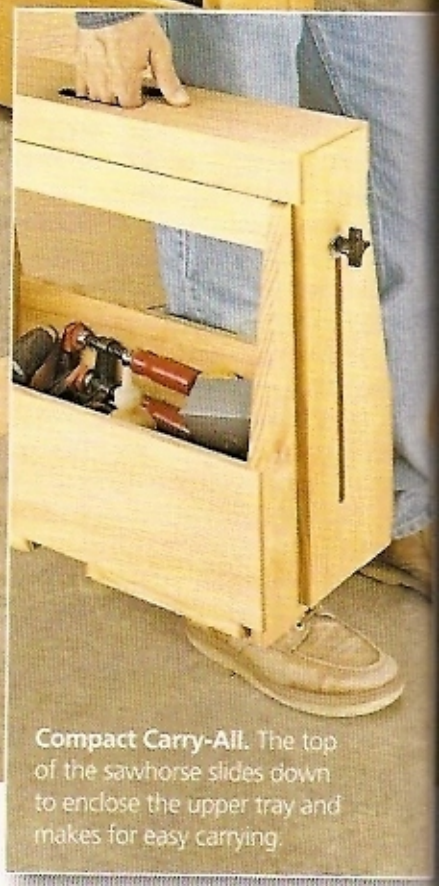


Materials & Hardware

A	Top (1)	22 x 59½ - ¼ Ply.
B	Top End Frames (2)	¾ x 1 - 22
C	Top Side Frames (2)	¾ x 1¾ - 57½
D	Beam Webs (4)	3 x 57½ - ¼ Ply.
E	Beam Caps (8)	¾ x ¾ - 57½
F	Filler Blocks (16)	¼ x 2¼ - 4¾
G	Support Plates (2)	¾ x 3 - 18½
H	Legs (4)	¾ x 4 - 30¾
I	Leg Webs (2)	15 x 20 - ¼ Ply.
J	Stretchers (4)	¾ x 2½ - 19¼
K	Leg Spacers (2)	¾ x 4 - 4⁵⁄₁₆
L	Upper Filler Strips (2)	¼ x ¼ - 6¼
M	Lower Filler Strips (2)	¼ x ¼ - 9½

- (16) #8 x 1½" Fh Woodscrews
- (16) #8 x 2" Fh Woodscrews
- (2) ½" x 3" Hex Head Bolts
- (2) ½" x 2½" Hex Head Bolts
- (8) ½" Washers
- (4) ½" Lock Washers
- (4) ½" Lock Nuts

Tool Tote Sawhorses



Compact Carry-All. The top of the sawhorse slides down to enclose the upper tray and makes for easy carrying.

Adjustable, portable, and loaded with storage — these aren't your average sawhorses.

Sawhorses are "must-haves" for working in and around the shop. But it can be a hassle getting sawhorses, tools, and other materials to where you're working. Plus, it can be a real challenge to keep everything organized while you work.

A quick look at the photo above gives you an idea of how these tool tote sawhorses provide a solution. For starters, the sawhorse features a convenient bin in the base for storing tools, clamps, and other items. And the divided upper tray is a handy place to keep often-used hardware and hand tools.

But here's the best part — you can adjust the top of the sawhorse up and down. So no matter what you're working on, the sawhorse can be set to a comfortable working height.

And when you're ready to pack up and move on, the sawhorse and its contents are easy to carry. Just slide the top down to enclose the upper tray, and grab the convenient handhold (inset photo).

Finally, don't let the narrow profile of the sawhorse give you any concern. A set of swing-out feet ensures stability no matter what type of job you have to do.

BUILDING THE BASE. As you can see in Figure 1, building the main part of the base isn't all that difficult. It's nothing more than a pair of ends connected by a solid wood bottom and two sides.

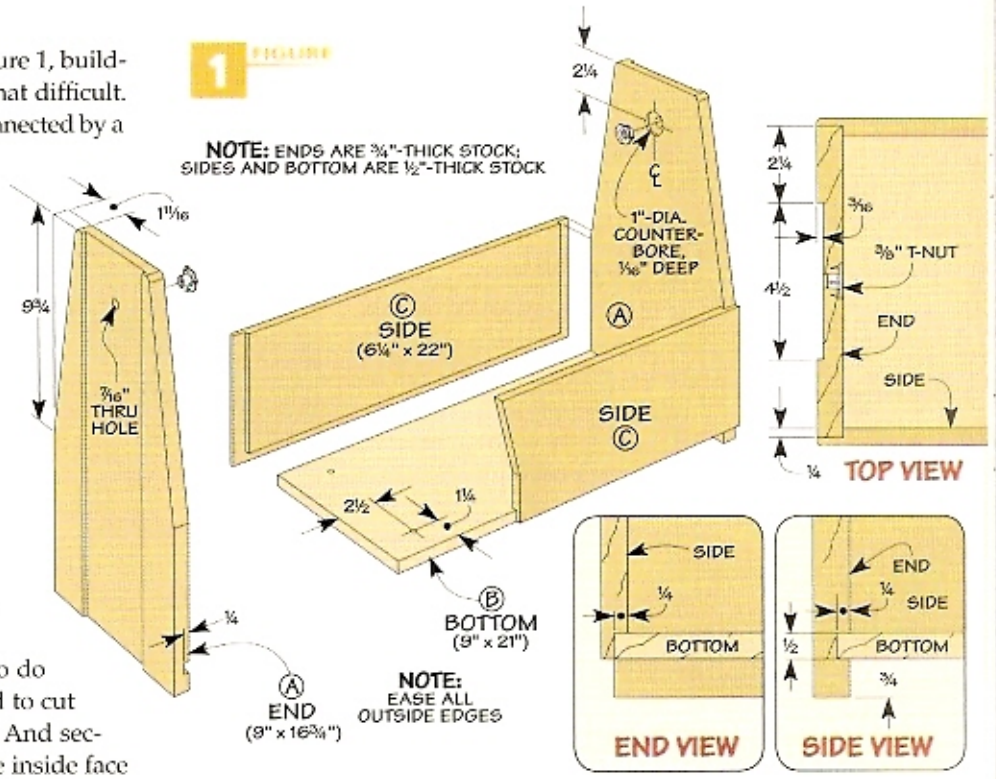
To guide the top of the sawhorse straight up and down as you adjust the height, there's a wide groove cut in the outside face of each end. I set my dado blade up as wide as possible to minimize the number of passes it would take to cut the groove.

Then you'll need to cut a dado on the inside face of each end, which will be used to attach the bottom of the base. This dado is located ¾" up from the bottom edge to provide clearance under the sawhorse for the feet that will be added later. Just be sure to size the dado to fit the ½"-thick bottom.

There are only a couple things left to do to complete the ends. First, you'll need to cut a slight taper along the outside edges. And second, drill a shallow counterbore on the inside face for the T-nut that's used to lock the top in place, as you can see in the Top View of Figure 1.

CONNECT THE ENDS. To connect the ends, there's a bottom piece and a pair of sides (Figure 1). The bottom fits into the dadoes you cut in the ends. But before you glue it in place, drill a hole in each corner for adding the feet once the base is assembled.

To prevent the sawhorse from racking and to create a storage compartment in the base, I added a pair of tall (wide) sides. They're rabbeted to fit around the ends and bottom (Figure 1).

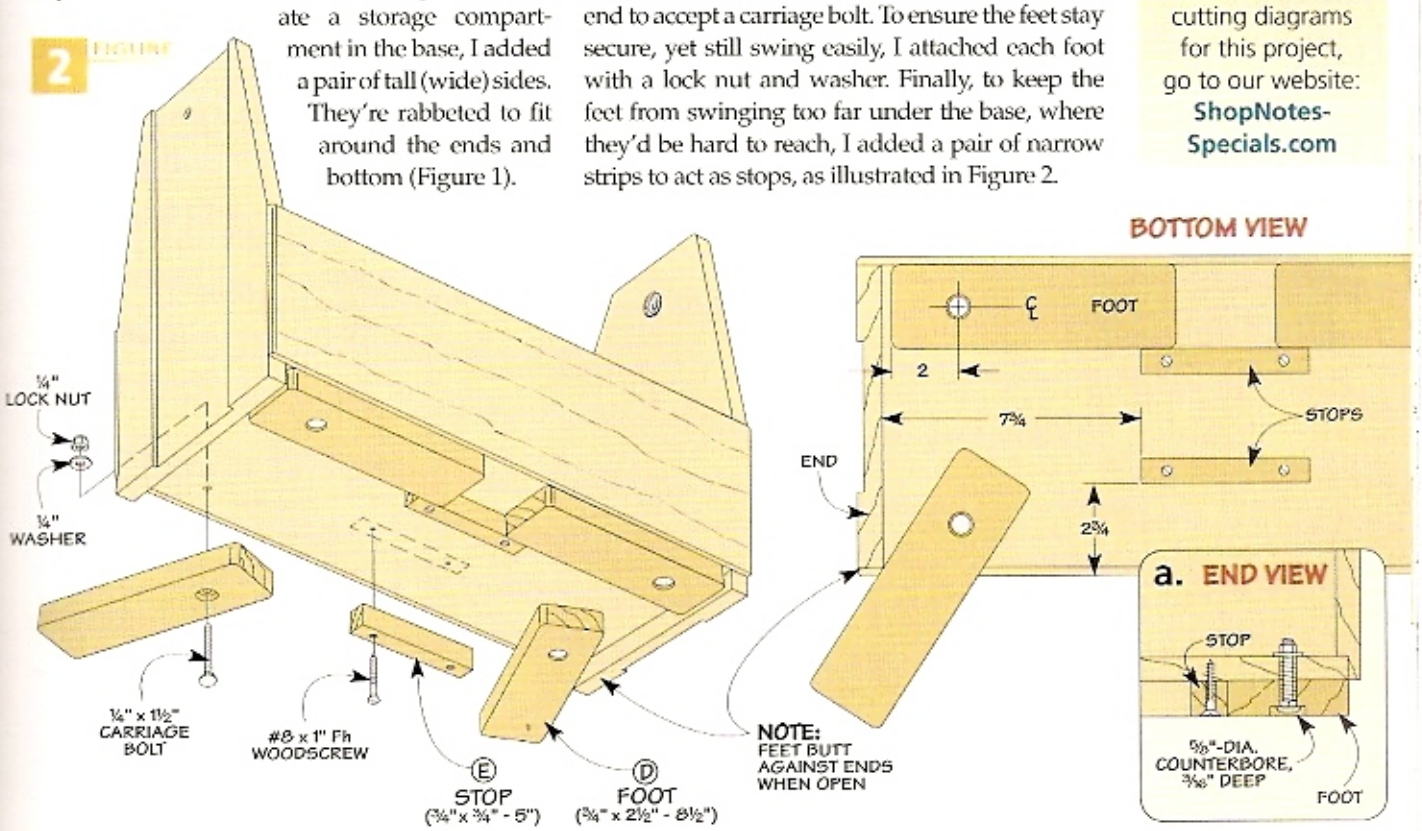


ADDING STABILITY. The next step is to add a set of feet, like you see in Figure 2 below. The feet act like outriggers to stabilize the sawhorse. This prevents the base from rocking back and forth no matter what type of project you're working on.

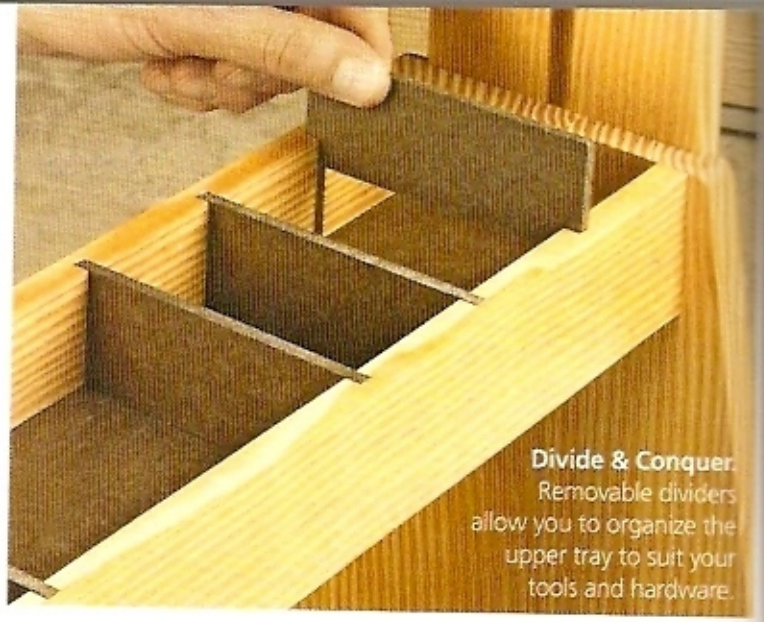
After cutting the feet to size, round the corners slightly and then drill a counterbored hole at one end to accept a carriage bolt. To ensure the feet stay secure, yet still swing easily, I attached each foot with a lock nut and washer. Finally, to keep the feet from swinging too far under the base, where they'd be hard to reach, I added a pair of narrow strips to act as stops, as illustrated in Figure 2.

ShopNotes GO ONLINE EXTRAS

To download the materials list and cutting diagrams for this project, go to our website: **ShopNotes-Specials.com**



Tray & Top



Divide & Conquer. Removable dividers allow you to organize the upper tray to suit your tools and hardware.

With the base of the sawhorse complete, you're more than halfway done. All that's left to do is add the upper storage tray and the adjustable top.

THE TRAY. I started by adding the tray to the base assembly. In addition to providing storage, it also forms a solid bridge between the ends. This makes the sawhorse more stable by keeping the ends from flexing back and forth once the adjustable top is added.

The tray is nothing more than a pair of narrow sides and a hardboard bottom. They're sized to fit snugly between the ends of the sawhorse, as shown in Figure 3.

A series of dadoes in the tray sides accept a set of hardboard dividers. The dividers keep hardware and other small items organized in compartments.

Cutting the matched dadoes can be a challenge. But if you start with an extra-wide workpiece, cut the dadoes, and then rip it into 2" widths for the opposite sides, it's easy.

Once the dadoes are complete, you can cut a groove along the bottom edge of each piece to accept the bottom of the tray.

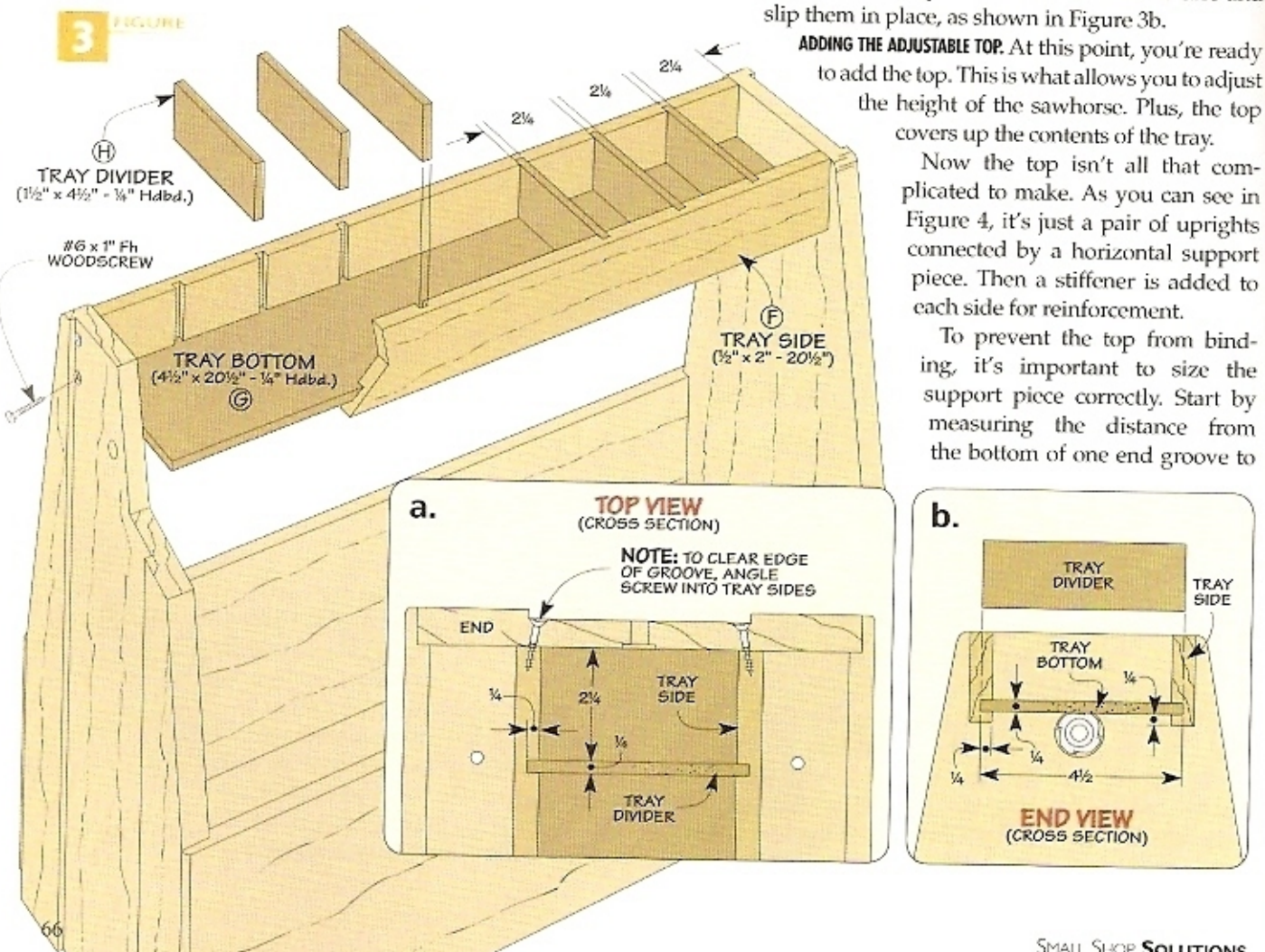
The tray is simply screwed between the sides of the sawhorse, so it's flush with the top of the ends. The only tricky part about doing this is locating the screws. You can see in Figure 3a how I angled them slightly to avoid interfering with the bottom corner of the groove in the ends of the sawhorse. With the tray screwed in place, cut the dividers to size and slip them in place, as shown in Figure 3b.

ADDING THE ADJUSTABLE TOP. At this point, you're ready to add the top. This is what allows you to adjust the height of the sawhorse. Plus, the top covers up the contents of the tray.

Now the top isn't all that complicated to make. As you can see in Figure 4, it's just a pair of uprights connected by a horizontal support piece. Then a stiffener is added to each side for reinforcement.

To prevent the top from binding, it's important to size the support piece correctly. Start by measuring the distance from the bottom of one end groove to

FIGURE 3



the bottom of the other. Then add the thickness of the two uprights.

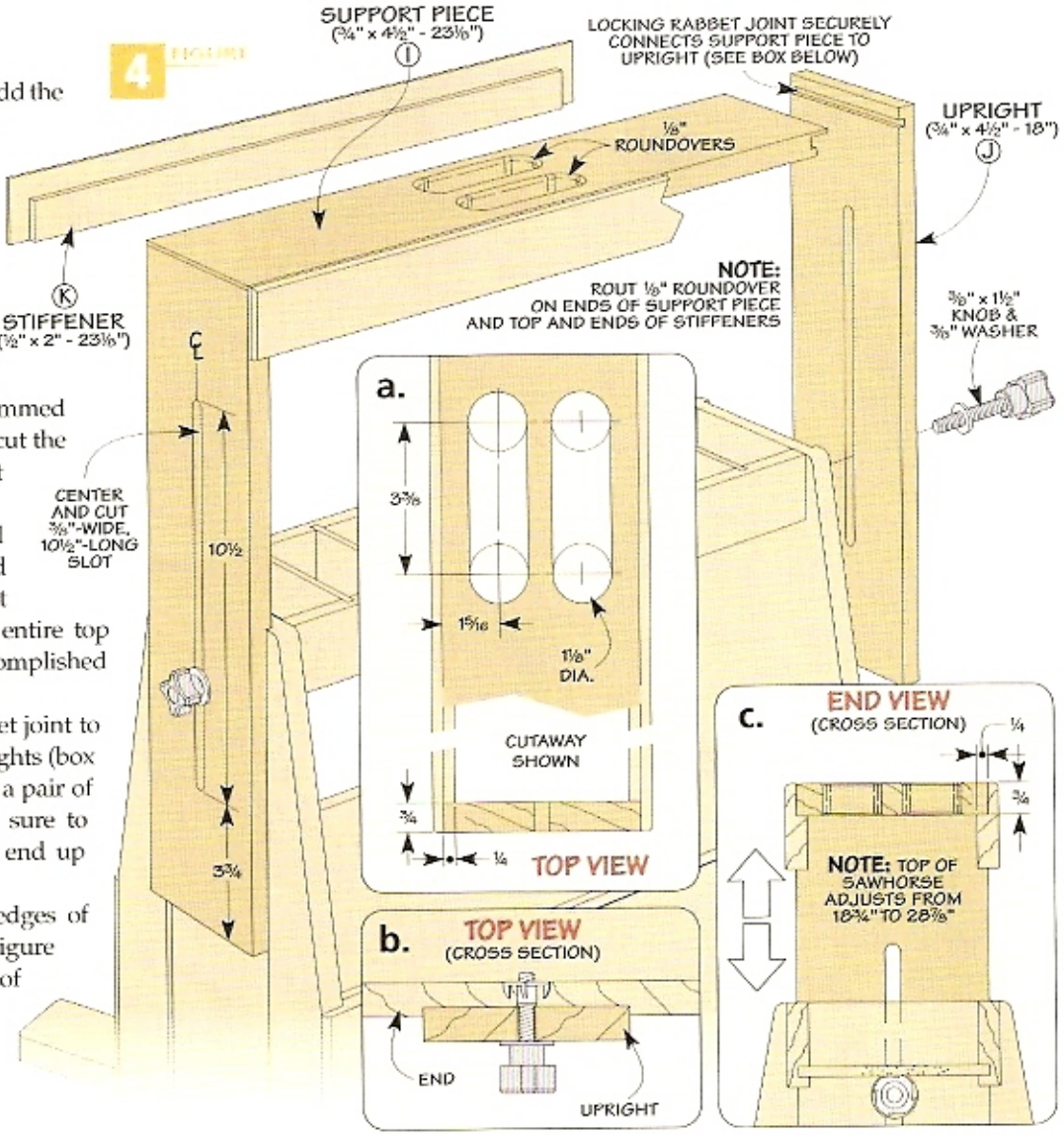
After cutting the support piece to size, I formed a handhold for carrying the sawhorse. To do this, I cut a pair of short slots in the support and then rounded over the top and bottom edges, as shown in Figures 4 and 4a.

Once that was complete, I trimmed the uprights to size and then cut the slots that allow you to adjust the height of the sawhorse.

STRENGTHEN THE TOP. Since you'll be carrying the sawhorse (and any contents) by the support piece, it's important for the entire top assembly to be solid. I accomplished this by doing two things.

First, I used a locking rabbet joint to connect the support and uprights (box below). And second, I added a pair of stiffeners (Figure 4). Just be sure to rabbet the stiffeners so they end up flush with the tray sides.

After easing the outside edges of the top (Figure 4), attach it (Figure 4b) and apply a couple coats of finish. Then you're ready to throw in a few tools and supplies and get to work.



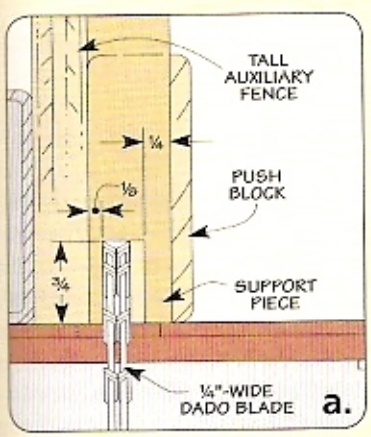
Locking Rabbet Joint

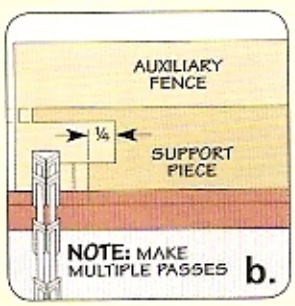
There are a couple reasons I used a locking rabbet joint (shown in the drawing at far right) to connect the support to the uprights.

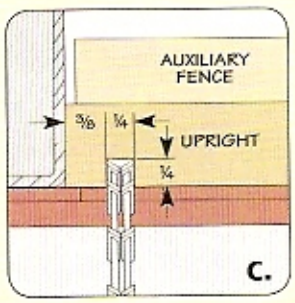
First, it provides a great mechanical "lock." And second, the extra glue surface ensures a solid, long-lasting joint.

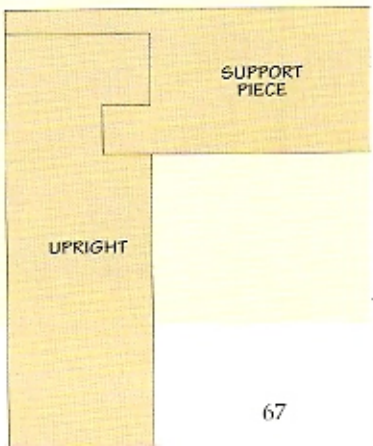
I started cutting the joint by making a couple passes with the support over the dado blade. In detail 'a' you can see all the required measurements. What's important is that the depth of cut matches the thickness of the upright. Using a push block ensures a clean cut without any chipout. Once the slot along the ends is complete, you can trim the bottom face to create a tongue, as in detail 'b.'

Finally, to complete the joint, cut a dado near the top of each upright to fit. The measurements for this are shown in detail 'c.'









Locking Rabbet. A solid connection and lots of glue surface make a locking rabbet a strong, long-lasting joint.

MUST-HAVE ADD-ONS

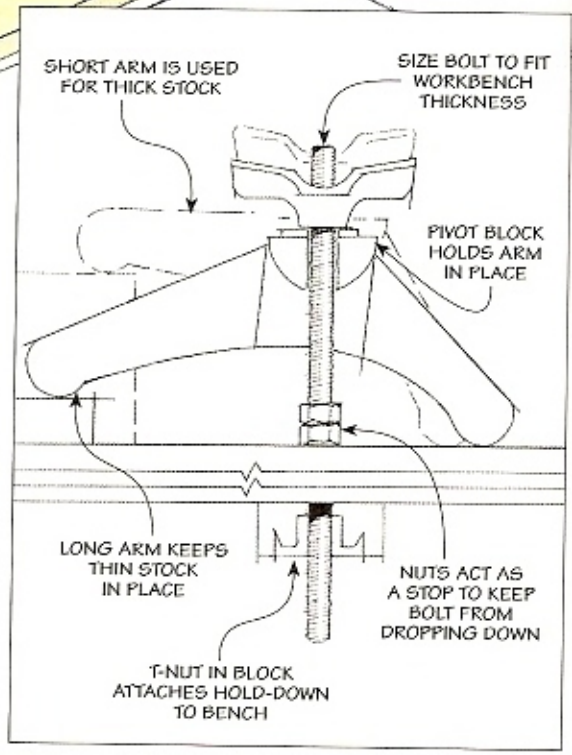
Workbench Accessories

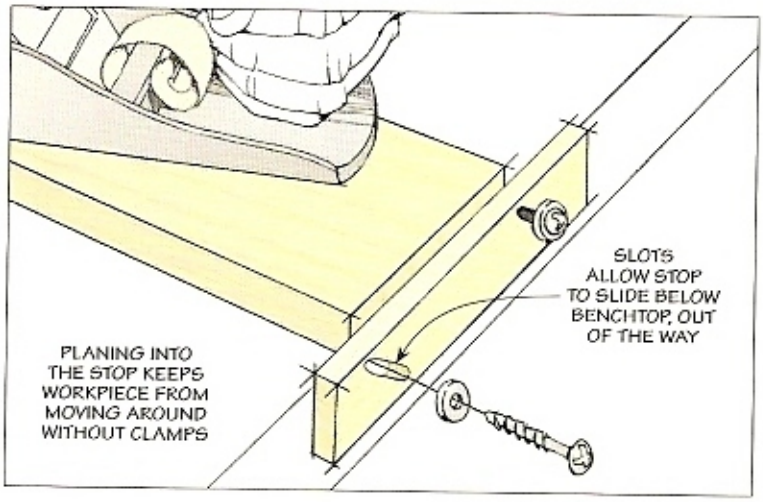
These simple, shop-built devices help you get the most out of your workbench.

The workbench is the largest "tool" in my shop. And I use it for a lot of tasks. But even the best tools can benefit from some add-ons. The ten you see here are the ones I use most. Besides making tasks quicker, safer, and more accurate, each one can be built with mostly scrap material and in less than an hour.

1 Hold-Down Clamp

One of the keys to accurate hand work is holding your workpiece securely. The hold-down shown above has a large wing knob, which makes it a snap to clamp a workpiece down or to reposition it. And since it's made from wood, it won't mar your workpiece.





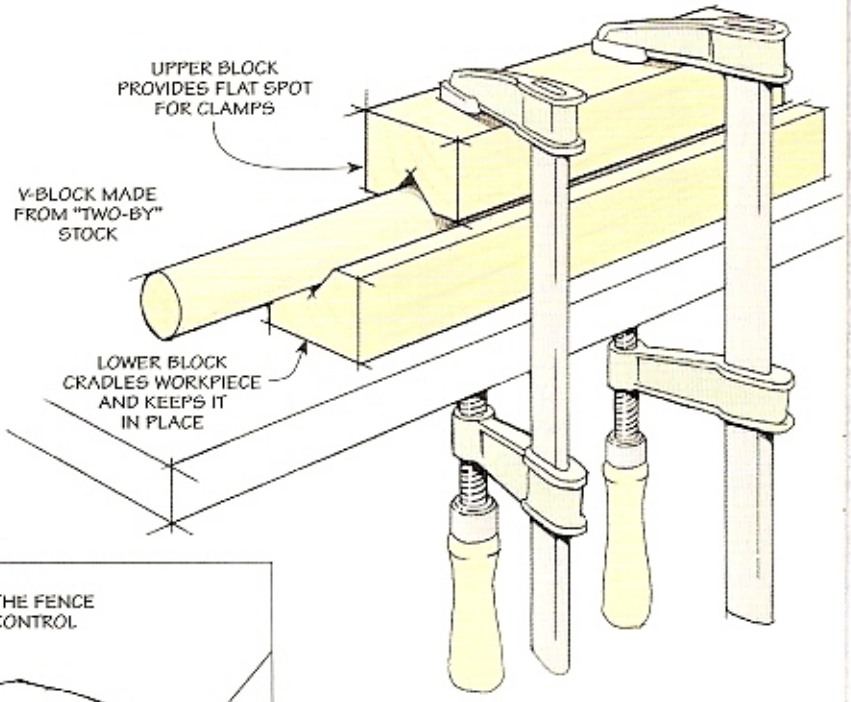
2 Planing Stop

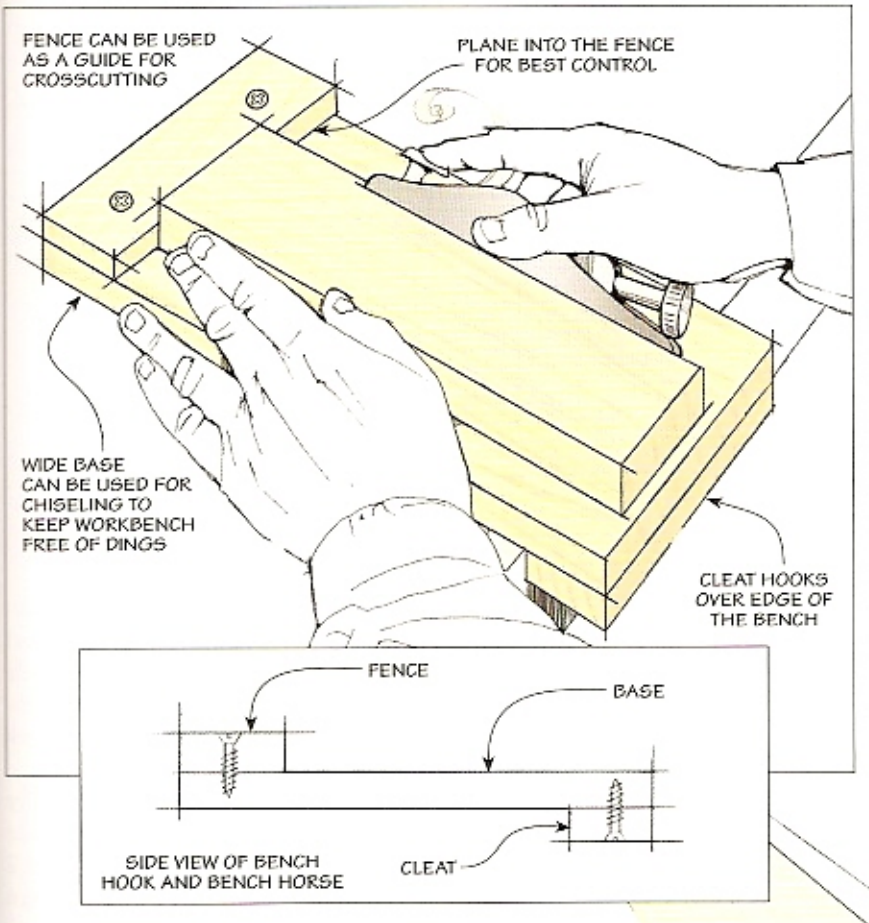
Securing large panels to a workbench for planing or belt sanding can be a bit tricky. Clamps often get in the way of the tool and bench dogs are too narrow to keep the workpiece from shifting. To provide a solid stop for the workpiece, I attach a board to one end of the workbench, as shown in the drawing at left. A pair of angled slots in the stop allow it to slide below the worksurface when it's not needed. And a couple of screws anchor it in place.

3 Two-Part V-Block

The large, flat surface of my workbench is perfect for most of the work I do. But clamping a round or odd-shaped workpiece to the benchtop can seem more like trying to hold onto a wet bar of soap.

To make it easier to grab and hold these pieces, I turn to the two-part V-block you see here. I made mine out of "two-by" stock. The base can be any length, but I found 12" to be about right. It provides a stable, wiggle-free platform for drilling, shaping, or smoothing. A shorter top piece gives the clamps a flat spot to lock the part in place without marring it.





4 Bench Hook

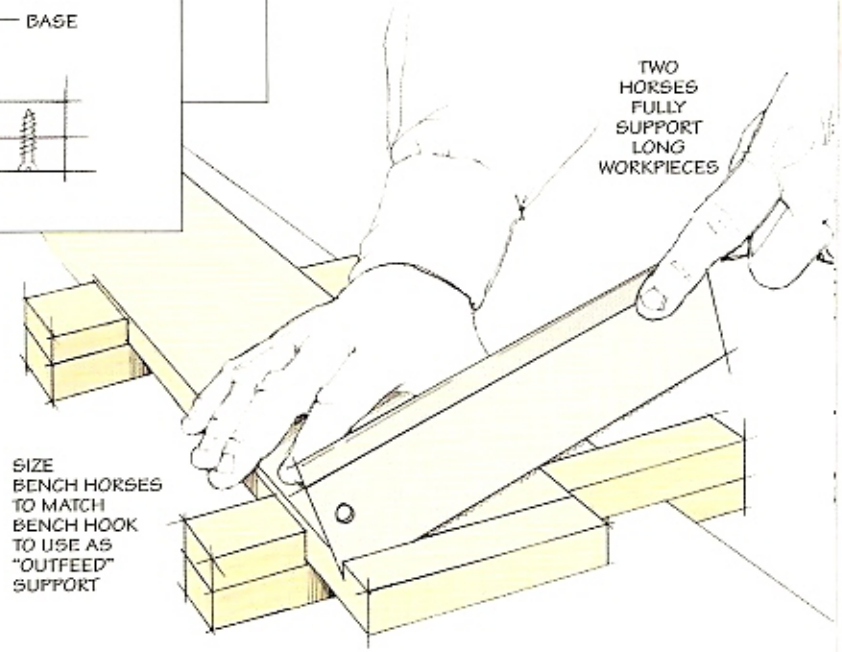
The bench hook shown at left is one bench accessory I always keep close at hand. I can use it as a guide for quickly cutting parts to length or as a planing stop for small parts, as you see in the drawing. The base also protects the bench from sharp chisels and carving tools.

The bench hook is made up of a wide plywood base with a thick hardwood fence at the back. A cleat along the front edge catches on the edge of the workbench.

5 Benchtop Sawhorses

I like to think of these narrow bench hooks as benchtop sawhorses. They raise a workpiece high enough off a benchtop so that you can crosscut the end of a board without damaging the bench, as shown at right. I also use them for trimming tenons.

It's a good idea to make at least two so you can support long stock. I made mine the same depth as the bench hook shown above. This way, they can serve as "outfeed" support so long workpieces won't sag.

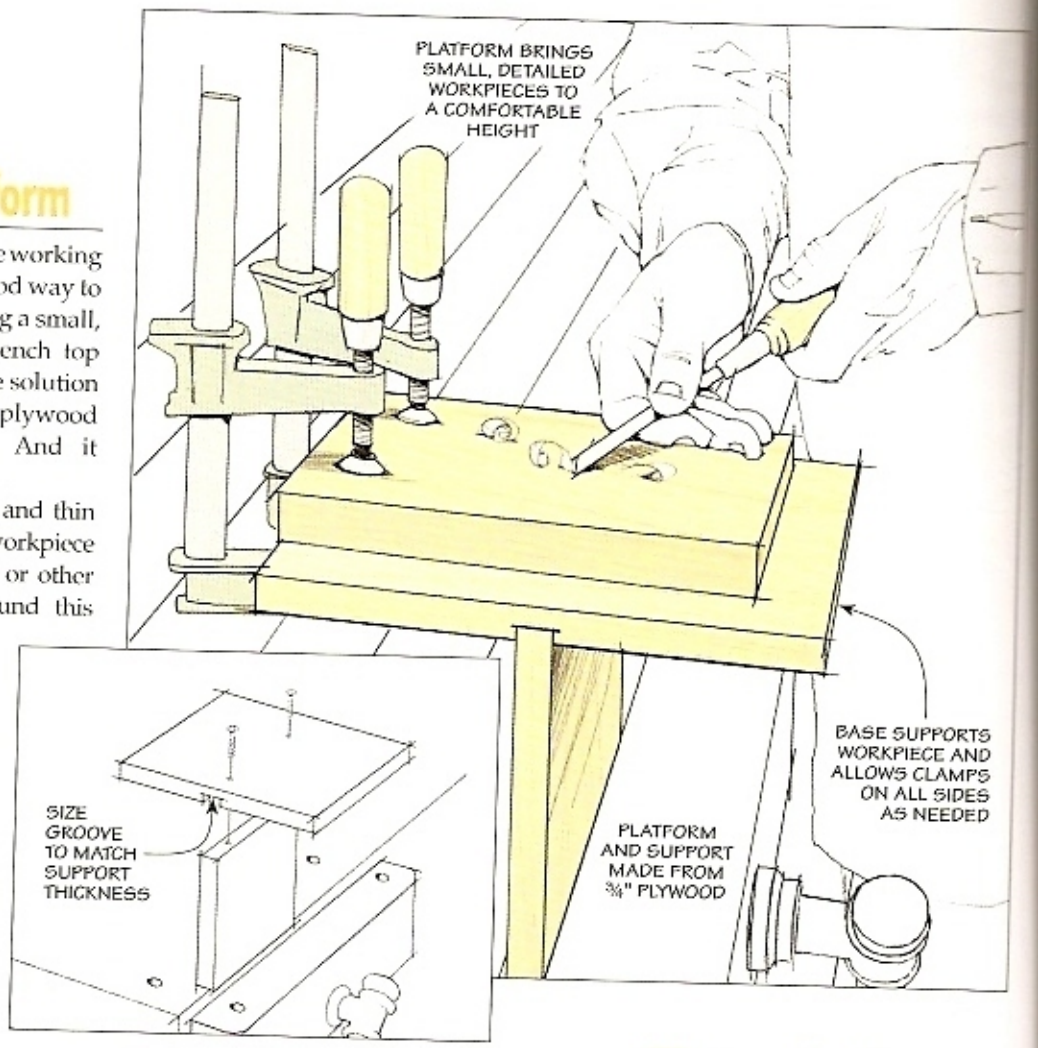


6 Small Parts Platform

Hunching over a bench while working on a small workpiece is a good way to get a back ache. And securing a small, thin part to a large workbench top can be another problem. The solution to these two problems is the plywood platform shown at right. And it couldn't be simpler to make.

The plywood top is small and thin enough to securely clamp a workpiece on all four sides for carving or other close-up work. I've also found this platform comes in handy as a small parts assembly table.

The raised platform you see in the drawings is just two small pieces of plywood joined into a "T" shape with a groove and some glue and screws. Just be sure the bottom leg of the "T" is long enough to bring the platform up to a comfortable working height when it's clamped in a bench vise.

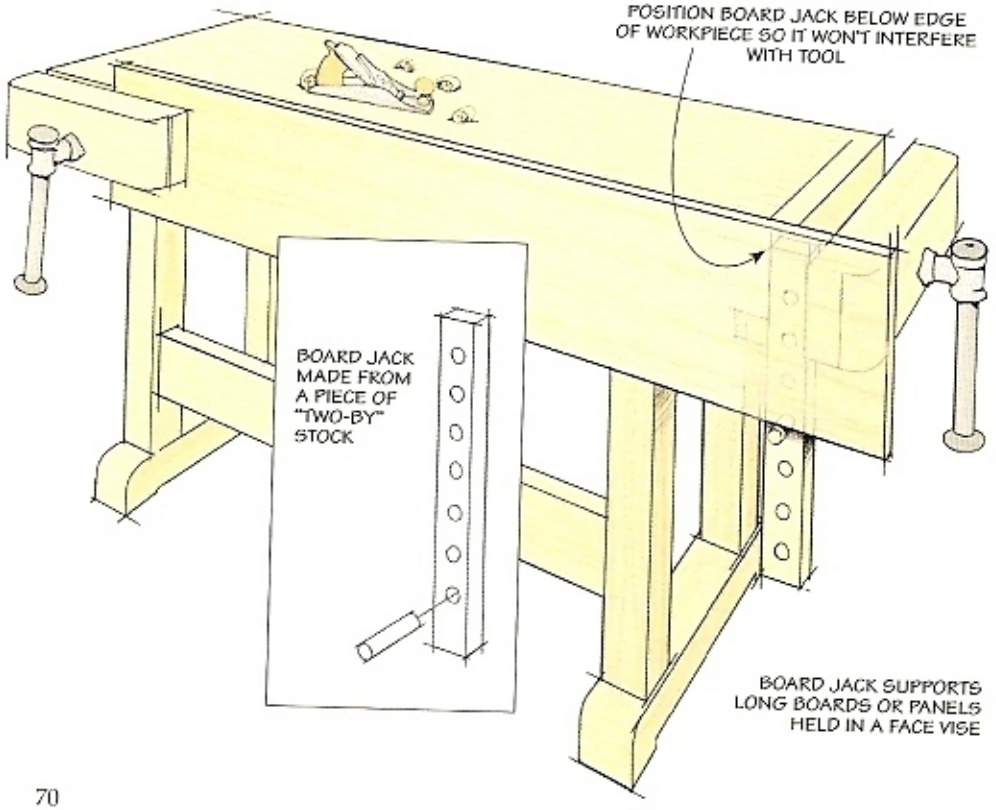


7 Board Jack

Like small parts, supporting and clamping long boards or wide panels to a workbench can be difficult. Especially if you need to work on the edges of these pieces.

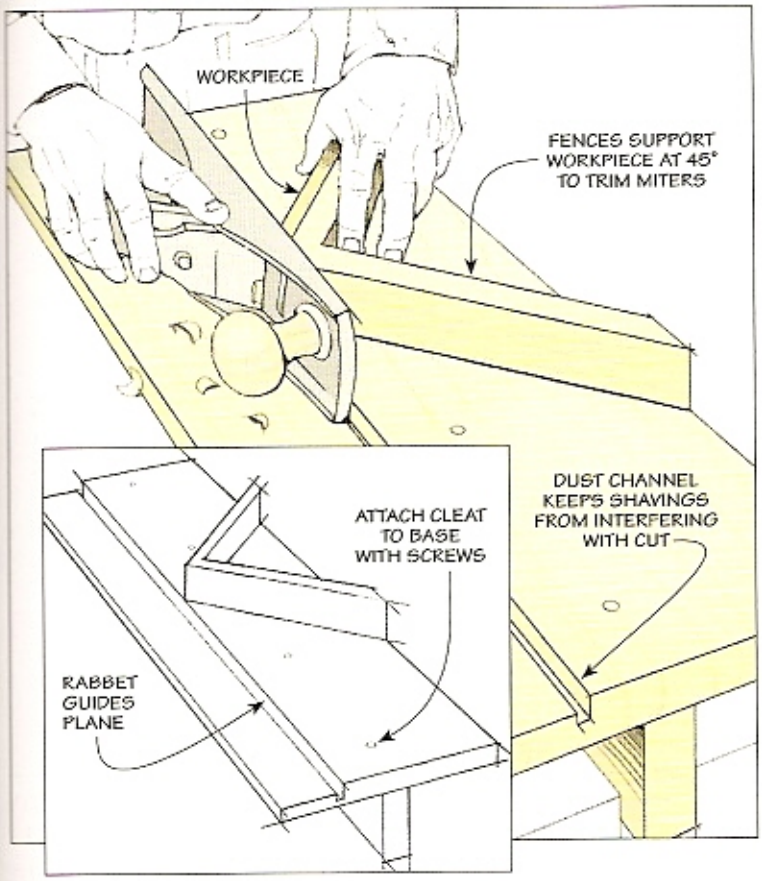
The solution I use isn't really new. In fact, it's been around for hundreds of years. It's called a board jack. (Although some people call it a "deadman.")

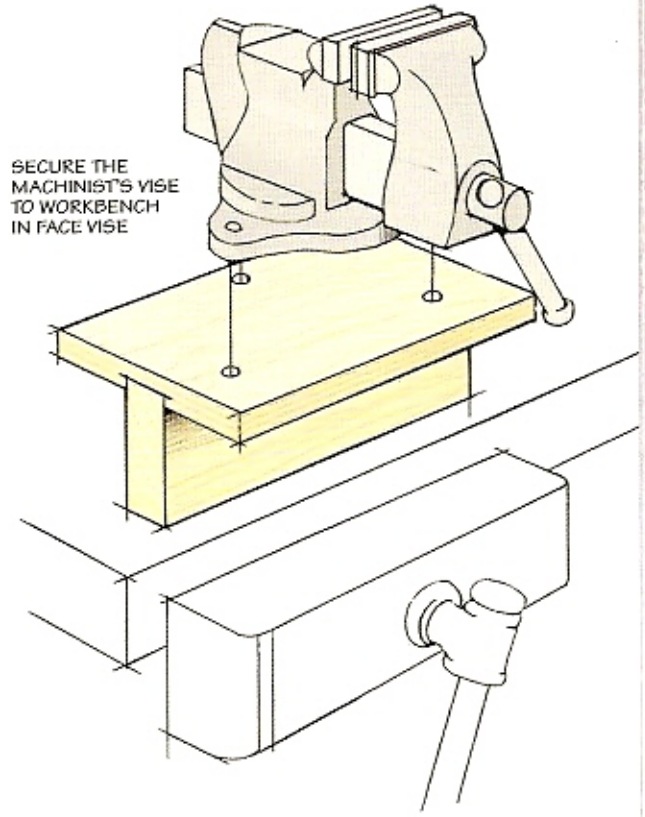
As you see at left, the board jack supports the opposite end of a long workpiece while it's clamped in the face vise. Although some board jacks are permanently attached to the workbench, mine is just a board that gets clamped in the end vise. A row of holes drilled along the length and a short wood peg make it easy to adjust for the width of the board or panel.



8 Miter Shooting Board

A poor-fitting miter joint on a project sticks out like a sore thumb. However, trimming it to fit tight on the table saw or miter saw can be a challenge. That's when I turn to a sharp hand plane and this miter shooting board. With the shooting board, I can hold the workpiece against the angled fence and trim a bit at a time to sneak up on the fit. The plane is guided by a rabbet cut in the base. And a pair of fences attached to the base allows you to trim right or left miters.





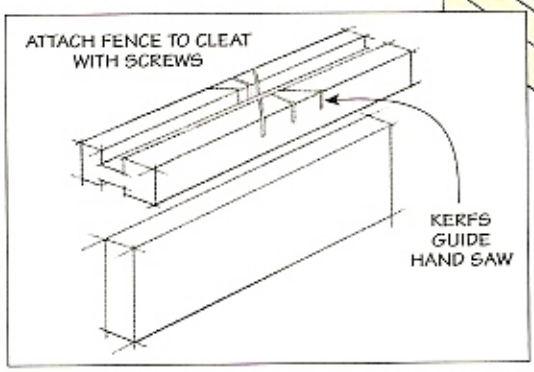
9 Machinist's Vise

Although I work with wood most of the time I'm at my bench, there are times when I need to cut, file, or shape metal. For that, a machinist's vise comes in pretty handy. But I don't want or need it on my bench all the time. To make for easy use, I bolted the vise to a plywood base that has a cleat on the bottom. The cleat gets clamped in the face vise of the workbench and holds the metal vise steady as a rock.

10 Mini Miter Box

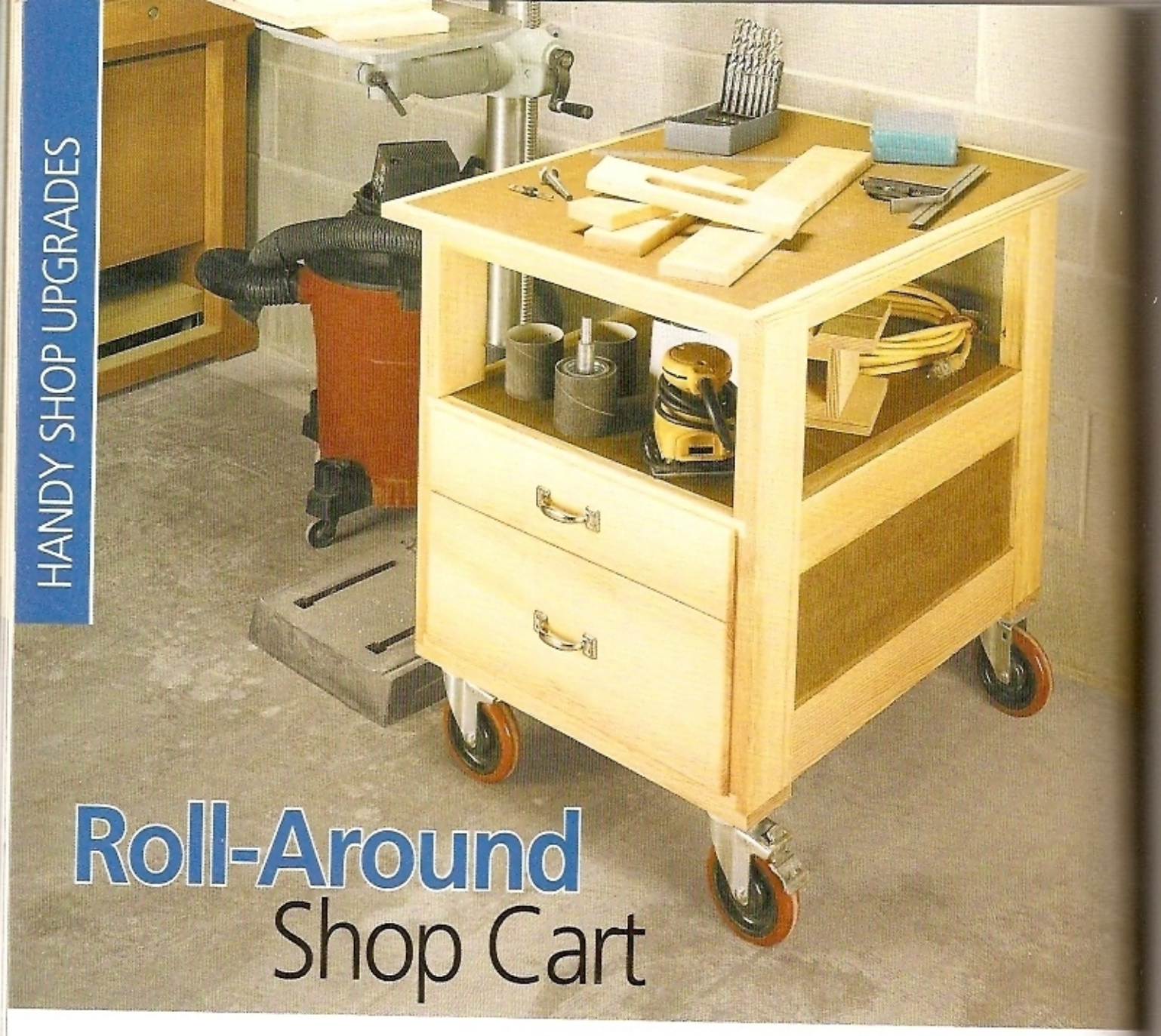
Zing! If you've ever tried to cut small pieces of molding on a power miter saw, you know the sound a piece makes as it catches on the blade and goes whistling across the shop. Besides being difficult to control, cutting small parts on the miter saw can sometimes lead to tearout and rough cut edges.

A cleaner and safer way to make these cuts is to use a hand saw and the small miter box shown at right. It clamps securely in a bench vise. A kerf for 90° and left and right 45° cuts in the fence guides the saw for smooth cuts every time.



Handy Shop Upgrades

The shop upgrades you'll find here are like trusty sidekicks to the power tools in your shop. They'll give you expanded capabilities and provide needed storage to make the most of your space.



Roll-Around Shop Cart

This handy worksurface keeps everything organized and takes the hassle out of moving workpieces around the shop.

One thing that always comes in handy around the shop is a helper. Someone to carry parts around or just be "at the ready" whenever the need arises.

Unfortunately, not many of my friends want to hang around the shop waiting for me to need them. That's what led to building the shop cart shown above. Whether you're moving parts around the shop or working with a number of workpieces at one tool, you'll always have a "helper" who's ready, willing, and able to lend a hand.

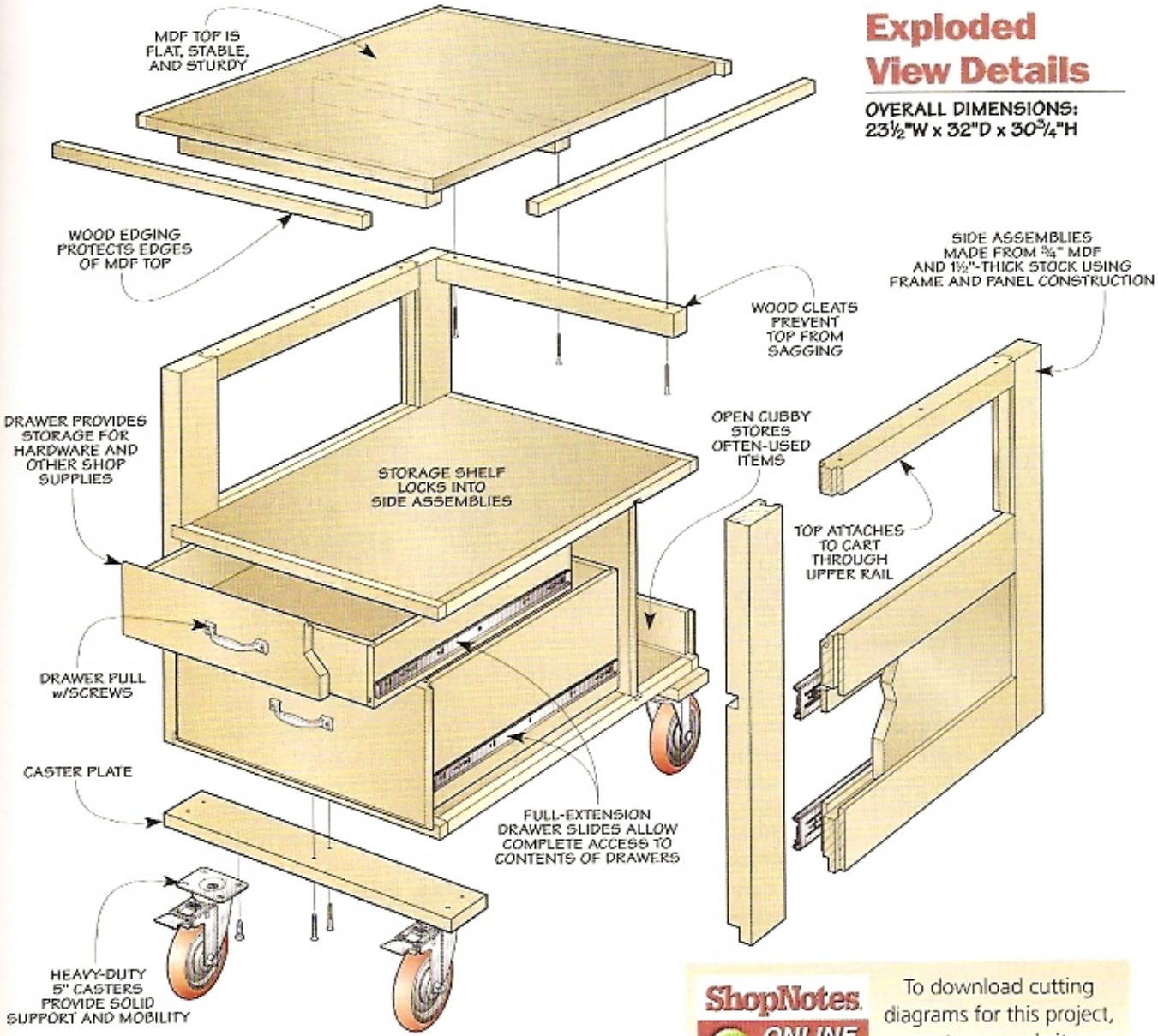
WORKSURFACES. One thing you'll notice is that the cart has two worksurfaces. The top holds workpieces that are ready to be worked on (like the lumber being planed in the photo on the opposite page). And the lower surface stores completed workpieces. The upper surface also works great as an assembly or finishing table (right photo on opposite page).

Regardless of the workout you give this cart, when you're ready to "roll on" to the next task, you won't have to worry about spilling a load of workpieces. The heavy-duty casters won't get hung up on extension cords, floor cracks, or wood chips.

STORAGE. This roll-around cart also offers plenty of storage. There's a pair of drawers at the front of the cart and an open cubby at the back, which means you won't have to search for often-used supplies.

Exploded View Details

OVERALL DIMENSIONS:
23½"W x 32"D x 30¾"H



ShopNotes GO ONLINE EXTRAS

To download cutting diagrams for this project, go to our website: **ShopNotesSpecials.com**

Multiple Worksurfaces. Whether you're working at the table saw, jointer, or planer (shown above), the lower shelf is the perfect place to store completed workpieces.

Assembly Station. When you're not moving parts around the shop, the generously sized top makes a perfect assembly or finishing station for smaller projects.

Base & Top

I started on the roll-around shop cart by building the base. It's basically just a big box made up of two frame and panel assemblies joined by a shelf and a bottom panel.

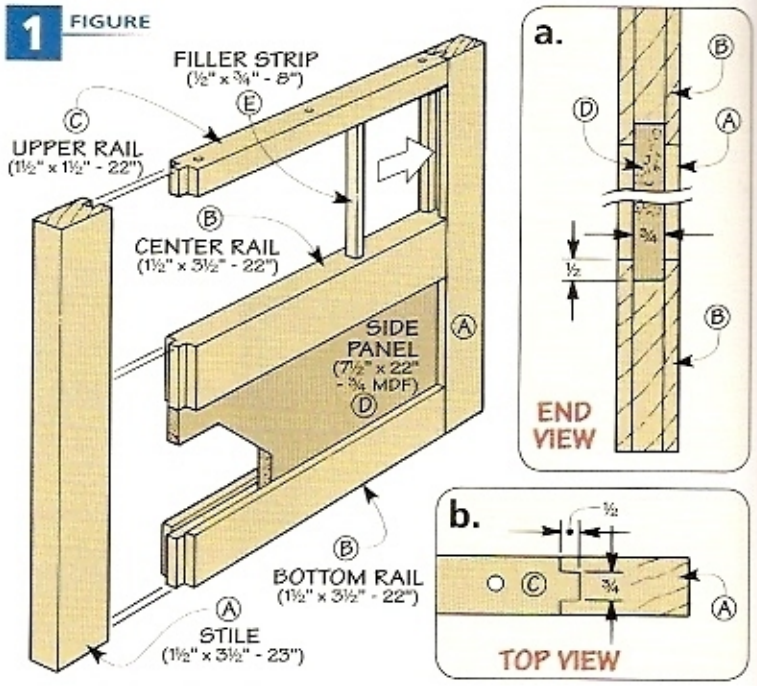
MATERIAL. Since I expected the cart to see heavy-duty use around the shop, I decided to use construction-grade ("two-by") lumber for the frame pieces. (I used Douglas fir.) Construction lumber has a few things going for it. First, it's beefy and solid — a perfect choice for a shop cart. And it's fairly inexpensive.

But construction lumber does have a couple drawbacks — which are easy to overcome. For one, you'll have to spend a little time picking through the stack of lumber. I like to separate out the lumber with the straightest grain, fewest knots, and minimal defects. Then I select lumber wider than what I need. This way, I can trim off the rounded edges to square it up and cut around any remaining knots or defects.

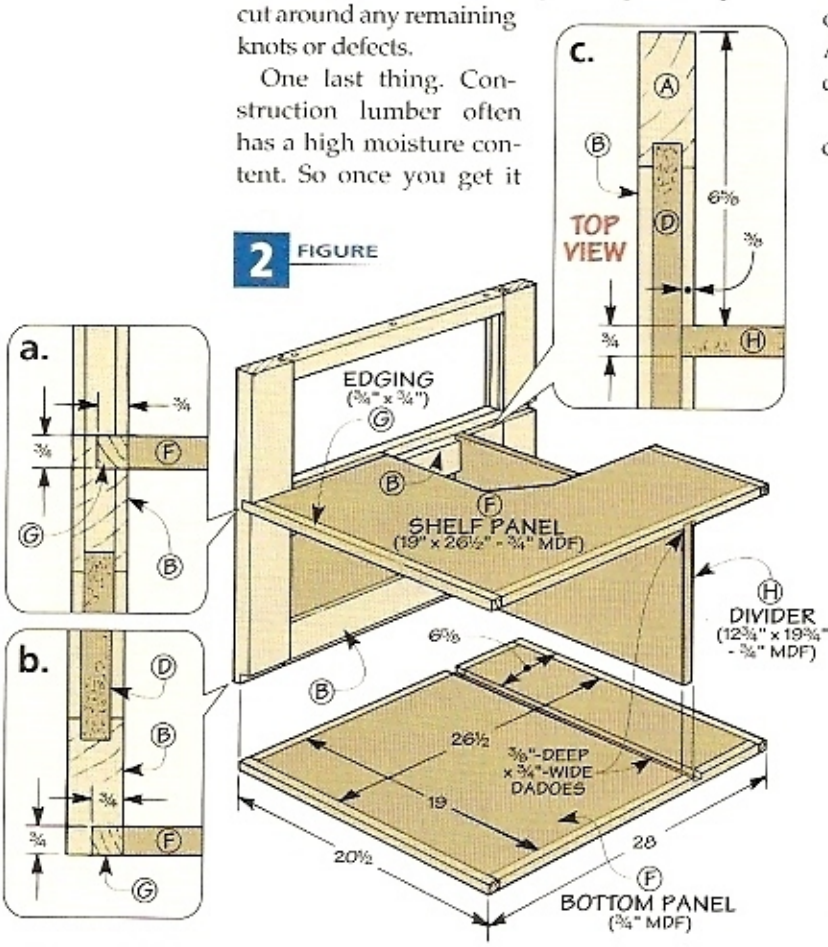
One last thing. Construction lumber often has a high moisture content. So once you get it back to your shop, it's a good idea to sticker it and let it dry out before you start cutting any workpieces to size. Note: Stickering is a just a fancy word for propping the lumber up off the floor and separating the pieces with a few strips of scrap lumber so air can circulate around it. After the stock has had a chance to dry out for a couple weeks, you're ready to start cutting.

SIDE ASSEMBLIES. Once the stock is ready, you can check out Figure 1 for the dimensions needed to

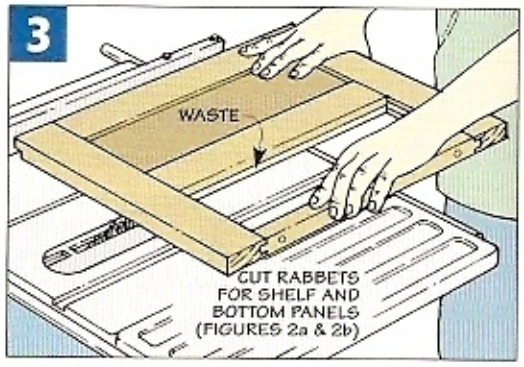
1 FIGURE



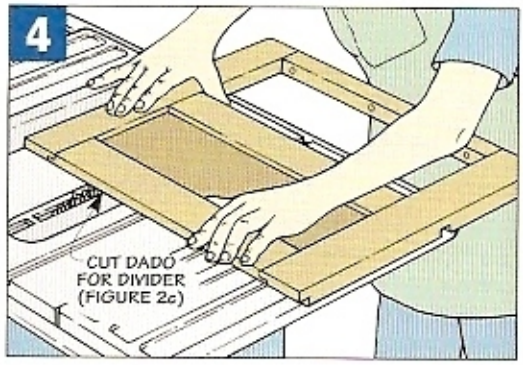
2 FIGURE



3



4



build the side assemblies for the base. Each side assembly starts out as a frame made up of a pair of stiles and three rails. Note: The upper rail is narrower to provide a larger opening to access the lower shelf and make it easier to attach the top later using shorter screws.

After you have the frame pieces cut to size, you can turn your attention to the tongue and groove joints that hold the frame together. You can see in Figure 1a that the centered grooves are sized to fit the ¾" MDF side panel. Then you can cut the tongues on the ends of the rails to match the grooves.

ASSEMBLY. With the joinery complete, you're just about ready to glue up each side assembly. But before you do that, it's a good idea to drill a set of three holes in each upper rail for mounting the top later (Figures 1 and 1b).

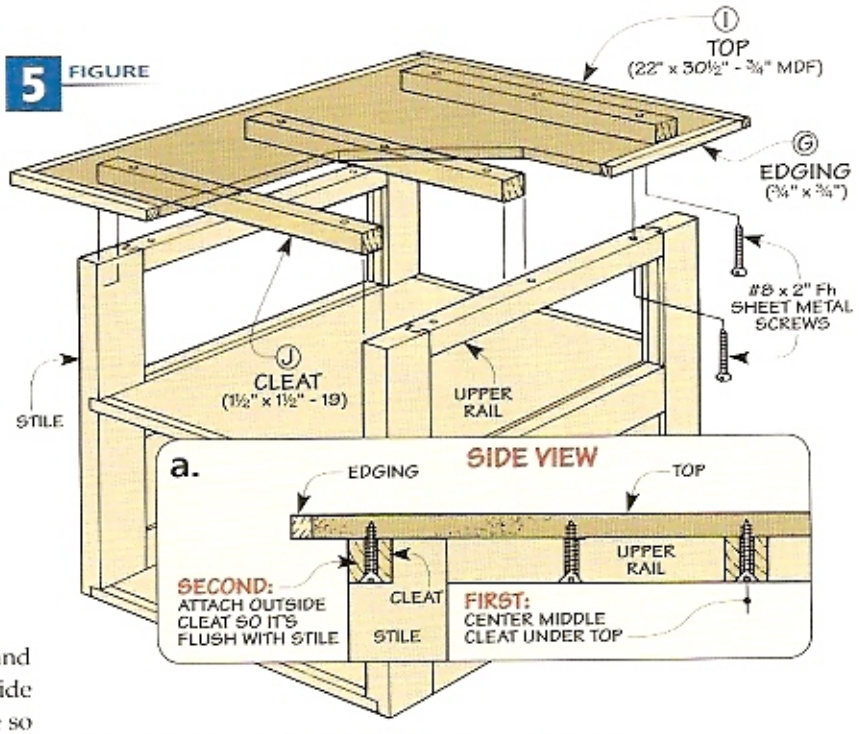
To glue up each frame, I started with one stile and fit the bottom rail in place. After adding the side panel and center rail, slip the upper rail in place so it's flush with the end of the stile. Then add the other stile and clamp the assembly so it's flat and square.

FILLER STRIPS. To fill in the open grooves on the inside face of the stiles, I added some filler strips, like you see in Figure 1. I like to size them so they're a bit proud. This way, I can sand them perfectly flush once they're glued in place.

SHELF & BOTTOM PANEL. At this point, you can set the frame and panel assemblies aside and turn your attention to the shelf and the bottom panel. These two pieces join the frame and panel side assemblies together to form the base of the cart.

The shelf and bottom panel are made from ¾" MDF and are wrapped with ¾"-thick edging, as in Figure 2. Here again, it's easiest to glue the edging in place so it's a bit proud and then sand it flush.

The bottom panel fits into a rabbet cut along the lower inside edge of each side assembly (Figure 2b), and the shelf fits into a "rabbet" cut along the top inside edge of the center rail (Figure 2a). A dado blade in the table saw makes quick work of cutting both rabbets, as illustrated in Figure 3.

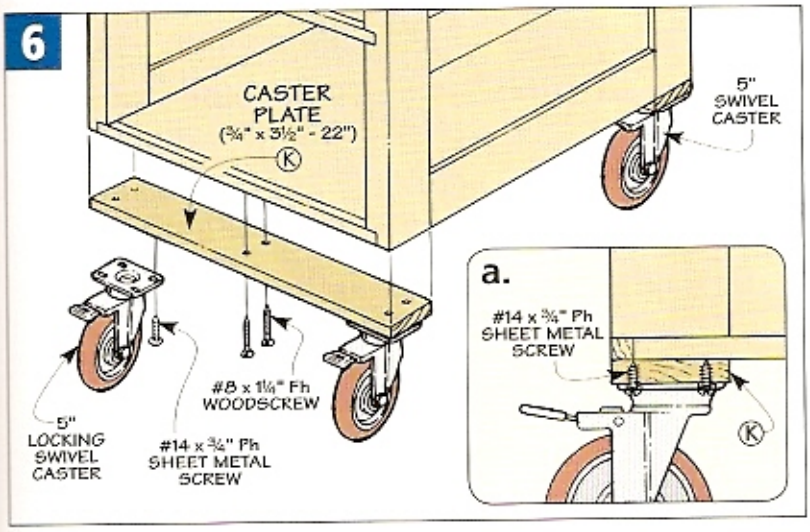


Before you can assemble the cart, there's one last thing to do. And that's to cut dadoes in the side assemblies, shelf, and bottom panel (Figure 4). These dadoes trap a ¾" MDF divider in place to separate the drawer compartment from the storage area at the back of the cart (Figure 2). Note: You don't need to cut dadoes in the upper rails.

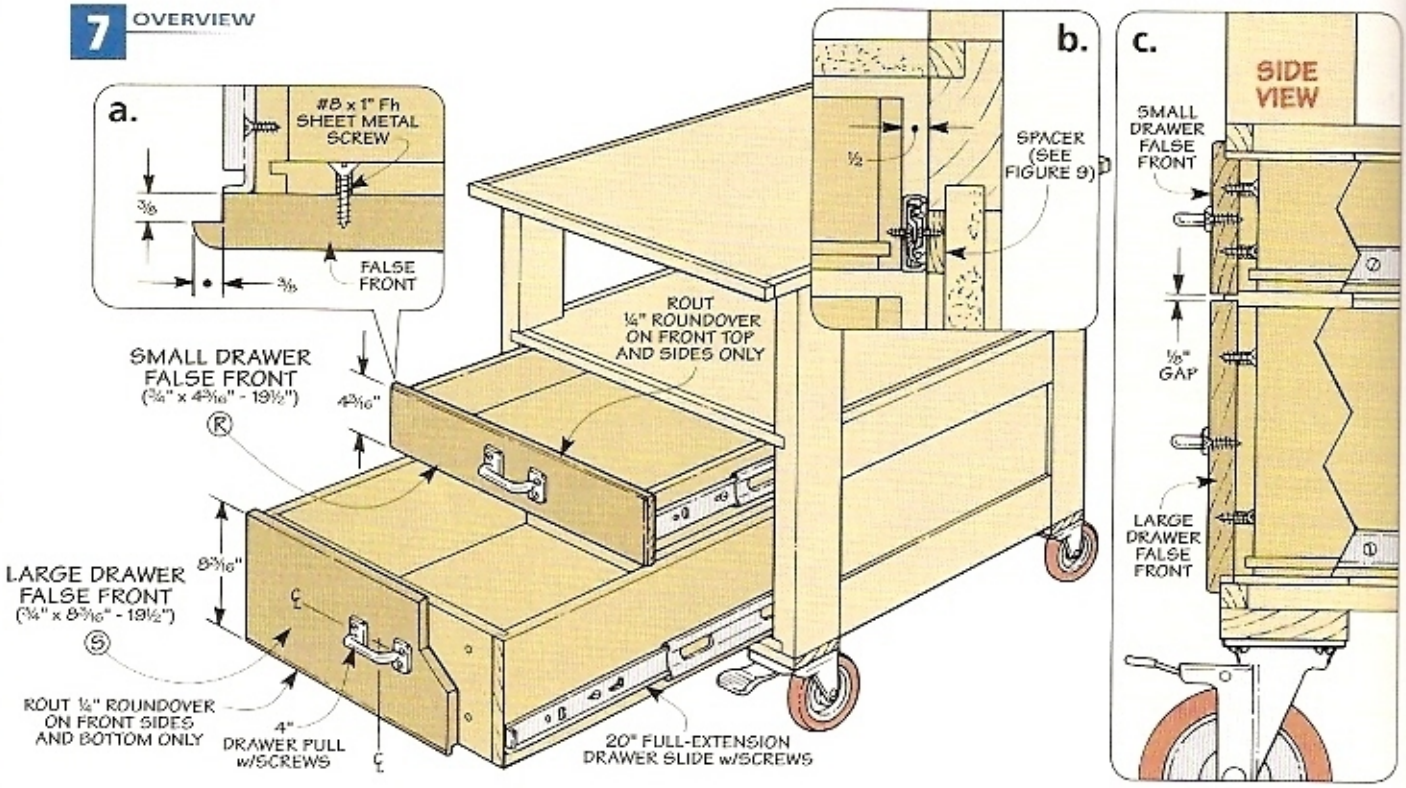
ASSEMBLE BASE. Once the dadoes are cut, you can assemble the base of the cart by gluing the shelf and bottom into the side assemblies, trapping the divider in place as you do this (Figure 2).

TOP. Like the shelf and bottom panel, the top is just a piece of ¾" MDF wrapped with edging. Since I was a bit worried about the MDF top sagging over time, I "beefed" it up by screwing a set of 1½"-square cleats to the bottom side, as shown in Figures 5 and 5a. After positioning the top on the base of the cart, I screwed it in place, as you see in Figure 5.

CASTERS. Finally, to make the cart mobile, I added swivel casters to the back and locking swivel casters to the front. To provide solid support, they're attached to caster plates that are glued and screwed to the bottom of the cart (Figures 6 and 6a).



7 OVERVIEW



Building the **Drawers**

With the base of the cart complete, you're ready to add the two drawers, as shown in Figure 7.

SIZE DRAWERS. Although I could have made the two drawers the same size, I decided to make one shallow drawer and one deep drawer. This way, I can store a wider variety of tools and supplies.

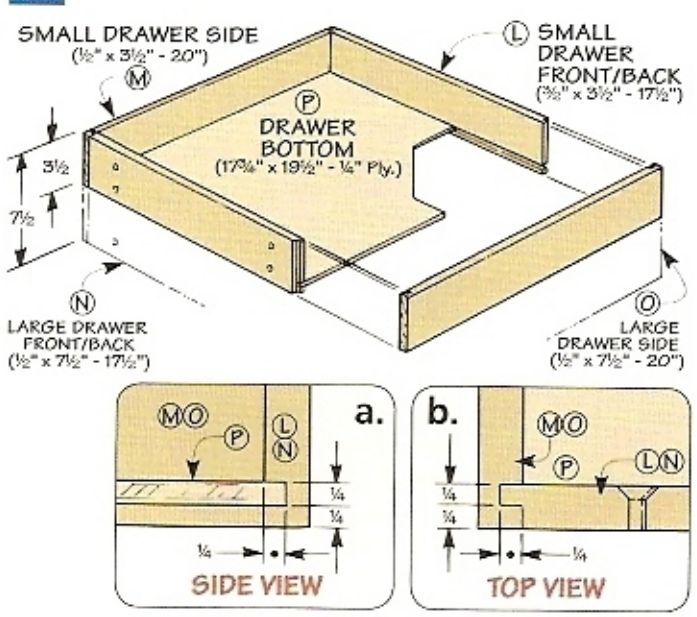
In addition to keeping the height in mind as you size the drawer parts, you'll also need to consider how you're going to mount the drawers inside the base. As you can see in Figure 7, I used full-extension, metal drawer slides.

If you're wondering why I purchased metal slides for a utility shop cart, there are a couple good reasons. First, metal slides are strong — an important feature for a drawer loaded with heavy shop tools and supplies. And second, the full-extension feature ensures that you'll be able to reach the entire contents of the drawer easily.

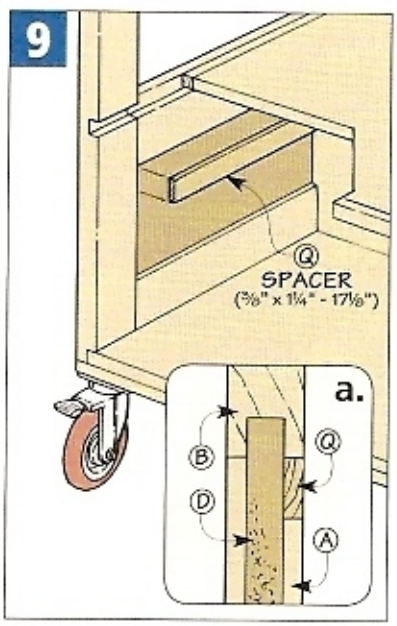
For the slides I used, I had to allow for 1/2" of clearance on each side of the drawer (Figure 7b). After allowing for this clearance and the tongue and dado joinery used to hold the drawers together, I cut the 1/2"-thick drawer fronts, backs, and sides to size, as you can see in Figure 8.

The nice thing about the tongue and dado joinery for the drawers is that you can cut it entirely on the table saw. A 1/4"-wide dado cut on the ends of each side accepts a tongue cut on the ends of the fronts and backs, as shown in Figure 8b.

8 FIGURE



9



Before assembling the drawers there are a couple things to do. First, you'll need to cut a groove near the bottom edge to hold the ¼" plywood bottom, as in Figure 8a. And second, I've found when making drawers it's easiest to drill holes for mounting the false fronts before assembly (Figures 8 and 8b).

SPACERS. After gluing up each drawer, there's one last thing to do before installing them. And that's to add a couple spacers to the inside of the cart. The spacers fill out the side assembly to provide a smooth, even surface for installing the drawer slides, as in Figures 9 and 9a.

INSTALL DRAWERS. After gluing the spacers in place, you're ready to install the drawers. To install the full-extension, metal slides, you'll need to separate each one into two parts. Then you can screw one half to the cart and the other half to the drawer so the slides are flush with the bottom edge of each drawer, as shown in Figure 7b. Note: The half of the slide installed in the cart is set back ⅜" to allow for the lip of the false fronts that are added next, as you see in Figure 7a.

FALSE FRONTS. With the drawers in place, all that's left to complete them is to add some rabbeted false fronts. The rabbets make it easy to install the false fronts so they're perfectly aligned.

When sizing the false fronts, allow for a ¼" overlap on the top, bottom, and sides, and an ⅛" gap between the drawers. Then you can rabbet the top and sides of the small false front, and the bottom and sides of the large false front. (There are no rabbets where the false fronts meet.)

To ease the edges of the false fronts, I rounded over the outside face of the same edges that were rabbeted, as you see in Figure 7.

Now, you can screw the false fronts to the drawers. Then center a pull on each false front and screw them in place, as shown in Figures 7a and 7c.

Storage Cubby. Adding a drawer front to the back opening creates a handy storage area.

CUBBY. All that's left at this point is to install a drawer front to form the cubby at the back of the cart, like you see in the photo above.

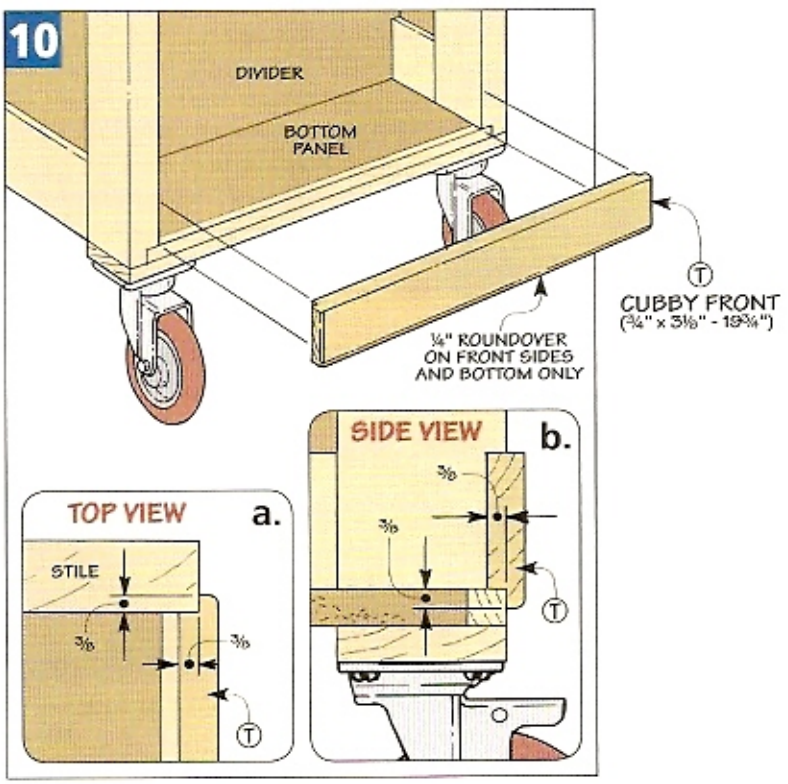
Like the large false front, the cubby front is rabbeted to form a lip and is rounded over on the bottom and ends, as you see in Figures 10a and 10b. Then, it's simply glued in place.

FINISH. After wiping on a couple coats of an oil finish, your new "helper" will be ready to lend a hand in the shop. The nice thing is, he won't need a break and you won't hear any complaints.

Materials & Hardware

A	Stiles (4)	1½ x 3½ - 23
B	Center/Bottom Rails (4)	1½ x 3½ - 22
C	Upper Rails (2)	1½ x 1½ - 22
D	Side Panels (2)	7½ x 22 - ¾ MDF
E	Filler Strips (4)	½ x ¾ - 8
F	Shelf/Bottom Panel (2)	19 x 26½ - ¾ MDF
G	Edging	¾ x ¾ - 25 Ln. Ft.
H	Divider (1)	12¾ x 19¾ - ¾ MDF
I	Top (1)	22 x 30½ - ¾ MDF
J	Cleats (3)	1½ x 1½ - 19
K	Caster Plates (2)	¾ x 3½ - 22
L	Small Drawer Front/Back (2)	½ x 3½ - 17½
M	Small Drawer Sides (2)	1½ x 3½ - 20
N	Large Drawer Front/Back (2)	½ x 7½ - 17½
O	Large Drawer Sides (2)	½ x 7½ - 20
P	Drawer Bottoms (2)	17½ x 19½ - ¼ Ply.
Q	Spacers (2)	⅜ x 1¼ - 17⅛
R	Small Drawer False Front (1)	¾ x 4³⁄₁₆ - 19½
S	Large Drawer False Front (1)	¾ x 8³⁄₁₆ - 19½
T	Cubby Front (1)	¾ x 3⅛ - 19¾

- (8) #8 x 1" Fh Sheet Metal Screws
- (12) #8 x 1¼" Fh Sheet Metal Screws
- (15) #8 x 2" Fh Sheet Metal Screws
- (16) #14 x ¾" Ph Sheet Metal Screws
- (2 pr.) 20" Full-Extension Drawer Slides w/Screws
- (2) 4" Drawer Pulls w/Screws
- (2) 5" Locking Swivel Casters
- (2) 5" Swivel Casters



Stow-Away Router Table

This project sets up quickly and stows away easily. But what's even better, it has the complete capabilities of a full-size router table.

A challenge in most shops is finding room for all your tools. This compact router table stores just about anywhere. And when you need to use it, it quickly mounts to any workbench using a face vise (main photo) or clamps (left photo below).

A set of quick-release toggle clamps allows you to install the router in seconds (center photo below).

And finally, aluminum tracks along the front and sides make it easy to accurately position a fence or a featherboard (lower right photo).

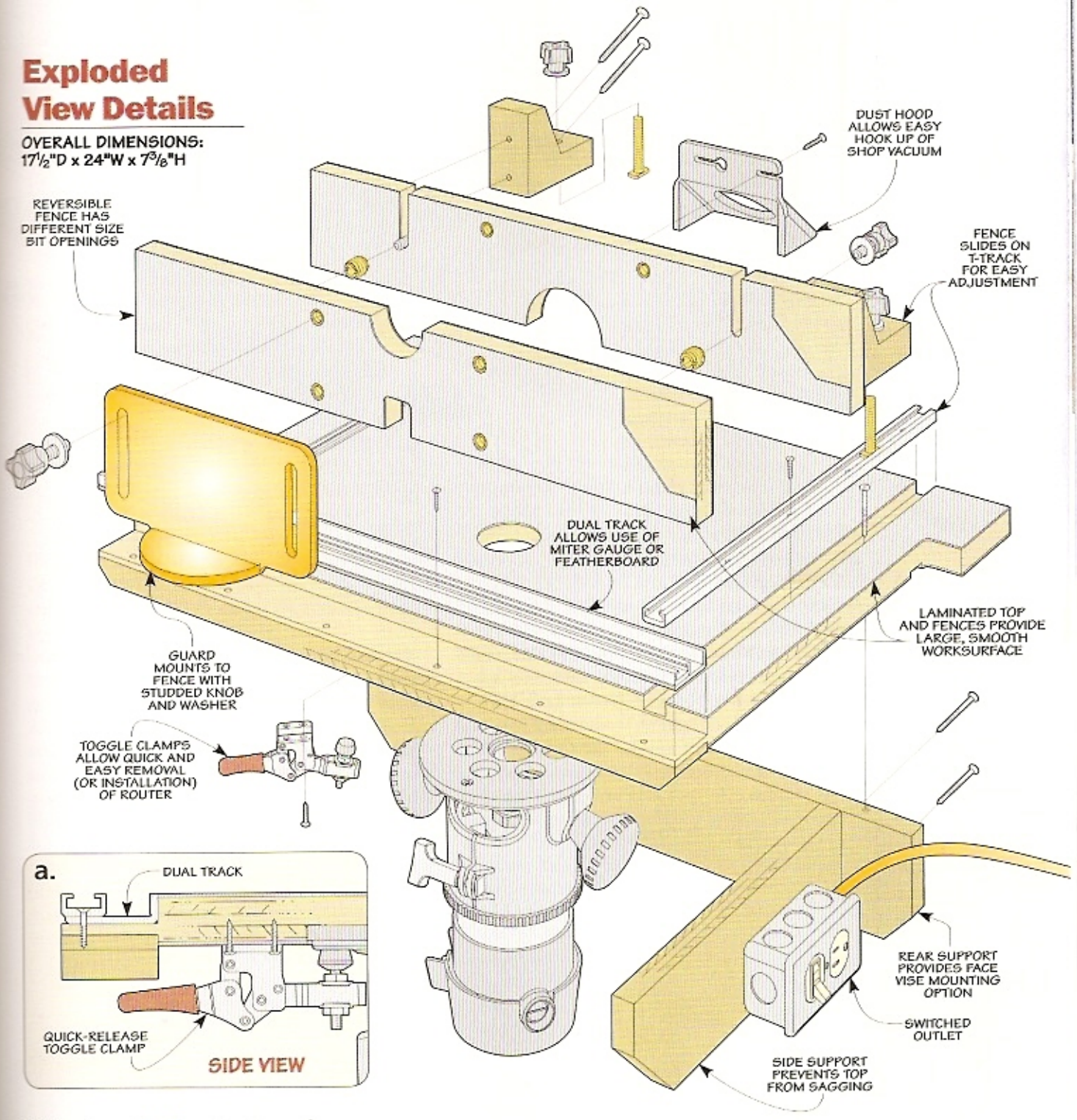
Alternative Mount. If you don't have a face vise, mount the router table using clamps on the tabs at the back.

Toggle Clamps. Quick and easy toggle clamps make it a snap to install (or remove) the router in the table.

Accessories. An aluminum track allows the use of a miter gauge or the featherboard shown above.

Exploded View Details

OVERALL DIMENSIONS:
17½"D x 24"W x 7⅜"H



Materials & Hardware

A	Table (1)	17½ x 24 - ¾ Ply.
B	Front Lip (1)	1⅝ x 21½ - ¾ Ply.
C	Rear Support (1)	3½ x 21½ - ¾ Ply.
D	Side Support (1)	3½ x 11⅝ - ¾ Ply.
E	Fence Faces (2)	3¼ x 21 - ¾ Ply.
F	Fence Brackets (2)	1½ x 3 - 4

- (1) Dual Track
- (1) T-Track (32" long)
- (3) 213-U De-Sta-Co Toggle Clamps
- (8) 5/16"-18 Brass Inserts
- (8) 5/16" Washers
- (2) 5/16" x 1" Studded Knobs
- (2) 5/16" x 1½" Studded Knobs
- (4) 5/16"-18 Through Knobs
- (4) 5/16" x 1¾" Flange Bolts
- (4) #8 x 1¼" Fh Woodscrews
- (1) #8 x 2" Fh Woodscrews
- (3) #8 x 2½" Fh Woodscrews
- (8) #6 x ⅝" Fh Woodscrews
- (8) #6 x ⅜" Fh Woodscrews
- (14) #8 x ⅝" Ph Woodscrews
- (1) Dust Hood
- (1) Guard
- (1) Featherboard

Building the Table

Aluminum Track. Adding a dual track and T-track to the router table makes it easy to position the fence and accessories.

A quick look at Figure 1 shows that the top of this router table is large enough to do serious routing. But what makes the table really versatile is the aluminum dual track and T-track installed in the top.

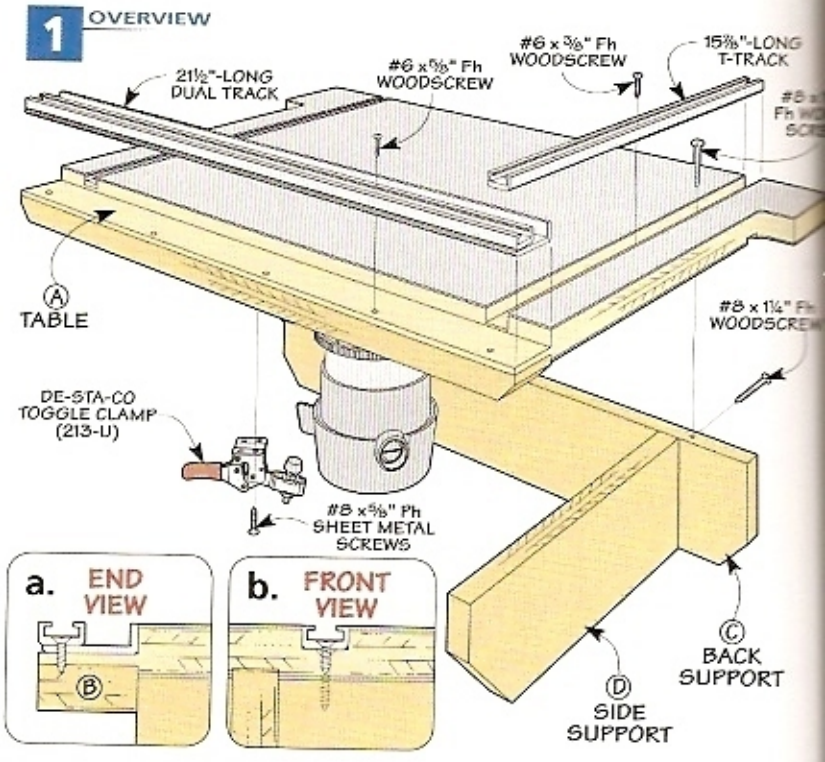
T-TRACK. I wanted to make it easy to secure the fence to the table and easy to adjust afterward. The answer is T-track. It's just an extruded aluminum channel that will let you use a flange bolt and knob to attach a fence or accessories, like a featherboard. The dual track uses the same extruded channel. But it's paired with an L-shaped extrusion to create a groove for a miter gauge.

SIZE THE TABLE. Before you can add either track, you'll need to make the table. The table starts with a rectangular piece of ¾" plywood. (I used Baltic birch.)

Then to provide a smooth worksurface and help stiffen the plywood, I applied plastic laminate to both sides. It's best to apply an oversized piece of plastic laminate to each side and then trim them flush. Once that's complete, you can turn your attention to the tasks illustrated in Figures 2 and 3.

MOUNTING THE ROUTER. To provide a quick means of mounting the router, yet make it easy to remove for hand-held use, I used toggle clamps.

1 OVERVIEW

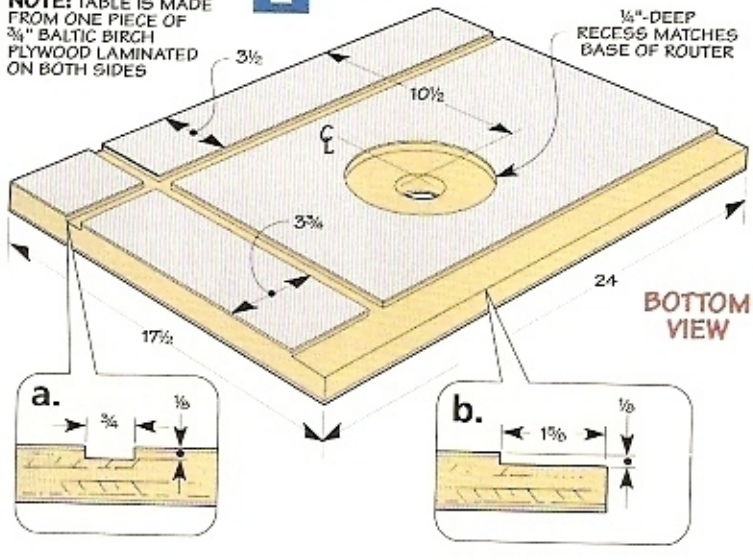


But the clamps won't prevent the router from moving around under the table. So, I created a "pocket" for the router on the bottom of the table. Take a look at the box on the opposite page to see how I did this.

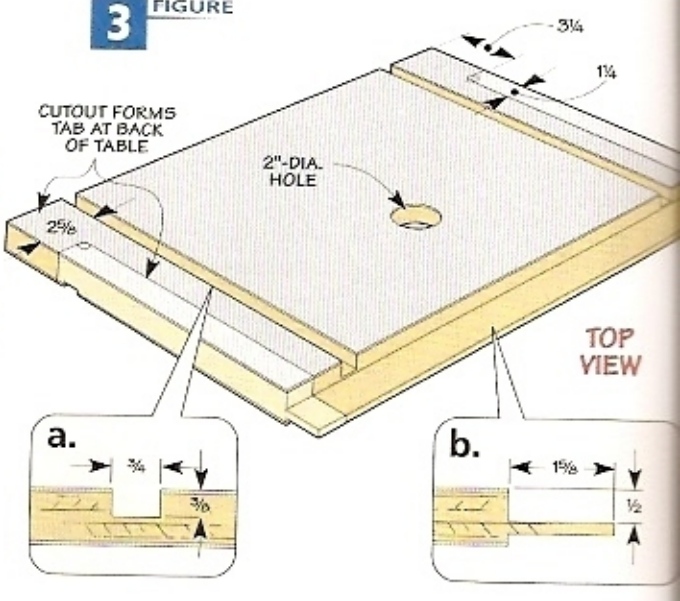
CUT GROOVES FOR SUPPORTS. With the recess complete, the next step is to cut a series of shallow (⅛") grooves in the bottom of the table, as illustrated in Figure 2. These grooves serve the purpose of locating the two plywood supports that help stiffen the top of the table.

You'll also notice a shallow (⅛") rabbet along the front edge of the table. This is for a plywood lip that's

2 FIGURE



3 FIGURE



added later. The lip supports the front edge of the top and also provides extra material for screwing the dual track in place.

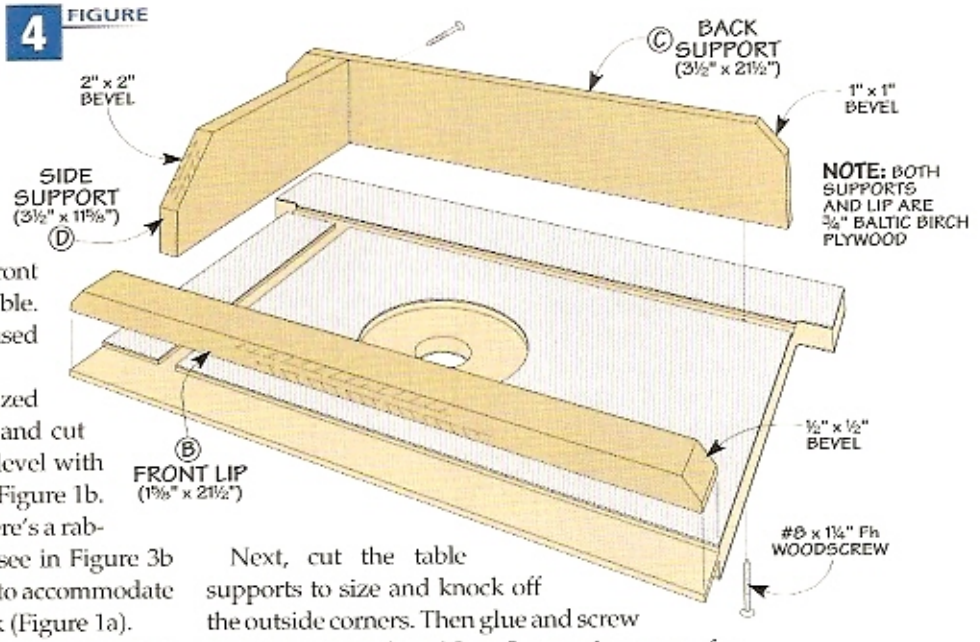
ADD GROOVES FOR TRACKS. Now you can flip the table over and work on the top side. The two grooves shown in Figure 3 run from the front to the back along each side of the table. These grooves accept the T-track used to attach the fence.

You'll want to use a dado blade sized to match the width of the T-track and cut just deep enough so the T-track is level with the top of the table, like you see in Figure 1b. And like the bottom of the table, there's a rabbet along the front edge. You can see in Figure 3b that this rabbet is cut a little deeper to accommodate the extra thickness of the dual track (Figure 1a).

Now all that's left to do to complete the top of the router table is to make a cutout along each side of the table. These cutouts leave tabs along the back edge that allow you to clamp the router table to a benchtop with a pair of clamps.

ATTACH THE SUPPORTS & LIP. In the Bottom View shown in Figure 4, you can see how the table supports and front lip are attached. After cutting the ¾" plywood front lip to size and beveling the ends, it's simply glued in place.

FIGURE 4



Next, cut the table supports to size and knock off the outside corners. Then glue and screw these pieces in place. Note: Locate the screws for the back support in the grooves for the T-track.

ADD THE HARDWARE. All that's left to do at this point is install the hardware. To locate the toggle clamps, it's best to flip the table over and set the router in place. This way, you can position the clamps clear of the router handles and controls.

Next, cut the dual track to length and position it so your miter gauge slides smoothly. Finally, cut the T-track to length and screw it in place.

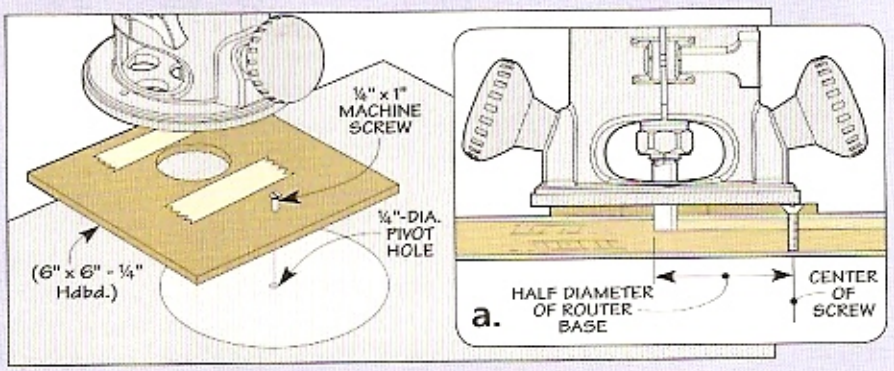
Making a Recess for the Router

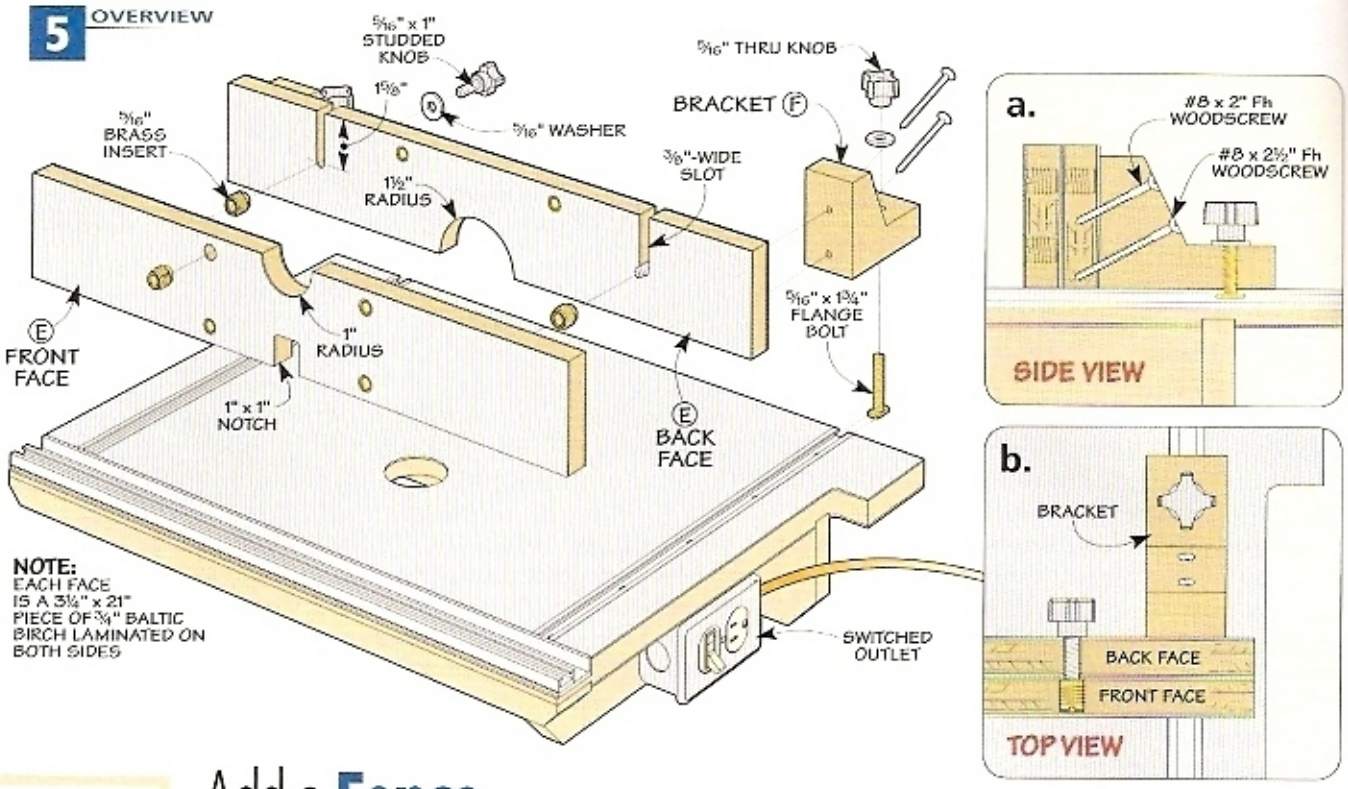
The toggle clamps do a great job of holding the router against the table. But they won't keep the router from moving from side to side. A simple solution to this is to create a pocket in the bottom of the table to house the router.

Circle-Cutting Jig. To cut out the pocket, I made a simple circle-cutting jig from a piece of hardboard. After drilling a hole for a pivot pin (I used a ¼" machine screw), I attached the router to the base with a couple pieces of carpet tape, as you can see in the drawing at right.

The router is located so that the distance from the pivot point to the outside edge of the router bit (½" straight bit) is half the diameter of the router base.

After drilling a ¼"-dia. pivot hole in the table, rout a ¼"-deep circle. Once that's complete, you can drill the 2"-dia. clearance hole for the router bit. Then all that's left to do is remove the rest of the waste from the recess so the router will slip into place, like you see in the photo at right.





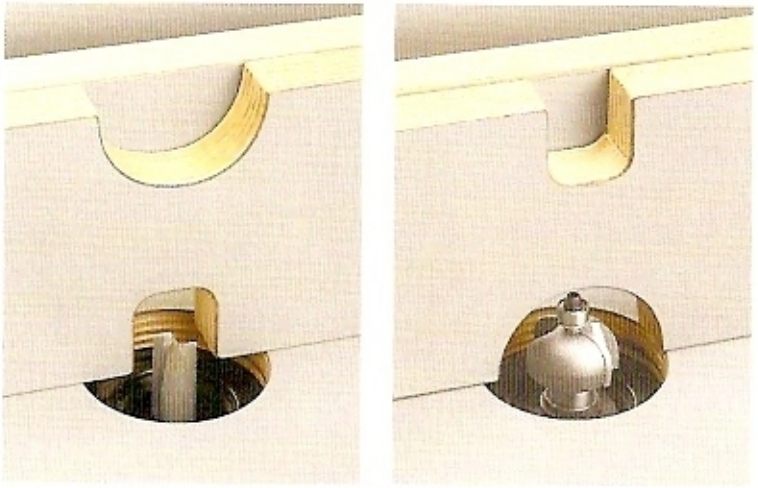
ShopNotes ONLINE EXTRAS

To download an article on adding a switched outlet, go to our website: ShopNotes-Specials.com

Add a **Fence**

As you can see in Figure 5, the fence is made up of two faces attached to a pair of brackets. Why two faces? Simple. It makes it an easy task to quickly change the front face to the opening that better matches the bit you're using.

MAKE THE FACES. I started on the fence by making the two face pieces. Both faces start out as identical strips of ¾" plywood. And like the table itself, I laminated both sides to keep the faces flat and stable. The smooth surface also makes it easy to slide a workpiece along the face as you rout.



Fence. The front face features two cutouts so you can match the opening to your bit. The square opening (left) is best for straight bits, while the circular opening (right) provides better clearance for profile bits.

BACK FACE. After trimming the laminate flush on both face pieces, you can turn your attention to completing the work on the back face.

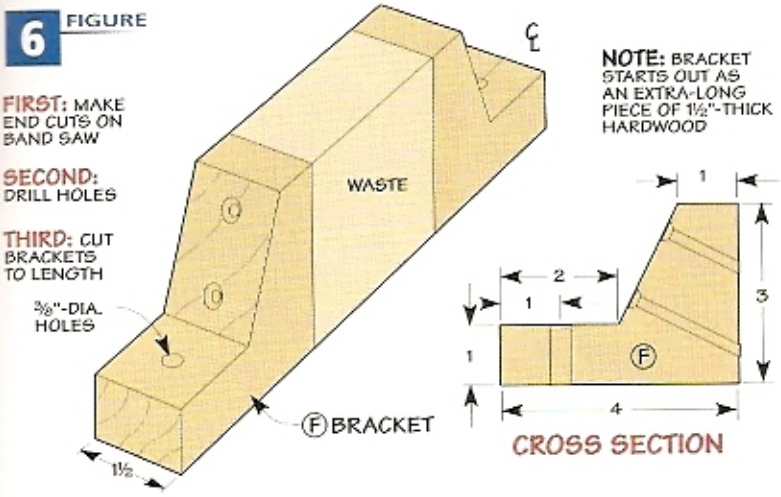
Figure 5 shows a large, circular cutout centered along the bottom edge of the back face. This opening allows the dust hood to easily pick up dust and chips as they're created. And along the top edge of the back face there are two slots. These slots are used to quickly slip the front face in place (Figure 5b). Making the slots is just a matter of drilling a hole at the end of the slot and then using a jig saw to remove the waste.

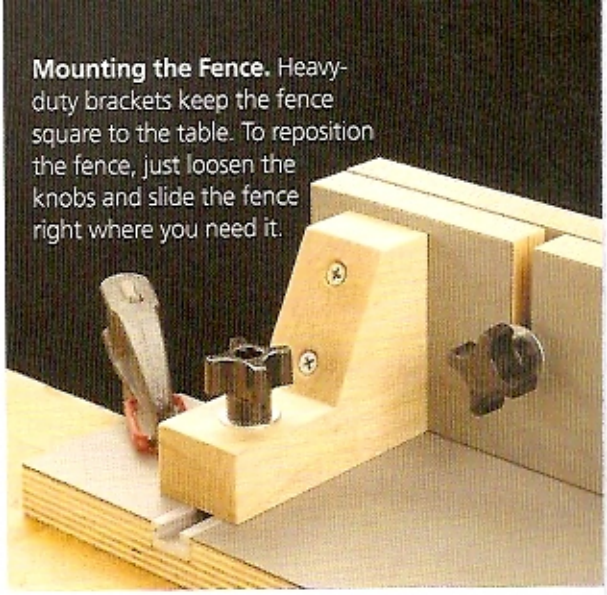
FRONT FACE. For now, you can set aside the back face and begin work on the front face. Here again, I made a couple cutouts. But these cutouts simply provide clearance for the router bit. You can refer to Figure 5 to see the sizes.

To allow you to mount the front face to the back, there are a pair of threaded inserts installed in the back side of the front face (Figure 5). Refer to the opposite page for a great way to install the inserts.

On the front of the face, you'll see four more inserts. These inserts allow you to attach the bit guard with the front face in either position. Finally, I installed a couple inserts in the back face so I can use the bit guard on that face if I ever need to.

ADD THE BRACKETS. With the faces complete, all that's left is to add the mounting brackets. These brackets hold the fence in place on the router table and allow you to adjust its position easily.





Mounting the Fence. Heavy-duty brackets keep the fence square to the table. To reposition the fence, just loosen the knobs and slide the fence right where you need it.

Because the brackets are somewhat small to work with, I started with an extra-long blank that I planed to final thickness and ripped to final width (Figure 6). Then I removed the waste at each end by making the angled cuts on the band saw.

After sanding the surfaces smooth, you can drill the holes for mounting the brackets to the back face as well as the hole for the knob, washer, and flange bolt that are used to attach the fence and brackets to the T-track in the table.

Once that's complete, you can trim each bracket to final size. Then screw them to the back face so they're flush along the bottom edge, as shown in Figure 5a.

ELECTRICAL SWITCH

Although the router table is ready to use at this point, there's one more thing you might want to consider. And that's adding a switched outlet.

With the router plugged into a switched outlet mounted on the side of the table, as shown in the lower left photo, you won't have to search under the table to find the router switch. This is especially helpful if you need to turn the router off in a hurry.

To see a complete hardware list and view a drawing for hooking up a switched outlet, check out Online Extras at ShopNotesSpecials.com.

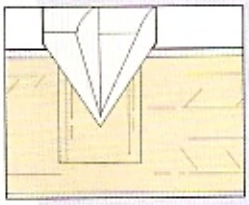
Switched Outlet. Turning the router on and off is a breeze with a switched outlet mounted to the side of the router table.

Installing Inserts

Installing a threaded brass insert sounds simple. Just drill a hole and then screw the insert in place. Unfortunately, it's all too easy to lift the surface veneer or laminate. And it can be a challenge to install the insert perfectly straight.

The Right Technique. But you can solve both of these problems by following a few simple steps.

First, you'll need to drill a properly sized hole. I find it best to drill the hole so that it matches (or even slightly exceeds) the diameter of the insert's non-threaded portion. And then to avoid lifting the edges of the hole, chamfer the top of the hole to match the outside diameter of the threads on the insert.



Install Insert. Finally, to install the insert straight, I use a simple "jig" like you see in the photo. The jig is just a cutoff bolt with a pair of nuts "jammed" on it. After chucking the bolt in your drill press, thread the insert on the bolt until it contacts the nuts. Then turn the chuck on the drill press by hand as you lower the quill.

You'll notice the insert is installed with the slot down. I prefer this because it provides a cleaner look. The downside — once the insert is in place, you can't remove it.

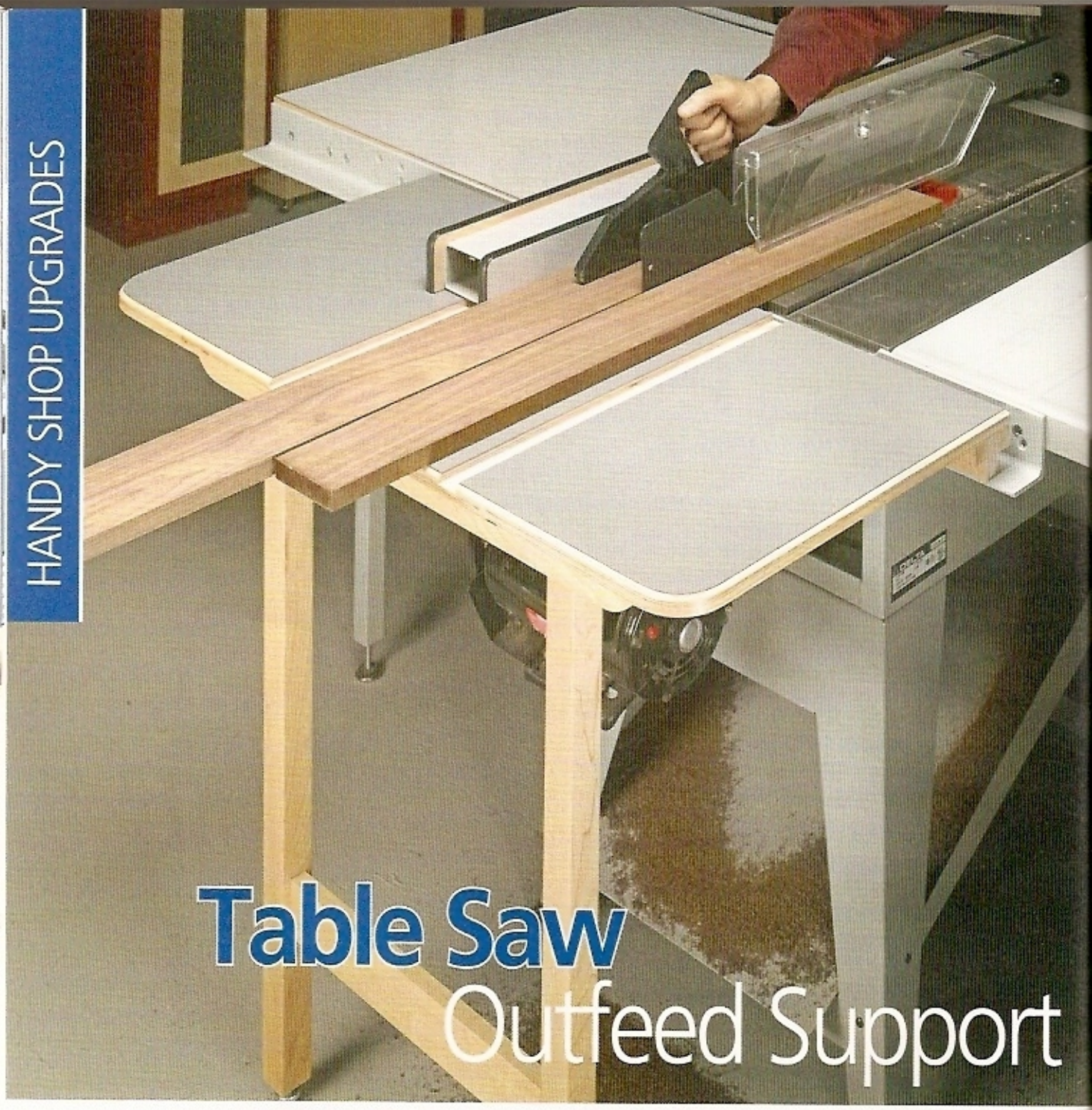


Table Saw Outfeed Support

This easy-to-build addition to your table saw takes the hassle out of cutting long boards and sheet goods.

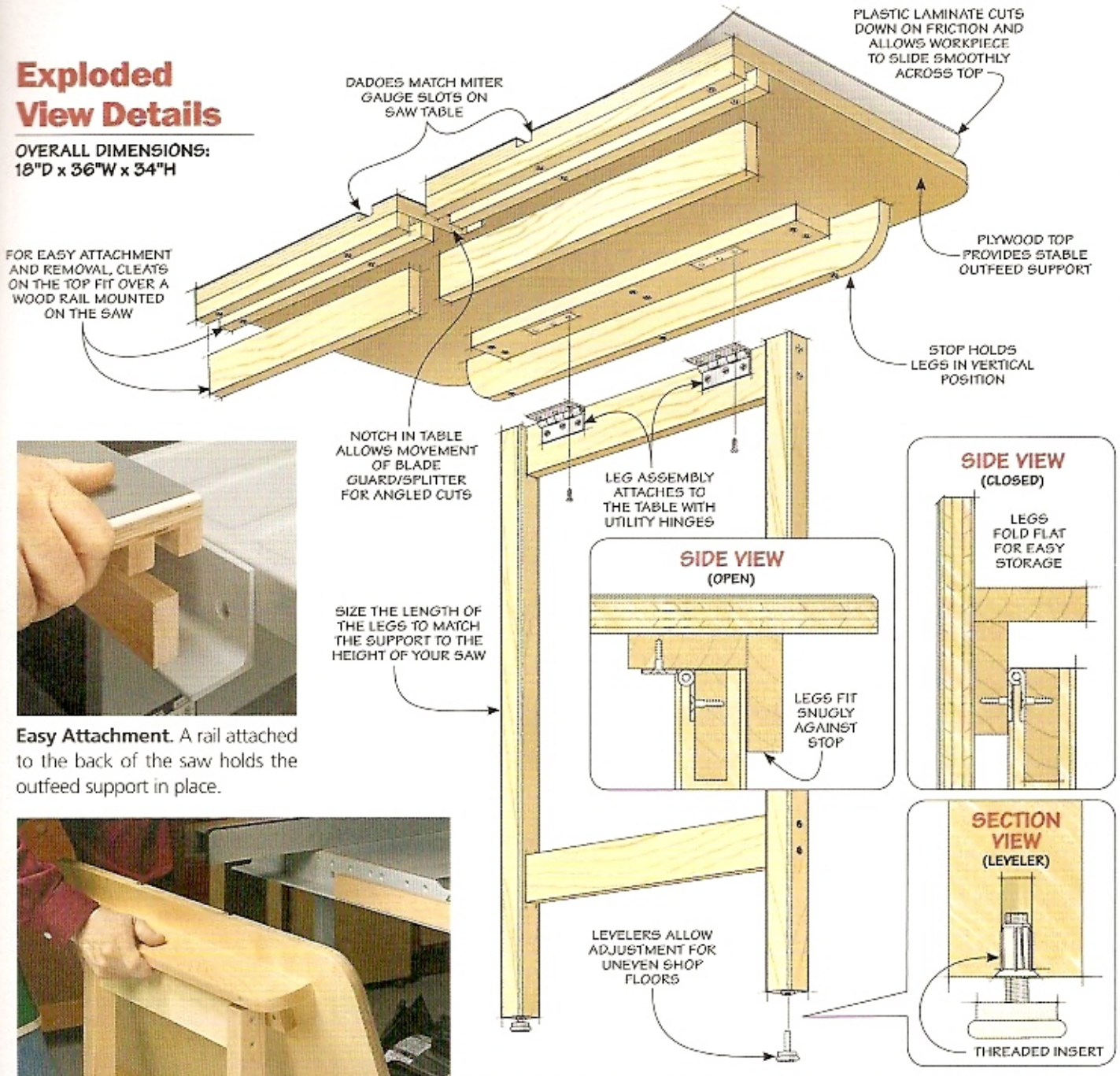
Adding an outfeed support to your table saw is like gaining an extra pair of hands in the shop. It provides sturdy support whether you're ripping a long board or cutting plywood down to size.

The outfeed support shown in the photo provides this plus a few key features. For instance, slots in the top allow you to use your miter gauge without removing it. And a leveler at the end of each leg lets you make fine height adjustments. This means you can align the top with your saw table to compensate for any unevenness in the floor of your shop.

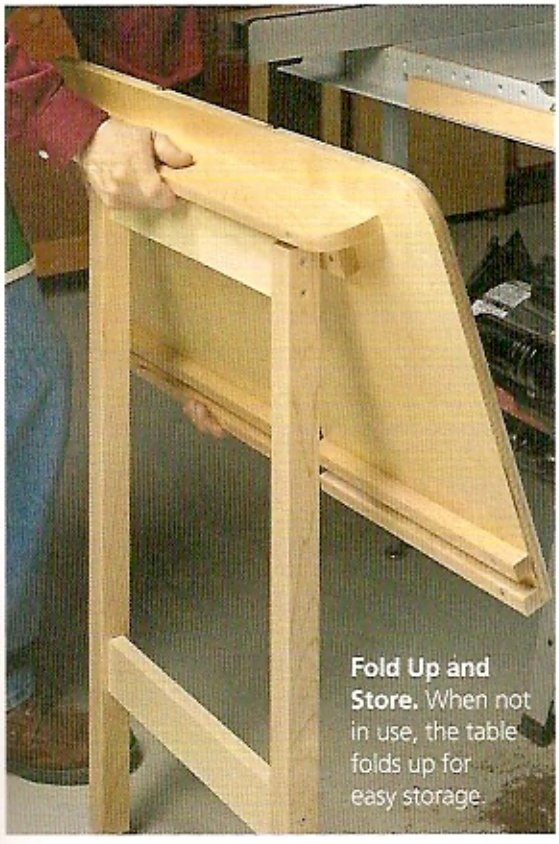
To connect the outfeed support to your table saw, cleats on the end of the support hook over a wood rail on the back rail of your saw. (I've included mounting options for the two most common types of fence arrangements.) And since the legs fold up, the support table can be quickly removed and hung on the wall for storage.

Exploded View Details

OVERALL DIMENSIONS:
18"D x 36"W x 34"H



Easy Attachment. A rail attached to the back of the saw holds the outfeed support in place.



Fold Up and Store. When not in use, the table folds up for easy storage.

Materials & Hardware

A	Top (1)	18 x 36 - ¾ Ply.
B	Hinge Plate (1)	¾ x 2½ - 22
C	Leg Stop (1)	¾ x 2½ - 28
D	Front Cleats (4)	¾ x ¾ - 17
E	Legs (2)	1½ x 1½ - 36 Rgh.
F	Stretchers (2)	¾ x 2½ - 16½
G	Saw Rail (2)	¾ x 2 - 18

- (1) 18" x 36" Plastic Laminate
- (2) 3" Utility Hinges w/Screws
- (2) Leveling Feet
- (2) 5/16" Threaded Inserts
- (11) #8 x 3" Fh Woodscrews
- (14) #8 x 1¼" Fh Woodscrews

Building the **Support**

Miter Bar Slot. A dado slightly wider than the miter slot provides clearance for the miter gauge bar.

An outfeed support should be stable enough and large enough to catch a workpiece as it slides off the saw. And this design fills the bill on both counts. The folding leg assembly and solid connection to the saw provide a strong base. And with the 18" by 36" top, you'll have plenty of worksurface.

TABLE TOP. I used ¾" plywood for the top because it's flat, inexpensive, and resists warping. And by adding laminate, you get the extra benefit of a durable, low-friction surface.

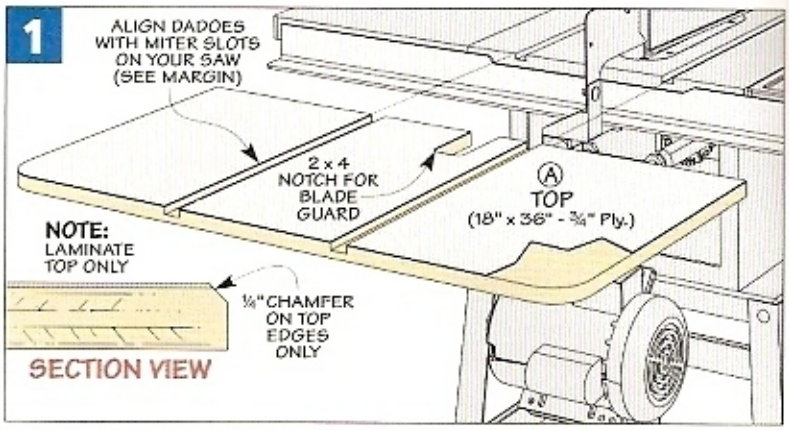
You can start by cutting the top to size and rounding off the back corners. I also cut a notch on the front edge of the table for the blade guard (see the box below). Then I glued on an oversized piece of laminate and trimmed the edges with a router and a flush trim bit.

TOP DADOES. To complete the tabletop, cut a couple oversize dadoes. Align them to match the miter slots on your table saw, so the miter gauge has clearance as you make a cut (photo at left).

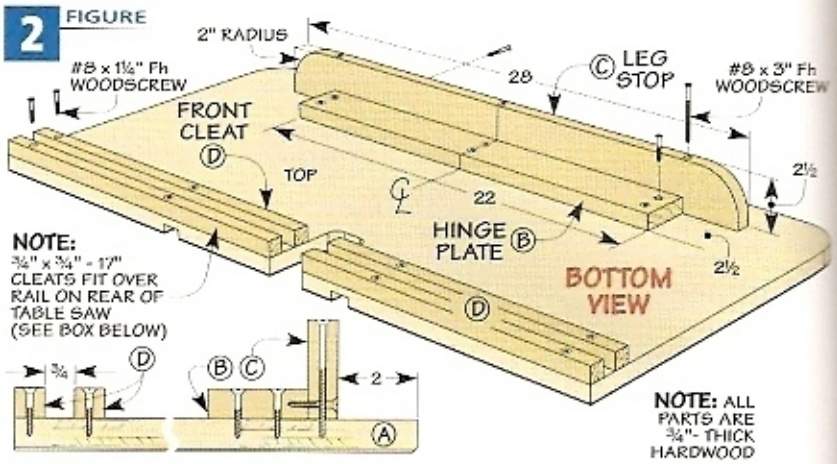
LEG STOP. Now you can turn the top over and add a couple hardwood support pieces that will hold the legs. I started by attaching a leg stop to stabilize the legs and keep them properly positioned while the table is being used. This stop is just a piece of ¾"-thick hardwood that's screwed to the top.

HINGE PLATE. Next, add a mounting plate for the legs. Simply center the hinge plate along the inside edge of the leg stop and attach it with screws (Figure 2).

1



2 FIGURE



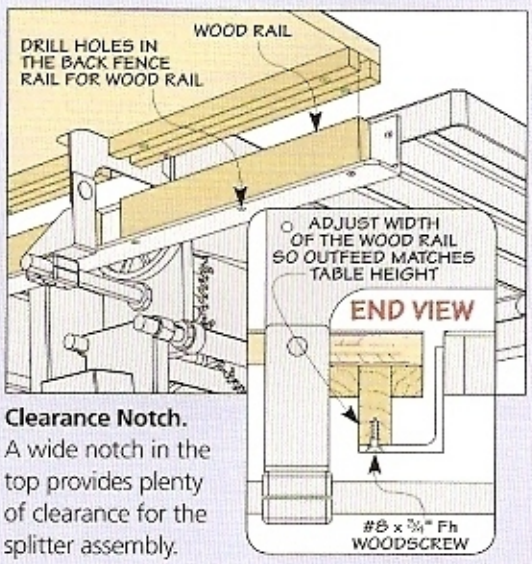
Notch & Attachment

There are a couple things that can make adding an outfeed support tricky. First, you'll need to provide clearance for the blade guard/splitter assembly. I cut a 2"-wide slot 4" deep to accommodate the splitter angled to 45° (right photo).

The second challenge is mounting the support. Often, there's a steel fence rail running along the back edge. In this case, it's just a matter of drilling a few holes in the rail and attaching a wood rail.

The drawings at right show how the cleats on the outfeed support fit over the rail to hold the support in place. You can simply adjust the width of the rail until the top is level.

If your saw has tube-style fence rails, see the next page for an alternate mounting method.



Clearance Notch. A wide notch in the top provides plenty of clearance for the splitter assembly.

LEG ASSEMBLY

A simple leg assembly holds the back of the outfeed support. The legs are connected by a pair of stretchers, and the top stretcher attaches to the hinge plate.

LEGS. The legs are cut from 1½"-thick stock. To determine their length, just measure from the floor to the top of your saw. Then subtract 2½" (the thickness of the top, the hinge plate, and the leg levelers).

After cutting each leg to length, I drilled a hole for a threaded insert that holds the leveler in the bottom of the leg. Then you can soften the edges at the router table with a ⅛" roundover bit.

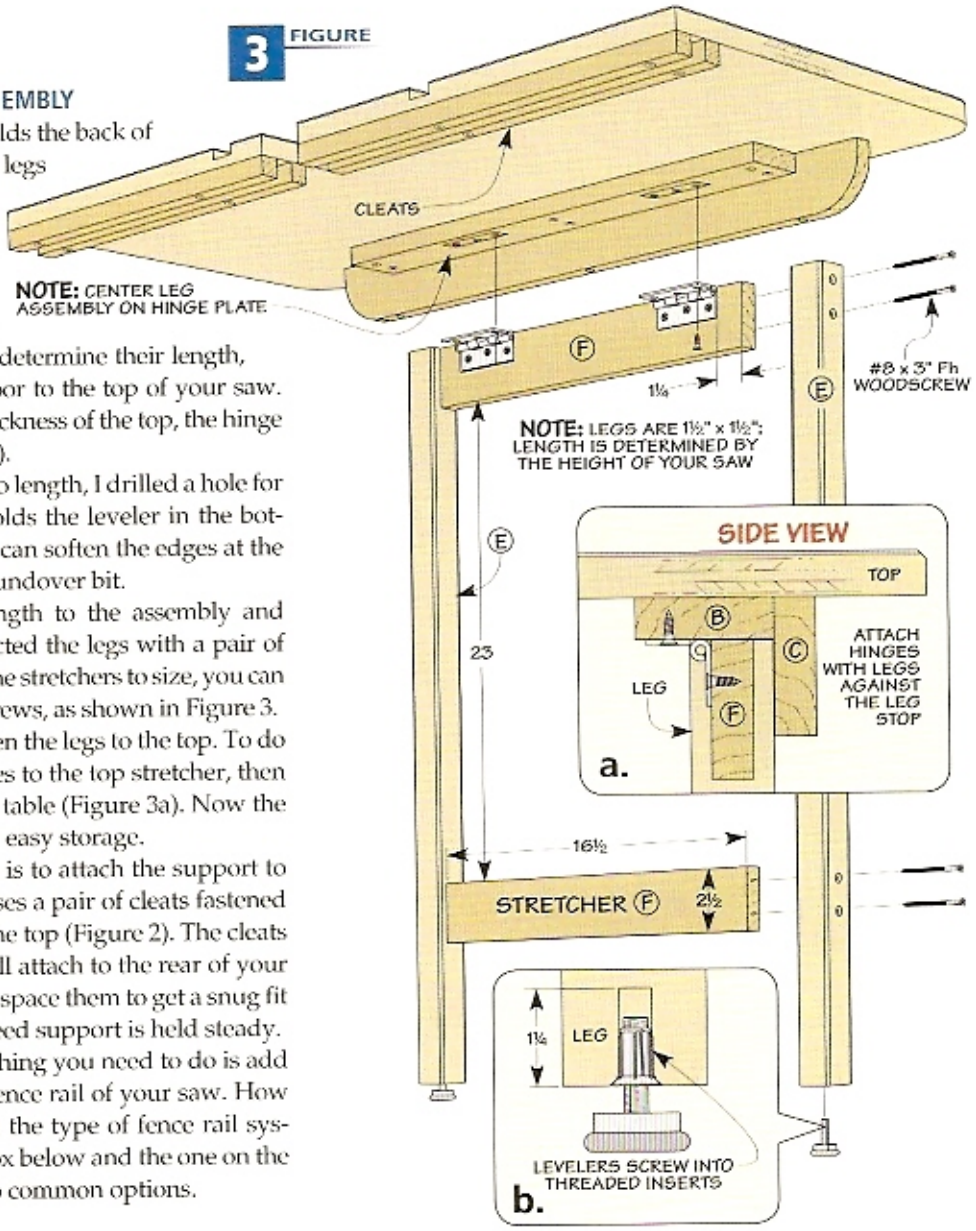
STRETCHERS. To add strength to the assembly and prevent racking, I connected the legs with a pair of stretchers. After cutting the stretchers to size, you can attach them with long screws, as shown in Figure 3.

The next step is to fasten the legs to the top. To do this, first screw the hinges to the top stretcher, then to the hinge plate on the table (Figure 3a). Now the legs can be folded up for easy storage.

CLEATS. All that remains is to attach the support to your saw. This design uses a pair of cleats fastened along the front edge of the top (Figure 2). The cleats fit over a wood rail you'll attach to the rear of your table saw. Just be sure to space them to get a snug fit over the rail, so the outfeed support is held steady.

MOUNTING RAIL. The last thing you need to do is add a wood rail to the rear fence rail of your saw. How you do this depends on the type of fence rail system on your saw. The box below and the one on the opposite page cover two common options.

FIGURE 3

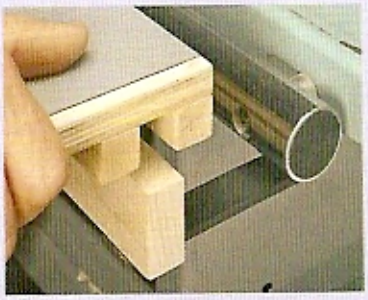


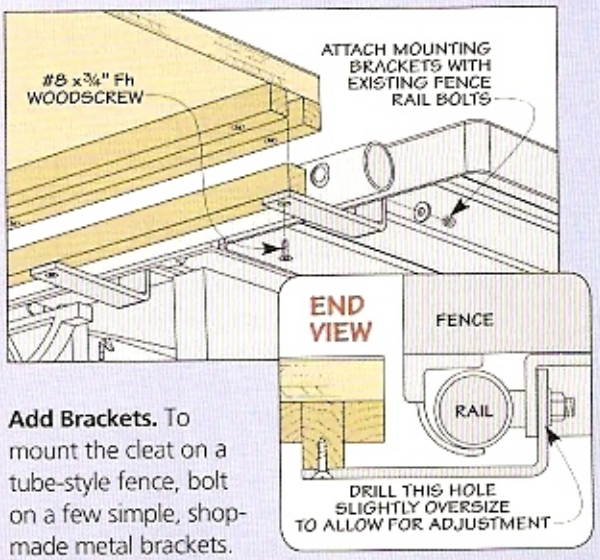
Tube-Style Mounting

Attaching the outfeed support to a saw with tube-style rails requires a different solution. You can't fasten anything to the tube without interfering with the movement of the fence. So, the first step is to add metal brackets to the saw. They'll hold the wood rail that attaches to the outfeed support. You should add a bracket to each bolt that holds the tube to the saw.

To make the metal brackets, I used 1"-wide strips of 3/16"-thick steel. I started by cutting the strips to length (about 6½") and then drilling holes to mount the bolts. Next, I made the 90° bend in the steel by securing the piece upright in a vise and pounding it over flat.

Now it's just a matter of drilling holes and attaching the wood rails.





Add Brackets. To mount the cleat on a tube-style fence, bolt on a few simple, shop-made metal brackets.

Flip-Top Tool Stand

Maximize your shop's floor space by mounting two tools to a mobile stand. Just roll it out of the way when the job is done.

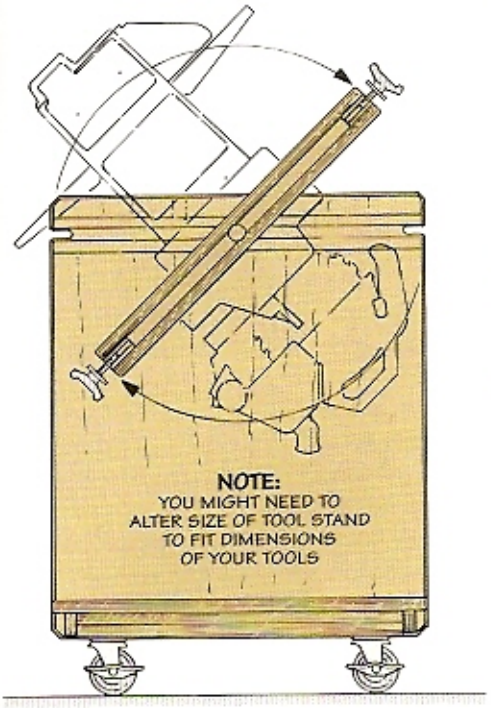
Benchtop tools are great space savers, but they can still fill up a small shop in a hurry. That became clear to me one day when I realized I had more tools than I had benchtops to put them on. So after clearing a small space to do some drawing, I came up with this tool stand. It does double-duty by flipping its lid.

What makes this stand different from most others is that you can mount a tool on both sides of the top. Then when you want to use a different tool, all you have to do is flip the top 180°.

I use my stand to hold two tools I was tired of hoisting on and off my bench: My planer is fastened to one side and my power miter saw is on the other. But this stand would also be a great home for a grinder, a benchtop jointer, or a sanding station.

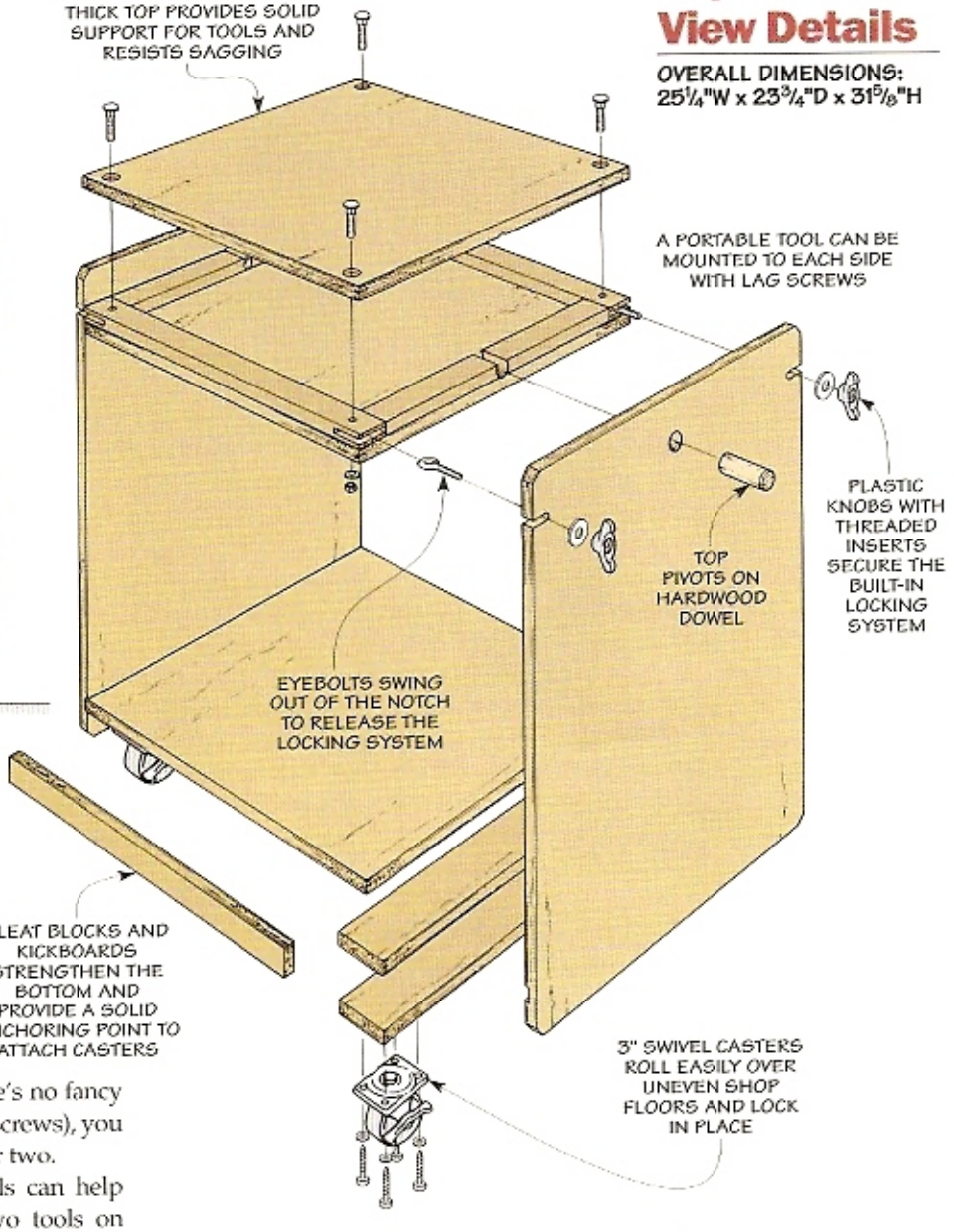
LOCKING KNOBS. Once you have the top flipped to the right tool, you want to make sure it stays put. So there's a built-in locking system made from common hardware. You simply tighten a threaded knob at each corner to secure the platform in place against the sides. That keeps it from rotating while you're using a tool.

ROTATING THE STAND. One thing that's important to keep in mind as you use the flip-top tool stand is that the tools mounted to it aren't likely to balance each other perfectly. So when you release the



Exploded View Details

OVERALL DIMENSIONS:
25¼"W x 23¾"D x 31⅝"H



locking system, the top will probably want to rotate. For this reason, always keep a firm grip on the tool before you release the last lock.

PLYWOOD. The stand is built almost entirely out of plywood. And it's sized so you can cut all the pieces out of a single 4' x 8' sheet. You'll also need a few strips of hardwood, and a couple short lengths of dowel to use as the pivot pins for the top. Since there's no fancy joinery (just a couple dadoes and some screws), you can probably build this stand in a day or two.

CASTERS. In a small shop, mobile tools can help maximize your space. But putting two tools on one stand can make for a heavy unit. So to make the stand easy to move, I mounted it on heavy-duty casters. Once you've rolled the stand to where you need it, just step on a lever on each caster to lock it in place. If you have trouble finding a set of casters for this project locally, try the sources on page 98.

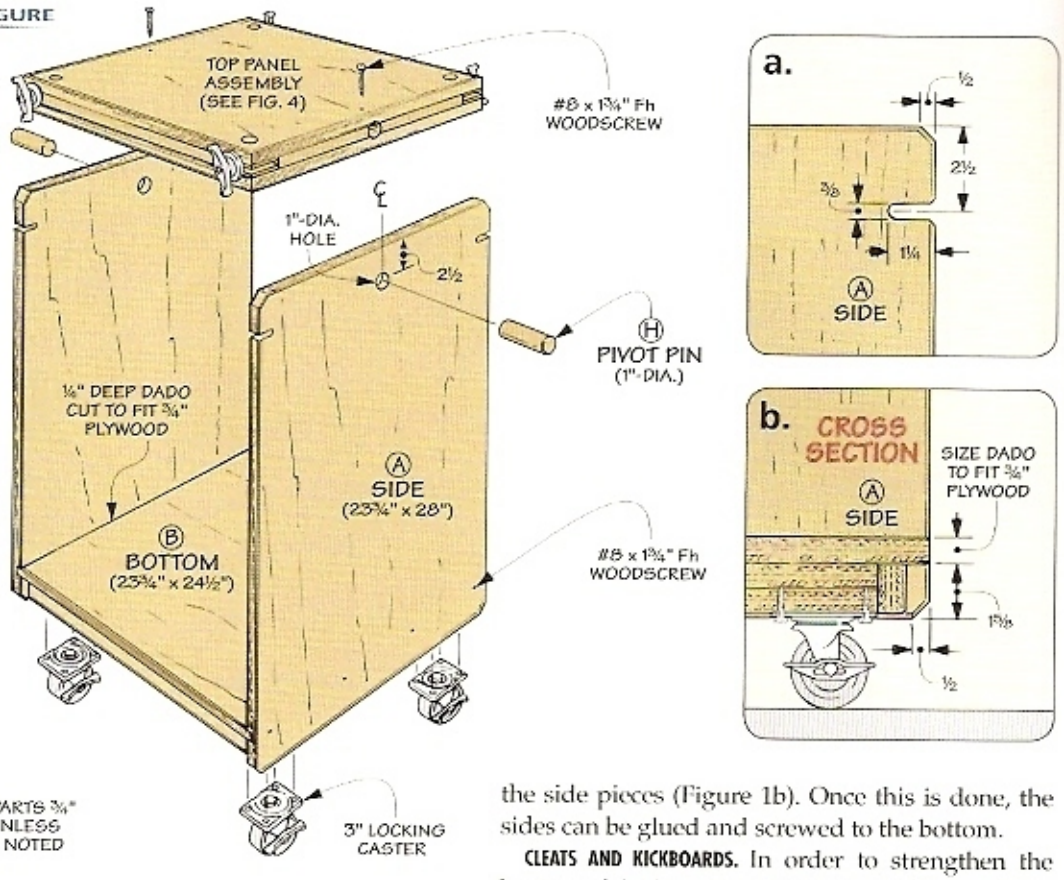
HARDWARE. The rest of the hardware you need for this tool stand should be easy to find at your local hardware store or home center. However, the plastic knobs with threaded inserts that make up the locking system may not be carried by some stores. Sources for these are also provided on page 98.

Materials & Hardware

A	Sides (2)	23¾ x 28 - ¾ Ply.
B	Bottom (1)	23¾ x 24½ - ¾ Ply.
C	Cleat Blocks (4)	3½ x 20¾ - ¾ Ply.
D	Kickboards (2)	1½ x 24 - ¾ Ply.
E	Top Panels (2)	23¾ x 24 - ¾ Ply.
F	Side Spacers (2)	¾ x 2 - 19¾
G	Front/Back Spacers (2)	¾ x 2 - 24
H	Pivot Pins (2)	1"-dia. dowel x 3

- (10) #8 x 1¾" Fh Woodscrews
- (4) 3" Locking Swivel Casters
- (16) ¼" x 1" Lag Screws
- (16) ¼" Washers
- (4) ⅜" x 1¾" Carriage Bolts
- (4) ⅜" Washers
- (4) ⅜" Nylon Lock Nuts
- (4) 5/16" x 2½" -long Eyebolts
- (4) 5/16" Fender Washers
- (4) Plastic Knobs w/ 5/16" Threaded Inserts

FIGURE 1



NOTE: ALL PARTS ¾" PLYWOOD UNLESS OTHERWISE NOTED

BUILDING THE BASE

The base of the stand is just a couple of ¾" plywood sides joined by a bottom (Figure 1). Then cleats are added to the bottom, and casters are fastened to the cleats. Note: Before starting construction, measure the bases and the heights of the tools you plan to mount to the stand. You may have to alter the dimensions to accommodate your tools.

After the sides and bottom are cut, the sides can be drilled for the top pivot pins and notched for the locking hardware (Figures 1 and 1a). To cut each notch, I drilled a ⅜"-dia. hole to mark the end, and then removed the waste with a jig saw.

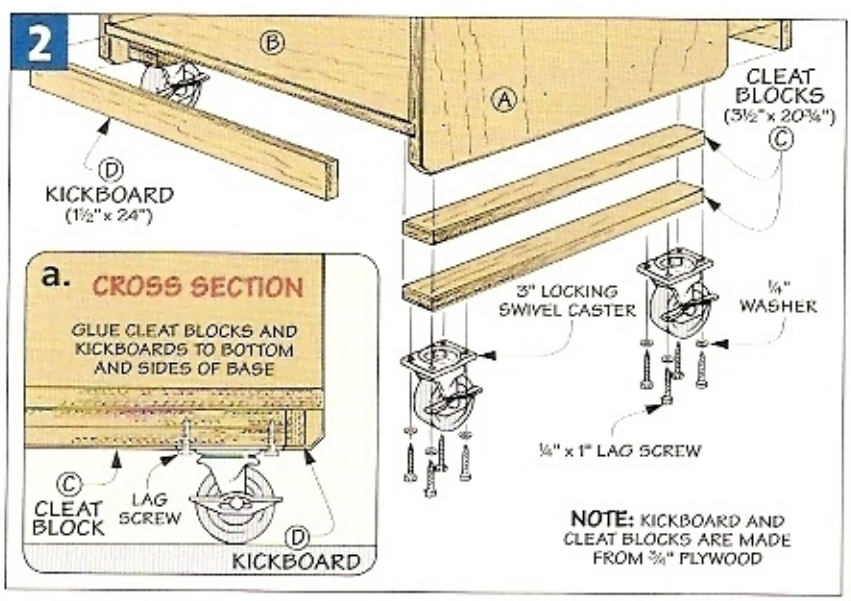
A ¼"-deep dado cut on the inside face of each side holds the bottom in place. But before assembling the three case pieces, I knocked off the sharp corners of each side panel by cutting a ½" chamfer on each corner. I also routed small chamfers on the front and back edges of the bottom and all around the side pieces (Figure 1b). Once this is done, the sides can be glued and screwed to the bottom.

CLEATS AND KICKBOARDS. In order to strengthen the bottom of the base, cleat blocks and kickboards are added. The cleat blocks also provide extra thickness for the lag screws that hold the casters.

The cleats are glued up from two pieces of ¾" plywood (Figure 2) and glued in place against the sides and bottom. Then kickboards are glued to the ends of the cleats at the front and back of the base.

CASTERS. To allow the tool stand to be moved around easily, but locked in place when in use, locking swivel casters are attached to the cleat blocks with ¼" x 1" lag screws (Figure 2).

FIGURE 2



ADDING THE TOP

Once the base is finished, all that's left to do is build the top for the tool stand. It's made out of two layers of plywood with hardwood spacers sandwiched in between (Figure 3). This extra thickness keeps the base from racking when the locking knobs are tightened.

Cut the two plywood top pieces to size first. Then add spacers made from ¾"-thick hardwood.

In addition to separating the plywood layers, the front and back spacers serve another purpose. Notches cut in the ends of these pieces house the eyebolts that lock the top in place (Figure 4). These notches can be cut on the table saw. Sneak up on their width until the eyebolts fit smoothly.

Once the notches are cut, the plywood top pieces and the spacers can be glued up. Then drill holes for the locking hardware (Figure 4). To keep the hardware below the surface of the plywood, drill a counterbore for the head of each carriage bolt and for each washer and lock nut.

LOCK-DOWNS. With the exception of the large plastic knobs, the lock-downs at each corner of the top use common hardware. An eyebolt fits into the slot cut in each corner of the top and is held in place by a carriage bolt, washer, and nylon lock nut (Figure 4).

A large fender washer and plastic knob are threaded onto the eyebolt (Figure 4). The knobs are then tightened down against the sides to lock the top in place, as shown in the photos above.

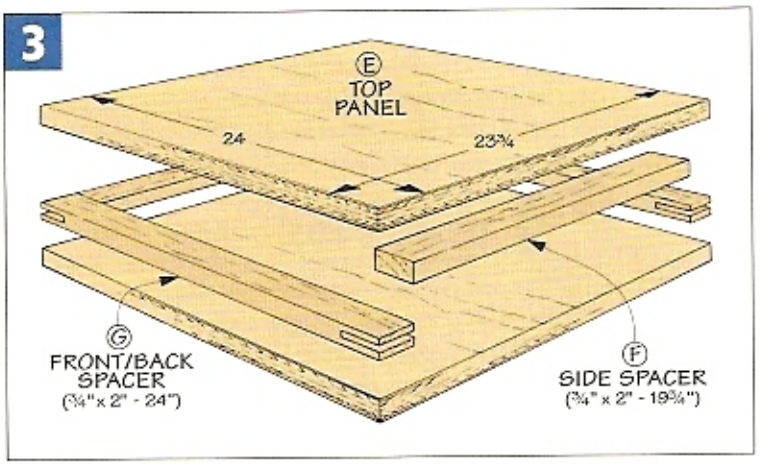
PIVOT PINS. Now the top can be attached to the base. It's supported by a pair of pivot pins that pass through the sides of the base and into holes drilled in the edge of the top (Figure 5). To locate the pivot pin holes, secure the top between the sides of the base with the locking hardware. Using the holes in the base as a guide, drill holes into the edge of the top.

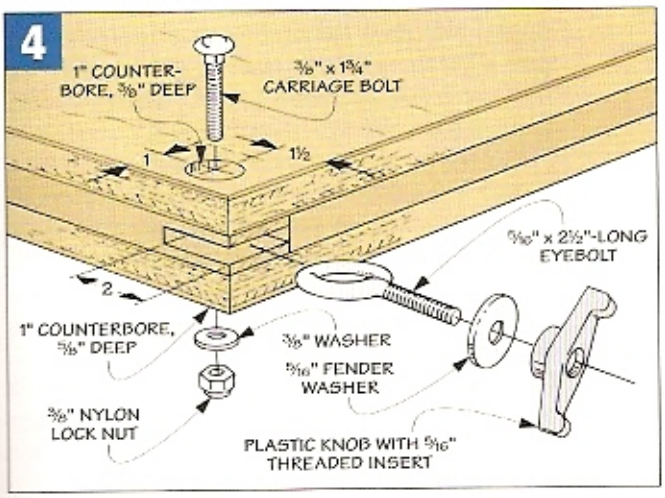
Flip the Top. To flip the top, loosen the knobs and swing the eyebolts out.

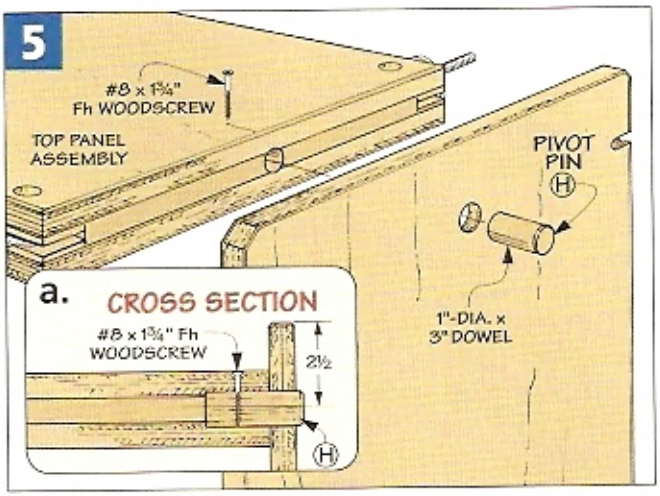
Lock the Top. To lock it in place, tighten the knob at each corner against the side.

The pivot pins are just short sections of 1"-dia. hardwood dowel. After chamfering the ends, slip the pins through the sides and into the top. Then secure each one with a screw (Figure 5a).

Now you can mount a tool on each side of the top using lag screws. To switch tools, loosen the knobs and swing the eyebolts out of the notches. After flipping the top, just make sure you slide the eyebolts back in place and firmly tighten the knobs.

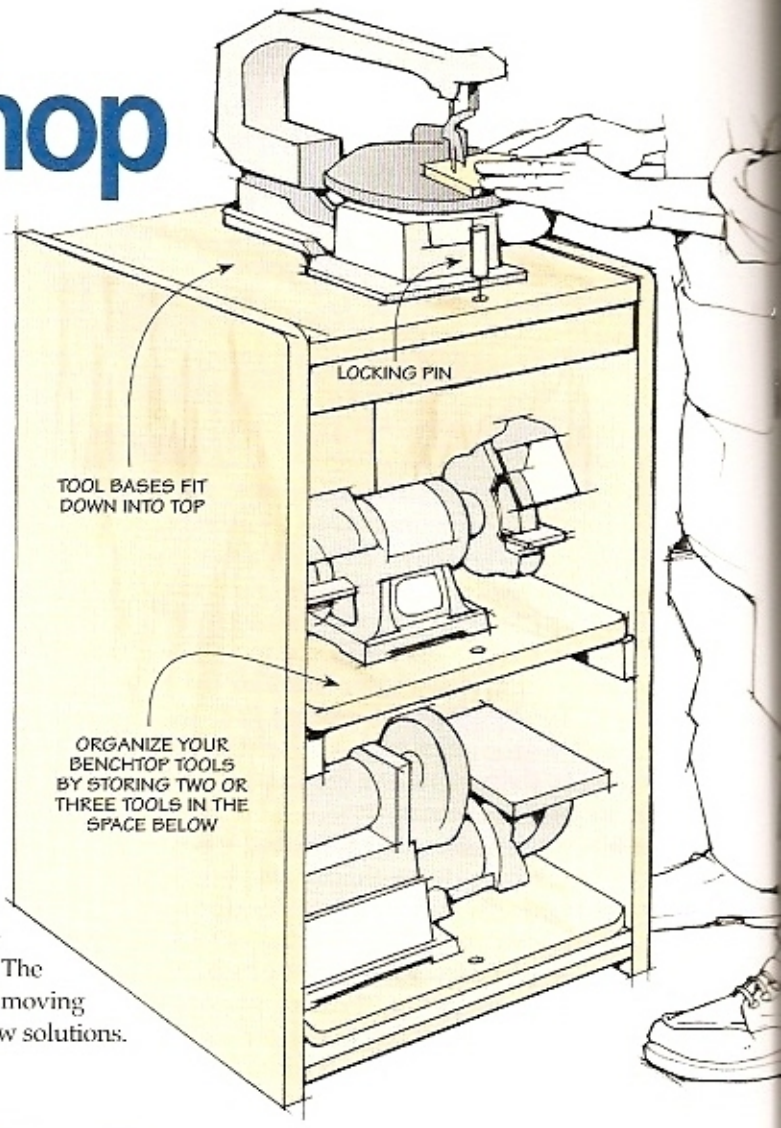






Small Shop Tool Tips

Make better use of your limited space with these great tool and material solutions.



Many woodworkers with small shops buy benchtop tools because they're economical and don't take up much room. But what if you have four or five? Then you need to find space to use *and* store them all.

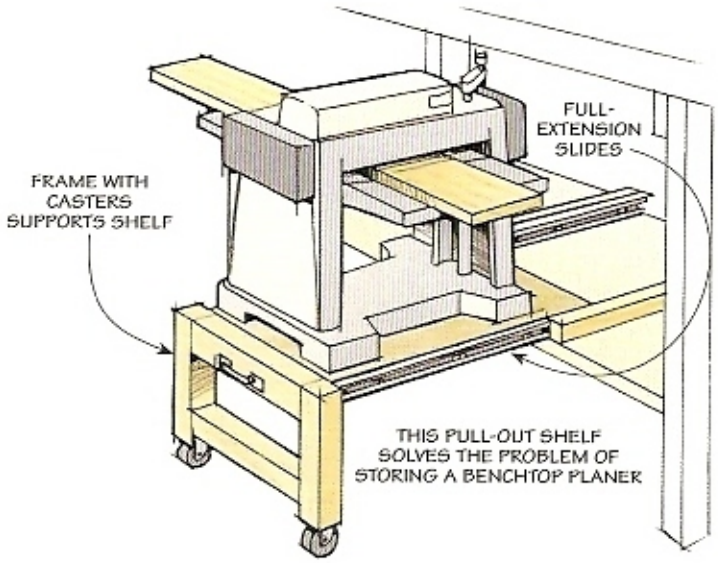
Limited space is an even bigger issue with stationary tools and materials. The tools take up a lot of floor space and moving sheet stock is a challenge. Here are a few solutions.

1 Benchtop Tool Stand

The compact tool stand shown above is an easy-to-build solution. It provides a convenient worksurface *and* a place to store your benchtop tools. As you see in the drawing, the stand is just an open box with space to hold several tools — depending on the size of the tool and the shelf it sits on. The tools are mounted on removable shelves that slip in and out of the stand. When you need to use a tool, just slide it out and set it on top. A shop-made "pin" locks the shelf and the tool in place.

Larger tools (like a scroll saw) are secured to a single, deep shelf. But in some cases, a smaller tool (like a benchtop grinder) can be placed on a shelf that's only half the depth of the stand. This way, you can store two tools in one spot.

You can build this stand out of any type of sheet good, but I recommend using ¾" MDF. It's reasonably priced and heavy enough to prevent the stand from "walking" around when a tool is being used.



2 Pull-Out Planer Shelf

If you don't have room for a permanent stand, but still need an easy way to store a tool like a thickness planer, consider building a pull-out shelf. You can see what I came up with in the drawing at left.

It allows you to store your planer on a shelf below your bench and serves as the stand. There's no need to transfer the planer to your benchtop.

The shelf is simply a piece of plywood mounted on a pair of full-extension drawer slides. Just make sure the slides will support the full weight of your planer. And a frame with casters is added to the end to provide extra support.

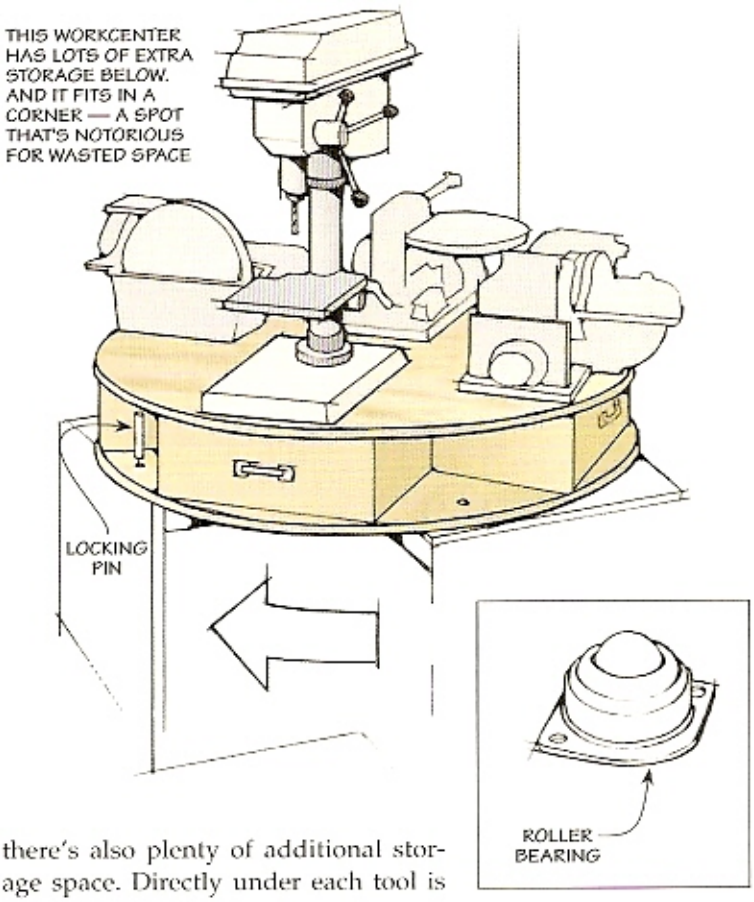
3 Revolving Tool Station

One of the most useful, space-saving ideas I've ever used in my shop is the rotating tool stand you see in the drawing at right. It provides quick and easy access to a variety of benchtop tools in a small amount of space. I managed to place four of my tools that I use regularly (a drill press, a sharpening station, a scroll saw, and a combination belt and disk sander) on the top of the stand.

This tool stand has a "footprint" that only takes about nine square feet of space, and it tucks conveniently into a corner. The stand may have a small footprint, but it combines a workcenter *and* a storage area that would normally use up much more room.

The heart of this station is a large circular platform that spins around on top of several roller bearings, like a carousel (inset drawing). Mounting your tools to this platform provides quick access to each tool while keeping the others close at hand when you need them. Just spin the carousel to put the tool you need directly in front of you, then lock it in place.

There's another important benefit to this revolving tool station. Besides the convenient tool access, there's also plenty of additional storage space. Directly under each tool is a drawer for storing accessories and other items. And the base provides enough storage space for a number of portable power tools. You could even mount several bearings in a circular pattern on the case bottom to support a revolving shelf.

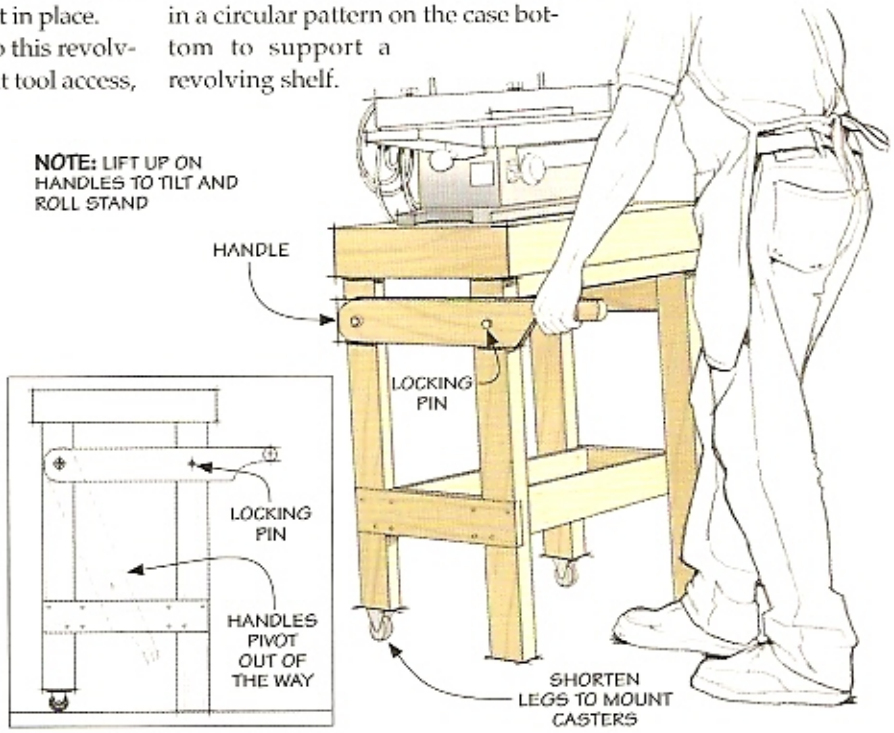


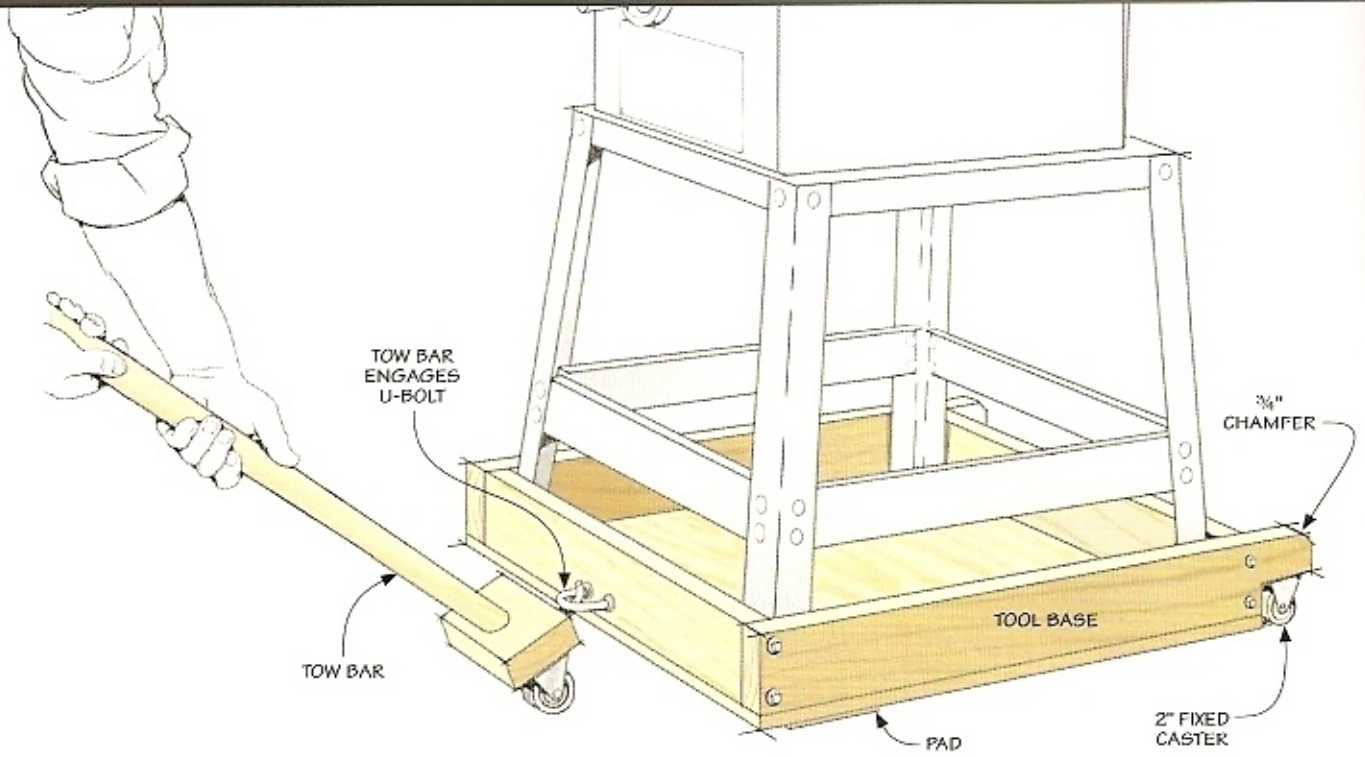
4 Mobile Stand

I've built several basic stands for my benchtop tools, which keeps my workbench clear. To make the stands mobile — so I can clear a bit of floor space if I need to — I like to add two simple handles and a pair of casters, as you can see in the drawings at right.

The first step in modifying a tool stand is to shorten the rear legs and attach casters. Then, bolt a pair of pivoting wood handles to the sides.

The handles can be lowered out of the way when not in use. And when you need to move the stand, they can easily be brought into the upright position and locked in place.

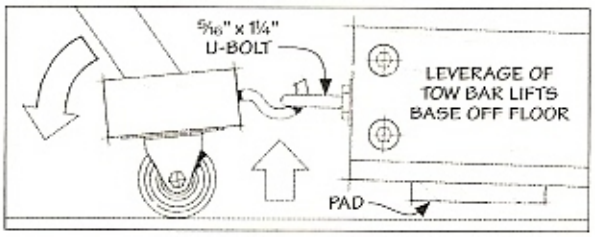


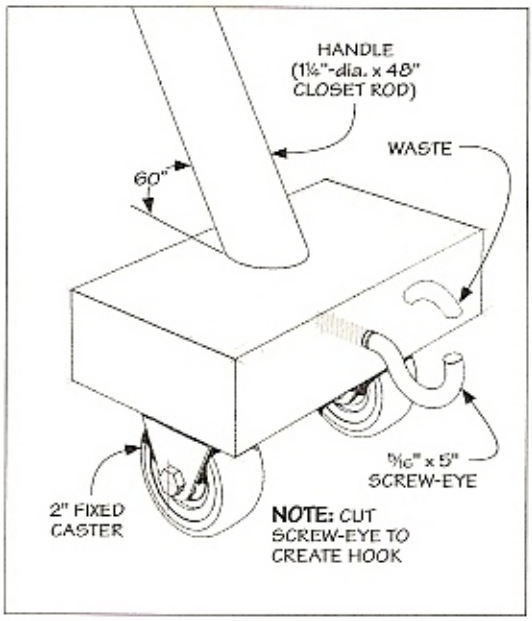


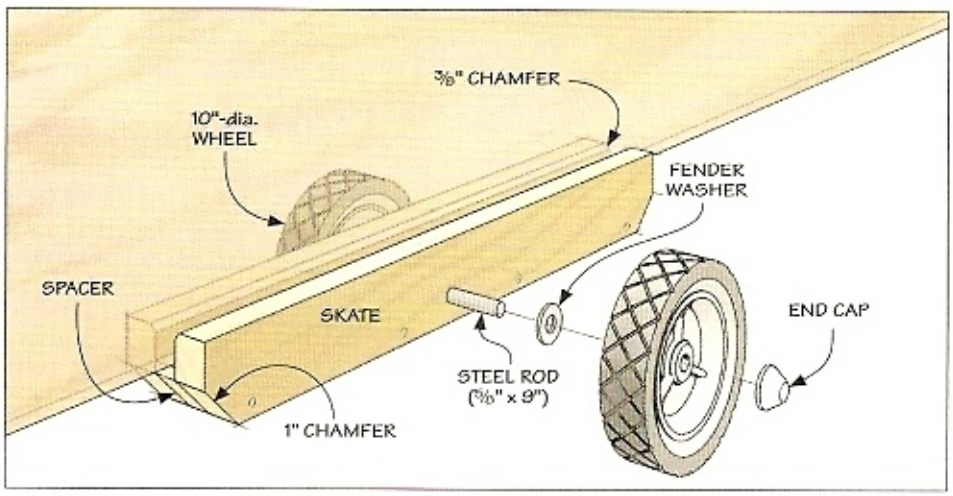
5 Roll-Around **Tool Base**

Mobile bases are invaluable when it comes to moving stationary power tools in a small shop. And an easy way to move a tool base around is with a tow bar.

As you can see in the drawing above, this tool base is simply an open box for a tool to sit in. On one side is a pair of casters. The other side has pads to stabilize the base when it's stationary. To move the tool, you just hook the tow bar into a U-bolt that's attached to the base (drawing below). Then, a little leverage is all that's required to lift that end and maneuver the tool.







6 Sheet Stock **Skate**

It isn't easy to maneuver sheet stock in a small shop. So, I made a simple, two-wheeled skate, as shown in the drawing at left.

It consists of a pair of 2x4 sides that sandwich a spacer. This forms a 1"-wide groove to hold the sheet. I added a pair of large wheels, which are connected by an axle made from a steel rod. End caps hold the wheels on, while fender washers prevent them from binding against the sides.

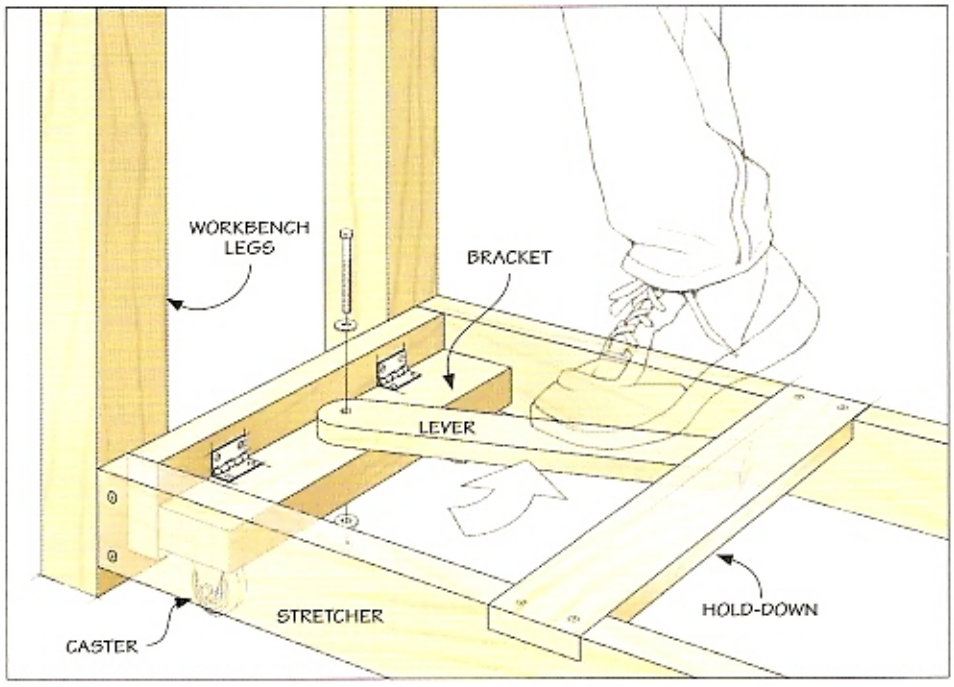
7 Caster Bracket

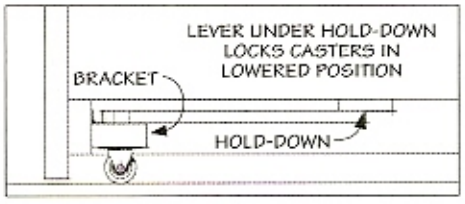
Because a workbench requires such a large area, making it mobile is a great way to get more use out of a small shop space. Adding pivoting caster brackets to a workbench makes it easy to move around.

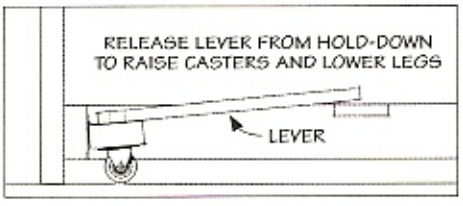
As the drawings show, I attached the brackets to the ends of my bench with butt hinges. Installed on each bracket are a pair of casters and a pivoting lever. Hold-downs are also mounted to the stretchers of my workbench.

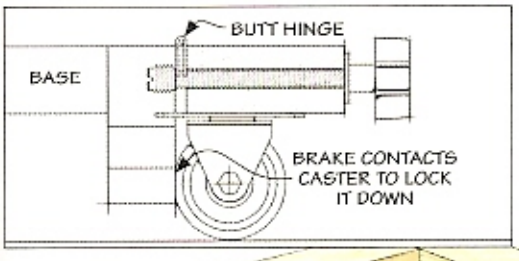
Stepping down on the lever lowers the casters which, in turn, raises the bench off its legs. To lock the casters in the lowered position, slide the lever under the hold-down. The bench is ready to roll.

Once the bench is where you want it, simply release the lever from the hold-down, and the legs drop back down onto the floor.









8 Mobile Base Brake

Although tool mobility is a good thing, it's just as important to make sure a tool doesn't move while you're using it. So, it's a good idea to add a brake to any base that's mounted on wheels. That's what I did when I made the simple base shown in the drawing at left. But this concept can easily be applied to other carts and bases, too.

The brake is just a block of "two-by" material with a notch on each end to accommodate the sides of the base. It's mounted to one end of the base with butt hinges. A T-nut, threaded rod, and star knob complete the assembly.

With just a few twists of the knob, the brake can be tightened against the casters with enough pressure to prevent them from rolling or swiveling.