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COUNTRY CLASSIC COFFEE TABLE WITH BUILT-IN STORAGE

+

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Coaster Centerpiece 16

For a small project, this coaster set offers a nice list of features. The contrasting materials and a unique design combine for an eye-catching appearance and some interesting woodworking.

designer series project

Country Classic Coffee Table 20

It's hard not to like this project with its casual look, practical design, and straightforward construction. And to top all this, it's built from easy-to-find, low-cost pine.

heirloom project

Craftsman-Style Library Stand 32

Like the enduring reference book it's designed to hold, this attractive project is built to stand the test of time. And it's guaranteed to put your joinery skills through their paces.

Library Stand page 32

editor's note
Sawdust

Whenever I bring up the idea of building a *Woodsmith* project out of common-grade pine, I know I'm in for a bit of ribbing. I get questions about how many knots I want showing and how big and how far apart should they be spaced. Everyone is joking of course, but there's also a bit of truth to all the tongue-in-cheek comments. One of the challenges of building furniture out of pine is learning how to deal with the nature of the material, from natural defects to problems with finishing.

The coffee table on the cover of this issue is a perfect example. I wanted this project to have a somewhat country appearance, so it seemed only natural to build it using pine boards with some knots and other minor defects. At the same time, I didn't want the project to look like it was cobbled together out of old packing crates. So the first step was picking out the right wood. We used inexpensive, construction-grade pine. But we spent quite a bit of time sorting through the pile at the lumberyard picking out the straightest, best-looking boards we could find. (You'll find some tips on selecting and working with pine in the article on page 8.)

Selecting the stock and laying out the parts is only half the battle, however. After the project is built, you still have to finish it. Again, I wanted something that had a rustic feel to it — a warm, aged look. Using a wood stain was an obvious solution. But pine is notorious for blotching when stained. So we took an extra precaution to make sure the wood stained evenly. And we also did a couple of other things to add some "age" to the look of the table. You can read more about the finishing process for this project on page 51.

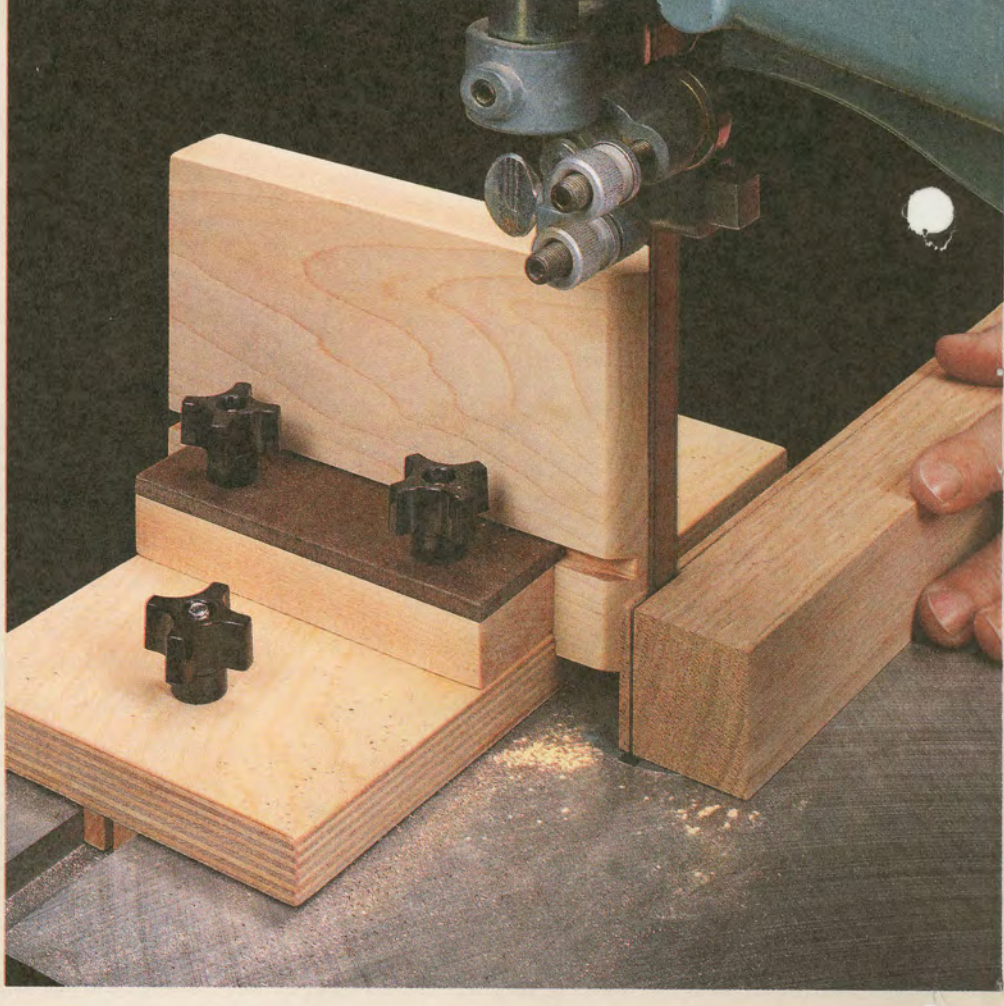
If you take a look at the completed table, I think the result speaks for itself. It has just the right amount of "country" appeal. And yet the design details and joinery methods are still in keeping with a well-built piece of furniture.

Terry

Woodsmith GO ONLINE EXTRAS

This symbol lets you know there's more information and bonus material online at Woodsmith.com.

Tips & Techniques



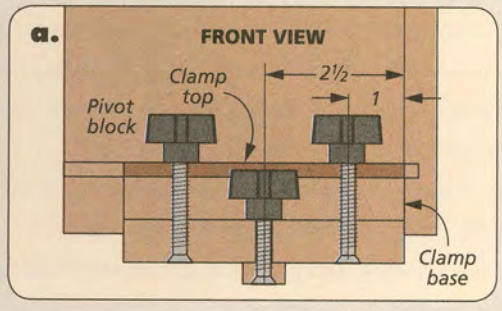
Resaw Jig

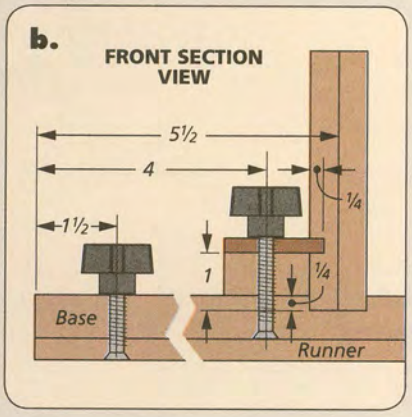
There are a variety of band saw jigs that you can make or purchase. The one I came up with clamps into the miter slot and adjusts easily. Plus the pivot block helps you compensate for blade drift as you cut.

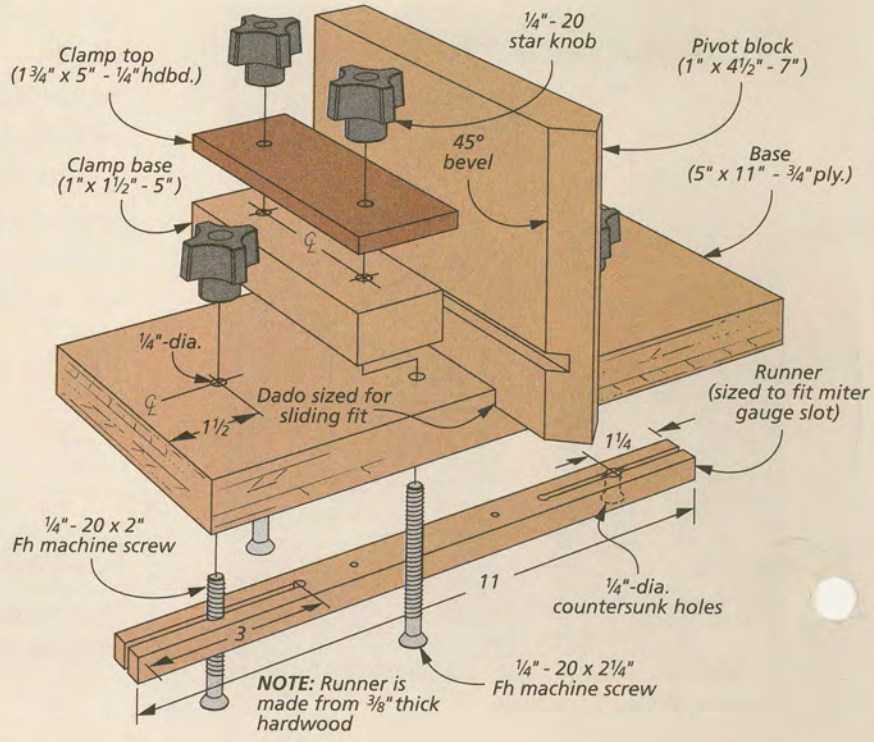
You can see in the drawing below that the jig starts with a plywood base. A dado in the base holds a sliding pivot block with a groove in one face. The pivot block is held in place by a clamp that fits in the groove. A split runner locks the jig in the miter slot.

To use the jig, I set the distance from the pivot block to the blade for the thickness of the workpiece I need. Then I make the cut. The pivot block helps to guide the workpiece through the blade and it's easy to make adjustments for the slight drift of the band saw blade as it cuts. My cuts are cleaner and more consistent now.

Bill Johnson
Marion, Indiana







Dowel Centers

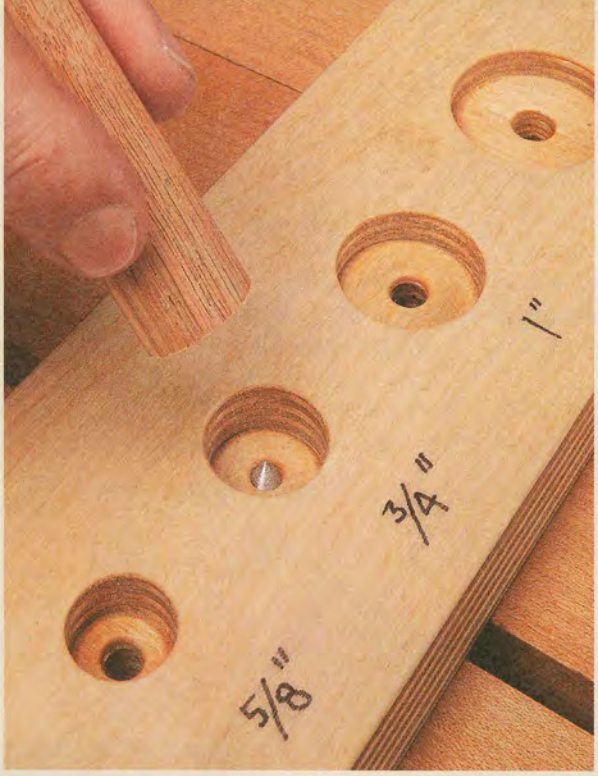
Drilling a hole in the end of a dowel is a challenge. So I built the jig you see pictured here to solve the problem of finding the exact center.

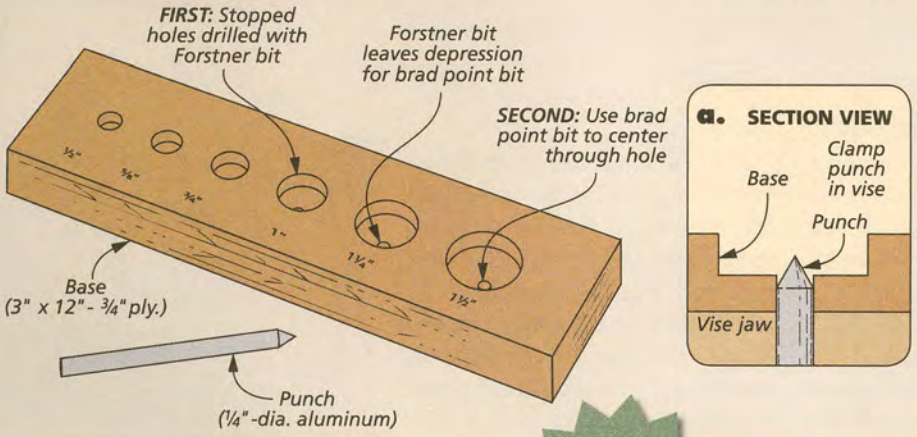
The jig simply consists of a plywood block with several stopped holes. I used Forstner bits in a variety of diameters to match the dowels I use most often. Then I centered a ¼"-dia. brad point bit in the dimple made by the Forstner bit and drilled through the block.

The through holes allow a shop-made punch to be inserted in the center of each recess. I made the punch from a ¼"-dia. piece of aluminum rod ground to a point. When it's complete you can place the dowel over the punch and tap it lightly with a mallet. The punch will leave a dimple in the center of the dowel, which can act as a starting point for a brad point bit.

I marked each of the recesses with the size of dowel it fits so the work goes even faster.

Paul Bing
Ohakune, New Zealand





SUBMIT YOUR TIPS ONLINE

If you have an original shop tip, we would like to hear from you and consider publishing your tip in one or more of our publications. Go to:

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Finishing Risers

I finish a lot of doors and drawer fronts in my shop. And I always get better results if I apply the finish while they're lying flat.

So I found an inexpensive way to prop them up and avoid the mess of working directly on my bench. I use carpet tack strips nailed to lengths of common 2x2's.

The sharp points don't mar the bare wood or the fresh finish. I just wait for the finish to dry on one side and then flip the door or drawer front over to finish the other side.

You can find tack strips at any home center where carpet is sold. The tack strips come ready to nail to the 2x2's. Once they're assembled, the risers can be laid anywhere there's room for them. This way the finish can dry, but the parts won't be in the way in the process.

Richard Maydole
Clayton, Idaho

Two-Step Wall Hanger

I found an easy way to make a hanger hole without the added expense of a keyhole bit. All you need is a Forstner drill bit and a dovetail router bit.

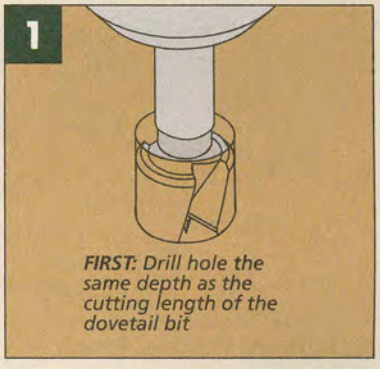
As you can see in Figure 1, I drilled a starter hole first with the Forstner bit, about ½" deep. I chose a Forstner bit that matches the diameter of my dovetail bit (½").

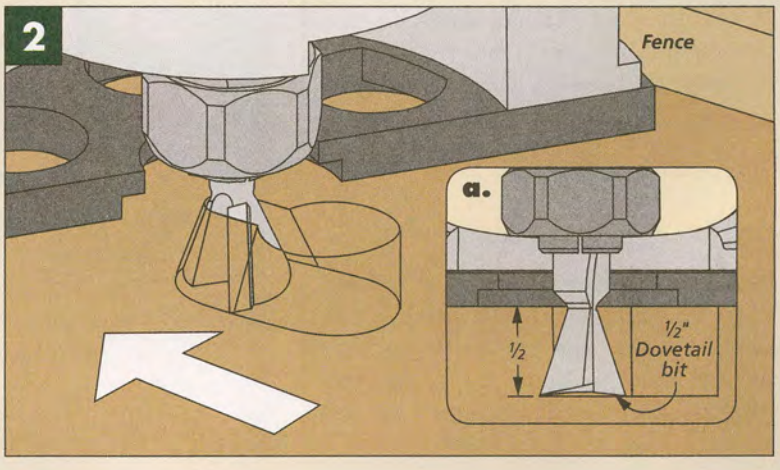
Next, I used the dovetail bit and a plunge router to make a flared slot. It's a good idea to use a dovetail bit with a steep angle on it. (I used a 14° dovetail bit.) This will give the screwhead more bearing surface to grab onto when the finished project is hung from the wall.

You'll need to clamp a fence to the workpiece to guide the router as you make the slot. Once the bit is installed in the router, center it over the hole and lower it until it bottoms out in the hole. Then set the plunge depth stop.

With the router set up, turn it on and plunge it into the hole. Then move the router forward about ½" to make the slot. Turn off the router and when it comes to a stop, slide the bit out of the slot. You'll have a hanger slot that will fit most any screwhead. And you'll have saved the expense of a bit.

Alex Flores
McKinney, Texas



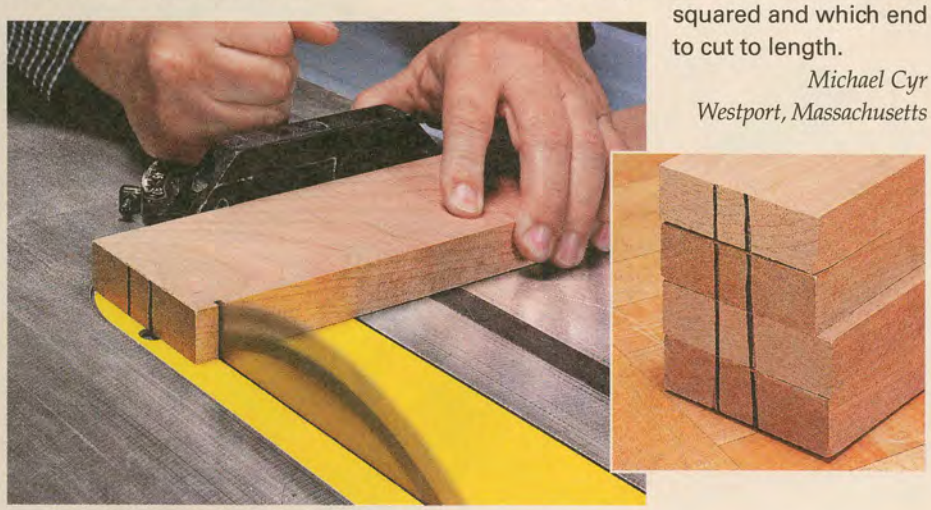


Squaring Up Stock

When I have a lot of workpieces to square up at the table saw, it can be time-consuming to stop and make reminder marks on each board after I make the cut. Plus, I have to sand them off later when I'm ready to apply the finish.

So I found a quicker way. I stack all the boards together and make a couple marks on both ends all at one time (inset photo). Then I square one end on the saw. When it's time to cut the boards to length, I immediately know which end has been squared and which end to cut to length.

Michael Cyr
Westport, Massachusetts



One-Hand Compass Setup

I use a compass in my shop for laying out arcs and circles. Recently I developed a quick and easy way to set up the compass using just one hand.

As you can see in the photo, all you need is a folding rule. The rivets that hold these rules together are always set on an inch mark. And the tip of the compass fits neatly in the center of the rivet. To set the compass, it's just a matter of pulling the pencil leg out to the measurement you require and tightening it down.

Michael Cyr
Westport, Massachusetts

Win This Bosch *Impactor* Driver

That's right, send us your favorite shop tips. If your tip or technique is selected as the featured reader's tip, you'll win a *Bosch* impact driver just like the one shown here. To submit your tip or technique, just go online to *woodsmith.com* and click on the link, "SUBMIT A TIP." You can submit your tip and upload your photos for consideration.

The Winner!

Congratulations to Bill Johnson, winner of the *Bosch Impactor* driver. To find out how you could win a *Bosch* driver, check out the information on the left.

Quick Tips

GLUE BOTTLE CLEAN UP

If I don't wipe the tip after using a glue bottle to dispense glue, (which I often forget to do), I end up dealing with a clog the next time. And invariably this clog will present itself when I need it least — during a critical glueup.

So I decided to prevent this problem by securing a small piece of cloth to each new bottle of glue with a plastic cable tie. This eliminates wasting paper towels for clean up. But more importantly, it reminds me to wipe the bottle after each use so there's no mess.

Judson Gash
Knoxville, Tennessee

DURABLE GLUE BRUSH

I used to buy commercial glue brushes to spread glue on my projects. But I found an easier way and it's almost free.

I use a toothbrush to spread glue now. The bristles hold more glue than the commercial brush and it spreads more evenly.

The toothbrush doesn't have to be new, so a gently used one will do. You can also use inexpensive, disposable toothbrushes like the ones you get for free at the dentist's office.

Charles Mak
Calgary, Alberta

SANDPAPER STORAGE

While shopping at an office supply store, I found a perfect replacement for my big, bulky sandpaper storage rack. It was a lightweight, portable hanging file folder.

I purchased one to store my sandpaper and found that there was enough storage for all the different grits and sizes. I liked it so much, I went back to the store and bought another folder to store my owner's manuals.

Greg Little
Prairieville, Louisiana

working with **Pine**

All it takes is a little planning and the right finishing techniques to build beautiful furniture using this inexpensive wood.

Like most woodworkers, many of my early projects were built from pine. After all, it's inexpensive and readily available. But once I started working with hardwoods, I all but abandoned pine and the problems of knots, pitch pockets, and blotchy staining. However, in spite of its limitations, for some styles of furniture it's the perfect choice. The coffee table on page 20 is a good example. Once you've learned a few "workarounds" and a couple of easy techniques, you can overcome the problems and make your pine projects look great.

▼ You'll find pine from construction grade to clear.

START AT THE LUMBERYARD. A successful pine project begins with a careful inspection of the wood at the lumberyard. In addition to piles of construction-grade two-by stock, you'll see grades like: *select*, *# 2 common*, *C & better*, and *clear*. The grades are established in accordance with the American Softwood Lumber Standards. These standards are necessary for lumber producers and wholesale buyers in the construction industry. They strictly define the nominal sizes, acceptable measures of moisture content, and the nature and number of defects in a particular grade of timber.

But for woodworkers, these standards only tell part of the story. The more important concern when selecting lumber for a project is uniformity of color and grain. Another drawback of the grading system is that it usually lumps spruce, pine, and fir together under the "SPF" label. And the large chain home centers add to the confusion by simply labeling a number of softwoods as "whitewood."

So, instead of getting too caught up looking at a particular grade (or even species), I search for a batch of wood that displays a consistent color and even grain.

I'm also very concerned about the price. What I mean is, you can find beautiful clear pine at most lumberyards and home centers, but you'll likely pay a premium price for it, negating one of the biggest benefits of using pine.

For this reason, I prefer to stick to the lower grades and accept the fact that I'll need to buy a little extra so I can work around the problem areas. If you avoid twisted stock, you can flatten and straighten pine easily.

Another important step in the process is to make sure you give pine plenty of time to dry and acclimate to your shop. Then it's just a matter of careful layout work.

LAY OUT THE PARTS. Since most pine is flatsawn, laying out project parts requires careful consideration. For example, you'll probably want to use straight-grained pieces for the rails and stiles of a cabinet door, but cathedral grain for the door's panel. This can be achieved with pine because wide boards are easy to find. The main photo shows how to lay out straight-grained parts from mid-grade stock.

▲ Pitch pockets can ruin the look of a project and make finishing nearly impossible.

▲ A simple solution is to rout away the pitchy area and inlay a grain-matched, bowtie patch.

▲ A little epoxy is all it takes to stabilize a cracked knot.

KNOTS. The next concern is whether to eliminate or include the inevitable knots. When used judiciously, knots can add character to a project. Of course, you wouldn't want to put a knot anywhere in a joint or other structurally important part of a project. But by being careful as you lay out the project parts, you can easily intersperse them in the larger fields.

Your first task here is to make sure any knots that will be included in the part are stable. The photos at the top of the page show you how I use a little epoxy to fill the voids in a knot that is mostly stable. As a general rule, I avoid knots that are loose or falling out.

PITCH POCKETS. You'll also need a method of dealing with pitch pockets, those annoying splits in the wood filled with sappy resin. The photos at left show one way to handle this problem.

USE THE RIGHT SCREWS. Another common frustration about working with pine is that it doesn't hold screws as well as most hardwoods, often resulting in the failure of joints secured with screws. But you can dramatically improve the holding power simply by selecting the right screw for the job. The key is to use a woodscrew with deep, coarse threads. This allows the threads to grab more of the wood.

These strategies for working with pine might seem like a lot of work. But once you get busy building a project, you'll remember the best thing about pine — the wonderful smell of freshly cut boards.

Woodsmith GO ONLINE EXTRAS

To learn how to make a bowtie inlay, visit our website at Woodsmith.com.

How-To: Staining Pine Without Blotching

If you've ever stained a pine project, chances are you've experienced the frustration of a blotchy result. Blotching can occur in many hard and softwoods, but it's almost guaranteed to happen in pine if you don't take some preventative measures.

WHY IT HAPPENS. If you take a close look at the growth rings of a pine board, you'll notice the very pronounced differences in the early and late-growth wood. The lighter-colored early wood is much softer then the dark, late-growth wood.

These variations affect the way a stain is absorbed into the wood. Most of the time the result is ugly blotching.

WHAT'S THE FIX? To prevent the uneven absorption, the key is to seal the wood. One easy way to seal the surface is to use a wood conditioner. While manufacturers are tight-lipped about their exact formulas, these conditioners are basically a thinned varnish. The extra solvent allows for deeper penetration into the wood, forming an effective seal.

APPLICATION. All you need to do is wipe the conditioner on, let it sit for a few minutes, and wipe off the excess. Then you can stain the workpiece without it blotching.

▼ The conditioned board on the right displays a more even color than the untreated board on the left.

Online Extra

making a Bowtie Inlay

One of the easiest and most reliable ways to fix a defect in the surface of a workpiece is with an inlaid patch. All you need to do is rout away the affected area and replace it with a patch that matches the surrounding grain. Traditionally, these inlays were painstakingly crafted to fit into hand-carved and chiseled recesses. But today, all you need is a plunge router and a simple inlay kit. These tools make it easy to inlay a perfect patch.

The inlay kit consists of a brass bushing with locking ring, a removable sleeve, a centering post, and a down-cut spiral bit.

THE INLAY KIT. The secret to getting great results is in the design of the inlay kit, shown in the margin. It's just a brass guide bushing that locks into the base of your router (like the ones you'd use with a dovetail jig) and a removable sleeve. The offset created by the sleeve matches the diameter of the spiral router bit. The removable sleeve allows you rout the inlay and the matching recess with only one template. This ensures a perfect fitting inlay every time.

You can buy inlay kits as well as acrylic templates like the "bowtie" shown above, from just about any woodworking supply store or online retailer. You can also make your own templates from ¼" hardboard.

GETTING STARTED. As you can see in the box on the opposite page, the template and bushing kit make inlay work pretty straightforward. The downcut spiral bit leaves a smooth edge on both pieces.

But before you begin, you'll need to set up your router. You can use the centering post to install the bushing and secure it in the router base. This way, you'll be assured that the bit is centered in the bushing. If it isn't, you'll probably get some small variations as you move the router around the inside of the template. Those variations will show up as very noticeable gaps in your finished inlay.

ROUT THE RECESS. The first step is to rout away the defect and clear out the recess for the inlay. You start by centering your template over the affected area and attaching it to the workpiece with some double-sided tape. Then, with the spiral bit installed and the sleeve on the bushing, rout out the recess.

CUT OUT THE INLAY. To make a matching inlay piece, use the template as a "window" to find the right grain on a piece of stock that closely matches the original workpiece.

Then, fasten the template securely to the inlay blank. To keep the template from moving and ruining the inlay, make sure to use fresh tape for each piece.

Now you can remove the sleeve from the bushing and carefully rout around the template to outline the inlay. The next step is to move to the band saw and cut the inlay free from the blank.

ASSEMBLY. Since the router bit cuts the outside of the inlay piece and the inside of the recess, the inlay pieces have sharp corners and the corners of the recess are rounded. You can either lightly sand the inlay to round the corners or use a chisel to square the corners in the recess. Either way, be careful to remove only small amounts of wood at a time to ensure a tight fit. Check your fit as you go.

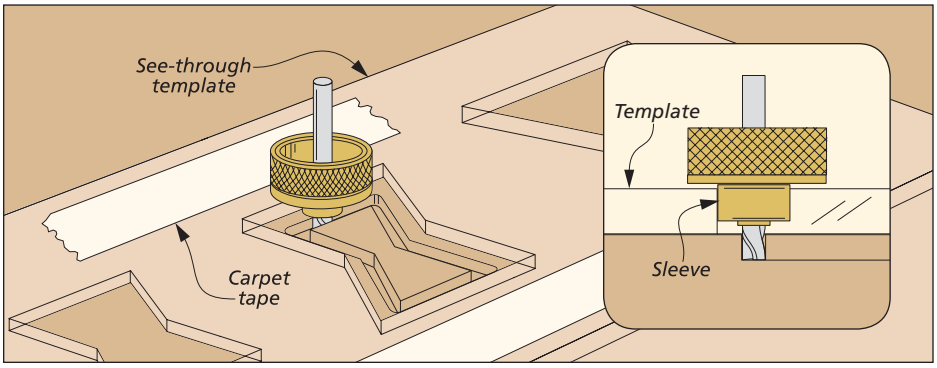
When you have the fit you want, apply glue in the recess, especially around the sides, so it will seal tightly. Then cover the inlay with wax paper and a block of wood, and tap the piece in place. Clamp the assembly until the glue dries. You can complete the inlay by scraping or sanding the surface flush.

Using the router inlay kit, all it takes is a little patience and these simple techniques to do nearly flawless inlay work. You'll be surprised at how quickly you can make a small knot or pitch pocket disappear. And that means you can fix just about any of these small defects in your projects. W

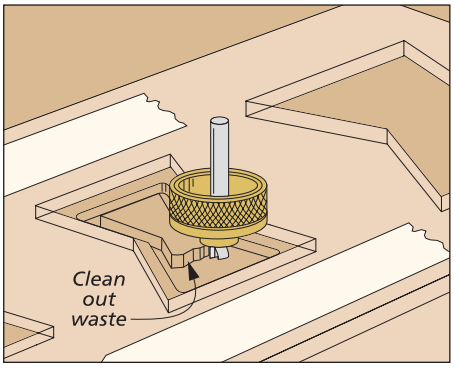
{ A pitch pocket is just one example of a defect that can detract from the look of a project.

{ An inlaid patch with matching grain solves the problem and is almost undetectable.

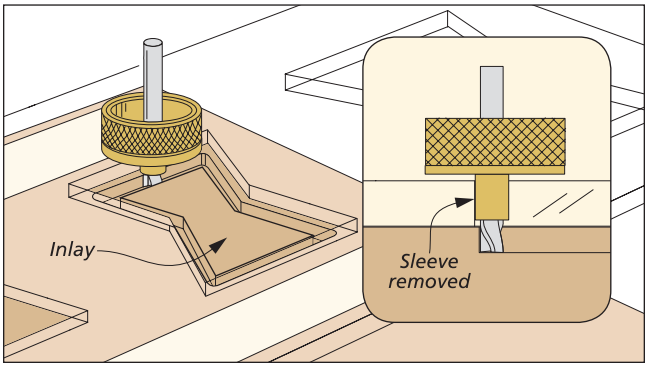
Step-By-Step: Making Inlays



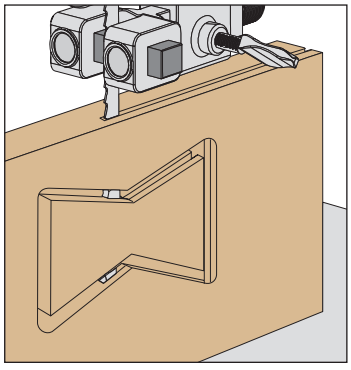
Rout the Shape. Begin by attaching the template to the workpiece with double-sided tape. With the bushing installed on the router, and the bit set to a depth of ⅛", rout the outline. Keep the bushing tight against the template as you work your way around.



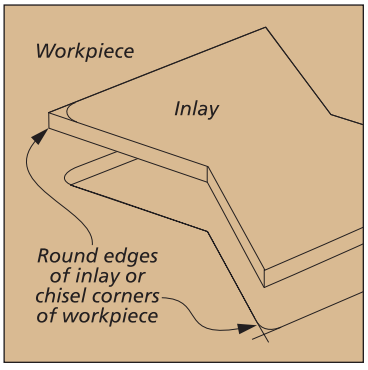
Clean out the Recess. Carefully move the router around the recess to remove all the wood and leave a flat bottom.



Cut the Inlay. With the template attached to the inlay material, remove the sleeve and rout counterclockwise around the template. Make sure to keep the router flat.



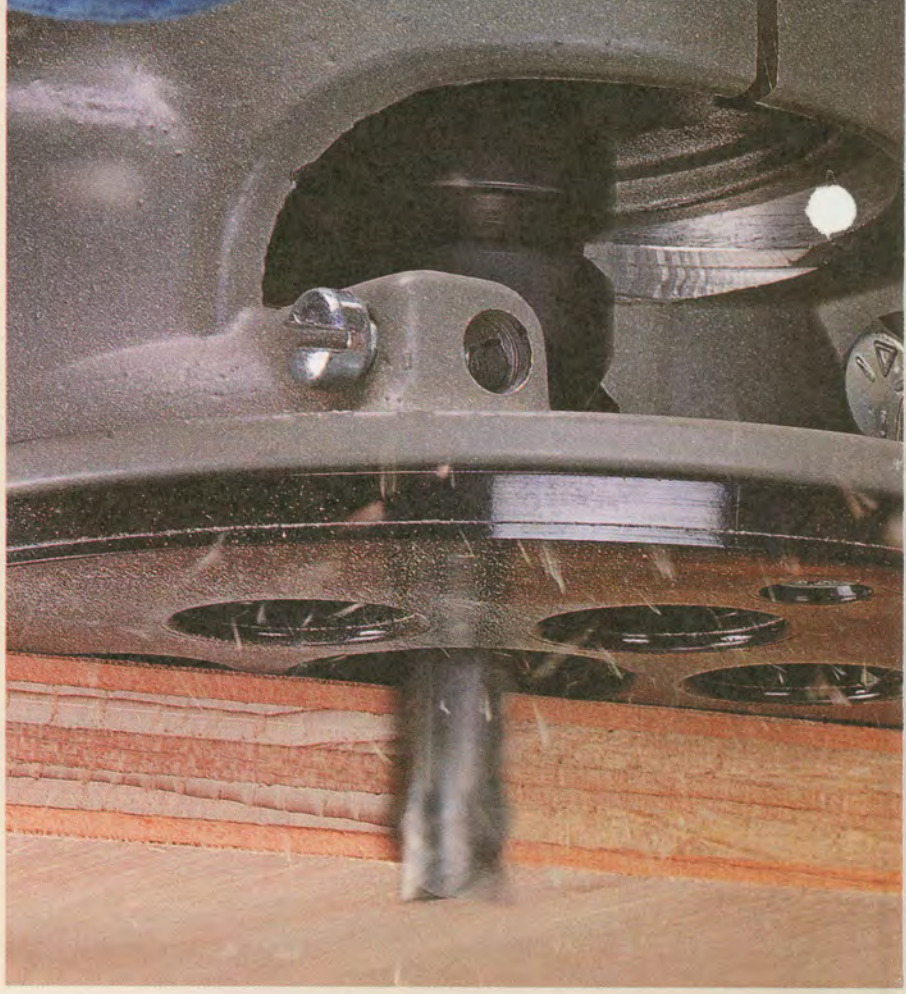
Free the Inlay. At the band saw, resaw the inlay blank to free the routed inlay piece.



Refine the Fit. For a perfect fit, either round the corners of the inlay, or square the recess.

a look at

Spiral Flute Router Bits



Offering fast, smooth, tearout-free cuts, these unique bits definitely deserve a spot on your router bit roster.

Spiral flute router bits have been around for a long time. But in recent years, the range of sizes and types that are available has increased dramatically. There's a good reason for this. For many operations — dadoes, grooves, rabbets, edge trimming, or mortising — spiral flute bits offer a sizable advantage over standard straight bits.

THE DIFFERENCE. Originally designed for milling metal, these bits look more like a twist drill bit than a router bit. Rather than being aligned parallel to the shank, the cutting edges (one to four) spiral around it. The end of the bit is not pointed like a drill bit, but is slightly relieved toward the center, like a straight router bit. The result of this design is that spiral flute bits function like a cross between a drill bit and router bit giving you exceptionally smooth, fast cuts.

WHY BETTER CUTS? The spiral orientation of the cutting flutes is what provides the "quality of cut" advantage to these bits. And this works on a couple of different levels. The cutting edge of a traditional straight bit attacks the wood with a straight-on chipping or scooping action. This can be the cause of tearout, as well as the scalloped, "chattery" surface that is sometimes seen.

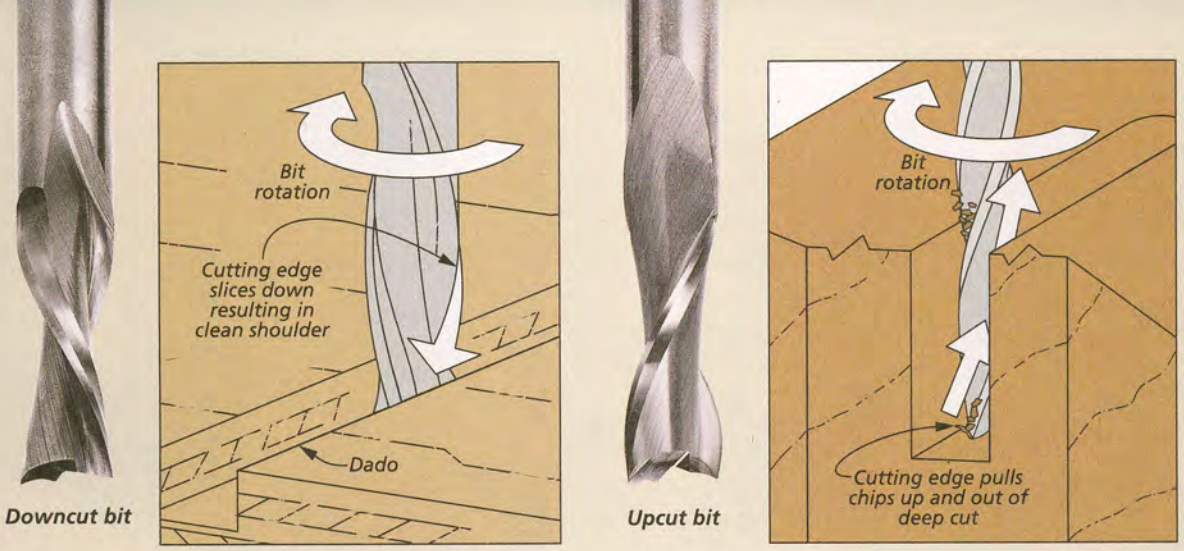
On the other hand, due to the twist, the cut of a spiral flute bit is skewed to the surface. This results in a shearing or scraping cut that leaves a smoother surface.

The second advantage is that, unlike a standard bit, a spiral flute bit is continually channeling the waste away from the point of the cut — either up or down depending on the style of the bit. This rapid clearance keeps the cut from clogging with chips, reducing interference and leading to a smoother surface. A side benefit is that the bit will run cooler and consequently last longer.

UP OR DOWN? The flutes can wind up the shank in a clockwise (called downcut) or counterclockwise (called upcut) direction. The reason for this is that although the cutting action of the two types is essentially the same, each is better adapted to making certain types of cuts. (Both are meant for the clockwise rotation of the router).

WASTE. The direction of the spiral has two effects on the way each type of bit operates. A look at the drawings on the following page will help make this clear.

The crisp, clean shoulders left by a spiral flute bit contrast with the rougher cut of a standard straight bit.



◀ Upcut and downcut bits each offer advantages for specific types of cuts.

One consequence that's already been touched on is chip clearance. An upcut bit works like a twist drill to pull the waste up and out of the cut. A downcut bit does the opposite — pushing the waste downward. When making a deep "trapped" cut, an upcut bit channels the waste up and out. A downcut bit will eject the waste more efficiently during a through cut.

CLEAN EDGES. The second thing to consider is the shearing direction of the bit. When an upcut bit contacts the wood fibers, they're forced upward as they are severed. The reverse is true of a downcut bit.

At the surfaces of a workpiece, the shearing direction can be important. Due to the upward shear of the cut, an upcut bit will leave a very clean, crisp edges on the opposite or bottom face. But you may get a little fuzz or even chipping on the top surface.

As the photo at the bottom of the opposite page shows, a downcut bit produces the reverse effect. The edges of the shallow dado cut made with a downcut bit are perfectly clean. When routing veneered plywood, this can be a big plus.

You want to choose the bit that produces the cleanest cut on the "show" side. For example, a rabbet or a dado cut with a downcut bit will have a cleaner top shoulder.

BOTH DIRECTIONS. What if the goal is two perfectly clean edges? This is possible. The double-compression bit in the right margin combines upcut flutes at the tip with downcut flutes along the shaft. It leaves both surfaces crisp and clean, as you can see in the main photo on the opposite page. It's a great choice for edge trimming plywood and hardwood. (For a couple other special application spiral flute bits, check out the box below.)

PLUNGE CUTS. Deep plunge cuts with a standard straight bit can be difficult at best. Clogging, wandering, roughness, and burning are often the result.

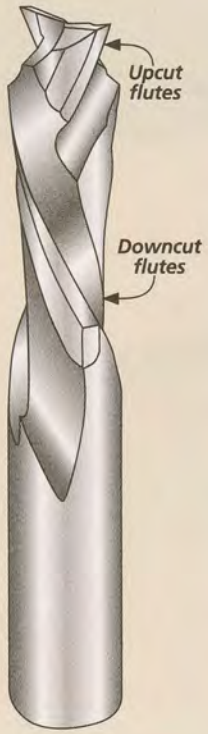
But a plunge cut with a spiral flute upcut bit is much smoother and easier. The bit essentially drills a hole in the wood, almost pulling itself into the wood while lifting the chips out. For this reason, a spiral upcut bit is my first choice for routing mortises (drawing above).

THE SPECS. Spiral flute bits come in a pretty wide range of diameters — from ⅛" to ¾". The larger diameter bits may have cutting lengths of up to 1½". So you can find a bit to suit almost any application.

Most spiral flute bits made today are solid carbide, although high-speed steel bits can still be found. The carbide bits are two to three times the cost of the steel bits, but they'll maintain a sharp edge for much longer. In my opinion, this is worth the extra cost.

FLUTE NUMBER. As noted, the number of flutes can vary from one to four. The trade-off is between feed rate and quality of cut. The more flutes, the smoother the cut. But you'll have to go slower due to less efficient chip clearance. Two flutes seems to be a good compromise.

As the saying goes — "seeing is believing." And if you're like me, once you add spiral flute bits to your collection, you'll wonder how you got along without them. W



Two Clean Edges. *The double-compression bit leaves crisp edges on both faces.*

Options: Chipbreaker & Flush-Trim

New designs and functions for spiral flute bits are cropping up all the time. The photo at right shows two specialized bits.

CHIPBREAKER. The example on the left is a finish chipbreaker bit. It's designed for making fast cuts in hard materials. As you can see, the cutting edges are interrupted by small grooves. The grooves are staggered between the flutes to leave a clean cut along with rapid chip removal.

FLUSH-TRIM. When flush trimming or pattern routing, you're often dealing with contours that lead to changes in grain direction and rough, chippy cuts. This is why the shearing cut of the spiral flute flush-trim bit shown at right may offer a nice advantage over a standard flush-trim bit.

the versatile BeadLOCK Pro

This advanced version of the innovative *BeadLOCK* loose tenon system offers several joinery options in one easy-to-use jig.

The heavy-duty *BeadLOCK Pro* allows you to make joints in a wide range of stock thicknesses.

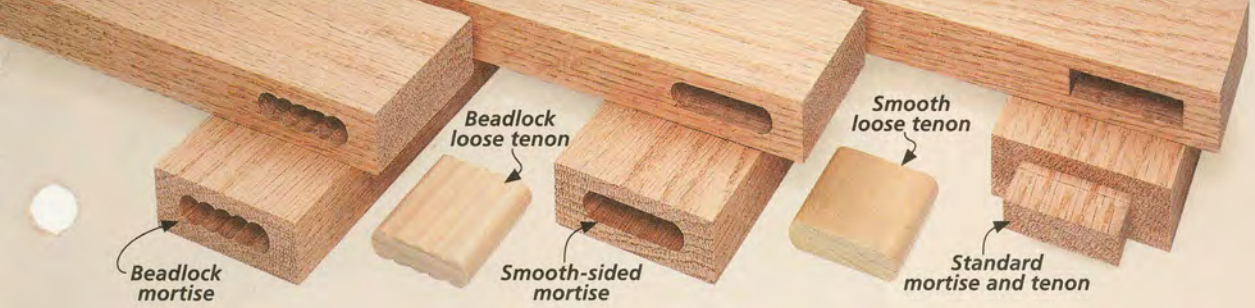
Loose tenon or floating tenon joinery is a great choice for constructing all types of frames. Rather than cut a mortise in one piece and a tenon on the mating piece, you simply cut a mortise in each workpiece and then fit a "loose" tenon between them, similar to adding a spline to a miter joint. This way, you don't have to take any joinery into account when cutting the workpieces to length. And there are no fussy shoulders to fit.

The only catch is that loose tenon joinery requires an efficient method of cutting two perfectly aligned mortises in the mating workpieces. This is where the *BeadLOCK Pro* loose tenon system from *Rockler* enters the picture.

The original, basic *BeadLOCK* system is essentially a drilling guide that allows you to create accurately sized and positioned mortises in mating workpieces with just a hand drill. A *BeadLOCK* mortise is comprised of a series of precisely spaced overlapping holes. A *BeadLOCK* loose tenon with a "corrugated" shape matching the mortises is inserted between the two workpieces. A look at the photo above will give you the idea.

The advanced, more versatile *BeadLOCK Pro* system provides a few more joinery options. The photo at the top of the opposite page shows what it will do for you. Standard *BeadLOCK* joints are the starting point. From there, you can also use it make loose tenon joints using shop-made "smooth" tenon stock, or even a square mortise for a standard mortise and tenon joint.

THE KIT. The parts included with the basic *BeadLOCK Pro* kit are shown at left. As you can see, the body of the jig resembles a heavy-duty doweling jig. The two sturdy, steel reference plates are spanned by a pair of stout guide rods. The guide rods support an adjustable, sliding carriage that holds the interchangeable drilling and mortise paring blocks.



The *BeadLOCK Pro* offers three mortise and tenon options.

HOW IT WORKS. The two drawings below show how the jig is used to make a standard *BeadLOCK* mortise. The drilling block contains a row of evenly spaced guide holes. All you have to do is drill two sets of holes, shifting the position of the guide block in between.

The registration of the drilling block in the carriage is automatic, so there's virtually no room for error. The size and configuration of the mortise is dead-on every time. And alignments marks on the drilling block along with a quick layout allow you to accurately match up the mortises in the mating pieces.

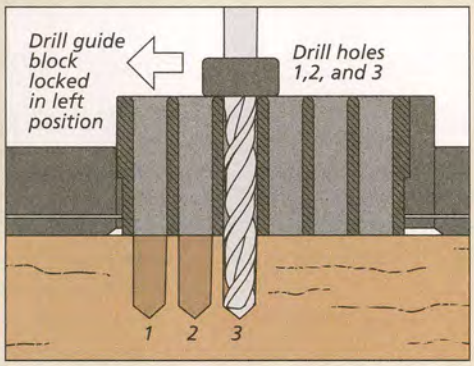
A STANDARD MORTISE. If your goal is a smooth-sided mortise, you swap out the drilling block for the paring block after drilling out the mortise (photo below). The width of the opening in the paring block matches the diameter of the drill bit and serves as a steady guide for a chisel. You can quickly shave away the "ribs" between the holes, creating a clean, accurately sized mortise for your shop-made loose tenons or a standard tenon. (Note: The ends of the mortise can be left round or squared up using the paring block, as shown above.)

SPECS. The standard kit comes with a drilling and paring block for making ⅜"-wide mortises. Accessory packages, which include a set of guide blocks and a drill bit and stop collar, are available for making ¼"- and ½"-wide mortises. (You'll find source and pricing information on page 51.)

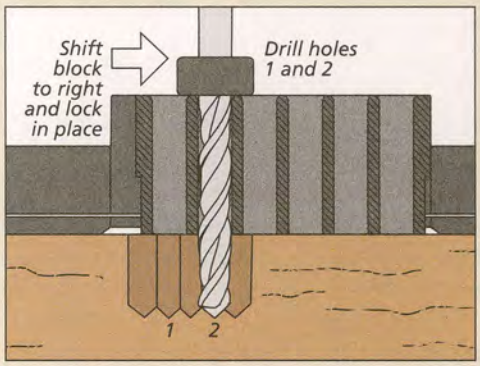
You can buy ready-made *BeadLOCK* tenon stock or make your own with a special router bit (box below). But one minor drawback is that the pre-made *BeadLOCK* loose tenon stock comes only in standard widths — 1½" for ¼"-wide mortises, 1⅜" for ⅜"-wide mortises, and 1¼" for ½"-wide mortises. You'll encounter the same limitation if you make your own tenon stock on the router table. When a more substantial joint is desired, you can always double up the joinery, as shown in the main photo on the opposite page.

Smooth-sided mortises up to about 3" long can be made using the drilling and paring blocks. Mortises can be extended by repositioning the jig on the workpiece.

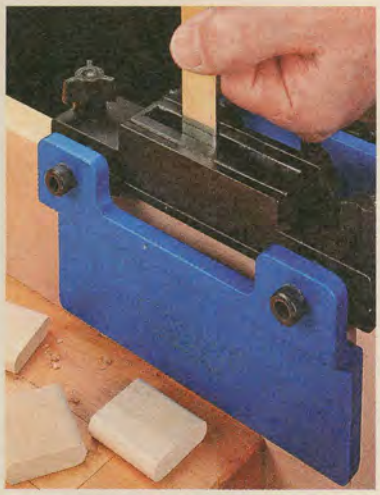
Maybe the best thing about the *BeadLOCK Pro* is that the learning curve isn't steep. Once you get the hang of the basics, the system provides a versatile, reliable, and easy-to-use option for joinery.



The Start. *With the drilling block positioned at one side of the opening in the carriage, drill through the first three guide holes.*



The Finish. *To complete the mortise, shift the guide block to the opposite side of the opening and drill through the first two holes.*



After drilling out the mortise, the paring block allows you to quickly smooth the sides.

How-To: Make BeadLOCK Tenons

If you find yourself going through a lot of *BeadLOCK* tenon stock, it might pay to invest in a *BeadLOCK* router bit and start making your own (far right photo). This also lets you better match the tenon wood to the wood in your project.

Making long sections of tenon stock is an easy task at the router table. You start with a blank sized to the thickness and width of the tenons. Then, using the setup shown in the photo at right, you rout the profile on both faces.

A featherboard helps control the blank as you rout the *BeadLOCK* profile.

5 tips for Gluing Up a Panel

Straight boards and matching grain pattern will get you on your way to a great-looking panel. Here are a few tips to give you an extra hand.

When it comes to gluing up a panel for a tabletop or cabinet, a flat, smooth surface with invisible joints is the goal. But arriving at the perfect panel with a minimum of work can be a challenge.

There are a number of steps I take before I ever put glue to wood so that I'm not disappointed with the final outcome of my panel glueup. For instance, starting with boards that are flat and smooth means less sanding in the final steps of surfacing the panel. Avoiding obviously warped, bowed or crooked boards will definitely mean a better panel. And I'll offer a few other ways to avoid the pitfalls of a panel glueup. Plus I've included a jig you can build that will store the panel while the glue dries.

▼ Matching grain patterns, as in the two examples below, help create a less visible joint line.

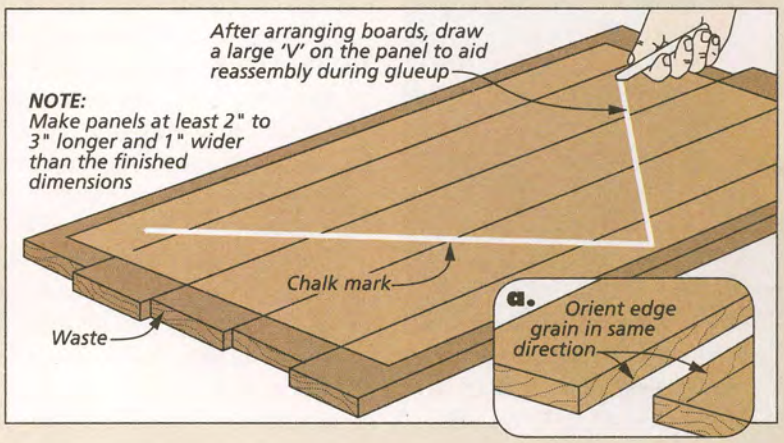
1 Selecting and Arranging Boards

Selecting the right boards at the lumberyard is really where the process of assembling a panel begins. In addition to selecting flat, straight stock, the boards should be approximately the same in color and grain pattern as well.

After you have the lumber in your shop, you can determine which boards will lay side by side. For an example, take a look at the left photos. As you can see, similar types of grain look good side by side and will hide the glue lines.

Try to keep the edge grain running in the same direction too (detail 'a', right drawing). With the grain going in one direction, you'll have less trouble with tearout if you plane the surface of the panel.

Once you have the layout of the boards determined, you can mark the panel with chalk (drawing below). Drawing a large "V" on the face of the panel will help you orient the boards at glueup.



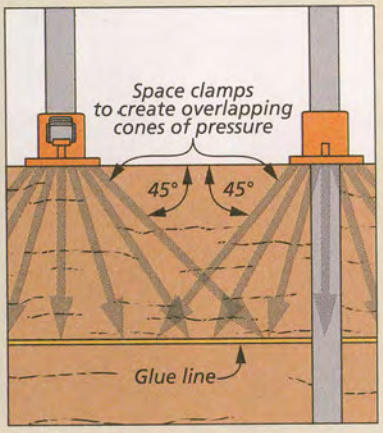
2 Biscuits and Splines

When you add glue to the smooth surfaces on the edges of each board, they'll slide pretty easily. So it helps to use splines or biscuits to keep the boards in place.

For help aligning the boards, biscuits are a good option. When you're using biscuits be sure to position them a few inches from the ends so they're not exposed when you cut the panel to the finished length. You can see what I mean in the photo at right.

If you don't own a biscuit joiner, you can cut a slot in the edge of the board for a spline using a slot cutter in the router. Then cut the spline to fit the slot.

▲ Biscuits or splines will keep boards aligned during the glueup.



3 Clamp Spacing

When it comes time to add the glue and the clamps, there are few things I like to have ready before I start. Those things include a large, clean work area and enough clamps to get the job done.

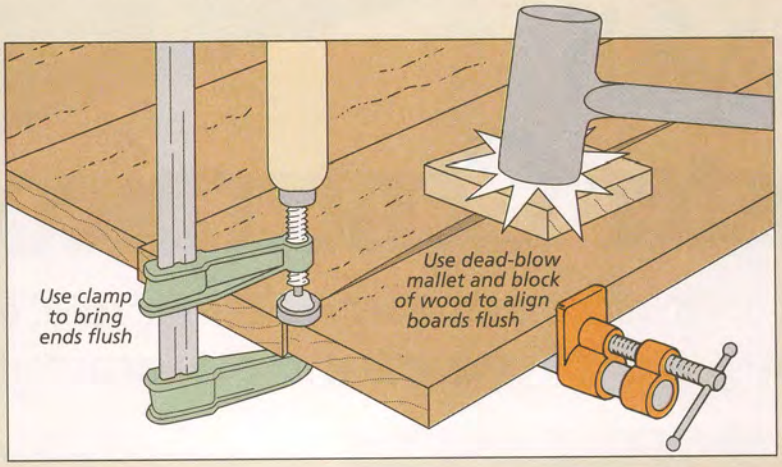
For adequate pressure, clamps should be spaced about 6" apart, with half on the underside of the panel and half on the top side. I start by laying the bottom clamps about 12" apart. Then I lay waxed paper over the clamps to keep the glue from reacting with the pipes and causing stains on the boards. My next step is to lay out the boards on the clamps, making sure the chalk marks align. Spread the glue, add another layer of waxed paper, and then the top clamps go on.

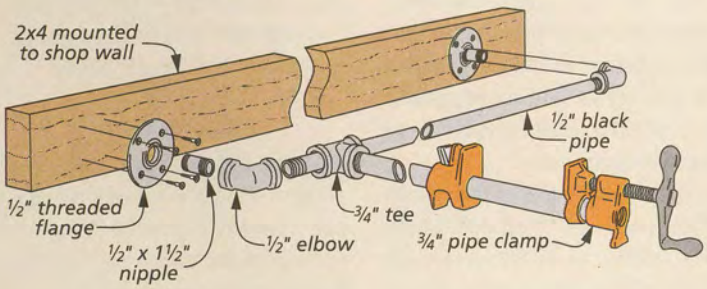
I alternate tightening the clamps just a little at a time, making sure not to overtighten them, which could cause the panel to bow.

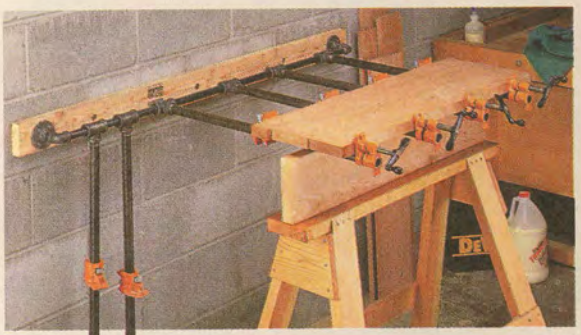
4 Making Adjustments

If you haven't used splines or biscuits to hold the boards in place during the glueup, you may need to make a few adjustments in the alignment.

As you can see in the drawing at right, if the ends of two boards aren't flush, add a clamp to align them. If the problem is towards the middle of the panel, use a block and a dead-blow hammer to tap the boards into alignment.







5 Free Up Bench Space

Once you have a panel glued up, you have to find a place to put it while the glue dries. The handy glue-up station shown in the photo above solved the problem for me.

As you can see in the drawing, the station is built from common plumbing supplies available at any hardware store or home center, attached to a length of 2x4 mounted to the wall. The flange, nipple, and elbow all connect to a section of black pipe that holds several tees. The end of your clamp will screw into the tee and swing up for glueup and back down against the wall when the panel is drying or the jig is not in use. A sawhorse and a riser hold the clamps level while you ready the panel for the glueup. W

stylish Coaster Centerpiece

The unique design of this coaster set makes it attractive enough to assume center stage — while still safeguarding your tabletops and furniture.

▲ A layer of cork recessed into the top of each coaster absorbs any condensation. Pressing down on one edge of the coaster "pops" it up for easy removal.

Any coaster will provide a place to set a glass. But finding an eye-catching design that you're proud to leave sitting out on display is a different matter. This coaster set satisfies both of these requirements.

As you can see in the photo above, the set of nine coasters fits neatly in a divided tray. With all the coasters in place, you can use the centerpiece as a stand for a bowl or vase or as a trivet for a hot dish.

When you need to use an individual coaster, all you have to do is press down on one edge and it pops up from the tray so you can easily grab and remove it (photo at left.)

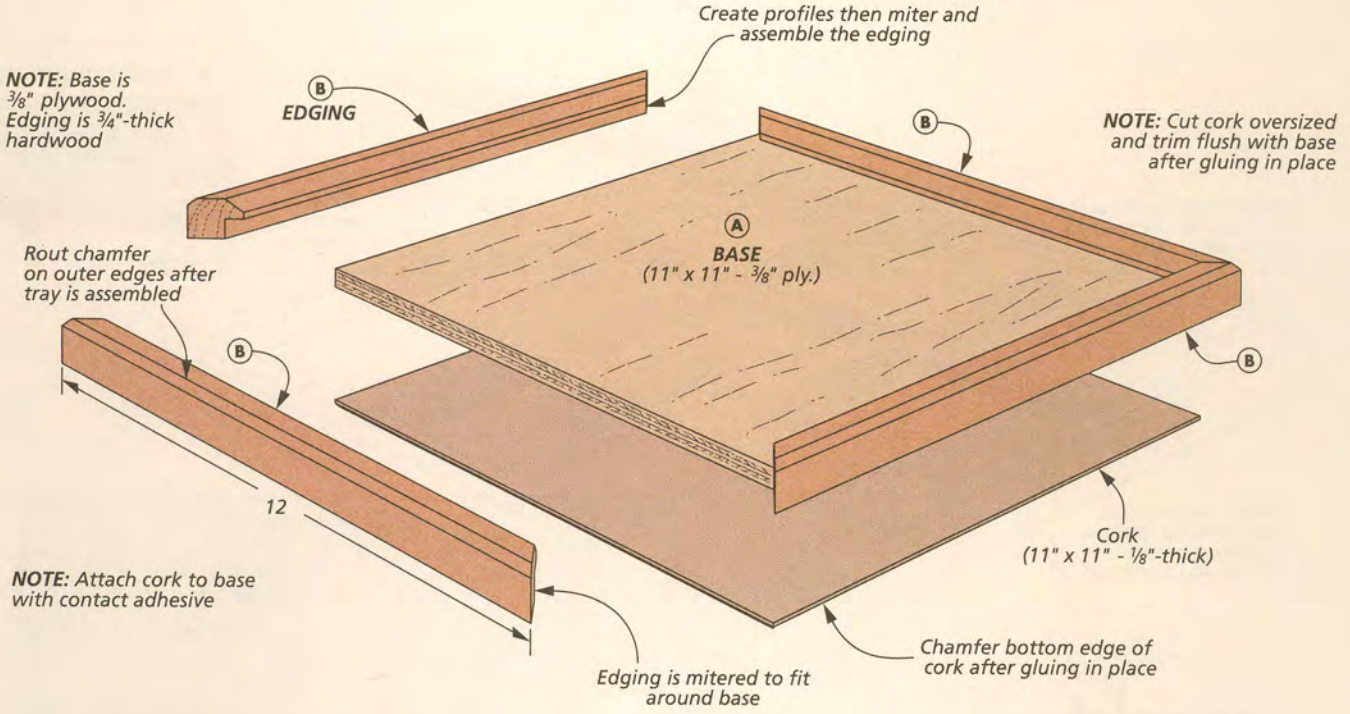
The coaster set consists of two main assemblies — the coasters and the tray that holds them. I started by building the tray.

BUILD THE TRAY

The tray is just a plywood base wrapped with hardwood edging. Thin divider strips glued to the top of the tray create a grid that holds the coasters.

BASE. To make the tray, start by cutting the plywood base to size as shown in the drawing at the top of the opposite page.

Before adding the edging, I glued a layer of ⅛"-thick cork to the bottom of the base. This prevents the tray from scratching the surface of your table or any



other piece of furniture on which you may chose to set it.

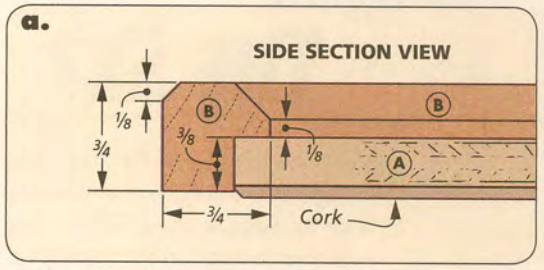
It's a good idea to cut the cork a little oversized and then trim it flush with the base after it's glued in place. I used contact adhesive to glue the cork to the plywood base.

After the cork is attached to the base, it can be trimmed flush with a utility knife. Then I cut a small chamfer on the edge of the cork by holding my utility knife at an angle to the edge (detail 'a').

EDGING. With the cork glued to the base, you can start on the edging. The edging is made up from a couple of extra-long blanks. The How-To box below gives you the basic steps on routing the profiles for the edging. I'll just point out some of the finer details.

As you can see in the drawing above, the edging is rabbeted to fit around the base. But if you take a look at detail 'a' at right, you'll notice that I made this rabbet only 3/8" deep. As a result, the cork is slightly proud of the edging. This way, the tray will rest on the cork and appear as if it's "floating" (see main photo on opposite page).

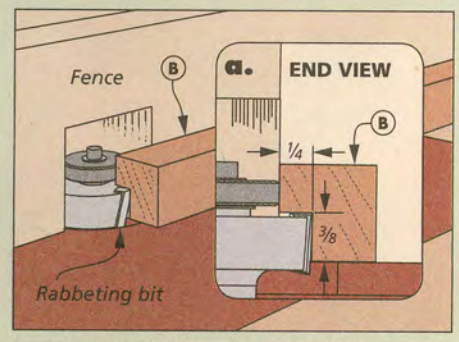
The next step is to rout the inside chamfer on the edging. The important thing here is to size the chamfer to leave a 1/8"-wide shoulder on the inside face of the edging, as shown in detail 'a' of the second drawing in the box below.



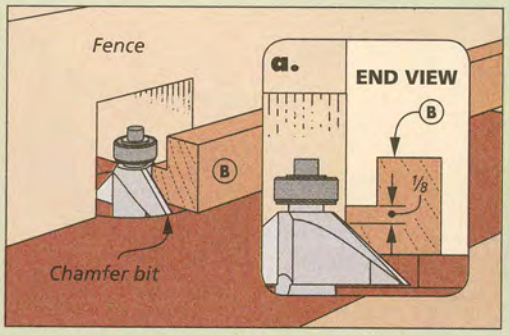
ASSEMBLY. After mitering the edging pieces to length, you can glue them around the base. A band clamp works well for holding the pieces in place while the glue dries.

The last step before moving on to making the divider strips is to rout a small (1/8") chamfer on the top, outside edge of the tray. You can see how this is done in the last drawing in the box below.

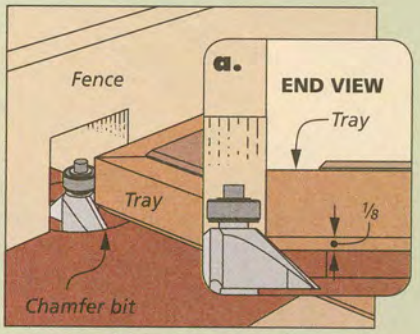
How-To: Make the Edging



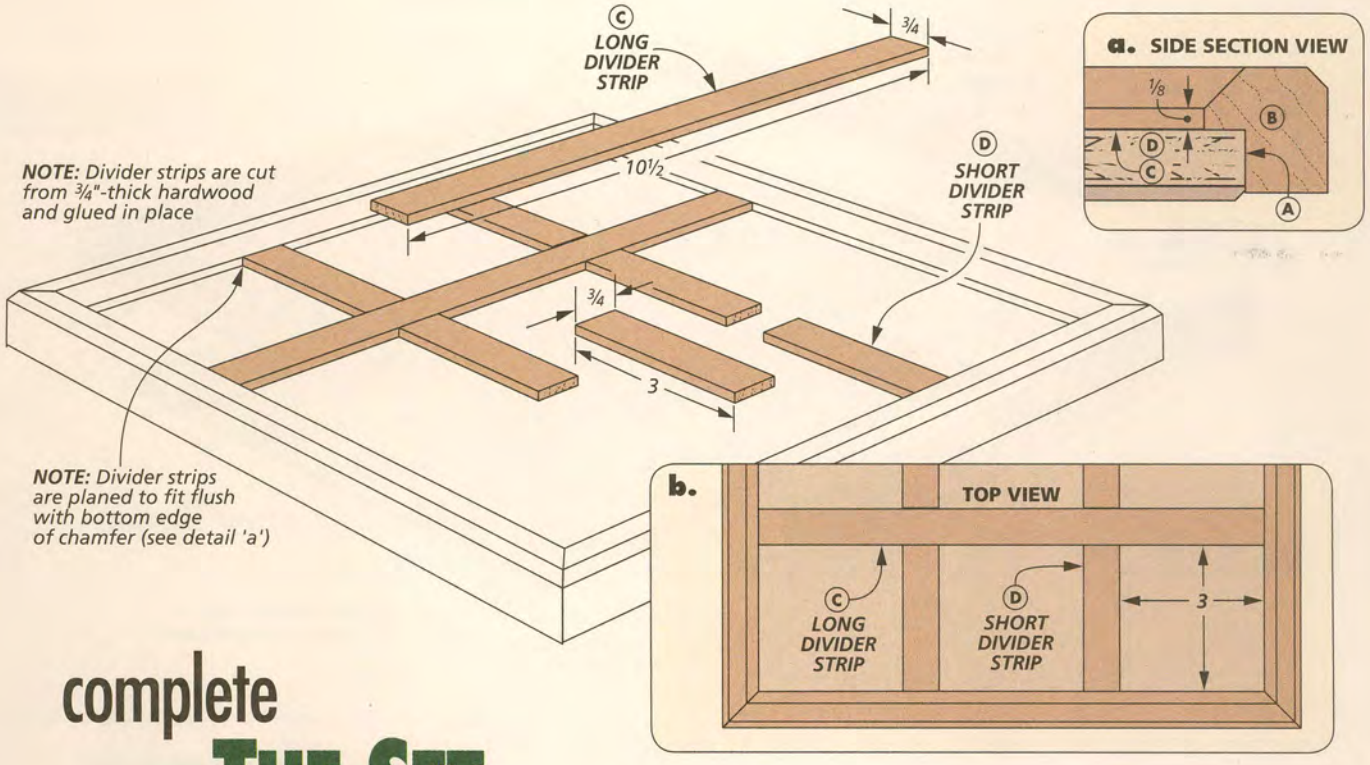
Rabbeted Edging. *Rout a rabbet on the edge of an extra-long blank. This rabbet wraps over the edges of the base.*



Inside Chamfer. *Flip the workpiece over and rout a chamfer on the top edge of the blank. Then miter the piece to fit the base.*



Outside Chamfer. *After the tray is assembled, rout a chamfer on the upper outside edge.*



complete THE SET

With the edging on the base, you can get to work on completing the tray by adding the dividers that make up the grid in the base. Then you'll make the coasters.

DIVIDER STRIPS. The dividers are made out of thin strips of wood cut from the edge of a ¾"-thick board. They hold the coasters in place on the tray.

As you can see in the drawing above, the dividers sit flush with the bottom of the inside chamfer on the tray edging. In order to get thickness just right, I cut the strips a little thick to begin with and then planed them to fit (first drawing in How-To box below).

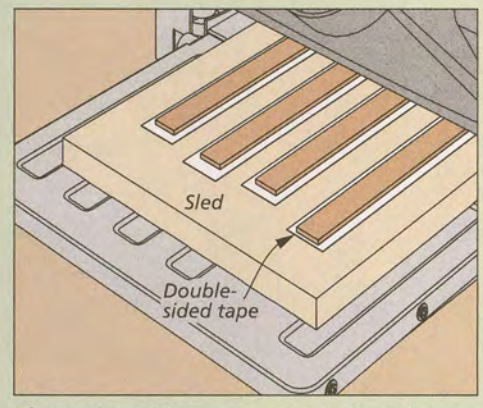
Once you have the strips planed to the correct thickness, you can begin fitting them in the tray. I started by cutting the two long divider strips to length. A couple of hardboard spacers will help position the dividers strips as you glue them to the base of the tray. (The drawings in the How-To box below show you how it's done.)

After the long dividers strips are glued in place, you can cut the short divider strips to length and glue them down to the tray, again using the hardboard spacers to help with positioning.

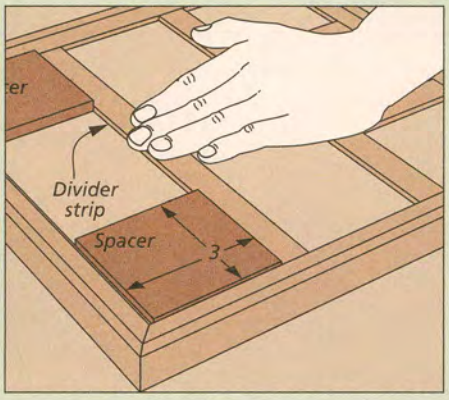
COASTERS

Now that the tray is complete, you can turn your attention to the coasters. Each coaster is a solid piece of hardwood with a chamfer on the bottom. They fit snugly between the dividers in the base. A recess is routed in the top of each coaster

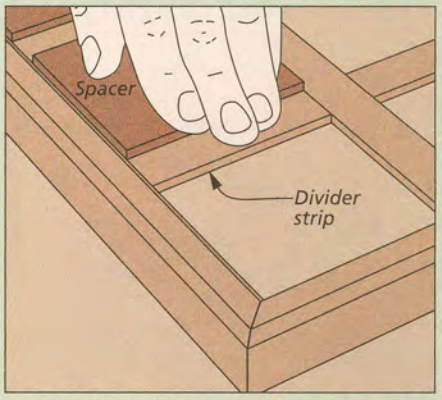
How-To: Make & Install Dividers



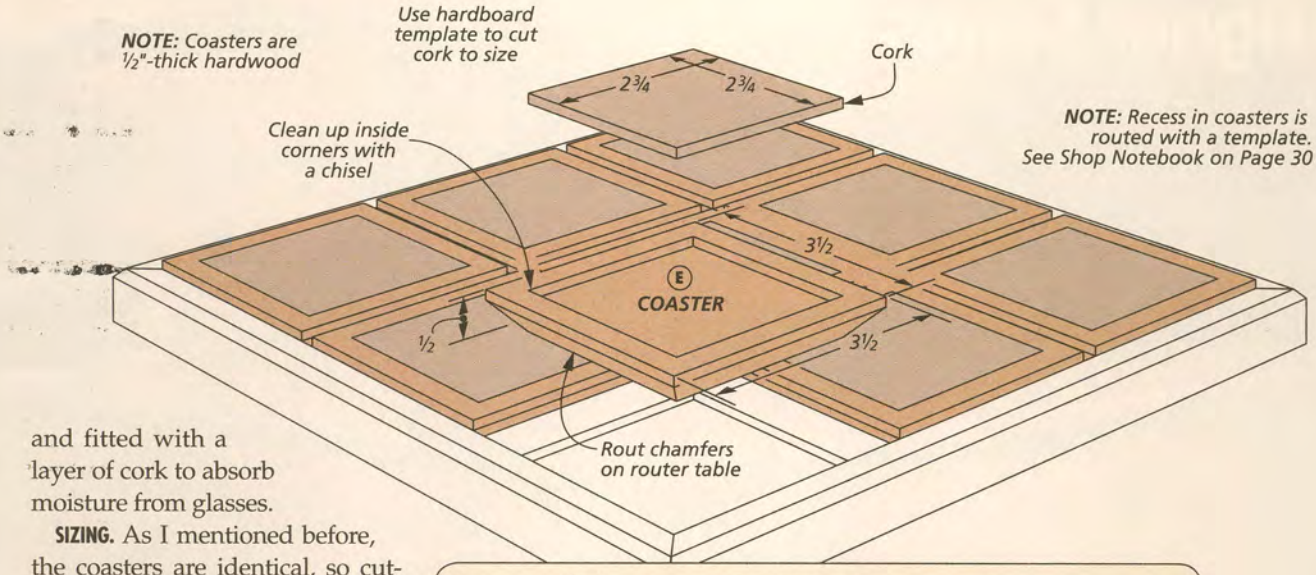
Plane the Strips. *For consistent and accurate thickness, cut the thin strips slightly thick and plane them to fit.*



Spacers. *Two hardboard spacers are used to help position the long divider strips on the tray while gluing them in place.*



Short Strips. *You can also use the spacers to position the short divider strips evenly to form the grid in the base.*



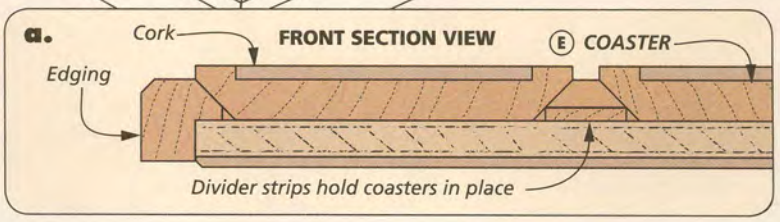
and fitted with a layer of cork to absorb moisture from glasses.

SIZING. As I mentioned before, the coasters are identical, so cutting them to size can be done in an easy, two-step process. First I ripped a long blank to width. Then I cut identical-length pieces for the coasters, using a stop block on the table saw for accuracy.

ROUTING. To create the recess in the center of each coaster, I used a router and a shop-made template. You can read more about making this template on page 30.

The router bit leaves behind rounded corners in the recesses. But a sharp chisel makes quick work of squaring these up.

CHAMFERS. The chamfers on the lower edges of the coasters are more than just decorative. They also make it easier to remove the coasters from the tray. Although I could have cut these chamfers on the table saw, I opted to use a router table to ensure crisp, clean cuts with less chance of burning.



Because the coasters are fairly small, it's a good idea to use an auxiliary fence on the router table. I made a simple fence by cutting an opening in a piece of hardboard and taping it to front of my router table fence, as shown below.

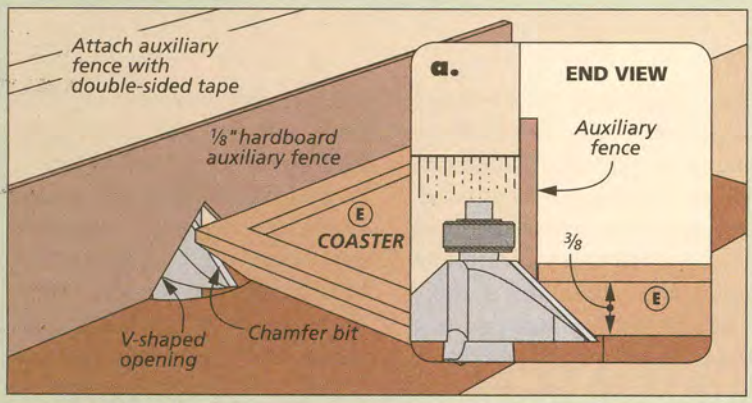
The smaller opening in the auxiliary fence prevents the workpiece from getting caught in the fence opening. I also routed the chamfers in multiple passes to minimize burning and chipout.

CORK. The last step is to add the layer of cork to the coasters. To make it easier to cut the cork to size, I made a template out of a piece of hardboard. Then I simply set the template on the cork sheet and cut around it.

I applied a finish to the coasters (and tray) before gluing the cork into the recesses. This way, the unfinished cork remains absorbent.

Once the cork is glued in place, all that remains is to find a prominent place to set the coasters while they await the next cold drink.

Chamfer the Coasters

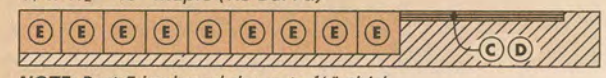


Coaster Chamfers. *To make routing the chamfers on the short workpieces safer, I cut a V-shaped opening in a piece of ⅛" hardboard and used it as an auxiliary fence. Then rout the chamfers in multiple passes.*

Materials, Supplies & Cutting Diagram

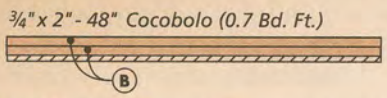
A	Base (1)	⅜ ply. - 11 x 11
B	Edging (4)	¾ x ¾ - 12
C	Long Divider Strips (2)	¾ x ⅛ - 10½
D	Short Divider Strips (6)	¾ x ⅛ - 3
E	Coasters (9)	½ x 3½ - 3½
•	(1) ⅛"-thick Cork Sheet (12" x 24")	

¾" x 4½" - 48" Maple (1.5 Bd. Ft.)



NOTE: *Part E is planed down to ½" thick*

¾" x 2" - 48" Cocobolo (0.7 Bd. Ft.)



ALSO NEEDED: *12" x 12" Sheet of ⅜" Baltic Birch Plywood*

country classic Coffee Table

This table combines the rustic look of inexpensive pine with a practical design featuring loads of handy storage.

There's something about a pine coffee table that adds warmth to a room. It's just an inviting piece of furniture. Of course it offers a place to set a drink, but let's be honest, isn't it great to have a place to put your feet up and relax as well?

And that's exactly what this design conveys: a certain relaxed informality, and a signal that this is the place to unwind after a long day. But this table is also packed with functional features.

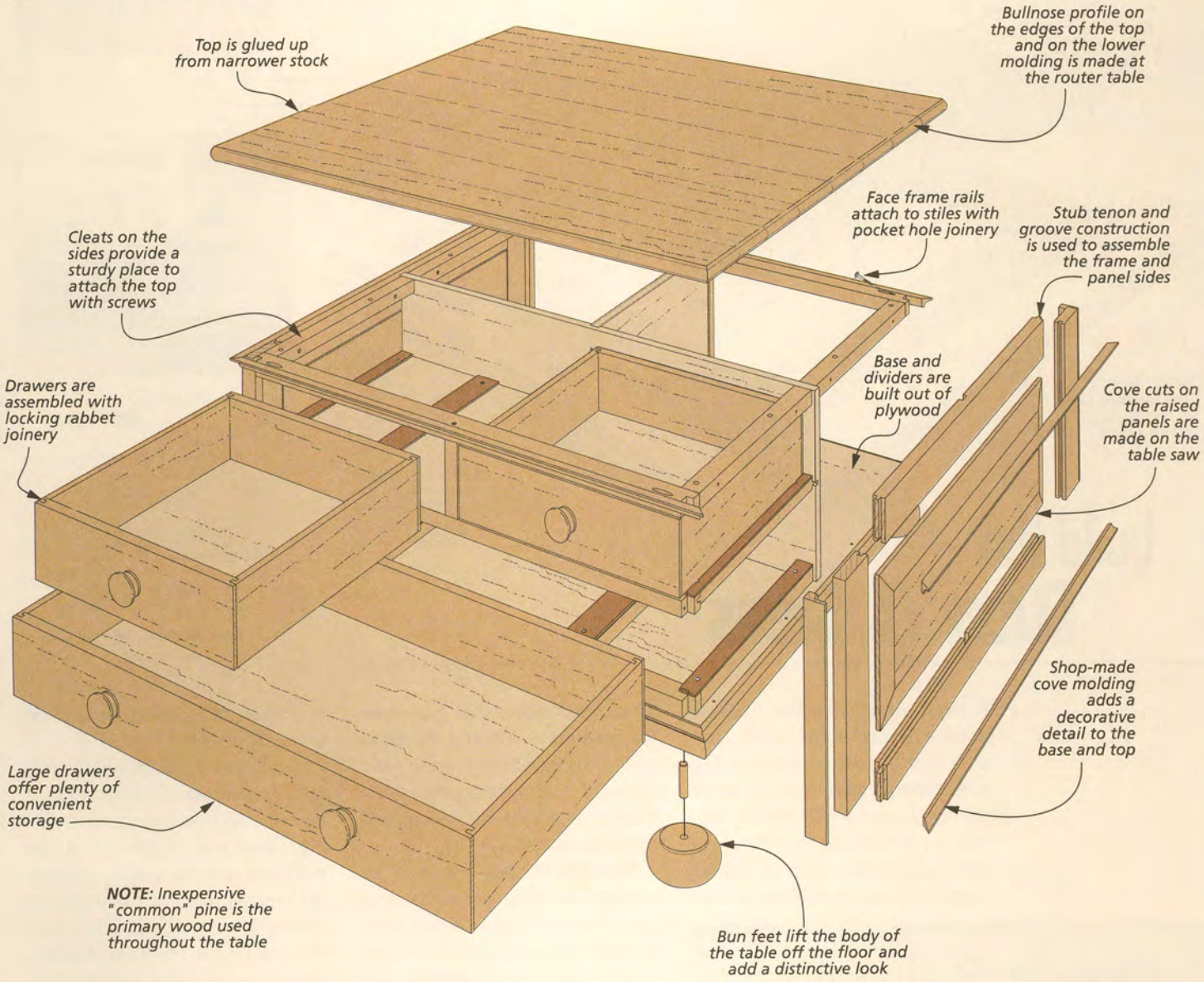
Two small upper drawers are the perfect places to stash the remote controls or anything else you need to keep close at hand. The larger, lower drawer can hold just about anything from photo albums to a blanket for a chilly night. On the opposite end, the open storage bays give you plenty of room for your favorite books, magazines, CDs, or DVDs.

But best of all, it's a great woodworking project. By using common pine you not only keep the costs down, but you also won't break your back lifting it in the shop.

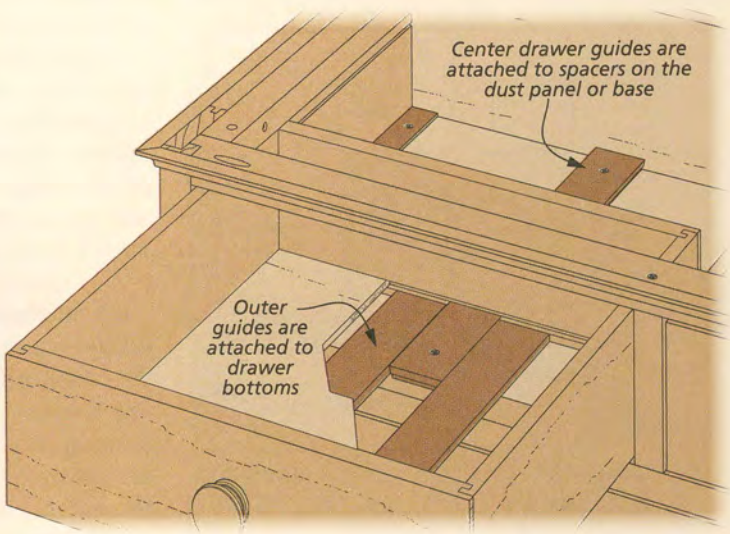
I used a combination of pocket hole joinery and frame and panel construction to make it pretty straightforward to build, too. And if you've had problems in the past finishing pine, I've included a foolproof finishing technique that not only eliminates blotching, but also gives the table an aged appearance.

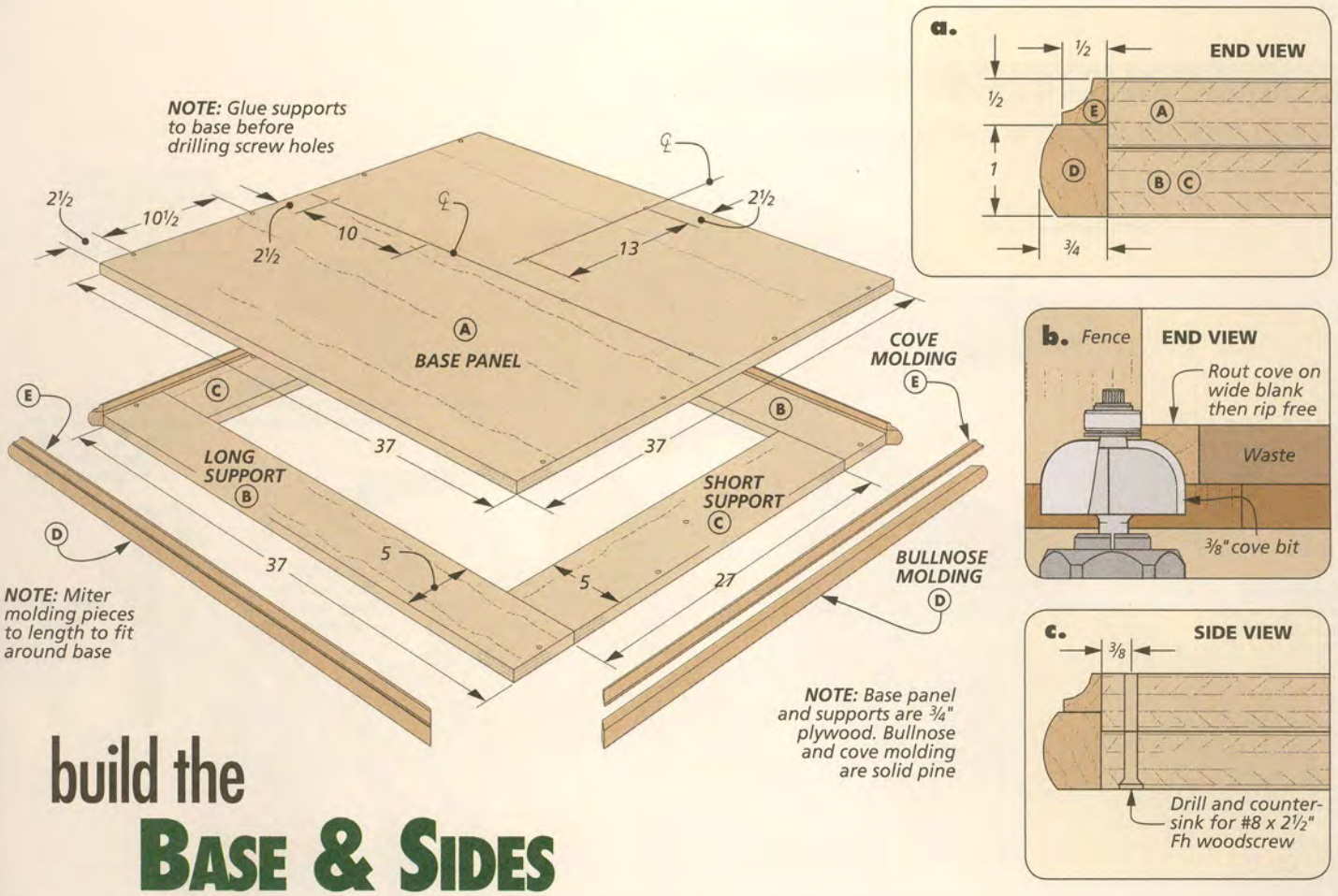
CONSTRUCTION DETAILS

OVERALL DIMENSIONS: 40"W x 40"D x 18⅛"H



▲ The back side of the table features two large open bays for extra storage. Woven baskets make handy and attractive storage containers.





build the BASE & SIDES

A large coffee table like this one needs a flat and stable base to support the drawers and sides. For this reason, I used two layers of plywood — one full sized to provide a platform for the rest of the table and another layer of smaller support pieces around the edges. This combination will guarantee the base stays flat and the table will be stable. On top of the base, the raised panel sides provide the framework for the inside compartments of the table.

START WITH THE BASE. I started by cutting the base panel to final size at the table saw. You'll want to make sure this panel is truly square since any deviations will be magnified as you add the other components.

To strengthen the base panel, I added four support pieces, two long and two short as shown in the main drawing above. You can attach these supports with glue and clamps. Then you can drill the screw holes at the locations shown in the drawing above.

ADD THE MOLDING. While plywood makes for a strong and stable base, the edges need to be covered. For this, I chose to add a bullnose and a cove molding. The combination of these two profiles is both attractive and easy to make at the router table. Detail 'a' shows how the two layers of molding are applied to the edges of the base.

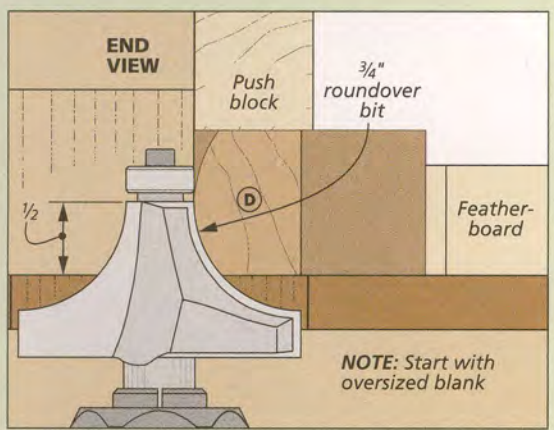
You'll want to choose clear stock for the molding. Knots and other defects can ruin a strip of molding. Once you've selected a few pieces of suitable stock, you can get started making the bullnose profile. The box at left shows how you can rout the bullnose using a roundover bit. After that, it's simply a matter of mitering the pieces to fit and gluing them to the base.

The next step is to install a cove bit and rout the cove molding. Once again, just miter it to length and install it above the bullnose. When the glue dries, you're ready to move on to the sides.

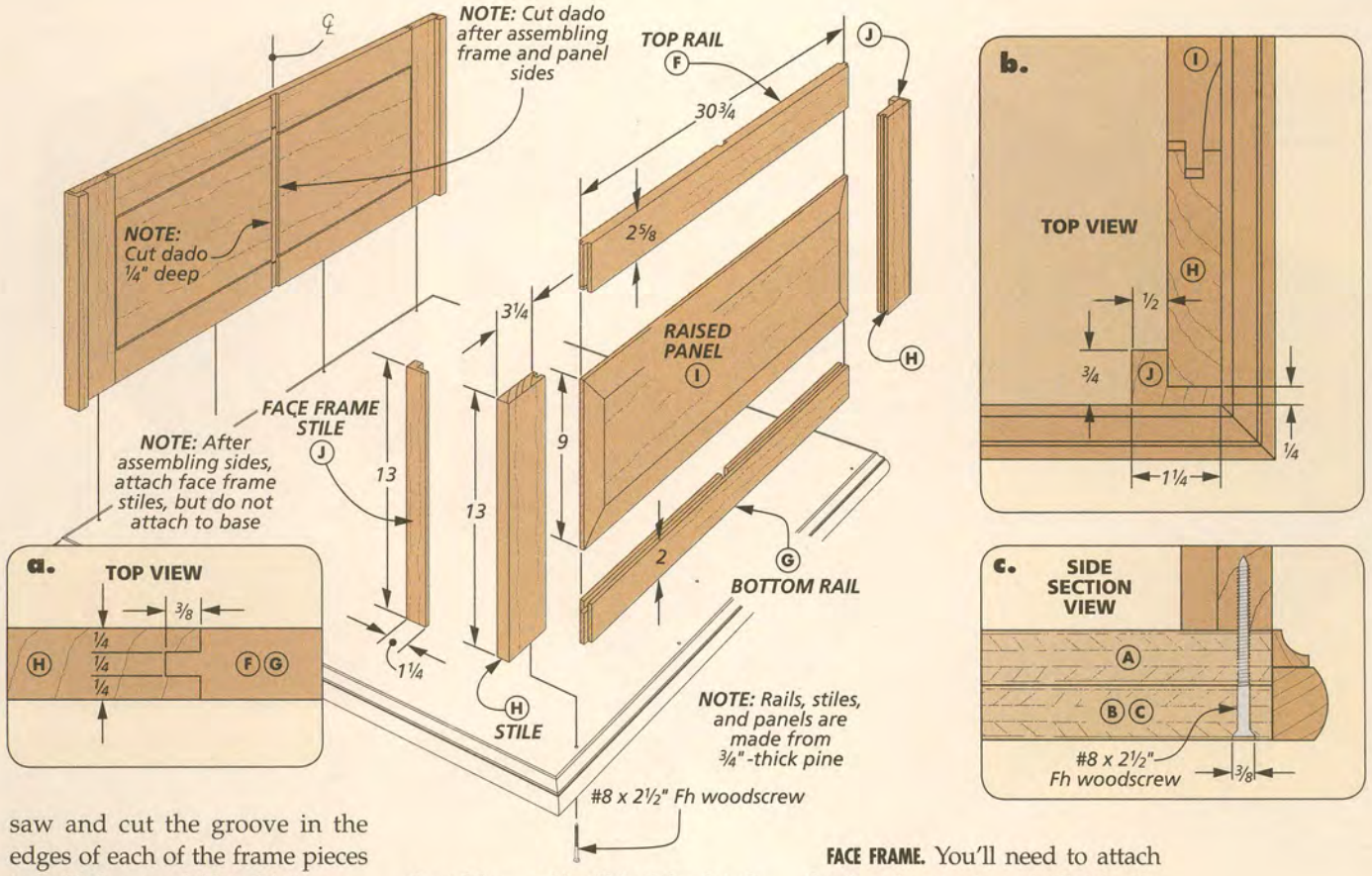
SIDES. There are a few advantages to using a frame and panel design for the sides. First, the raised panel provides an attractive look. But more importantly, the frame and panel construction is more stable than a single, wide panel.

Begin by cutting the rails and stiles to final size. Then you can install a dado blade in the table

How-To: Bullnose



Routing a Bullnose. *With only the top portion of a roundover bit exposed, rout one side then flip the workpiece over to rout the opposite side.*



saw and cut the groove in the edges of each of the frame pieces to hold the panel (detail 'a').

Finally, with the dado blade buried in an auxiliary rip fence, cut the stub tenons on the rails using a miter gauge with an auxiliary fence. A test piece is helpful when adjusting the blade height for these cuts. Raise it in small increments, sneaking up on a snug-fitting tenon.

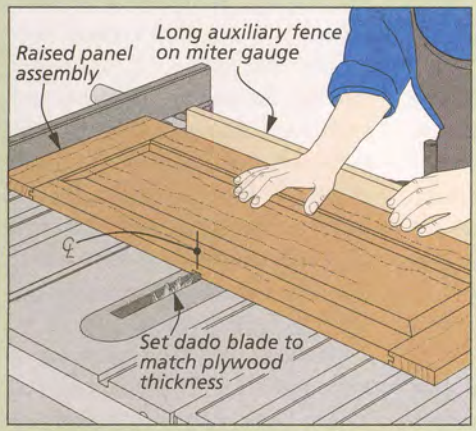
RAISED PANELS. The panels are glued up from narrower stock and then cut to final size. I cut the cove profile on all four edges at the table saw. You'll find the details of how to do this on page 31.

Next, you'll need to cut a rabbet on the opposite face as shown in detail 'b.' This creates a tongue that fits in the grooves in the frames. With the panels complete, assemble the frames.

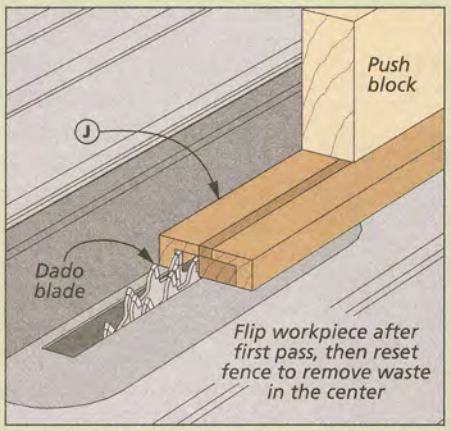
CENTERED DADO. The next step is to cut a centered dado on the inside face of each side to house a divider panel. The box below shows the setup for this cut.

FACE FRAME. You'll need to attach the face frame pieces individually and in a particular order to accommodate the installation of the dividers and dust panel. At this point, all you need to do is add the stiles. The stiles are rabbetted to fit around the sides and glued in place (detail 'a'). The box below shows how to cut these pieces. Later, the sides will be screwed to the base as shown in detail 'c.' But for now, set them aside while you get to work on the center divider.

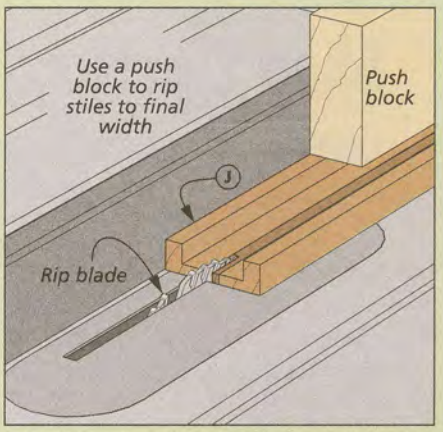
How-To: Cut Dadoes & Face Frame Stiles



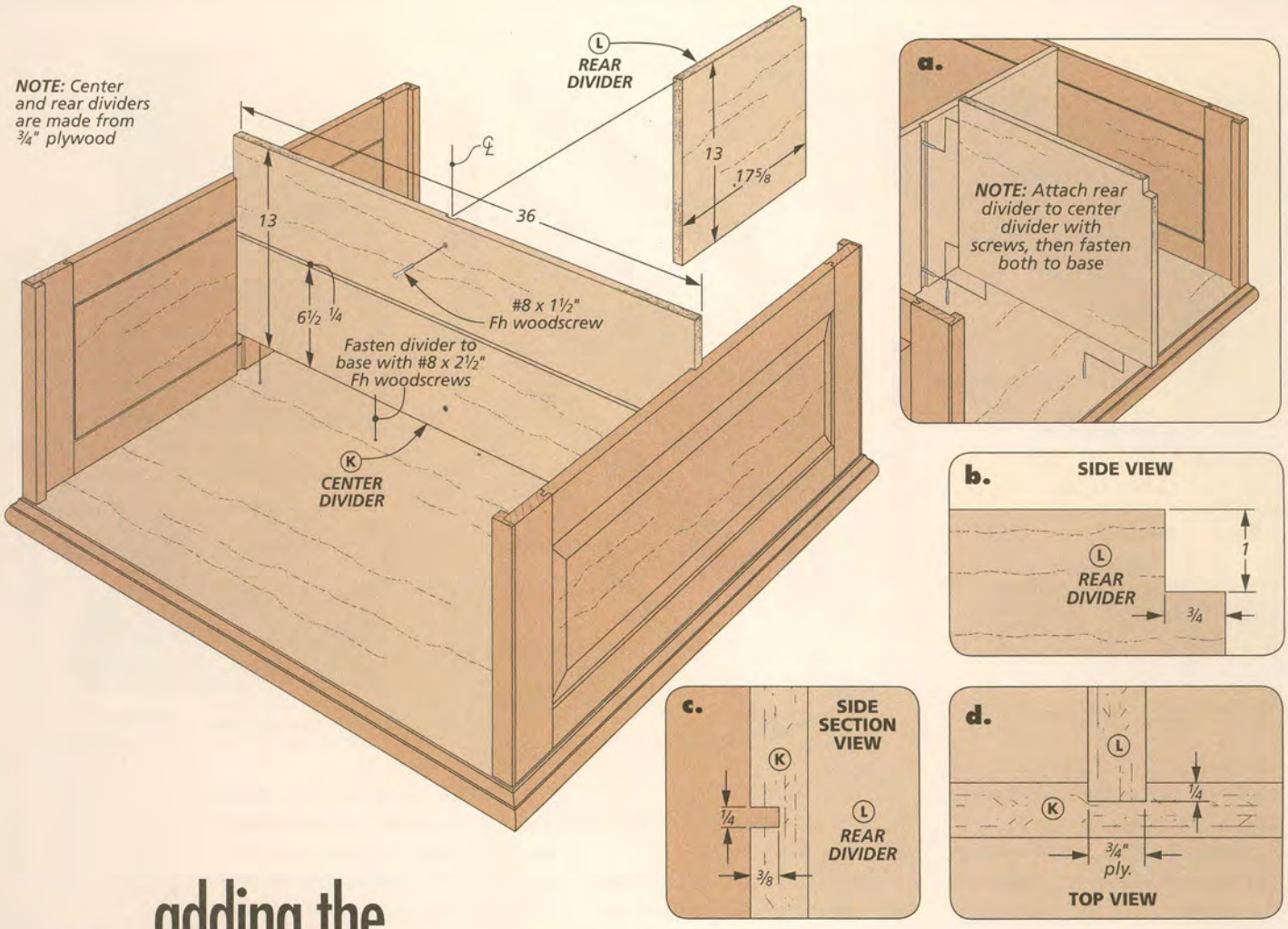
Dado. *Set the rip fence as a stop and use a long auxiliary fence on the miter gauge to cut the dado in the two side assemblies.*



Two for One. *Start with a wide blank and cut a groove ¼" in from each edge. Then reset the fence and remove the waste.*



Rip. *Now install a rip blade and set the rip fence to cut both pieces of the face frame from the wide blank.*



adding the DIVIDERS & DRAWER GUIDES

Before you attach the sides to the base, you'll need to add the center and rear dividers. The center divider separates the front and back compartments. In the front compartment, I installed a large drawer with two smaller drawers above it. The back is split by another vertical divider to form two open storage bays.

CENTER DIVIDER. You can start by cutting the center divider to final size. Then install a dado blade in the table saw set to the thickness of the plywood. You'll find it helpful to use a long auxiliary fence on the miter gauge again to cut the dado on the back face of the divider, just like you did earlier for the sides.

I took the time to drill the two countersunk screw holes in the groove in the divider as shown in the main drawing above. Now reset the dado blade to ¼" and cut a groove on the front face. This groove will hold the dust panel.

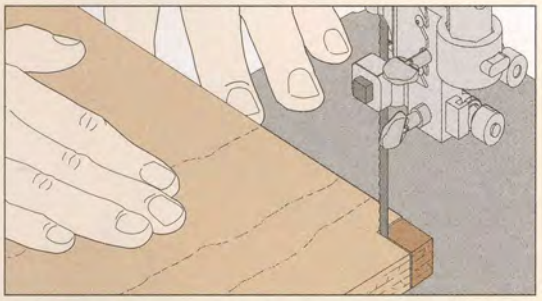
REAR DIVIDER. As I said earlier, the rear divider forms two large compartments on the back side of the table. After cutting the rear divider to final size, cut the notch on the top front corner (detail 'b'). This notch allows the rear face frame rail to fit in place. This is an easy task to do at the band saw, as shown in the box at left.

ASSEMBLE THE DIVIDERS & SIDES. At this point, you're ready to start putting the pieces together. The first step is to fit the rear divider into the dado in the center divider. A little glue and a couple of screws in the predrilled holes are all you need here.

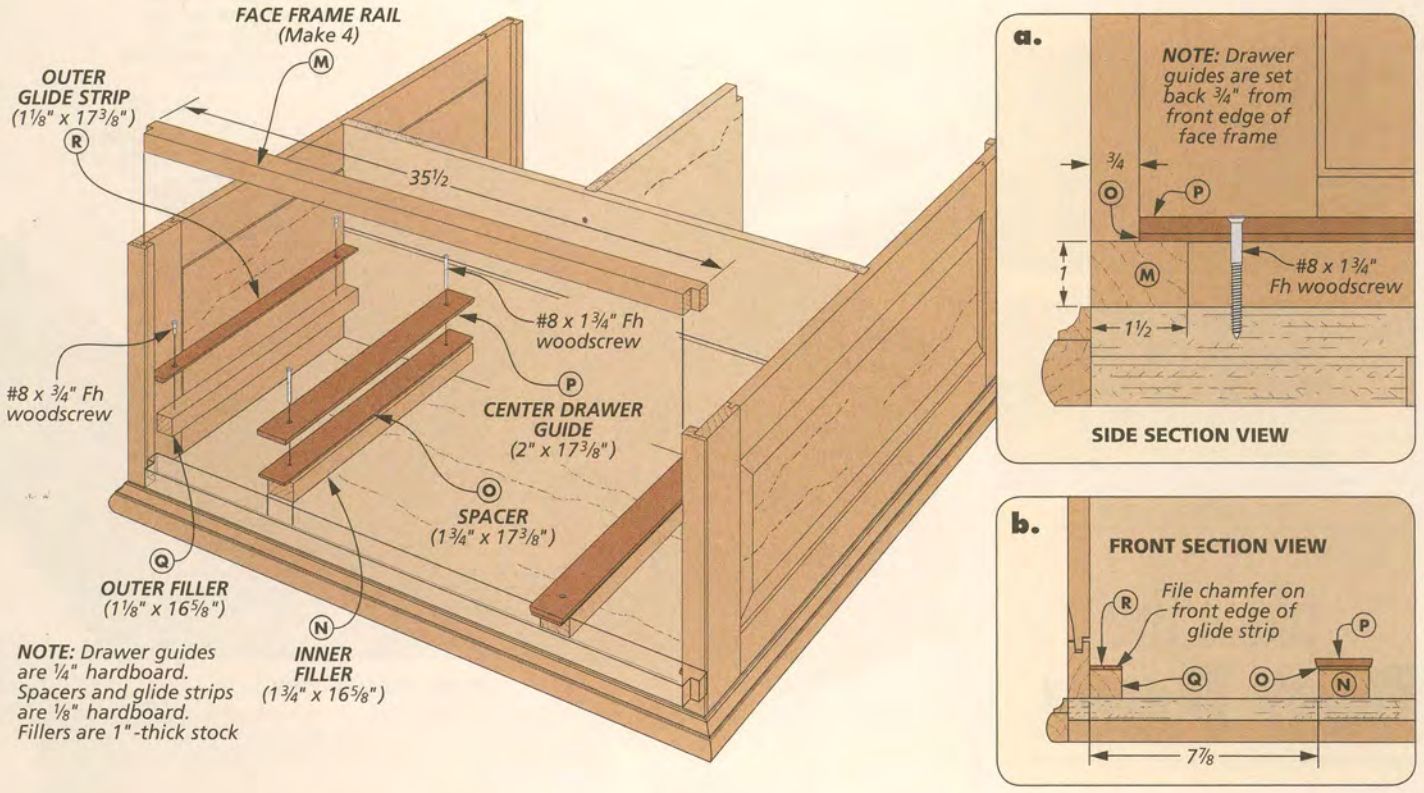
Now dry fit the "T" assembly into the dadoes on the sides and make sure the sides line up with the screw holes in the base. Then go ahead glue the center divider between the sides. Now flip this assembly upside down and attach it to the base with screws in the sides and the dividers.

FACE FRAME RAILS. The next step is to add the bottom face frame rail to the front side. You'll want to have this rail in place to establish the height before moving on to the fillers and drawer guides.

Shop Tip: Notches



Band Saw. *A band saw makes short work of cutting the notch on the rear divider. Just lay out the position and make the cut.*



Since there are four rails — all the same size — you might as well cut them all at this time. After notching the ends of the rails as shown in the box below, glue the bottom rail in place as in the main drawing above. You'll add the other rails a little later on. For now you can get to work on the fillers, spacers, and drawer guides.

FILLERS & SPACERS. In order to lift the drawers off the base and keep them slightly above the face frame, you'll need to attach fillers and spacers to the base before installing the drawer guides. The fillers are simply pieces of 1"-thick stock cut to fit between the face frame and the center divider.

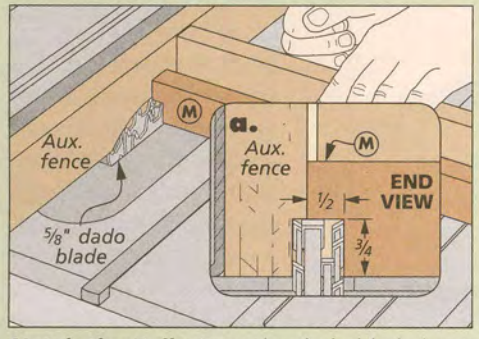
After cutting the inner and outer fillers to size, glue them in place on the base, making sure the inner fillers are square to the face frame.

With the fillers installed, cut the ⅛" hardboard spacers to size and glue them in place on top of the fillers. These spacers allow the drawer to slide freely over the face frame. I filed the outer glide strips to form a chamfer on the top to ensure the drawer slips easily into the opening and slides smoothly.

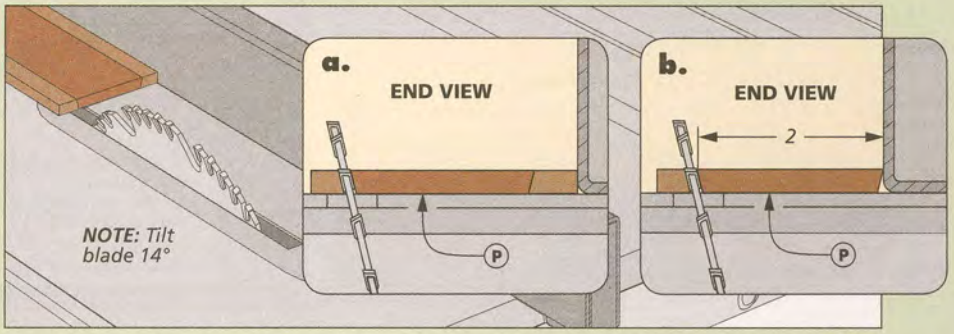
DRAWER GUIDES. The drawers travel on shop-made center guides that are beveled at 14° on both long edges. This forms the shape of a dovetail. The mating outer guide pieces are attached to the underside of the drawers to hold the drawers securely and allow for smooth travel (detail 'b').

The How-To box below shows the setup for cutting the guides at the table saw. It's a good idea to cut all the guide pieces now, to ensure a consistent fit. Once you've finished, attach them to the fillers and spacers with screws.

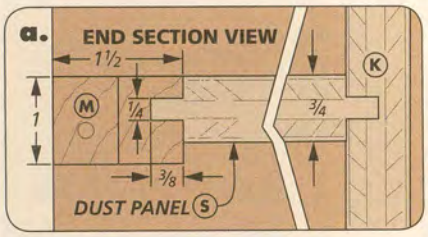
How-To: Notch the Rails & Cut the Guides

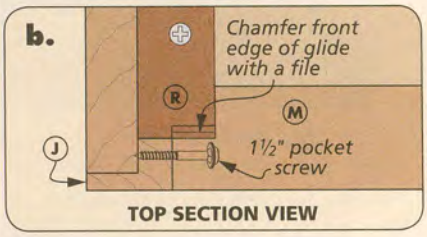


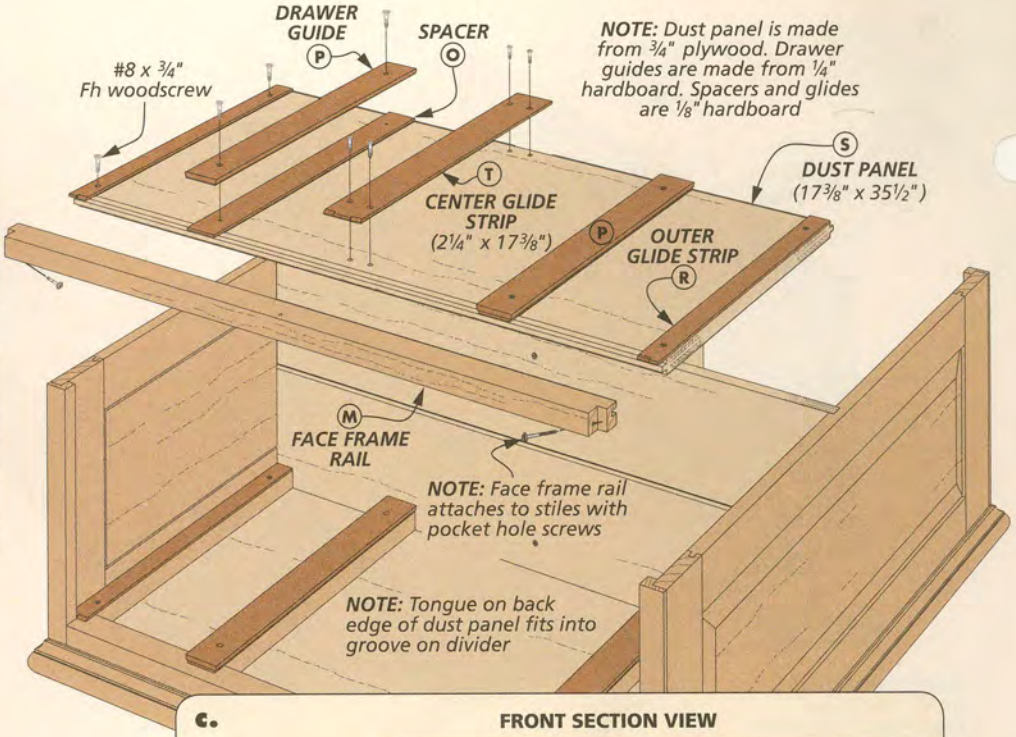
Notch the Rails. *Bury the dado blade in an auxiliary rip fence and use the miter gauge when cutting the notches on the rails.*

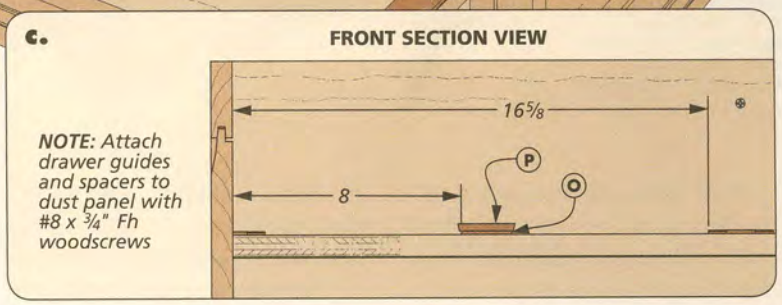


Cutting the Drawer Guides. *With the table saw blade tilted 14°, cut one edge of each of the drawer guides. Then, set the rip fence to the correct width and flip the blanks around to cut the other edge, forming the dovetail shape.*









place the DUST PANEL

Now that you've taken care of the guides for the bottom drawer, you'll use the same techniques to add another set of guides for the upper drawers. These guides are attached to a dust panel.

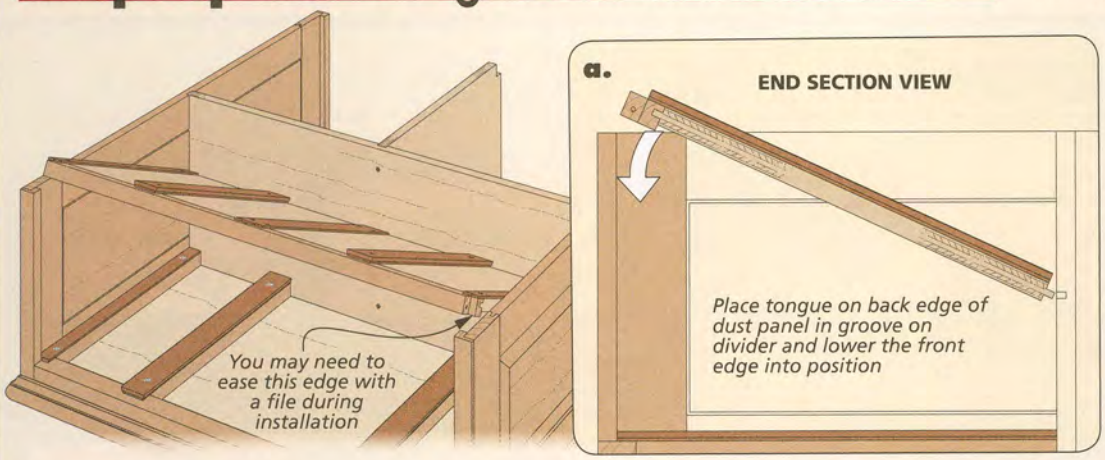
Separating the upper and lower drawer compartments with a dust panel is a traditional furniture building technique. Like the name implies, it's purpose is to shield the contents of the lower drawers from dust and dirt that falls from the upper drawers.

To hold the dust panel securely, a tongue on the back edge fits into the groove on the center divider. The front edge is glued to the face frame rail, also employing a tongue and groove joint. The rail is attached to the stiles with pocket hole joinery. Then, after you've installed the dust panel, you can complete the rest of the face frame on the front and back of the table.

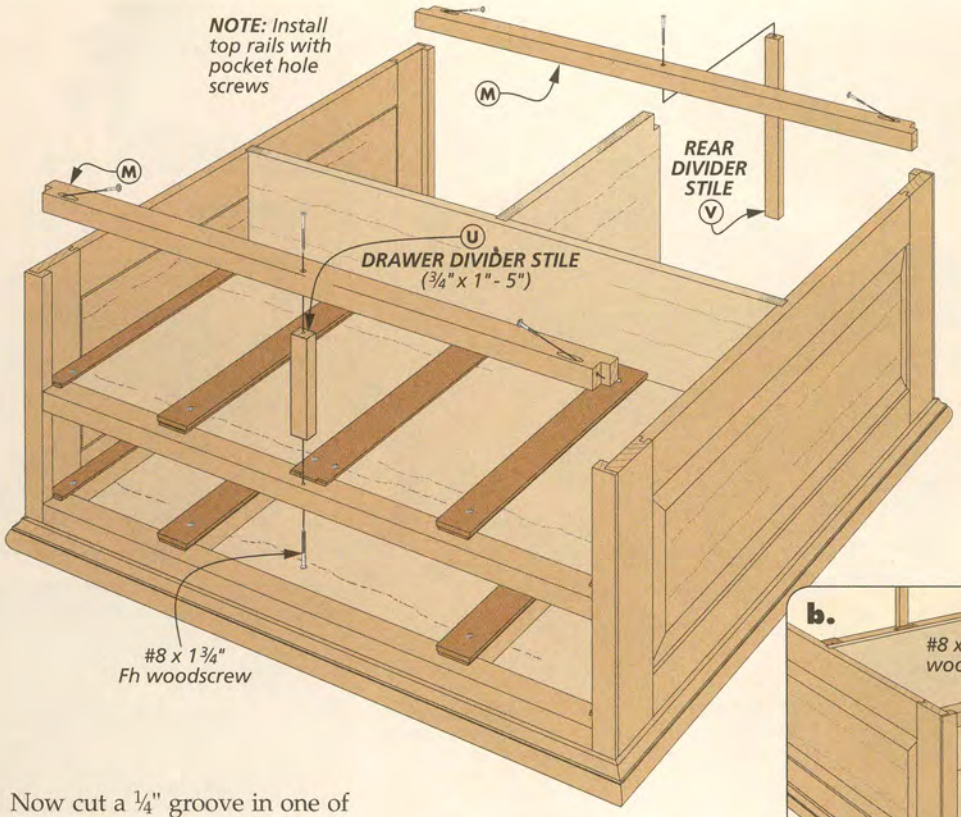
DUST PANEL. As you can see in the main drawing and detail 'a' above, the dust panel has a tongue on both edges that fits into grooves on the divider and front face frame. After cutting the panel to final size, you can form the tongue at the table saw by cutting shallow rabbets on both faces.

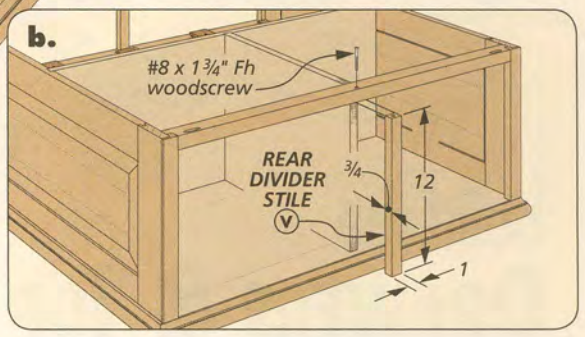
The best way to cut the rabbets is to install a dado blade and bury most of the width of the blade in an auxiliary rip fence, exposing only the width you need to cut the rabbet. Then you can simply run each edge over the blade and form the tongue. Once again, I used a scrap piece of plywood to dial in the exact blade height. Test fit this piece into the groove on the divider, slowly raising the blade until you have a perfect fit.

Shop Tip: Installing the Dust Panel



Tilt and Fit. *After completing the drawer guides and attaching the front face frame rail, install the dust panel by first fitting the tongue on the back edge into the groove on the divider. Then lower the panel into position and secure it with pocket hole screws in the stiles.*





Now cut a ¼" groove in one of the face frame rails you made earlier to hold the tongue on the front edge of the panel. The easiest way to do this is with a dado blade in the table saw. Before you attach the rail to the panel, drill a countersunk screw hole for the short drawer divider stile. Finally, drill the pocket holes on the ends of the rail as shown in the photos below. After that you can attach the rail to the dust panel with glue on the tongue and in the groove.

DRAWER GUIDES & SPACERS. The dust panel provides a base for the upper drawers. I used the same dovetailed guides as before on the lower drawer. The only difference here is that you don't need the fillers. Since the panel sits flush with the rail, the spacers and guides attach directly to the panel. As before, you can cut the pieces at the table saw and install them as shown in the main drawing and detail 'c' on the opposite page.

GLIDES. As with the bottom drawer, the edges of the upper drawers also ride on ⅛" hardboard glides. You'll also need to install a center glide. As you can see in detail 'b' on the opposite page, I filed a slight chamfer on the front edge of all the glides to prevent the drawers from catching.

INSTALL THE DUST PANEL. With the drawer guides in place, you're ready to install the dust panel. The Shop Tip on the opposite page shows how you'll need to angle the panel into the dado on the divider before lowering it into position. Once it's in place, simply screw it to the stiles using the pocket holes and screws.

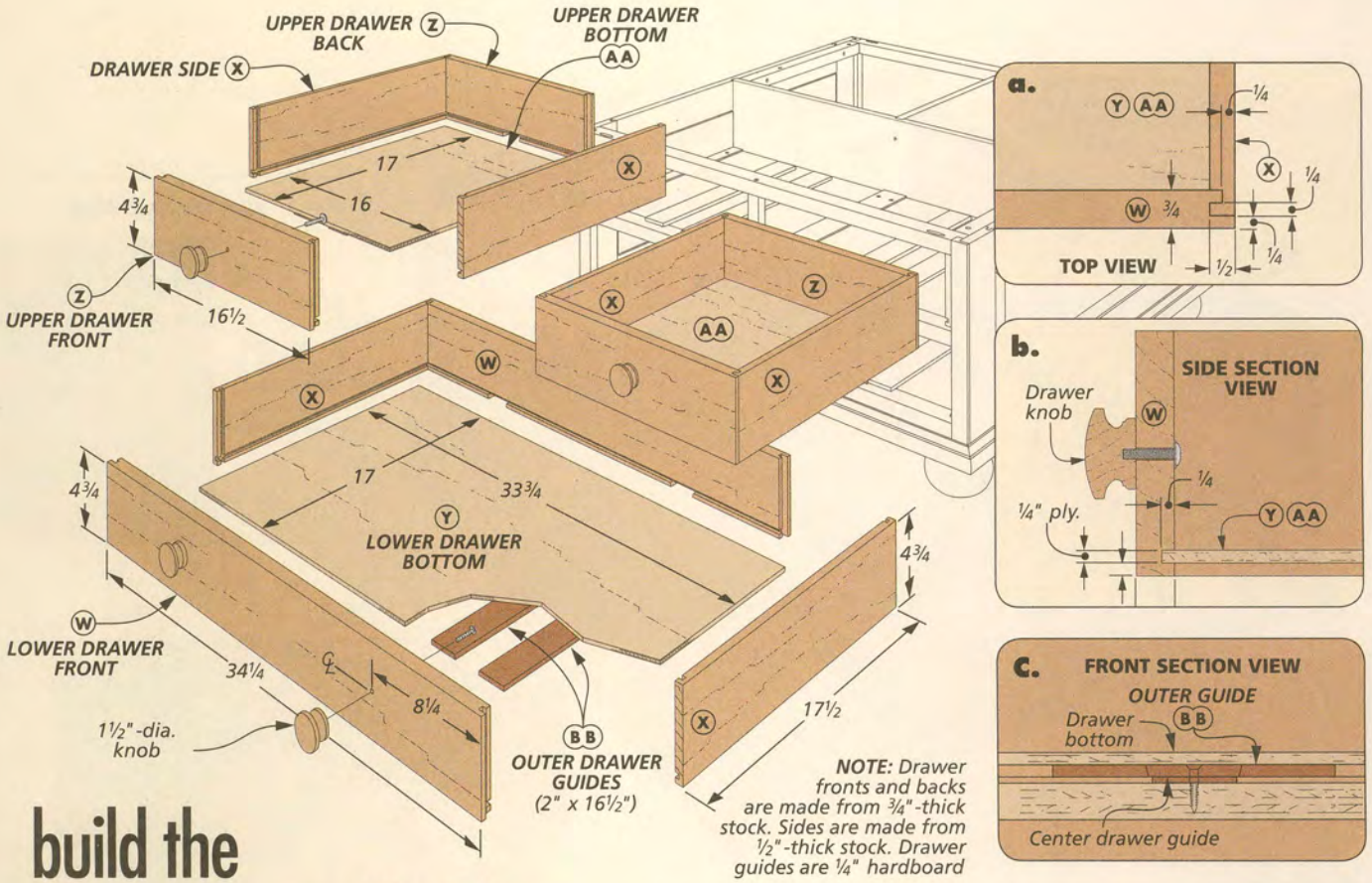
COMPLETING THE FACE FRAME. The front and back top rails are the next things to install. Once again, they attach to the stiles with pocket hole screws. Both rails also need a countersunk screw hole in the center in order to connect the center stiles on each side.

After installing the rails, cut two divider stiles to size. The drawer divider stile is simply screwed in place between the top and center rails (detail 'a'). The rear divider stile is glued to the edge of the rear divider and then secured with a screw through the top rail.

How-To: Pocket Hole Joinery

Setup. *With the end of the jig registered on the end of the notch on the rail, clamp the jig in place.*

Drill. *First, set the stop collar on the drill bit to the correct depth, then drill the pocket hole.*



build the DRAWERS & TOP

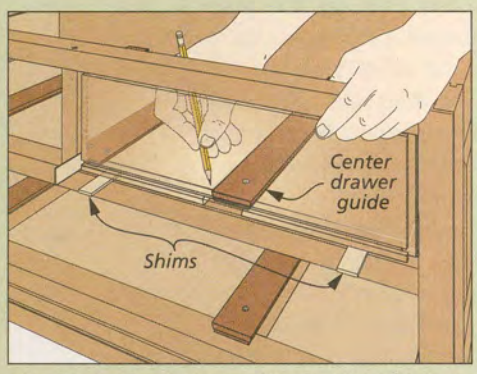
All that remains now is to build the drawers, add the top, and then the bun feet. I used locking rabbet joinery for the drawers because it's strong and easy to make.

DRAWER PARTS. After cutting the drawer parts to final size, you can turn your attention to the joinery. Detail 'a,' above shows you how this joint fits together. I started by attaching a tall auxiliary fence to the table saw's rip fence and cutting the groove on the ends of the drawer fronts and backs. Then, I lowered the blade and nibbled away the inside edge of the fronts and backs to form the small tongue that fits into the dado on the sides. Finally, cut the dado on the ends of the drawer sides. A couple of test pieces will help you zero in on a perfect fit for these parts.

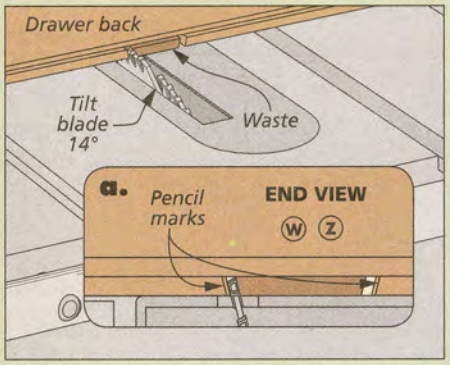
Now you can cut the groove in all the parts for the plywood drawer bottoms. Normally, you'd be ready to assemble the drawers at this point, but there's still one more task to accommodate the drawer guides. You need to cut a clearance notch on the bottom edge of each of the backs to allow the drawers to fit over the center guides. The box below walks you through the steps. Test the cuts for a smooth fit before assembling the drawers.

Next, cut the hardboard outer guides that fit on the drawer bottoms to enclose the center guides.

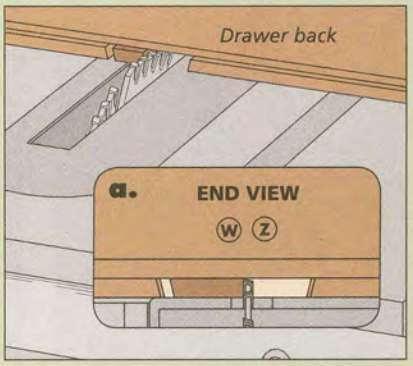
How-To: Notch the Drawer Backs



Marking the Drawer Back. *Use shims to hold the drawer back in position, and mark the location of the guide with a pencil.*



Angled Outside Cuts. *Tilt the blade to 14° and cut just inside the pencil marks using a miter gauge to hold the workpiece.*



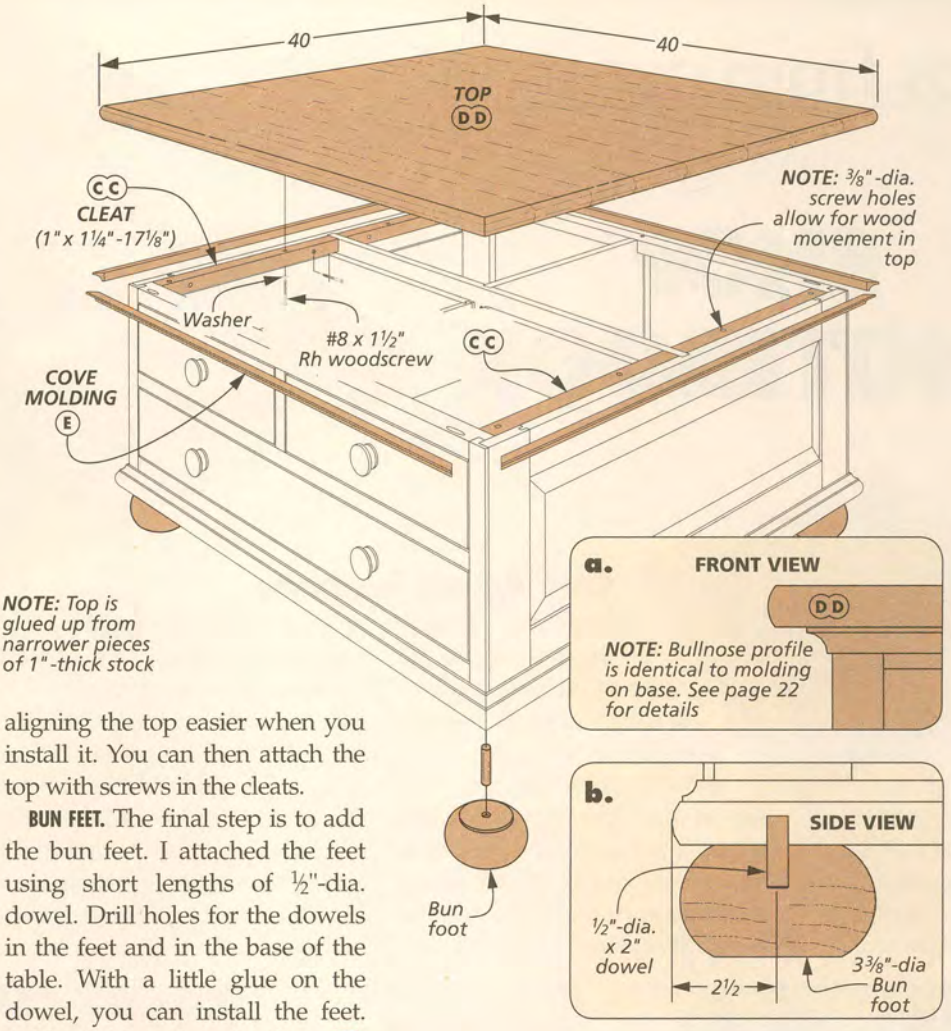
Removing the Waste. *Return the blade to 90° and nibble away the waste between the outside cuts.*

They're simply glued to the drawer bottoms, aligned with the clearance notch on the back. Finish the drawers by drilling holes on the fronts and attaching the knobs.

ADD THE CLEATS. As you can see in the drawing at right, I used four cleats mounted to the sides to provide a means for attaching the top. You can cut the cleats to final size and drill oversized screw holes to allow for wood movement in the top. Then screw the cleats to the sides, taking care to keep the top edge flush with the sides and front top rails. After that you can move on to assembling the top.

TOP. I glued up several narrow pieces to form the large, square top. After cleaning up the glue squeezeout and sanding the top smooth, I took it to the router table and routed the same bullnose profile I used earlier, for the molding, on all four edges. Before attaching the top, however, I added the cove molding to the case. Doing this now makes it easier to clamp the molding in place and it also makes aligning the top easier when you install it. You can then attach the top with screws in the cleats.

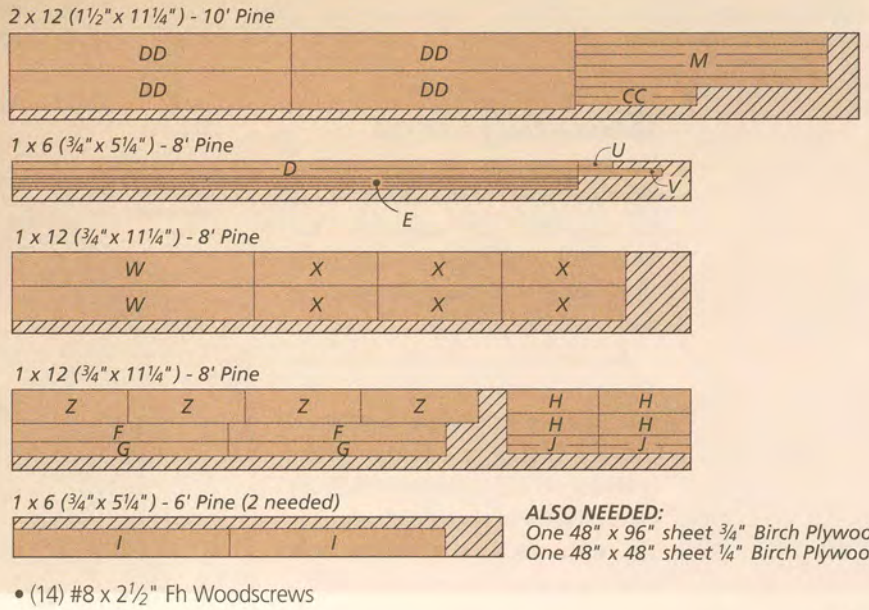
BUN FEET. The final step is to add the bun feet. I attached the feet using short lengths of ½"-dia. dowel. Drill holes for the dowels in the feet and in the base of the table. With a little glue on the dowel, you can install the feet. Add a finish and you're done.



Materials, Supplies & Cutting Diagram

A	Base Panel (1)	¾ ply. - 37 x 37
B	Long Supports (2)	¾ ply. x 5 - 37
C	Short Supports (2)	¾ ply. x 5 - 27
D	Bullnose Molding	¾ x 1 - 160 rgh.
E	Cove Molding	½ x ½ - 320 rgh.
F	Top Rails (2)	¾ x 2⅝ - 30¾
G	Bottom Rails (2)	¾ x 2 - 30¾
H	Stiles (4)	¾ x 3¼ - 13
I	Raised Panels (2)	¾ x 9 - 30¾
J	Face Frame Stiles (4)	¾ x 1¼ - 13
K	Center Divider (1)	¾ ply. - 13 x 36
L	Rear Divider (1)	¾ ply. - 13 x 17⅝
M	Face Frame Rails (4)	1 x 1½ - 35½
N	Inner Glide Fillers (2)	1 x 1¾ - 16⅝
O	Spacers (4)	⅛ hdbd. - 1¾ x 17⅜
P	Center Drwr. Guides (4)	¼ hdbd. - 2 x 17⅜
Q	Outer Fillers (2)	1 x 1⅛ - 16⅝
R	Outer Glide Strips (4)	⅛ hdbd. - 1⅛ x 17⅜
S	Dust Panel (1)	¾ ply. - 17⅜ x 35½
T	Center Glide Strip (1)	⅛ hdbd. - 2¼ x 17⅜
U	Drawer Divider Stile (1)	¾ x 1 - 5
V	Rear Divider Stile (1)	¾ x 1 - 12
W	Lower Drwr. Front/Back (2)	¾ x 4¾ - 34¼
X	Drawer Sides (6)	½ x 4¾ - 17½
Y	Lower Drwr. Bottom (1)	¼ ply. - 17 x 33¾
Z	Upper Drwr. Front/Back (4)	¾ x 4¾ - 16½
AA	Upper Drwr. Bttms. (2)	¼ ply. - 17 x 16
BB	Outer Drwr. Guides (6)	¼ hdbd. - 2 x 16½
CC	Cleats (4)	1 x 1¼ - 17⅛
DD	Top (1)	1 x 40 - 40

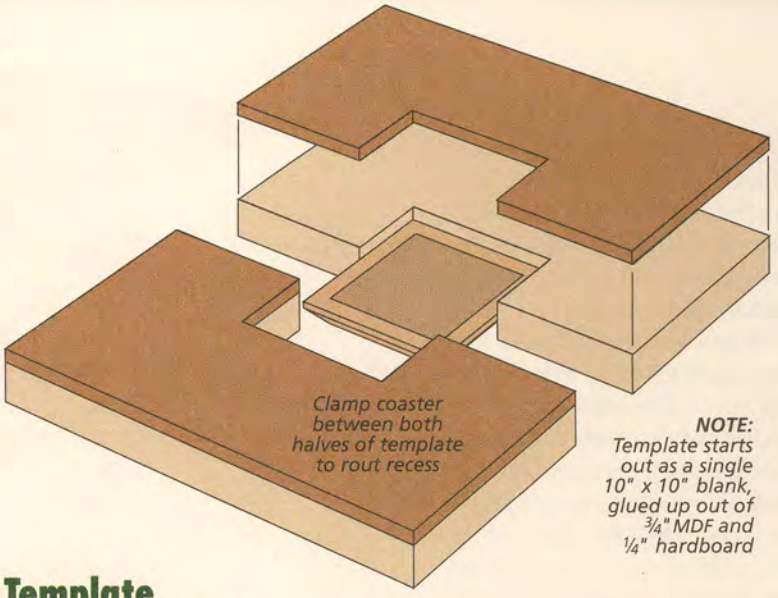
- (4) 3⅜-dia. Bun Feet
- (4) 1½"-dia. Knobs w/Screws
- (13) #8 x 1¾" Fh Woodscrews
- (8) #8 x 1½" Rh Woodscrews
- (8) 3/16" Washers
- (20) #8 x ¾" Fh Woodscrews
- (6) 1½" Coarse-Thread Pocket Screws
- (4) ½"-dia. x 2" Dowels



- (14) #8 x 2½" Fh Woodscrews

ALSO NEEDED:
One 48" x 96" sheet ¾" Birch Plywood
One 48" x 48" sheet ¼" Birch Plywood

SHOP NOTEBOOK



▲ A layer of ⅛"-thick cork is recessed into the top of each coaster.

Cork Recess Template

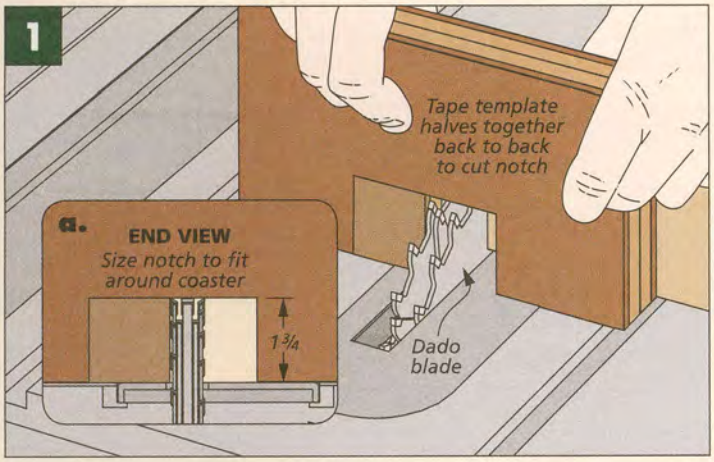
To rout the recesses for the cork inlay in the tops of all nine coasters on page 16, I made a simple template for my router.

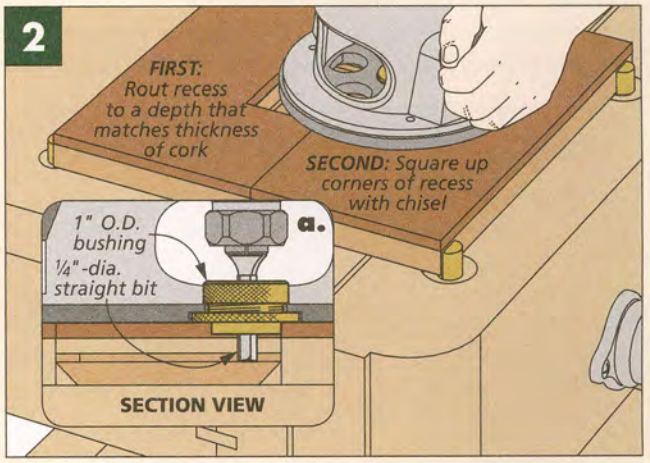
TWO-PIECE DESIGN. As you can see in the drawing above, the template is made in two sections. This allows you to quickly clamp it around each coaster to rout the recess. An opening in the template guides a bushing mounted in the baseplate of your router to create a perfectly sized recess.

To make the template, I started by gluing up a 10"-square blank out of ¼" hardboard and ¾" MDF. After cutting the blank in half, I taped the two halves together back to back and cut identical notches sized to fit around the coasters, as shown in Figure 1.

After sanding the edges of the template opening smooth, it's ready to be put to use. I clamped the template around the coasters with bench dogs. Then, using a ¼"-dia. straight bit in a 1" O.D. bushing, I routed a recess in the top of each coaster (Figure 2).

The only step remaining is to square up the rounded corners of the recess with a chisel.

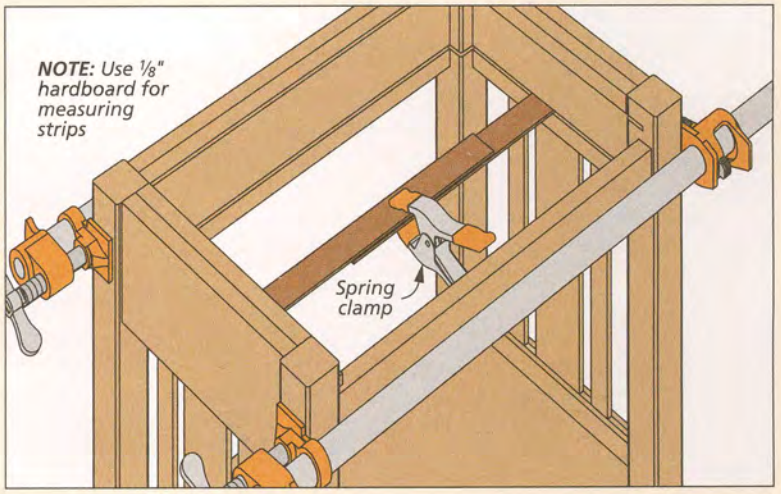




Measuring Strips

To measure for the shelves and divider panels of the library stand on page 32, I dry assembled the base. The challenge was figuring out a way to measure between the *bottoms* of the grooves.

An easy way to do this is to use a pair of measuring strips. I simply took two strips of ⅛" hardboard and set them in the bottom of the grooves so they overlapped. After clamping them together, I carefully flexed the strips out of the grooves and measured the overall length.



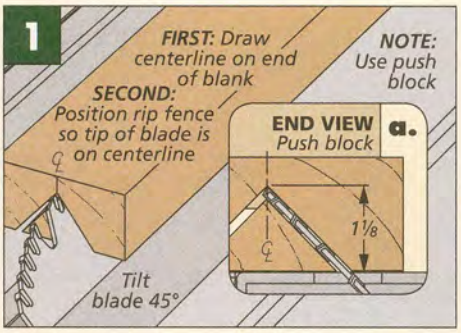
V-Groove Sled

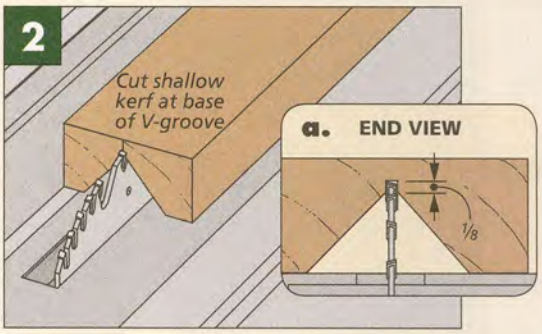
The inside corners of the legs of the library stand are notched to hold the shelves and drawer panels. Cutting these notches is an easy task with a dado blade. The key is to hold the leg at a 45° angle while making the cuts. To do this, I used a simple V-groove sled like the one shown in the margin at right.

MAKING THE SLED. The sled is made out of a 24"-long piece of "two-by" stock. Start by laying out a centerline on the end of the blank. Then tilt your saw blade to 45° and set it to a height of 1⅛".

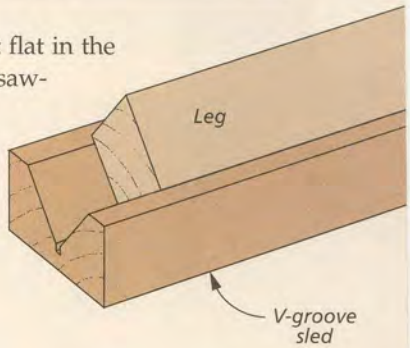
With the blade height set, position the rip fence so that the top of the blade lines up with the centerline on the end of the blank, as shown in Figures 1 and 1a.

After making the first cut, flip the block end for end and make a second cut to create the V-groove. (I used a large push block with a lip to prevent the waste piece from shooting back after it was cut free.)





To ensure the legs sit flat in the sled, I added a slot for sawdust relief. To do this, just return your blade to 90° and cut a shallow kerf at the base of the V-groove, as shown in Figure 2.

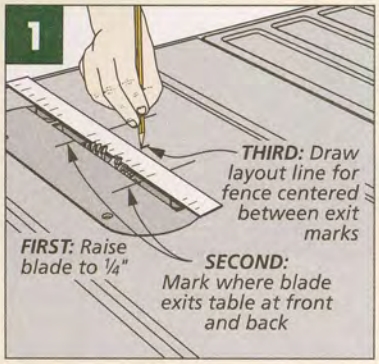


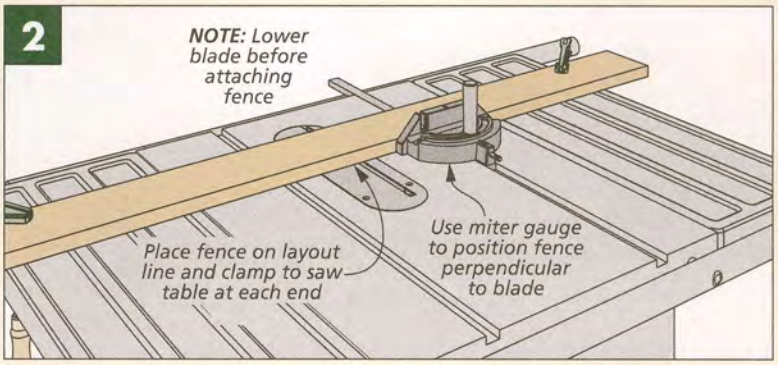
Raised Panels on Table Saw

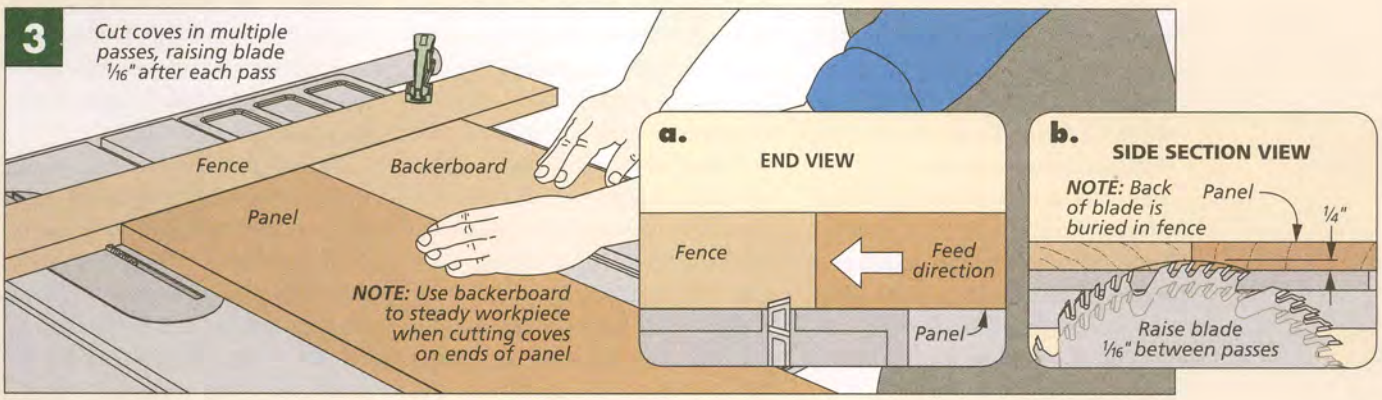
The raised panels of the coffee table on page 20 have a shallow cove around all four edges. Rather than purchase an expensive router bit to make this cove, I did it on the table saw. The trick is to clamp an auxiliary fence at a right angle to the blade and then pass the workpiece over the blade from the side, gradually creating a cove that matches the profile of the blade.

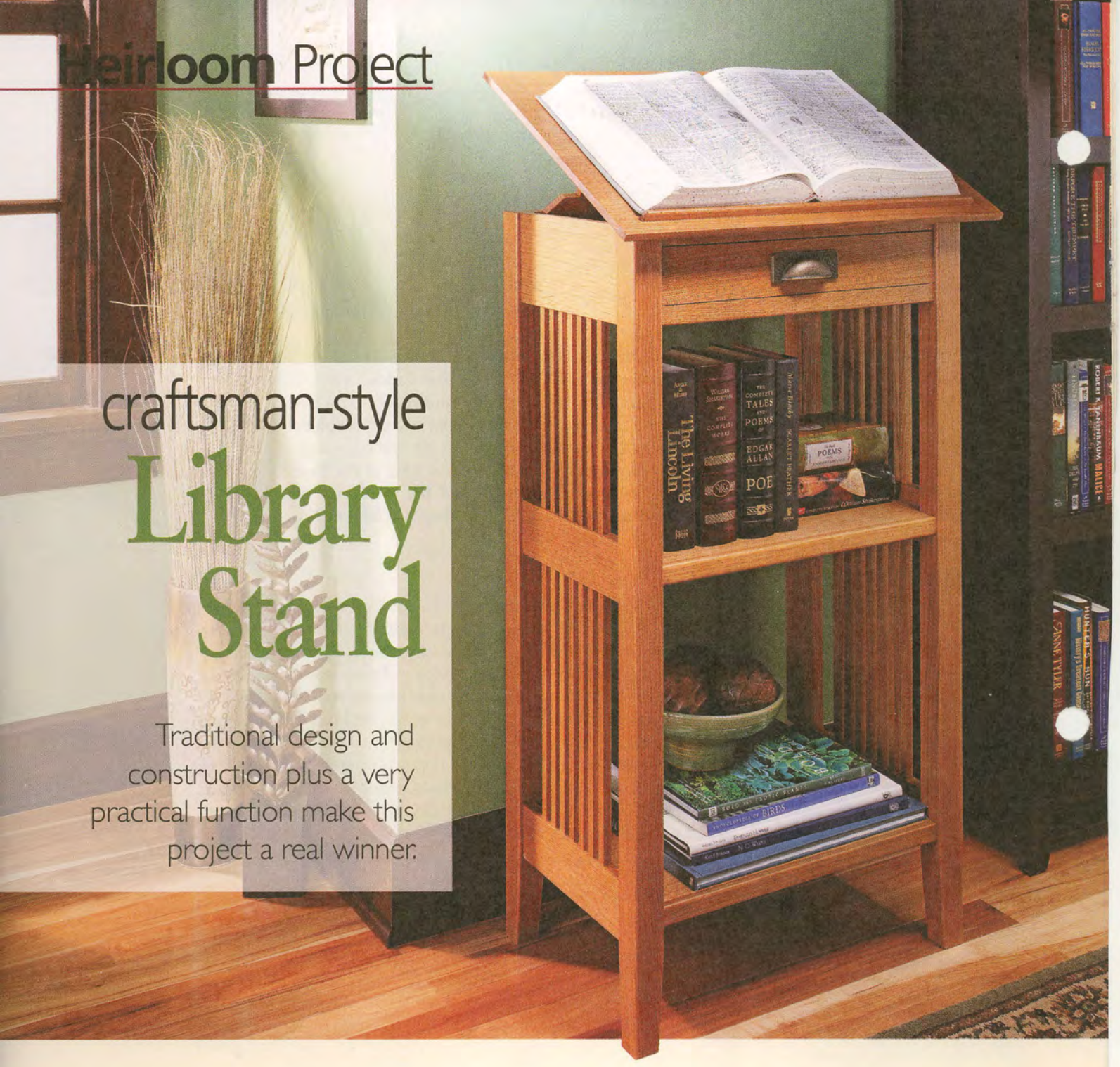
To position the fence, start by raising the blade to the height of the finished cove (¼"). Then mark where the front and back of the blade exits the table. Next, draw a line on the table midway between these two marks (Figure 1). This is where you want to position your fence. You can use the miter gauge to make sure the fence is perpendicular to the blade, as in Figure 2.

To cut the coves, start with the blade raised about 1/16". Hold the workpiece against the auxiliary fence and push it across the blade. (I used a backerboard to help steady the panel while cutting the coves on the ends, as in Figure 3.) Cut the coves gradually by raising the blade about 1/16" between passes until you reach the final cove depth of ¼", as shown in Figure 3b.









craftsman-style Library Stand

Traditional design and construction plus a very practical function make this project a real winner.

Even in this digital age, when access to mountains of information is only a mouse click away, I still find myself turning to a comprehensive dictionary for the "final word." I think it's a resource that will never become obsolete. The only catch is that convenient use of a heavy, bulky dictionary (or other large reference book) requires a storage place made to order. And, as you can see in the photo above, this sturdy, Craftsman-style library stand certainly fills the bill.

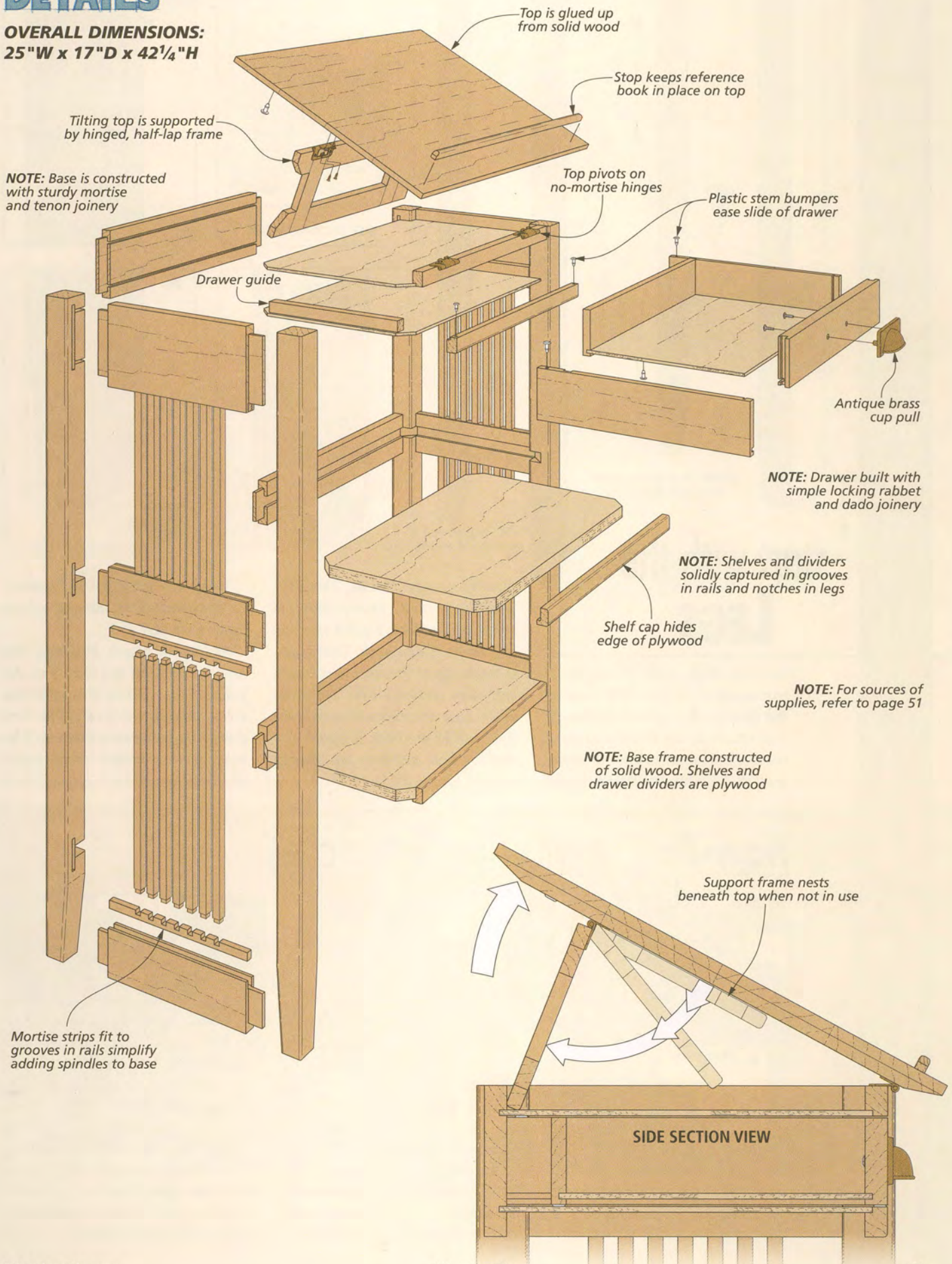
Obviously, the number one feature is the tilting top that displays your book at a comfortable angle for easy reference. But this is just the start. This bookstand also comes with a small library's worth of storage space below. Two spacious shelves will hold books, magazines, or even knick-knacks. A small drawer below the top adds more versatility to the mix.

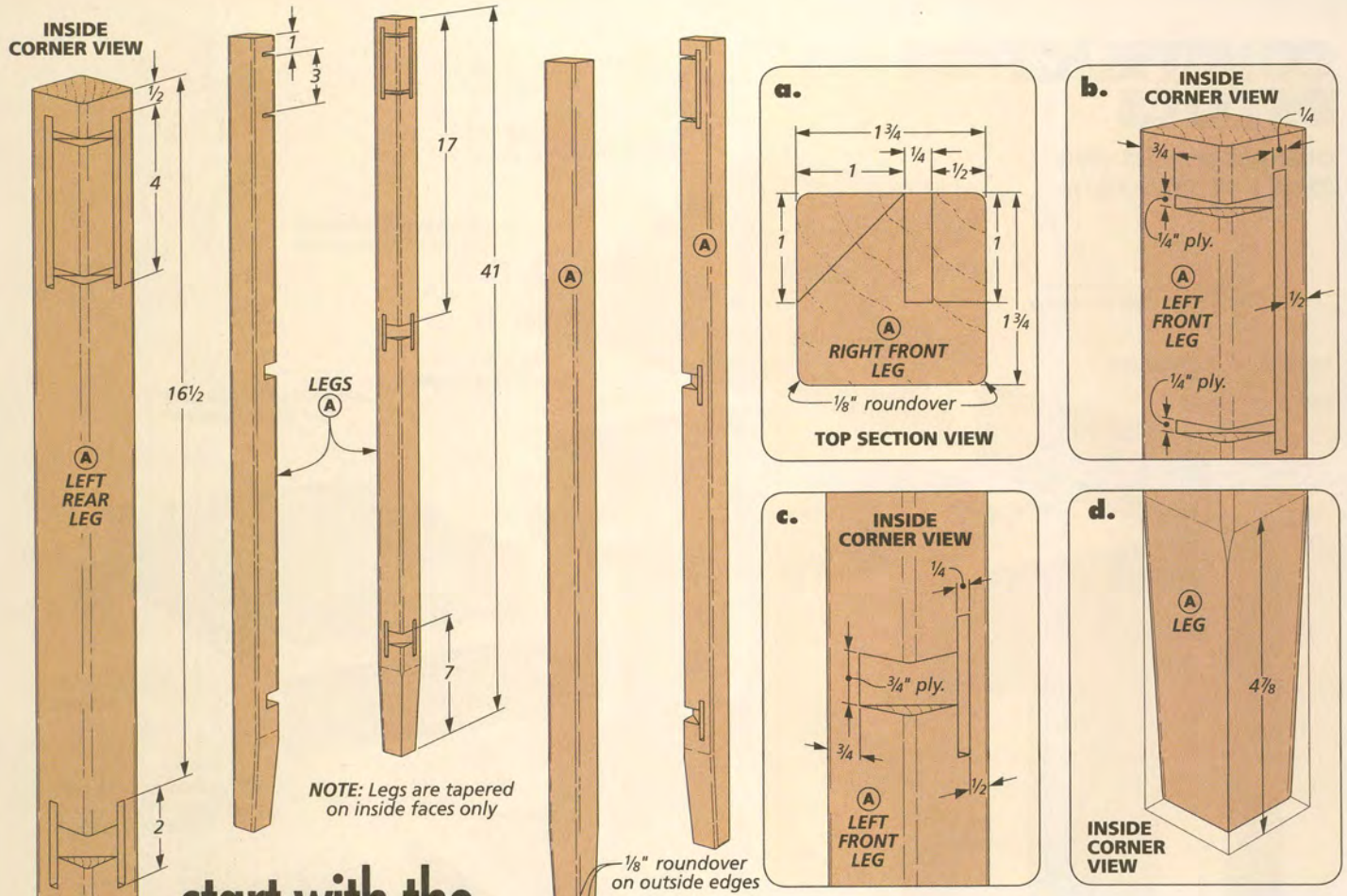
However, beyond the practical end use of the project, what really enticed me here was the straightforward, no-nonsense construction. You'll find that building this library stand is a nice exercise in fundamental woodworking — nothing fancy or tricky, just practical and extremely solid.

On the other hand, I can guarantee you won't simply coast through this project. It will be a good test of your attention to detail and you'll probably pick up a few new tricks along the way. This is my kind of project — fun to build and then useful for years to come.

CONSTRUCTION DETAILS

OVERALL DIMENSIONS:
25"W x 17"D x 42¼"H





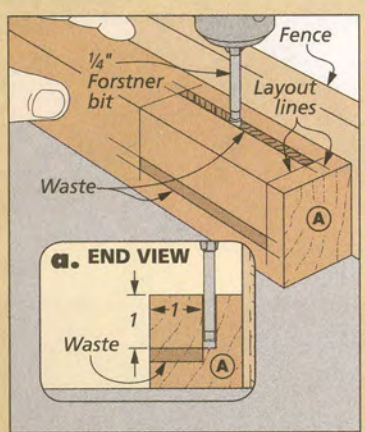
start with the LEGS

Let me start with a very brief explanation of how the base of the library stand goes together. As I mentioned, the base is divided into three sections — a lower and middle shelf and an upper drawer compartment. The plywood shelves and drawer dividers are supported by a solid mortise and tenon framework. This frame is made up of the four, stout legs, side rails, and back rails. The sides of the base are enclosed with spindles, while the back is open. The shelves and dividers are simply capped across the front.

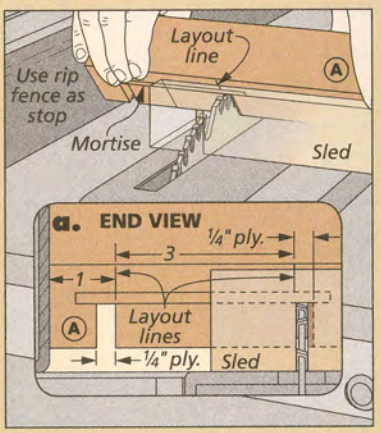
This is enough to get you started. I'll discuss all of the other details as they're needed.

THE LEGS. I began building the base by making the four legs. As you can see above, this involves a fair amount of work. The first thing to remember is that you'll be making two, mirror-image pairs. So after cutting the blanks to final

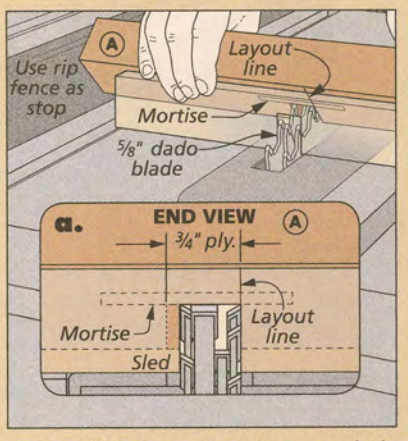
How-To: Cut Mortises & Notches



Mortises. *A series of overlapping holes begins the mortises. Use a sharp chisel to square them up.*



Narrow Notches. *To accurately size the notches, make two passes, resetting the rip fence in between.*



Wide Notches. *Switch to a dado blade and use the same technique to cut the wider shelf notches.*

size from 1¾"-thick stock, I took a few minutes to arrange and label them accordingly.

MORTISES. Now you can start laying out the ¼"-wide mortises in the legs. The back legs each have six mortises — three for the side rails and three for the back rails. The front legs only need three mortises on their rear-facing surfaces for the side rails.

Let me give you a heads up here. The shelves and dividers will be fit into grooves in the rails as well as notches cut into the legs. So to make certain the parts align properly at assembly, you need to be pretty particular when laying out and cutting all the joinery. The drawings on the opposite page provide the dimensions you'll need. The Shop Tip at right illustrates a trick that will help you lay out the mortises consistently.

I followed the mortise layout with a trip to the drill press to rough out the mortises (How-To box on the opposite page). Then it was back to the bench to complete the job with a couple of chisels.

NOTCHES. With the mortises out of the way, the next step is to cut the notches that hold the shelves and dividers. Each leg has a pair of lower notches sized to fit the ¾" plywood shelves and a pair of upper notches sized for the ¼" plywood dividers. The notches extend across the inside corners of the legs from mortise to mortise (detail 'c' on the opposite page).

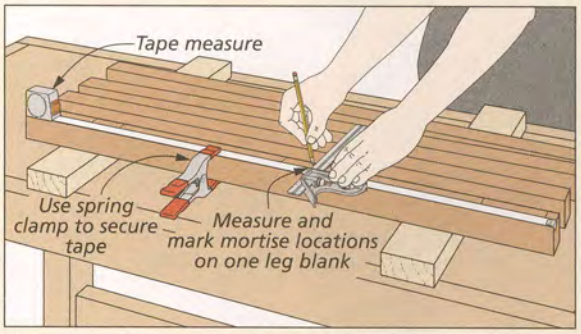
A SLED. The How-To box on the opposite page shows how to cut the notches at the table saw. I made use of a sled attached to the miter gauge. A V-groove cut into the sled holds the leg at 45° to the saw table as you make the cuts. You'll find information on making the sled on page 31.

Each notch is formed with multiple passes. The rip fence acts as a stop to locate and size the notches accurately. Once the fence is in position, make the corresponding cut in each leg. Then carefully tweak the fence setting to sneak up on a snug fit to the plywood.

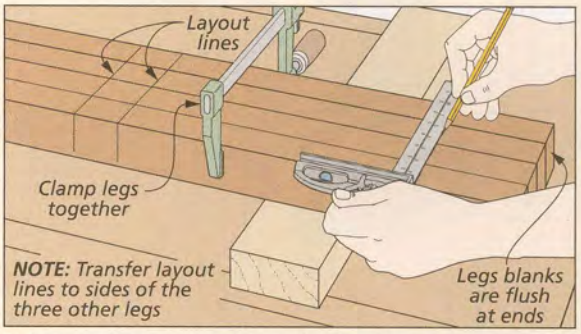
I started with the narrow notches at the top of the legs using a standard blade. Then I switched to a dado blade to cut the lower notches — again with multiple passes.

TAPERS. Now all you need to do is complete a couple of aesthetic details. First, to lighten the appearance of the legs, I added a two-sided taper starting just below the lower rail. Since the tapers are so short, I simply laid the cuts out on each leg and then made them at the band saw (drawings below). Sandpaper or a hand plane will take care of the saw marks.

Shop Tip: Alignment



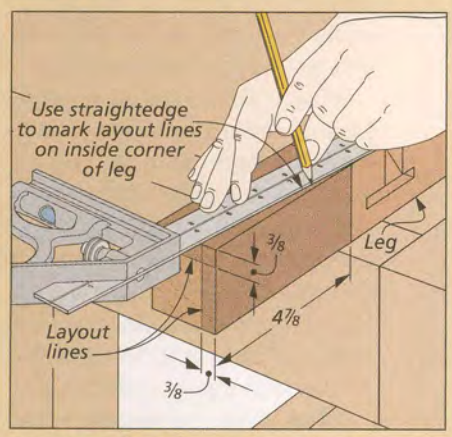
Measure and Mark. *To make certain the mortises in all the legs were in perfect alignment, I started by laying out the locations on just one leg.*



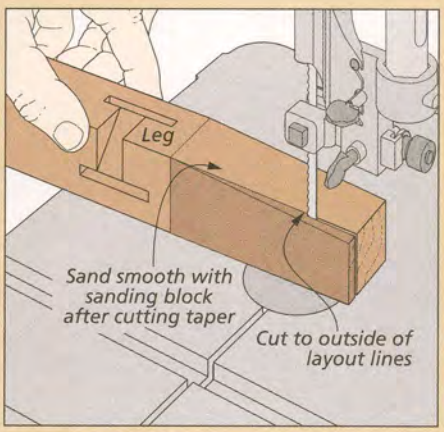
Align and Transfer. *After aligning the legs and clamping them together, I used the first leg as a "story stick" to lay out the mortises in the other legs.*

ROUNDOVERS. The final step takes you to the router table. I routed ⅛" roundovers on the long edges of each leg, as well as the outside edges of the taper cuts and the ends of the legs (drawing below).

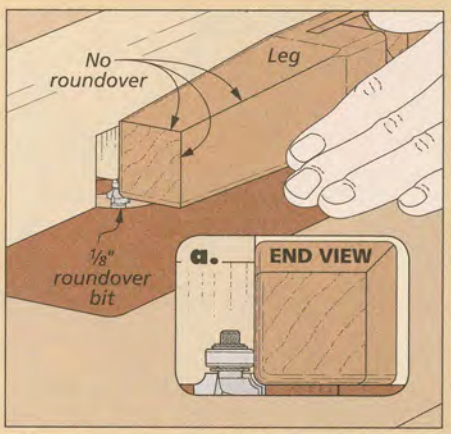
Taper & Roundovers



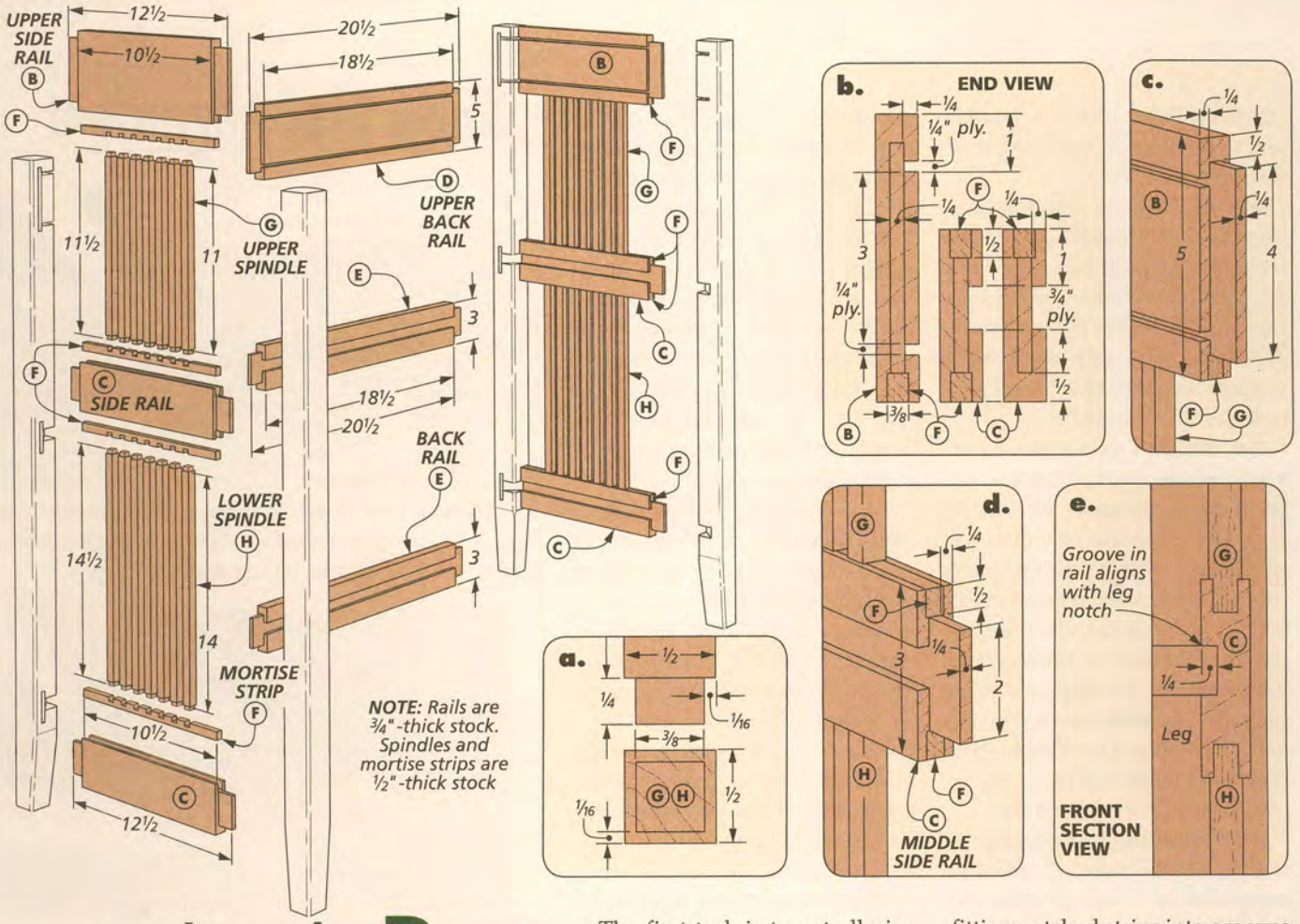
Lay Out the Tapers. *In order to cut the tapers "freehand" on the band saw, you'll need to lay out the cuts on each leg.*



A Smooth Cut. *To minimize the time spent cleaning up the tapers, make a straight cut close to the layout line.*



Roundovers. *I avoided the problem of routing across the notches in the legs by using the fence to guide the cuts.*



making the RAILS

With the legs ready to go, you can now get started on making all of the rails and the side spindles. As you can see above, this involves making quite a few pieces, but the work is all straightforward.

The first task is to cut all nine rails to size from ¾"-thick stock. And after labeling them, you can begin the joinery.

MORTISE STRIPS. The ½"-square side spindles are tenoned into the rails, but the technique I used to do this needs explanation. Rather than tediously cut numerous mortises in the rails, I created mortises by fitting notched strips into grooves in the rails (main drawing above). The mortise strips can be made on the table saw, saving a lot of time and effort.

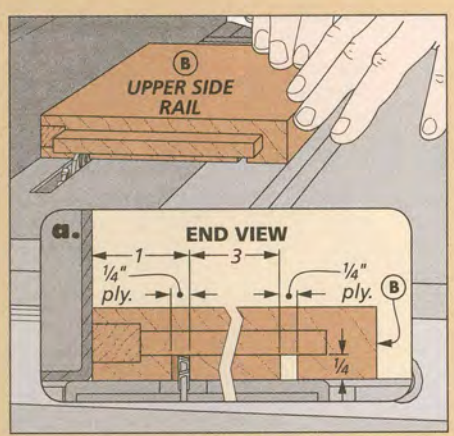
So the next step is to begin work on adding the mortise strips to the side rails. It works out better to do this before cutting the tenons.

HOW-TO. The box on the opposite page guides you through the process, starting with cutting the centered grooves in the side rails. Remember that the middle side rails have grooves on both edges while the upper and lower rails only have a groove on one edge.

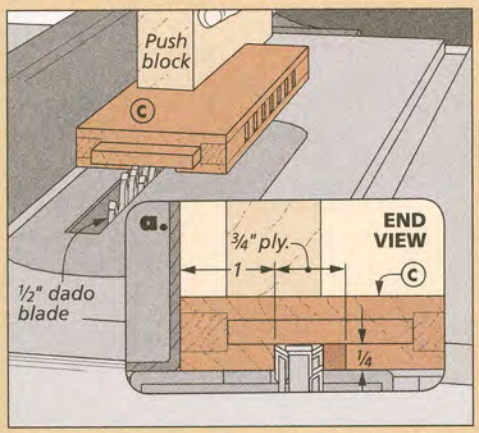
When making the mortise strips, I started with a 5"-wide blank cut to the exact length of the side rails. Be sure to mark a reference line across one end of the blank to help you install all the completed strips in the same front-to-back orientation. You can use a dado blade along with an indexing jig to space the mortise cuts evenly in the blank.

TENONS. With the mortise strips glued in place, the next step is to cut tenons on the rails. A dado blade in the table saw will make

How-To: Cut the Rail Grooves



Upper Rails. *With a single blade in the saw, carefully adjust the rip fence position to accurately locate and size the grooves.*



Wider Grooves. *The fit of the shelves to the grooves will show, so take a little extra time and care to get it right.*

quick work of this. For an in-depth look into the process, check out the article on page 42.

GROOVES. When you're satisfied with the fit of the tenons, you can complete the rails by cutting the grooves for the shelves and dividers (detail 'b,' opposite page). To ensure the grooves aligned with the notches, I dry fit the legs and rails to mark their locations.

The How-To box on the opposite page shows how to cut the grooves on the table saw. I cut all the grooves by making multiple passes. You'll have to cut the narrow grooves in the upper rails with a single blade. The wider grooves can be cut with a dado blade. Some careful adjustment of the rip fence is the key to locating and sizing them accurately. You can use the shelf and divider plywood to check for the correct width.

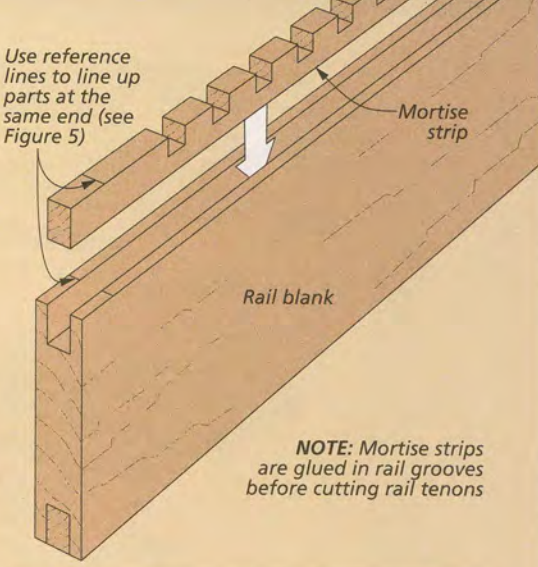
THE SPINDLES. After you fit the spindles between the rails, the two sides of the base can be glued together. (The shelves and dividers have to be made before the base assembly can be completed.)

As shown in the main drawing on the opposite page, the upper and lower spindles are different lengths. But the tenons on the ends are identical (detail 'a,' opposite page). Unfortunately, there's no way to speed up this joinery. Each spindle has to be cut to size before cutting the tenons (Figure 6).

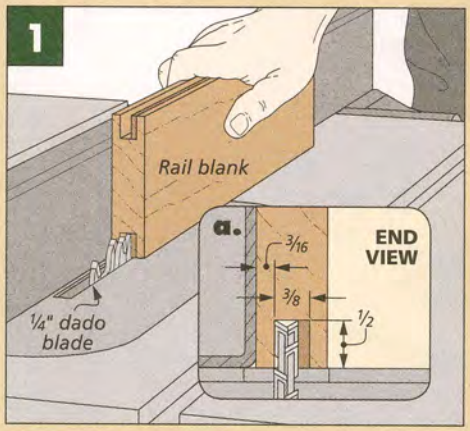
You're shooting for an accurate shoulder-to-shoulder length. To accomplish this, I used the dry-assembled sides as a pattern. Just test fit the tenon shoulders between the rails, sneaking up on a snug fit. It's also a good idea to make a few extra spindles for insurance.

SIDE ASSEMBLY. Once all the spindles are fit to your satisfaction, it's time to glue the side assemblies together. There are a couple steps you can take to make this task go easier. First, I made a set of plywood blocks to help align the grooves in the rails with the notches in the legs. And finally, it's not necessary to glue the spindles into the rail mortises.

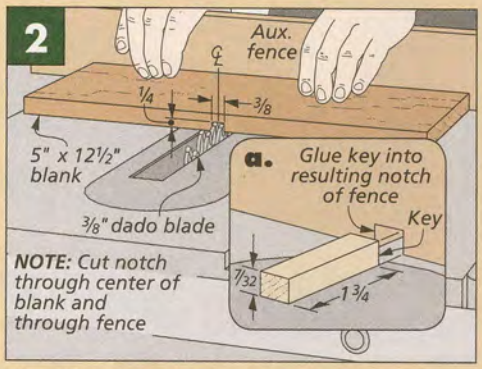
How-To: Mortise Strips & Spindles



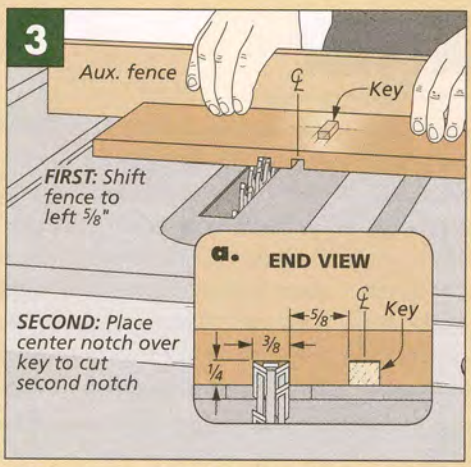
NOTE: *Mortise strips are glued in rail grooves before cutting rail tenons*



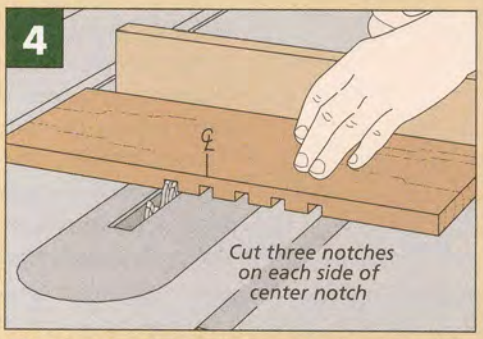
Centered Grooves. *To keep the grooves perfectly centered, flip the rails end for end between passes over the blade .*



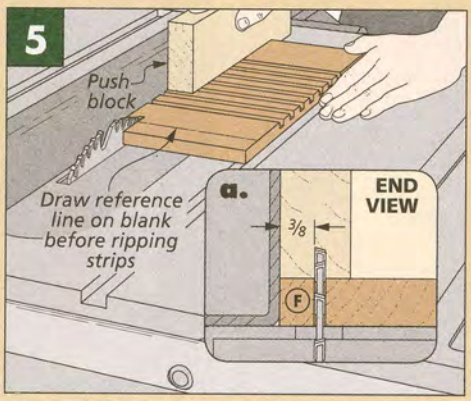
First Notch. *To begin, lay out and cut a centered notch through the blank and auxiliary fence. Then install the indexing key.*



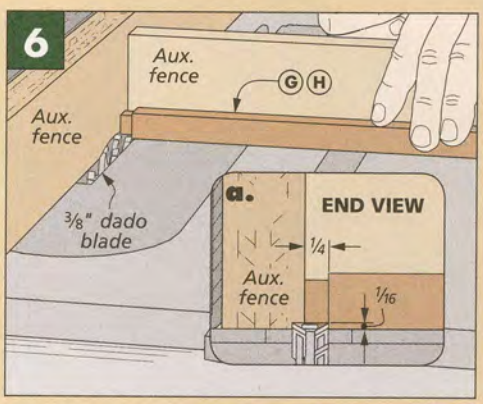
Shift Fence. *Carefully reposition the fence, then use the key to cut three evenly spaced notches to the right of the center notch.*



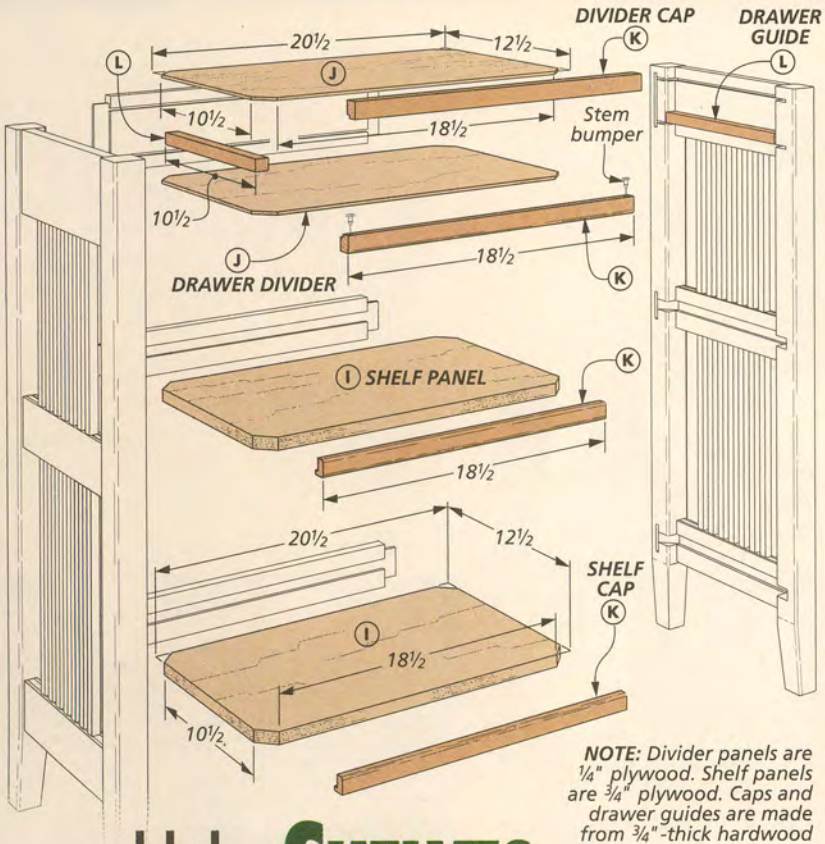
Flip the Blank. *Finally, turn the blank end for end to cut three more notches on the opposite side of the center notch.*



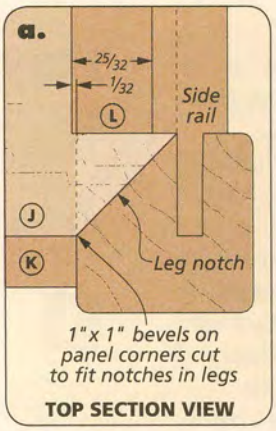
Rip to Width. *Once all the notches are cut, you can rip indivdual mortise strips from the blank. Shoot for a snug fit in the grooves.*

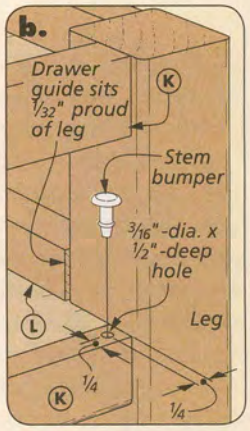


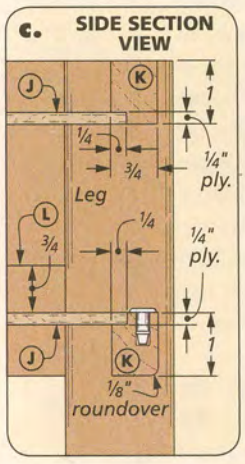
Spindle Tenons. *Sneak up on the shoulder-to-shoulder length of the spindles by adjusting the position of the rip fence.*

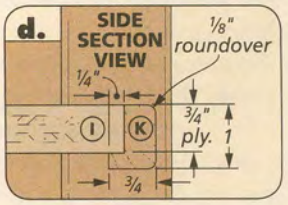


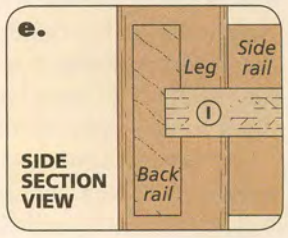
NOTE: Divider panels are ¼" plywood. Shelf panels are ¾" plywood. Caps and drawer guides are made from ¾"-thick hardwood











add the SHELVES, DIVIDERS & DRAWER

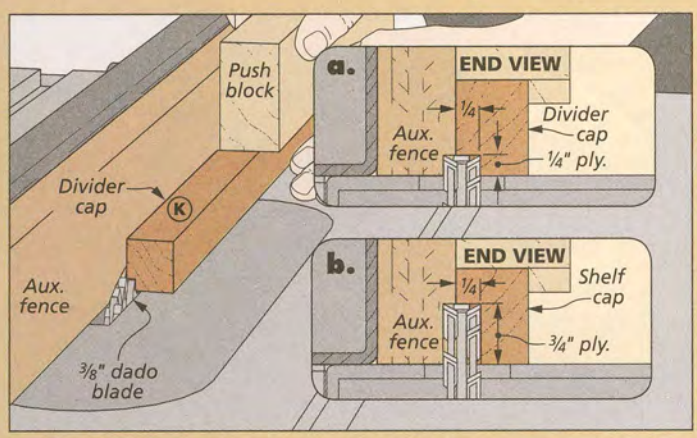
When the clamps come off the side assemblies, the next task is to fit the two plywood shelves and the drawer dividers. Then you can complete the base assembly.

SHELVES & DIVIDERS. The shelves and dividers will be glued into the grooves in the side and back rails. This provides the only structural link across the front of the base (detail 'd'). So in order to end up with a square base, these panels need to be sized correctly. To do this, I dry-assembled the side assemblies and back rails to get an accurate measurement. Check out page 30 for an easy way to take these measurements. Once the panels are sized, bevel the corners to fit the notches in the legs.

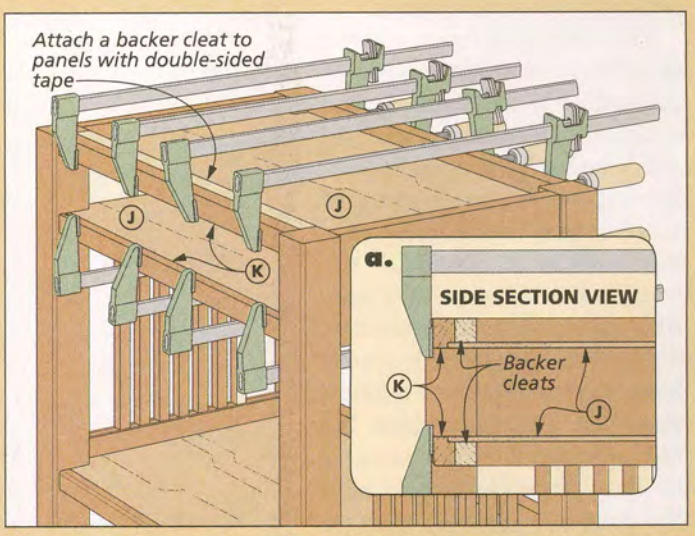
FINAL GLUEUP. When you're sure everything fits well, you can glue up the side assemblies, the back rails and the panels. Gluing one side at a time eases the task.

CAPS. The hard work on the base is done. To complete it, all you

How-To: Fit & Clamp Caps



Rabbet the Caps. *You can use a dado blade buried in an auxiliary rip fence to cut the rabbets in the cap pieces. Adjust the height of the blade to size the rabbets to the thickness of the plywood.*



Clamping Helpers. *I used double-sided tape to attach cleats to the dividers behind the caps. This provides a bearing surface to keep the caps square when the clamps are tightened.*

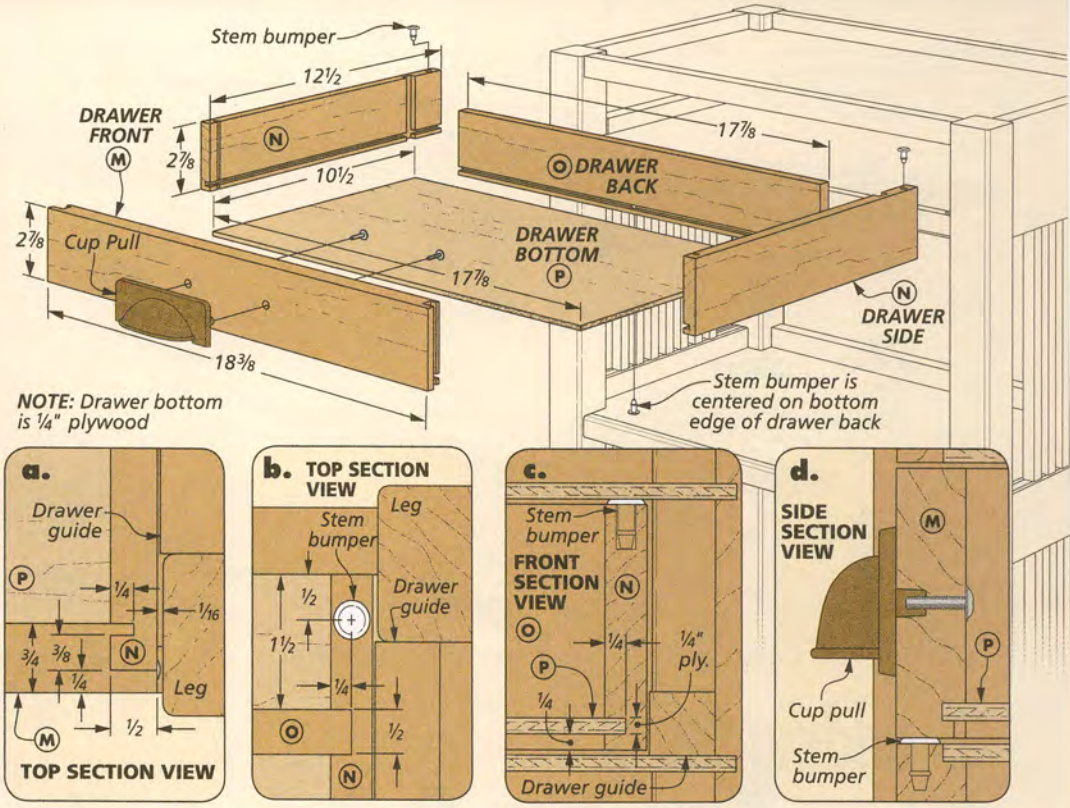
need to do is cap the plywood shelves and dividers and then add a couple drawer guides.

The caps for the dividers and shelves all start out as ¾" x 1" pieces. A rabbet is cut on the inside edge to create a stronger connection, as in details 'c' and 'd' on the opposite page. The width of these rabbets is sized to the thickness of the plywood. The How-To box on the opposite page shows how to make the cuts on the table saw.

SOFT EDGES. Next, I stepped over to the router table to ease some of the sharp edges. The lower edge of the lower drawer divider cap gets a roundover as well as both edges of the shelf caps (details 'c' and 'd,' opposite page).

Now you can cut the caps to fit between the sides. Then after adding a couple of holes for stem bumpers to the lower drawer divider cap, glue the caps in place (details 'b' and 'c,' opposite page).

GLUING TIP. Gluing the two shelf caps in place was pretty straightforward, but the divider caps turned out to be a bigger challenge. The hangup is that the ¼" plywood doesn't provide enough bearing surface to keep the caps from twisting when the clamps are tightened. Temporary backing cleats solved the problem (How-To box on the opposite page).



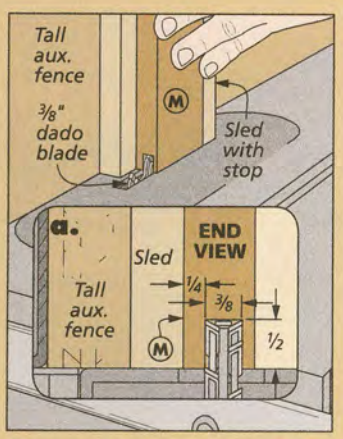
DRAWER GUIDES. Before starting on the drawer, I added a pair of guides. These are cut to fit between the front and back legs and sized to sit proud of the inside face. This keeps the drawer from rubbing on the legs (detail 'a,' opposite page).

THE DRAWER. The drawer is up next. There's nothing too challenging about its construction. The drawings above and below provide all the details you'll need to put it together.

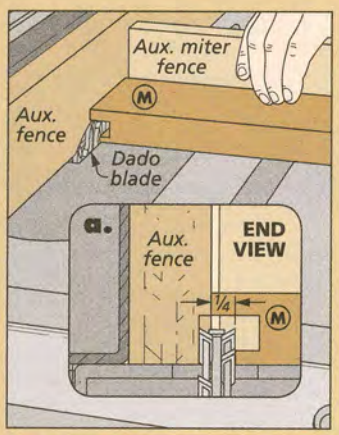
The front and sides are joined with locking rabbet joints, as shown in detail 'a.' The drawer sides extend beyond the back which is held in dadoes (detail 'b'). This side extension minimizes the chance of the drawer being pulled from the stand accidently.

The sides of the drawer simply butt against the back rail to stop its travel. The front should sit flush with the divider caps (detail 'd'). After the assembly, I added a cup pull and a set of stem bumpers — one centered on the bottom edge of the back and one on the top edge of each side (detail 'b').

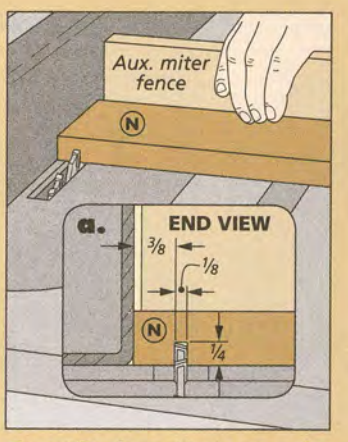
Drawer Joinery



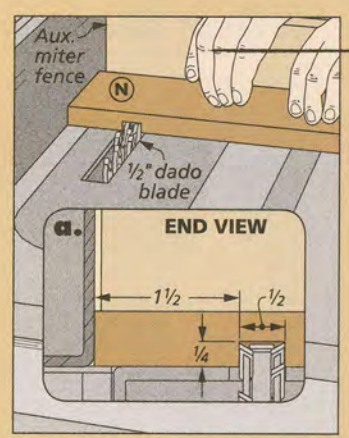
First, a Slot. *Start by using a dado blade to cut a slot along each end of the drawer front.*



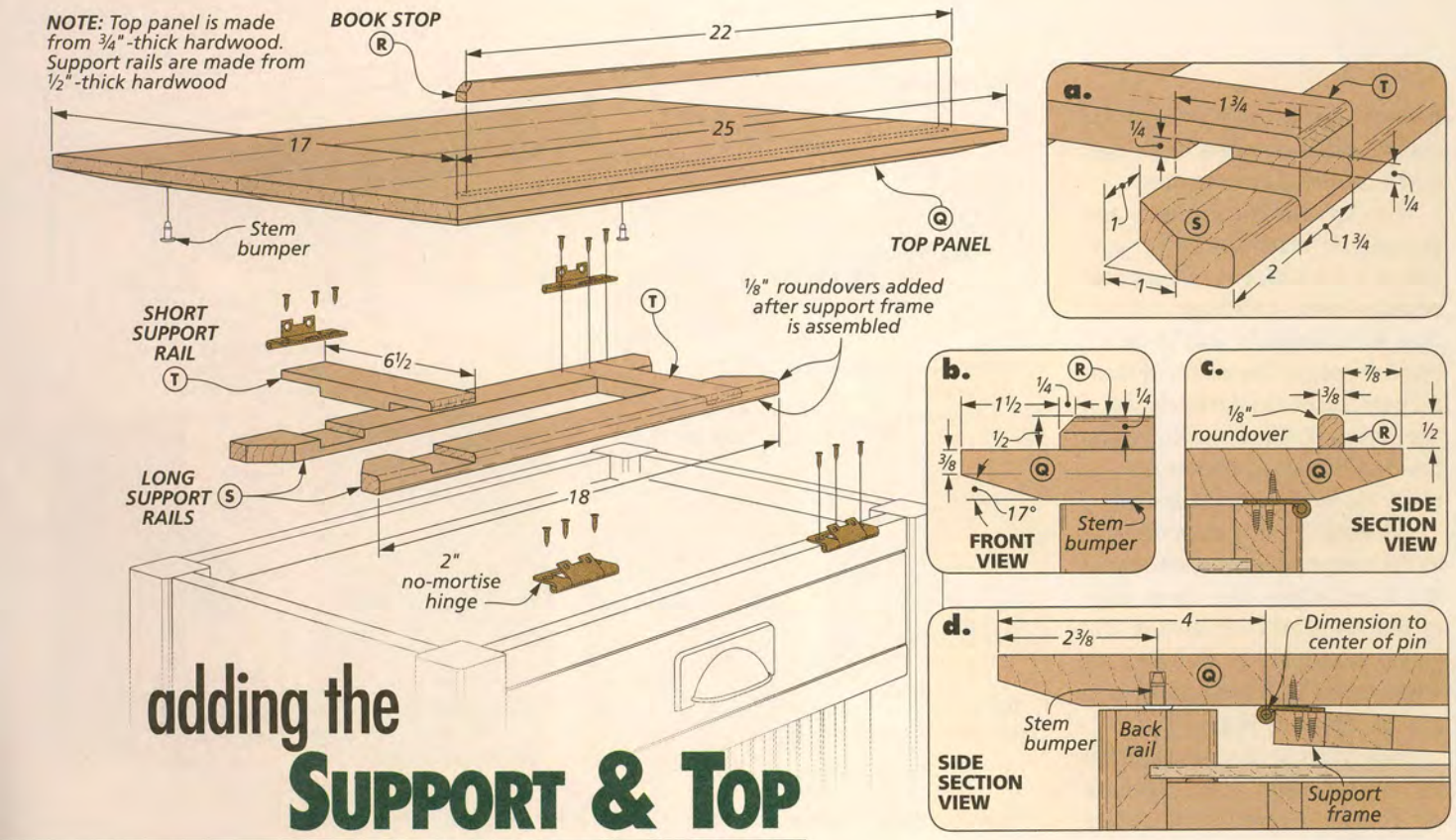
A Tongue. *Create a tongue on each end by trimming the inside shoulder of the slot.*



Front Dadoes. *Next, use a single blade to cut dadoes in the sides sized to fit the tongues.*



Back Dadoes. *Finally, install a wider dado blade to cut the dadoes to hold the back.*



adding the SUPPORT & TOP

Making and installing the tilting top and its support frame is a fitting way to complete the stand. There's really nothing new and different here. But I did take pains to make certain everything looked good and operated smoothly.

GLUEUP. I started by gluing up an oversized panel, surfacing it, and then trimming it to final size. You'll find an article on page 14 that covers the fine points of gluing up solid-wood panels.

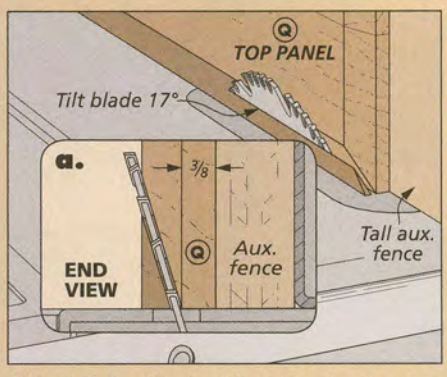
BEVELS. Next, I tackled the bevel cuts on the underside of the top. The left drawing below shows the table saw setup I used. A tall auxiliary rip fence allowed me to keep the top panel steady as I held it on edge and fed it past the blade.

BOOK STOP. After sanding the bevels, you can begin work on the stop that keeps a book in place when the top is tilted. This piece is simply a narrow strip with a rounded top edge and beveled ends (main drawing and detail 'b').

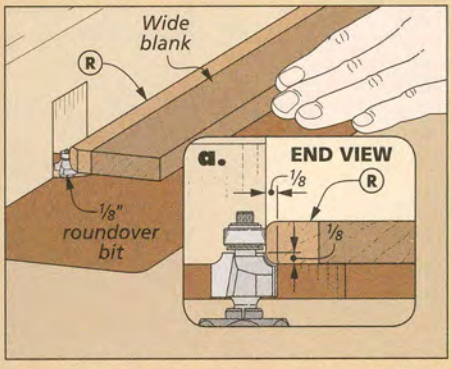
The safest way to make the stop is to start with an extra-wide blank planed to thickness and cut to final length. Next, I cut a short, 45° bevel on each end before moving to the router table. The middle drawing below shows the final step to shaping the stop. Once the edge profile is routed, you can rip the stop free and glue it to the top near the front edge (detail 'c'). It should be centered side to side.

SUPPORT FRAME. Before "hinging" the top to the base, you'll want to make and install the frame that supports the top in the tilted position. This small frame is hinged to the underside of the top and

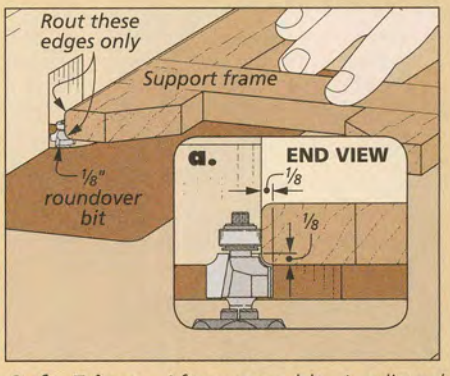
How-To: Top, Stop & Support Frame Profiles



Bevel Cuts. *Start with a bevel cut across one end. Then work around the panel ending with a long bevel rip cut.*



Stop Roundover. *Before ripping the book stop from the blank at the table saw, round over the edge at the router table.*



Soft Edges. *After assembly, I relieved the lower "bearing" edges of the support frame by routing a roundover.*

pivots to rest against the back rail and upper drawer divider.

The half-lap frame is made up from two long and two short rails cut from ½"-thick stock. The beveled ends of the long rails extend past the ends of the short rails, as in detail 'a' on the opposite page.

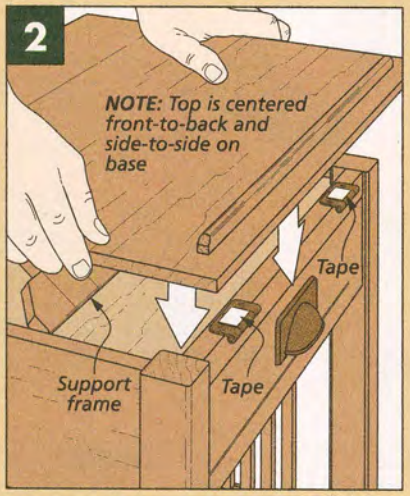
Once the pieces are cut to size, you can install a dado blade in the table saw to cut the half laps. Then after cutting the bevels on the long rails, the frame can be glued up. Finally, I eased the lower edges of the frame with a roundover (How-To box, opposite page).

THE FINAL ASSEMBLY. Before attaching the support frame to the top and then the top to the base, I added a pair of stem bumpers to the underside of the top near the back. They simply compensate for the thickness of the hinges at the front (detail 'd,' opposite).

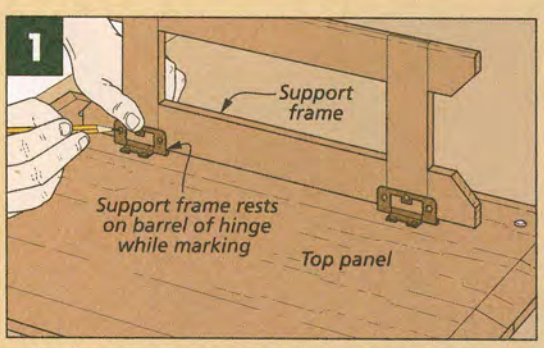
The box at right illustrates how to complete the assembly. The top and frame are both installed with no-mortise hinges. The only trick is to locate them accurately.

I started by fastening the hinges for the support frame to the top. Just make sure they're aligned parallel to the back edge. Then position the frame against the unattached leaves to mark for pilot holes and complete the installation.

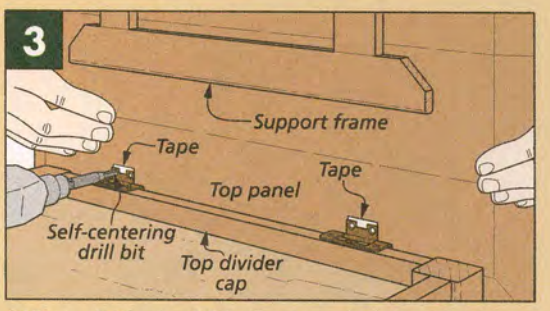
How-To: Attach the Top & Support Frame



Place and Press. *With double-sided tape on the loose leaves, align the top on the base and apply pressure.*



Attach Support Frame. *With the hinges screwed to the top, raise the loose leaf and butt the frame against the hinge pin to mark for pilot holes.*



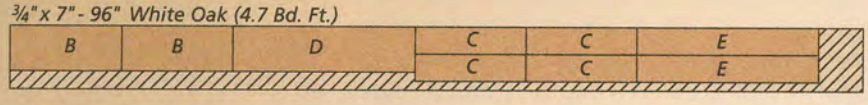
Lift and Mark. *With the tape holding the hinge leaves in place, have a helper hold the top while you drill pilot holes with a self-centering bit.*

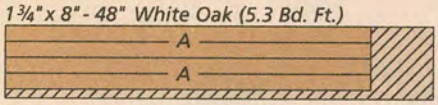
Attaching the top takes a slightly different approach. After screwing the hinges to the base, I applied strips of double-sided tape to the loose leaves. Then I carefully centered the top on the base and applied pressure over the hinges. When you fold back the top, the tape will hold the hinge leaves while you drill the pilot holes. This operation is a lot easier if you enlist an assistant to hold the top.

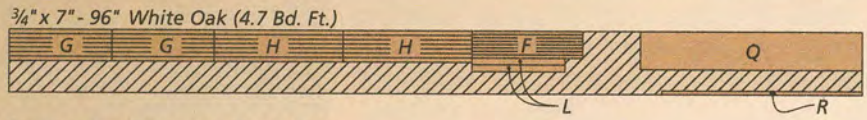
Once the hinge screws are installed, go ahead and give the tilting top a test run. But don't get too carried away, you still have stain and finish to apply and then a new library to organize.

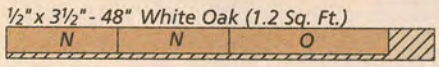
Materials, Supplies & Cutting Diagram

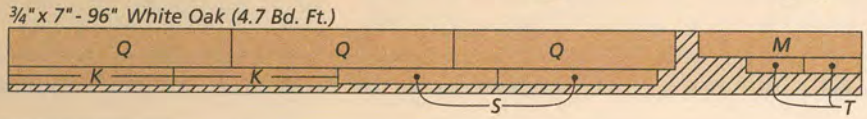
A	Legs (4)	1¾ x 1¾ - 41	**I**	Shelf Panels (2)	¾ ply. - 12½ x 20½	**Q**	Top Panel (1)	¾ x 17 - 25
B	Upper Side Rails (2)	¾ x 5 - 12½	**J**	Drawer Dividers (2)	¼ ply. - 12½ x 20½	**R**	Book Stop (1)	⅜ x ½ - 22
C	Mid./Lwr. Side Rails (4)	¾ x 3 - 12½	**K**	Shelf/Div. Caps (4)	¾ x 1 - 18½	**S**	Long Support Rails (2)	½ x 1¾ - 18
D	Upper Back Rail (1)	¾ x 5 - 20½	**L**	Drawer Guides (2)	¾ x 25/32 - 10½	**T**	Short Support Rails (2)	½ x 1¾ - 6½
E	Mid./Lwr. Back Rails (2)	¾ x 3 - 20½	**M**	Drawer Front (1)	¾ x 2⅞ - 18⅜	•	(2 pr.) 2" No-Mortise Hinges	
F	Mortise Strips (8)	⅜ x ½ - 12½	**N**	Drawer Sides (2)	½ x 2⅞ - 12½	•	(20) #4 x ½" Hinge Screws	
G	Upper Spindles (14)	½ x ½ - 11½	**O**	Drawer Back (1)	½ x 2⅞ - 17⅞	•	(1) Antique Brass Cup Pull	
H	Lower Spindles (14)	½ x ½ - 14½	**P**	Drawer Bottom (1)	¼ ply. - 10½ x 17⅞	•	(7) Plastic Stem Bumpers	



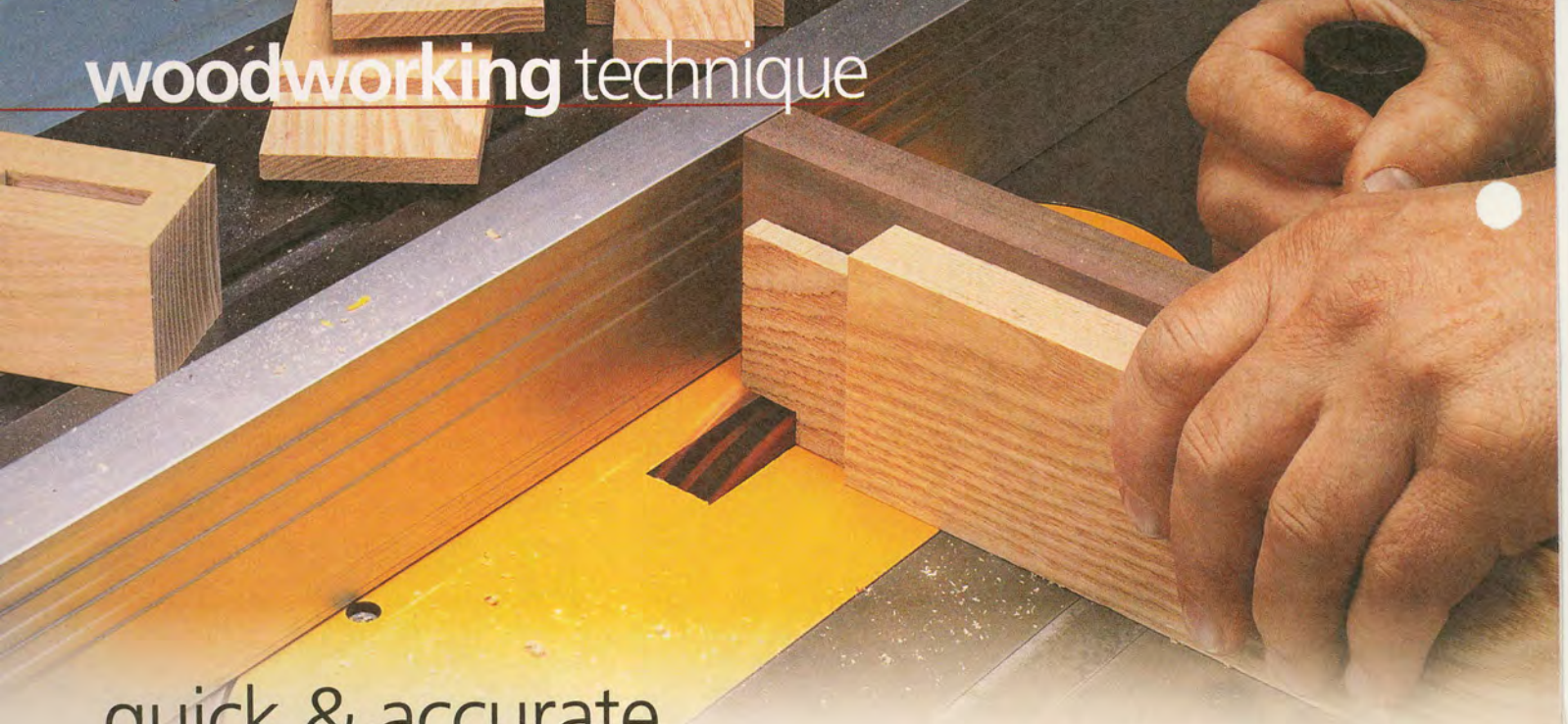








ALSO NEEDED:
One 24" x 48" Sheet of ¾" White Oak plywood
One 24" x 48" Sheet of ¼" White Oak plywood



quick & accurate

Table Saw Tenons

A stack dado blade and a simple setup will guarantee consistent tenons with clean, crisp shoulders and smooth cheeks.

There are probably a dozen different ways to cut tenons. But there's only one method that gives me the combination of accuracy, efficiency, and consistency that I need on a day-in/day-out basis. This reliable technique involves using a stack dado blade installed in the table saw. After giving it a try, you'd be pretty hard pressed to come up with a downside.

IN A NUTSHELL. The basic setup is shown in the photo above. Here's a brief explanation of how it works. A wide dado blade is installed in the saw. An auxiliary fence is attached to the miter gauge to back up the cuts and prevent tearout. The rip fence is positioned to gauge the length of the tenon.

You cut one cheek of the tenon with as many passes as necessary, then flip the workpiece over to cut the opposite cheek. Finally, you cut the top and bottom shoulders with the workpiece held on edge. And with just a short introductory course, you should be good to go.

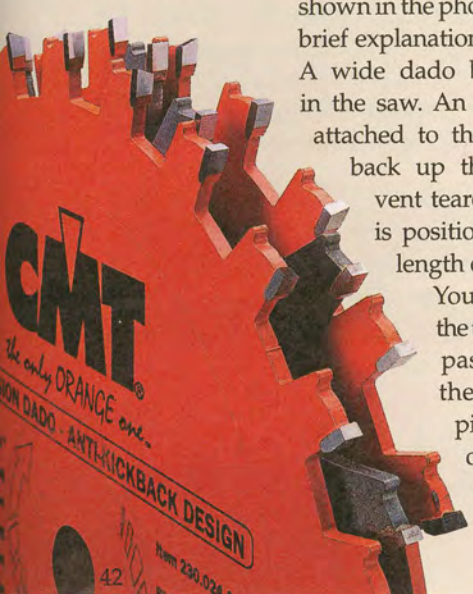
CONSISTENT WORKPIECES. Before setting up the saw to cut the tenons, you'll need to size the workpieces. And this is the starting point for accurate, snug-fitting tenons. First, it's important that the pieces are all planed to the exact same thickness. Then the edges should be straight and parallel to one another and the ends cut perfectly square.

PREPARING THE SAW. Although it's not difficult, setting up the saw to cut the tenons is half the battle. Once this is done, the cuts go quickly.

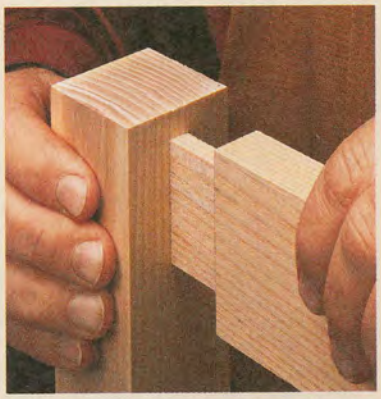
The dado blade is the first ingredient. A high quality, carbide-tooth blade is your best bet (margin photo at left). You'll get smoother cuts with a minimum of effort. I like to use a relatively wide stack — 5/8" to 3/4". This allows me to cut short tenons in a single pass or longer tenons with just a few passes. Fewer passes results in smoother cheeks. And a zero-clearance insert surrounding the blade will help prevent tearout at the shoulders.

YOUR GUIDES. The miter gauge and rip fence are your guides when making the cuts. So it's important that both are ready for the task. There are a couple aspects to this.

As I mentioned, you'll want to add an auxiliary fence to the miter gauge. It should be long enough to provide a steady bearing surface and extend into or past the blade to back up the cuts.



▼ A top-of-the-line, carbide-tooth dado blade will quickly pay for itself with cleaner, smoother cuts.



▲ A simple, step-by-step routine ensures snug-fitting cheeks and gap-free shoulders.

If the tenons are short (¾" or less), I add an auxiliary rip fence and then raise the blade up into it. When the tenons are long enough to require multiple passes, you won't need an auxiliary fence.

CHECKUP. The next step is a quick checkup, as shown in the drawing at right. To get clean, accurate tenon shoulders, the rip fence should be perfectly parallel to the blade. And also check to make sure the face of the fence is square to the table. Finally, be certain that the miter gauge is set square to the blade and the rip fence. It's impossible to get square shoulders if the miter gauge is out of adjustment.

BLADE HEIGHT FIRST. Once everything checks out, you can start making adjustments. Since the height of the blade determines the thickness of the tenon and its fit to the mortise, this is where to begin.

Using a combination square or rule to measure the height of the blade, set it a little bit low. Then make a pair of test cuts across the tip of one workpiece (Figure 1).

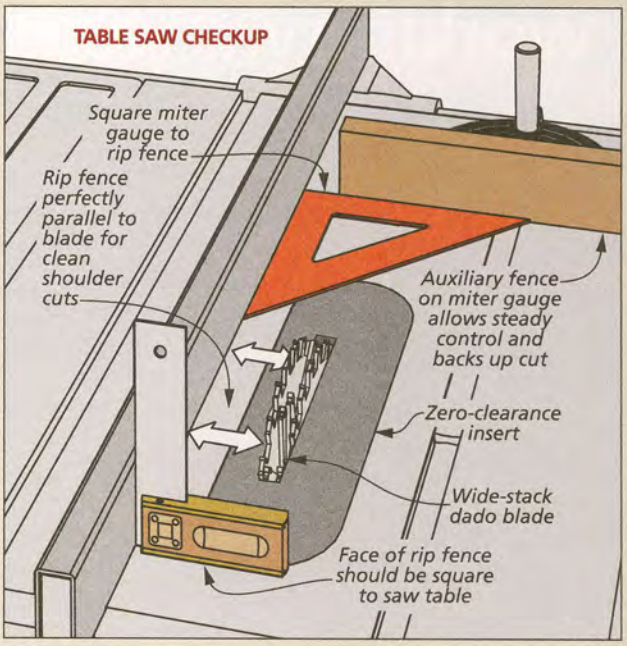
To ensure accurate results, hold the workpiece down firmly during the cuts. Now you can test the fit of this "stub" tenon to the mortise, as in Figure 1a. To zero in on the final height, raise the blade in tiny increments and repeat the routine until the corner of the tenon fits snugly into the mortise.

RIP FENCE. Now you can position the rip fence to establish the length of the tenon. Your real goal here is an accurate shoulder-to-shoulder length between the tenons on each end of the workpieces.

Again, I'm conservative. With the fence positioned just shy of the tenon length, I pick up the test piece and cut back to the shoulder lines with several passes. For the final cut, the end of the tenon is in firm contact with the fence (Figure 2).

Then flip the workpiece end-for-end and cut the tenon on the opposite end. Use a rule or tape to take a shoulder-to-shoulder measurement (Figure 2a). Tweak the fence setting as necessary and try it again until the length is dead-on.

MAKING THE CUTS. At this point, making the cheek cuts on the rest of the workpieces is pretty routine. Just start with a cut across the end and work back toward the shoulder. Remember that the fewer passes you make to remove the waste, the smoother the tenon cheeks will be.



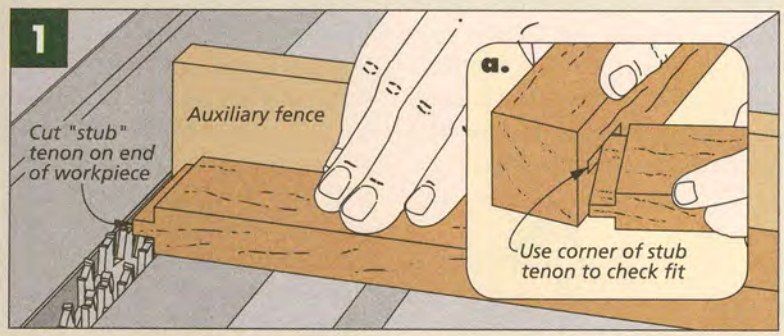
And strong downward pressure is the key to consistent thickness.

THE EDGE SHOULDERS. The final step is to cut the edge shoulders if necessary. The difference here is that the workpiece is held on edge, as shown in Figure 3.

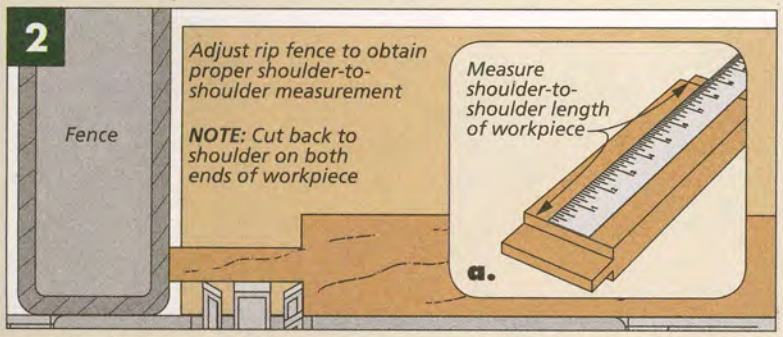
In most cases, the blade height will need to be readjusted. You can do this using the same "cut and test" technique as before. When the test tenon slides into the mortise, you can complete all the cuts.

It works best to start at the end of the tenon and cut back to the shoulder. Take care when making the final cut at the shoulder. To avoid scoring the long shoulders, use only light pressure against the fence. An option is to leave a small amount of waste at the shoulder and then clean it up with a chisel.

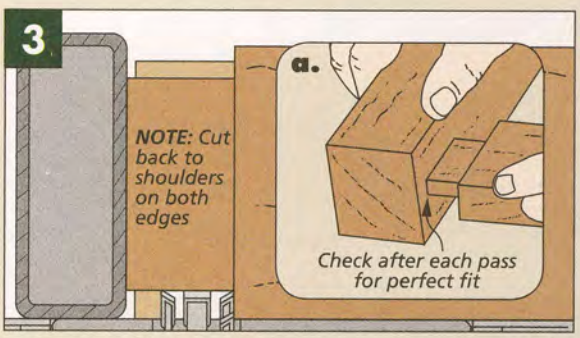
From setup to completed tenons, the process probably won't take more than thirty minutes. And what's most important, the tenons will fit like a hand in a glove.



Adjust the Blade Height. *Zero in on the correct blade height with test cuts across the tip of one workpiece. Check the fit to the mortise.*



Position the Rip Fence. *Start by setting the fence a little bit "short." Make the cuts at both ends, then measure the shoulder-to-shoulder length.*



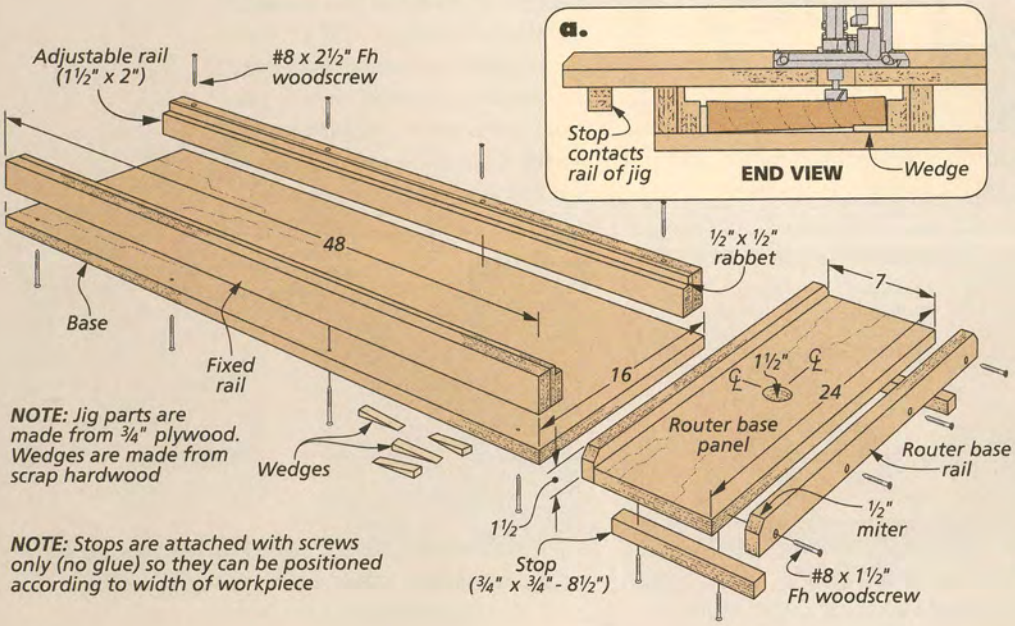
Edge Shoulders. *Sneak up on the final width of the tenon by adjusting the blade height between passes.*

surfacing stock by Router Planing

When faced with the task of flattening a wide, twisted, bowed, or warped workpiece, a router and a simple jig can save the day.

There's a common misconception that a planer will flatten the stock you run through it. What a planer actually does is reduce the thickness of a workpiece and make one face parallel to the other. But to end up with a flat workpiece, you have to flatten one face first.

Unless you have a very wide jointer, flattening the surface can be a problem. You could break out the hand planes and get to work, but that can make for a long day if the workpiece is twisted. My favorite way to tackle this problem is with a router and a shop-made jig.



THE JIG. This technique begins by mounting the workpiece in a stable platform that will prevent it from moving or rocking. Add to that platform a set of rails slightly taller than the thickness of the workpiece and you've established a reference surface you can use to flatten the face. The drawings at left show you how to make the base and rails that form the basic jig.

You'll notice that the front rail of the jig is fixed and the back rail is adjustable. This arrangement allows you to secure stock of different

▲ The shearing cut and large diameter of this bottom-cleaning bit make it perfect for planing.

widths in the jig simply by moving the back rail against the edges of the workpiece. Shop-made wedges "pinch" it between the rails and hold it fast while you rout the face.

To span the distance between the rails, mount your router on a large auxiliary base. The drawings at the bottom of the opposite page show the plans for building the router base. One important detail to take note of is the pair of stops on the underside of the base. By adjusting the position of the stops to limit the travel of the router, you prevent the bit from damaging the rails.

As I mentioned earlier, I use simple shop-made wedges to secure the workpiece between the rails. By placing additional wedges under the spots where the stock is not in contact with the jig's base, you keep it stable while routing. If necessary, a small piece of double-sided tape can be used to hold the wedges in place under the workpiece. With the workpiece secured between the rails, you can flatten it by routing away the high spots. You can see how the base and jig work together in the main photo on the opposite page.

▲ Wedges under the high points prevent a twisted board from rocking when secured in the jig.

ROUTER BITS. This technique depends on a router bit with a flat bottom. That means you can use most straight bits. However, my preference is to use a bottom-cleaning bit designed for this purpose. These bits come in different diameters, but the smaller ones will require many more passes over the stock to flatten the surface. That's why I use the 1½"-dia. bit shown in the photo on the opposite page. It has an up-shear design that cuts cleanly in just about any material.

TECHNIQUE. Once you've set up the jig and installed the correct bit, all you need to do is move the router back and forth across the grain to flatten the stock. The key is to take overlapping passes and work your way over the surface along the entire length of the workpiece. I find it helpful to mark the surface with a pencil to show my progress (see the Shop Tip above).

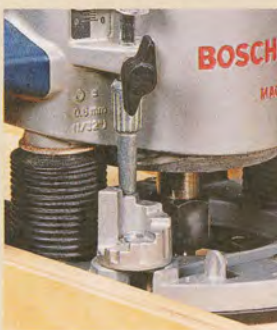
I also limit the depth of cut to around ⅛" for smooth, tearout-free cutting. You may need to make several passes to flatten the workpiece. This is easy to do with most plunge routers simply by adjusting the turret on the depth stop.

After surfacing one face, you can run the opposite face through the planer and you'll have a flat workpiece with parallel faces, as shown in the box below.

Once you get the hang of it, using the jig is a breeze. And starting with a flat, reference face translates to reliably square project parts.

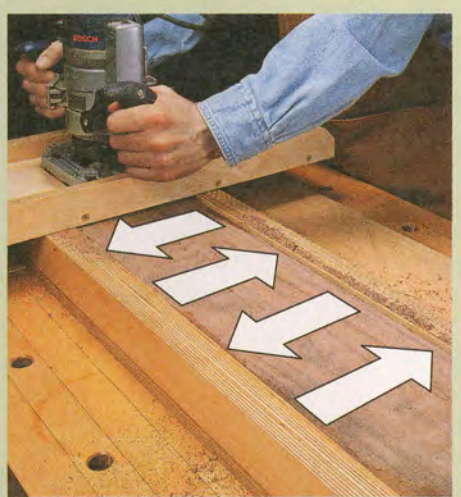
Shop Tip: Pencil Marks

Keeping track of your progress while surfacing a workpiece can be difficult without some reference marks on the surface. The easiest way to measure progress is to cover the surface with pencil marks. When the marks are gone, you're done.



▼ The turret-style depth stop on most plunge routers makes it easy to take incremental passes over the workpiece.

How-To: Flatten a Twisted Workpiece



▲ With the workpiece secured, simply rout back and forth along the entire length to remove the high spots.

▲ Now place the workpiece with the flattened face down in your planer to plane the opposite face parallel.

▲ Finally, turn the workpiece over and run the routed face through to remove the router marks.

Brush Care Basics

With just a little effort, you can ensure that your finishing brushes are always at their best.

The quality of a job is often only as good as the tool used to accomplish it. Applying a smooth, blemish-free finish by brush is no exception. A high-quality brush in good working order makes the task easier and the result much better.

But when the job is done, it's always tempting to simply drop the brush into a can of the appropriate solvent and walk away. The downside is that if you don't take the time to clean the brush properly, the job will be harder later on and your brush may suffer. (If you're guilty of such a lapse, the box on the opposite page offers a fix.)

▼ Using the right type of brush with a particular finish will improve the job and make the brush last longer.

Taking proper care of your finishing brushes isn't difficult or time-consuming. I'll walk you through the basics starting with a look at choosing the right tool for the job.

TWO TYPES. Brushes fall into two broad categories — natural bristle (usually white or black hog hair) and synthetic bristle. This is an important distinction. Natural bristle brushes are the best choice for applying solvent-based finishes such as varnish, shellac, lacquer, or oil-based paint. Synthetic-bristle brushes are generally used with water-based finishes or paints but can be used for solvent-based finishes as well.

However, you should never use a natural bristle brush with a water-based finish. Natural bristles tend to absorb water, causing them to swell and the brush to lose its shape during and after use. On the other hand, synthetic bristles are more or less moisture-proof and unaffected by the water in a finish. So matching the brush to the finish will increase its lifespan.

TRY PRE-LOADING. One of the simplest things you can do to make cleaning your brush easier takes place at the beginning of the finishing process. This trick is called pre-loading or conditioning.

Pre-loading is done by dipping the brush up to the ferrule in a container of the solvent present in the finish (mineral spirits, lacquer thinner, alcohol, or water) and allowing it to soak for a minute. The solvent fills the reservoir at the top of the brush to prevent the finish from drying in this area. The brush will stay more flexible during use and require a lot less effort to clean.

▲ A short soak in the appropriate solvent makes cleaning the brush later much easier.

Then, before putting the brush to work, shake or wipe off as much solvent as possible.

CLEANING A BRUSH

Once the finish has been applied, make it a habit to give the brush quick attention. Whether it's a synthetic or natural bristle brush, the process is essentially the same.

SQUEEZE. The first thing you want to do is squeeze as much finish out of the brush as possible. Rub both sides of the brush across the lip of the can or jar from the ferrule on down. Do this until you're not getting any more finish off the brush.

RINSE. Next, rinse the brush thoroughly in a container of the appropriate solvent. The same container of solvent used to preload the brush is an easy option.

▲ Work the brush vigorously in the solvent to rinse away as much finish as possible.

You can simply let the brush soak for a while in the solvent, but it's better to work it against the sides and bottom of the container (photo below at left). This helps the solvent penetrate between the bristles to loosen the finish. When the solvent gets cloudy with dissolved finish, replace it and work the brush some more.

SHAKE, RATTLE, & ROLL. When you're planning on recoating within a short time, the brush can be left soaking in fresh solvent. If not, the next step is to remove as much of the solvent from the brush as possible. This can be done by either shaking it vigorously or rolling it rapidly between the palms of your hands, as shown in the main photo on the opposite page. The latter method is more effective, but can be difficult to do on brushes with wide, flat handles.

SOAP & WATER. This next step — washing the brush with soap and warm water — is optional. But it guarantees a super-clean brush.

◀ A thorough washing with soap and warm water will remove any residual finish.

Dishwashing soap is the standard choice. Wet the brush and then work the soap through the bristles with your fingers (photo above). You can also use a brush comb at this stage to help loosen and remove any remaining finish. After a couple minutes, you can rinse the soap out of the brush.

You may note a contradiction. Natural bristles don't like water. But as long as the brush is dried and then stored properly, a water wash isn't a problem.

WRAP IT. When thoroughly clean, the final step is to wrap the brush to shape and protect the bristles. Many brushes come in a cardboard sheath. This is a good way to store them. Or, you can wrap the brush in heavy paper (margin photos). Either way, it's never a good idea to leave a brush uncovered.

When you get into the habit of following this simple routine, a good brush will last for years. And best of all, it will always be ready for duty when needed. W

▼ When clean, return the brush to its original sheath or wrap it in heavy paper.

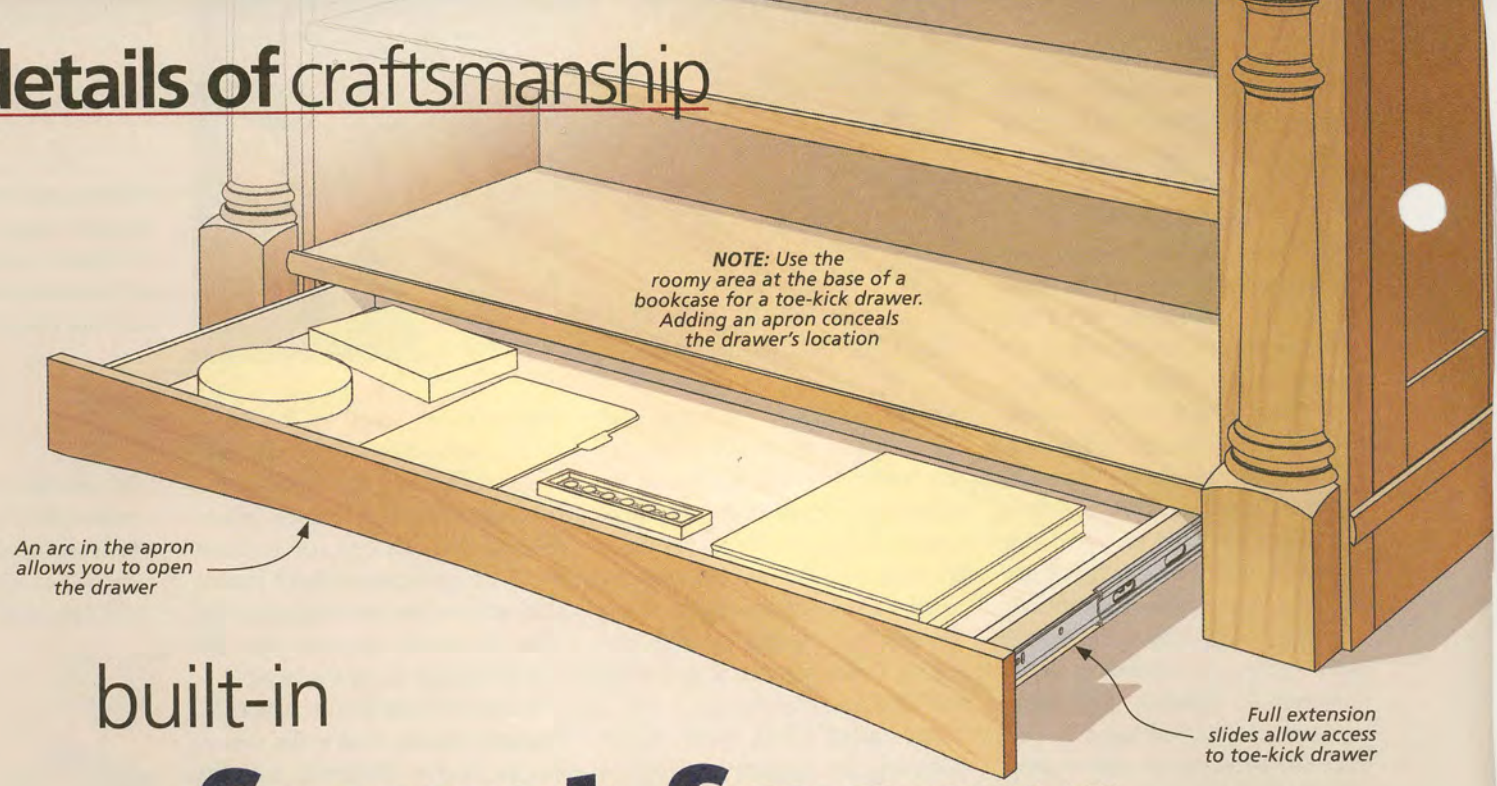
How-To: Rescue a Brush

▲ Soften the dried finish by immersing it in a mild paint stripper. Use a brush comb to separate the bristles.

Nobody is perfect. The brush in the upper right photo wasn't cleaned promptly and you can see the result. But it can be saved.

Start by letting the brush soak in mild paint stripper, as shown at left. After an hour or two, use a brush comb to separate the bristles and work the stripper deeper into the brush. Alternate soaking and combing until the finish is loosened and the bristles are pliable. Then rinse the brush in lacquer thinner before washing it with soap and water and wrapping it.

◀ A little elbow grease will return a neglected brush to like-new condition.

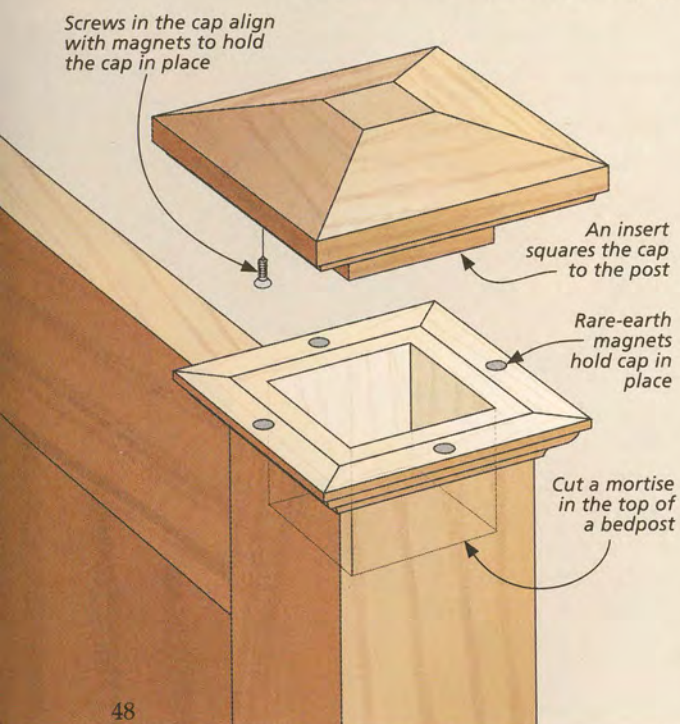


built-in Secret Spaces

Hiding places in antique furniture were created out of necessity. In today's furniture they're interesting cubbies that are fun to create.

Before the days of banks and safety deposit boxes, people often kept cash and valuables hidden at home. So it was common practice for cabinetmakers to incorporate hidden compartments into furniture.

You can find these hiding places in all kinds of furniture. A bedpost was a good place to hide money and other valuables. And desks with multiple cubbies were made too for those who wanted to hide their fortunes. Of course any piece of furniture with drawers or doors could be made to tuck away valuables in a hidden drawer or disguised panel.



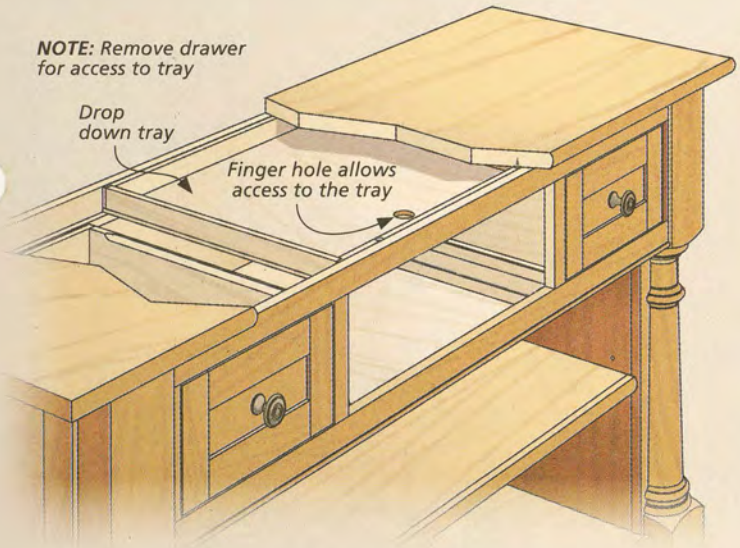
MODERN FURNITURE. Today you won't earn much interest on money that's stowed away in a desk or a bedpost. But secret hiding places in furniture are exciting to find and fun to add to projects. Plus, with a little discretion, no one will ever know their location.

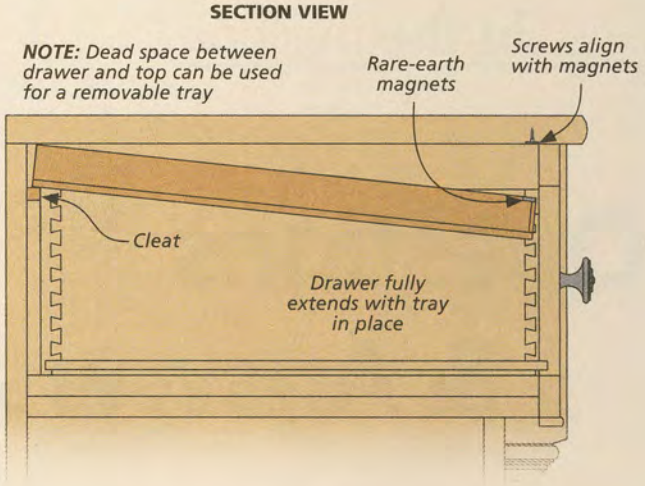
WHERE TO HIDE IT. If you think about it, in any given piece of furniture there are usually "dead spaces." Like an inch or two behind a piece of molding or the space between the top of the drawers and the underside of the top. It's pretty easy to use these dead spaces to build in hiding places while you're designing the project. Still, some secret spaces can be disguised in plain sight by using cleverly hidden panels or shortening deep or long spaces, like those in a drawer. Here are few examples.

TOE-KICK DRAWERS. Toe-kick drawers can provide a lot of room to hide valuables. And they're easy to include in just about any cabinet that has an apron at the bottom, as you can see in the main drawing.

To add a toe-kick drawer to a project you're building, just make a box for the drawer and mount it to the cabinet with drawer slides. The apron can be attached to the drawer like a false front. The goal is to make the apron look like it's one piece with the cabinet, so mating the apron to the cabinet and minimizing gaps is important.

HOLLOW SPACES. Bedposts and pilasters are usually solid. But it's a simple matter as you're working on the project to cut a mortise in the top of one of these parts to stash small items. Concealing the opening can be done with a finial or a cap, as shown in the drawing at left. For more security, adding rare-earth magnets and screws





will keep the cap from coming loose and spilling the contents.

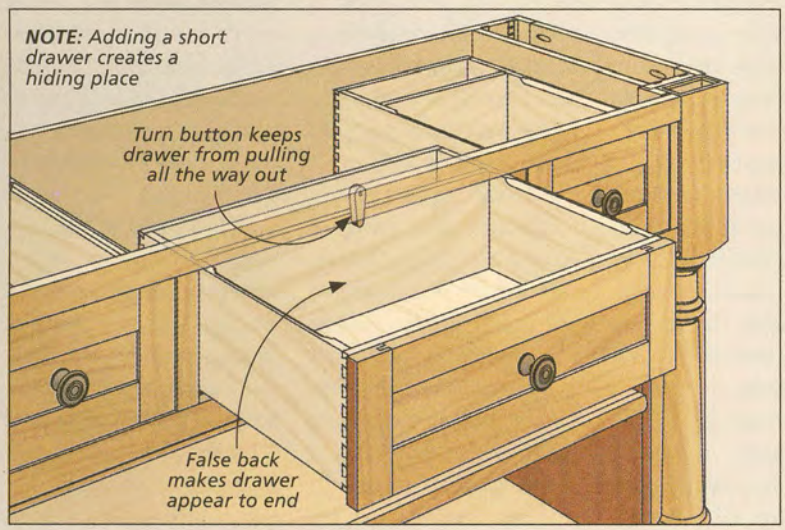
DROP-DOWN TRAYS. If a dresser or cabinet has a rail just under the top and above the drawers, there can be dead space behind the rail (drawing above). This makes a perfect hiding place for a drop-down tray. The back of the tray can sit on a cleat while the front is held with magnets embedded in the desktop. To gain access to the tray, a small finger hole can be drilled in the bottom. Just pull the front down and slide it out of its hiding place after removing the drawer.

DRAWERS. There are a number of places for secret compartments in drawers. Most of these hiding places are small, but well hidden, and require that you pull out the drawer before you gain access.

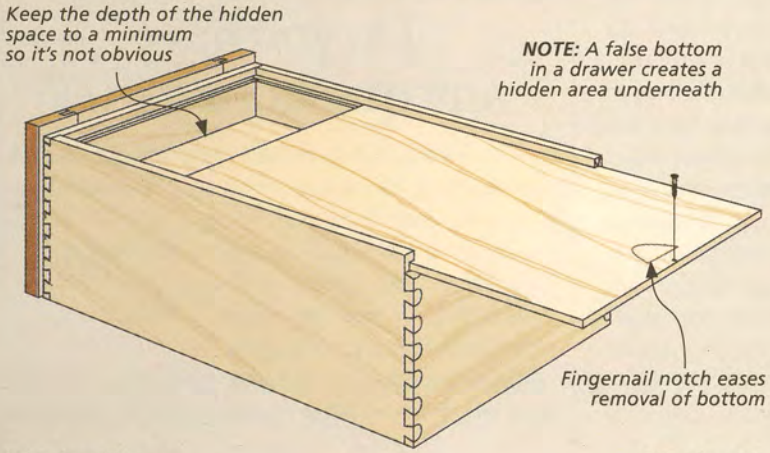
FALSE BACKS. A false drawer back can create a space behind the main drawer. The false back of a drawer is set in dadoes on either side of the drawer box. A bead of glue under the false back keeps objects from sliding under it.

A turn button will stop the drawer from fully extending, (drawing below). Using drawer slides that don't fully extend is another way to conceal the space at the back of the drawer.

Short drawers with a space behind them make good hiding places too. Making a drawer several inches shorter than the depth of the cabinet will allow room for a hidden box behind a drawer. The drawer is removed completely and the small concealed box can be pulled out for access. Again, a small hole in the side or front of the box let's you pull the box out from its secret place with one finger.



FALSE BOTTOM. On deeper drawers, it's easy to conceal a shallow hiding place with a false bottom. An extra set of grooves holds a sliding bottom that is held in place with a screw (lower drawing). A shallow notch cut on the underside of the bottom just deep enough for a fingernail, makes it easier to slide the drawer out and reveal the space.



Secret hiding places are not for every project you build. But some furniture lends itself easily to this type of construction. I think you'll find that it's intriguing to search out areas for creating secret spaces in woodworking projects. And imagine the thrill of someone discovering that hidden space you build into your next project. W

Questions & Answers

Radial Arm Saws

***Q** One of the first tools I purchased when I began woodworking was a radial arm saw, which I still use all the time. Why is it that you never show a radial arm saw being used to build any of the projects in Woodsmith?*

Bud Larson
Corona, California

A The radial arm saw was originally designed as a tool for industrial and commercial use. These saws have large diameter blades (12" and up) and heavy-duty motors that can handle making repetitive crosscuts all day long.

After World War II, manufacturers began marketing 10"-dia. and smaller radial arm saws to homeowners. One of the selling points of these saws was their versatility. In addition to standard crosscutting and ripping, with the right accessories they could be used for drilling, sanding, routing, and grinding as well.

As a result of these successful marketing campaigns, the radial arm saw became a fixture in many home woodworking shops during the 1950s and 60s.

CHANGING TIMES. But as compound miter saws came onto the scene and began catching on in the 1980s, demand for radial arm saws tapered off.

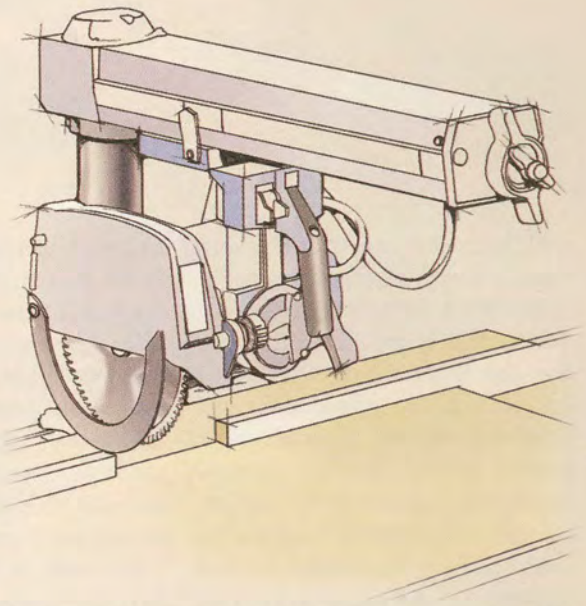
While not as versatile as the radial arm saw, the new miter saws were generally less expensive and had the added benefit of being portable.

As the market declined, the number of manufacturers making radial arm saws for home use dwindled. Today, there are only a couple of 10" models left on the market.

This brings us to the main reason we don't ever show radial arm saws in *Woodsmith*. They simply aren't as commonly owned as they were at one time.

DIE-HARD FANS. However, while they may have declined in numbers, radial arm saws continue to have a loyal following, and for good reason.

When properly adjusted, radial arm saws excel at making crosscuts and miter cuts. Many people prefer a radial arm saw over a table saw for these types of cuts because the workpiece remains stationary while the blade is pulled through the wood.



Another area where radial arm saws come in handy is cutting dadoes. Since the blade is above the workpiece rather than below it, you have a clearer view of what you're doing than you do with a table saw.

But when it comes to ripping, there's just no contest between a radial arm saw and a table saw. While it's possible to make rip cuts on a radial arm saw, a table saw is a much more efficient (and safer) choice.

BEST OF BOTH WORLDS. Of course, using a radial arm saw doesn't have to be an all or nothing proposition. If your budget and shop space allow, it's great to own a table saw for ripping and a radial arm saw for crosscutting.

Do you have any questions for us?

If you have a question related to woodworking techniques, tools, finishing, hardware, or accessories, we'd like to hear from you.

Just write down your question and mail it to us: Woodsmith Q&A, 2200 Grand Avenue, Des Moines, Iowa 50312. Or you can email us the question at: woodsmith@woodsmith.com.

Please include your full name, address, and daytime telephone number in case we have questions.

Sources

SPIRAL FLUTE ROUTER BITS

Spiral flute router bits are a must-have in any woodworker's shop. Fortunately, they're pretty easy to find. Most router bit manufacturers offer a variety of spiral flute bits, and you can order them through a number of woodworking supply companies, such as those shown in the margin at right.

BEADLOCK PRO

The *BeadLOCK Pro Joinery Kit*, featured in the article on page 12, is available exclusively through *Rockler*. The kit (37801) includes the jig, drill bit, stop collar, 3/8" drill guide, and 3/8" paring guide. It sells for approximately $120. The 1/4" (39882) and 1/2" (36546) accessory kits can be purchased separately for around $40 each.

Rockler also carries all three sizes of the *BeadLOCK* tenon stock, as well as the special router bits for making your own tenons.

COASTER CENTERPIECE

Aside from the wood, the only other item you'll need to build the coaster centerpiece on page 16 is some 1/8"-thick cork sheet. Many craft and fabric stores sell cork sheet. But if you're unable to find it locally, you can order it online from *Joann Fabrics* (1091651).

I finished the centerpiece with a couple coats of sprayed lacquer. The only thing to point out here is that you'll want to glue the cork to the coasters after finishing.

COFFEE TABLE

Other than some screws, there isn't any hardware required to build the coffee table on page 20. But you will need a few turned wood parts. I purchased the wood knobs from *Lee Valley* (02G10.35). And the bun feet are available from *Classic Designs by Matthew Burak* (465-BFX.PI).

To give the coffee table an aged look, I used a multi-step finishing process. To start with, I lightly sanded the corners and edges of the table, particularly at those spots where you would expect to find the most wear.

Next, I applied a wood conditioner to prevent the pine from blotching. This was immediately followed up with a coat of *General Finishes' Seal-a-Cell Stain (Pecan)*.

After the stain was dry, I sprayed the table with a sealer coat of lacquer. Then I wiped on a coat of *General Finishes' Gel Stain (Java)* as a glaze. Simply wipe the stain on and then wipe it off again, allowing some to remain in the recesses and corners.

Once the glaze had dried, the last step was to spray on a couple finish coats of lacquer.

LIBRARY STAND

You'll need just a handful of hardware to build the Craftsman-style library stand on page 32. The no-mortise hinges (00H51.22), hinge screws (01Z10.41) and cup pull (02W36.85) were purchased from *Lee Valley*. The stem bumpers are from *Rockler* (28373).

When it came time for finishing, I stained the library stand with a mix of one part *General Finishes' Light Oak* and one part *General Finishes' Honey Maple*. Then I sprayed on a couple coats of lacquer.

BRUSH CARE

Aside from the appropriate solvent (and some self-discipline), the only tool you may need to keep your finishing brushes in good order is a brush comb. You can find these at most paint stores. W

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MAIL ORDER SOURCES

Project supplies may be ordered from the following companies:

Woodsmith Store
800-444-7527
Spiral Flute Router Bits

amazon.com
Spiral Flute Router Bits

Classic Designs by Matthew Burak
800-748-3480
tablelegs.com
Bun Feet

Joann Fabrics
888-739-4120
joann.com
Cork Sheet

Lee Valley
800-871-8158
leevalley.com
Cup Pull, Hinge Screws, No-Mortise Hinges, Spiral Flute Router Bits, Wood Knobs

Rockler
800-279-4441
rockler.com
BeadLOCK Accessories, BeadLOCK Pro Joinery Kit, Spiral Flute Router Bits, Stem Bumpers

Woodcraft
800-225-1153
woodcraft.com
Spiral Flute Router Bits

Woodworker's Supply
800-645-9292
woodworker.com
Spiral Flute Router Bits

looking inside

Final Details

▲ *Library Stand.* This handsome library stand has all the details you'd expect in a Craftsman-style project — quarter-sawn oak, mortise and tenon construction, and rows of narrow, square spindles. Turn to page 32 to read more about how to build it.

▲ *Coaster Centerpiece.* A coaster will always be within reach with this stylish centerpiece. The individual coasters nestle in a grid on the bottom of the tray. Plans begin on page 16.

► *Coffee Table.* With its generous size, this coffee table provides an attractive focal point in any living room. But it's more than just a table. Drawers on one side and open compartments on the other offer plenty of storage space. Take a look on page 20.