TOOL REVIEW: 9 Router Tables Under $300

WORKBENCH™

WOODWORKING TO IMPROVE YOUR HOME

Storage with Style!

Cedar Garden Shed

Plus:

- Stack 'em Up Storage Bins
- Trouble-Free Pocket Doors
- 5 Energy-Saving Tune-Up Tips

www.WorkbenchMagazine.com Nº 267 September/October 2001

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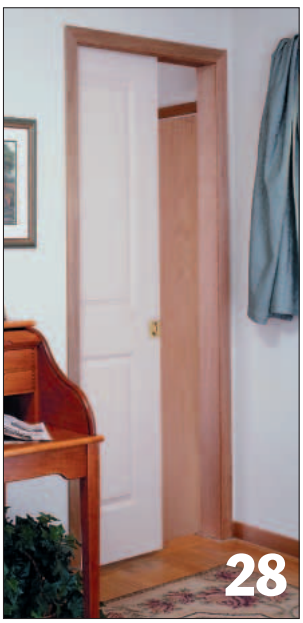

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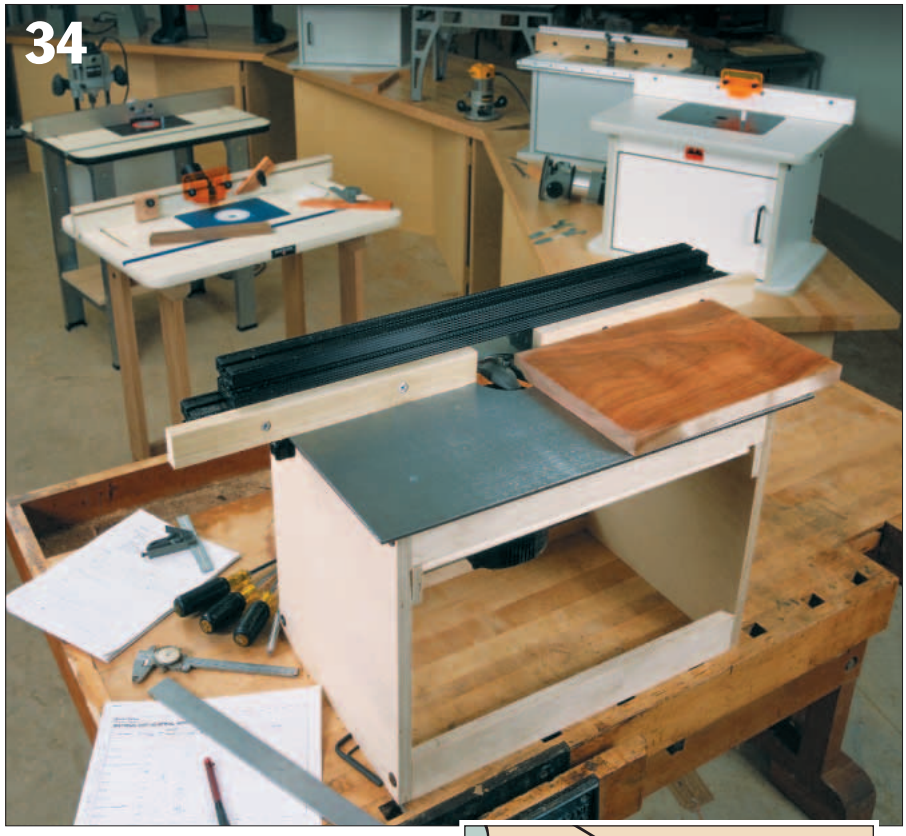

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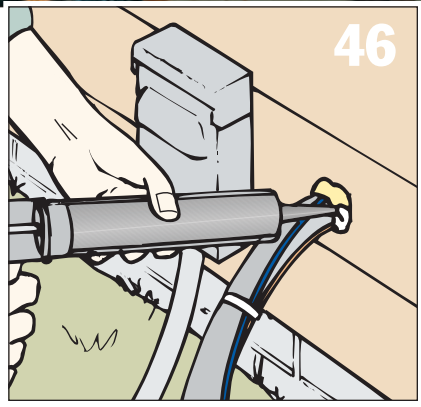

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EDITOR'S NOTES

You're right, it's an eyesore. But even a rusty metal shed provides much needed storage and protection for a lawnmower and garden tools. And with the right amount of tugging and pushing, it always seems like you can get the doors to lurch open or shut (at least most of the way).

GARDEN SHED. As crazy as it sounds, a dilapidated old shed like the one shown here actually turned out be a great inspiration for the feature project in this issue — a Garden Shed. (At one time, I actually had a similar shed to the one up above.)

So when we set about designing our Garden Shed, it only took a few minutes to put together a list of "must-have" features — lots of storage, plenty of headroom inside so there's no need to hunch over to get a tool, and a pair of full-size hinged doors that you can open and shut without a struggle.

In addition to all of the practical considerations, I wanted an attractive *looking* shed, as well. If you check out the front cover of this issue, I think you'll agree that's exactly what we got.

Now granted, our shed costs a bit more than the metal sheds and barn-style wood sheds that are available at many home centers. And unlike those ready-to-assemble kits, building it is more than a one-day job.

But I think you'll agree, the three weekends and $900 it required to build our shed were definitely worth the time and money. (We used cedar siding, but substituting another material will reduce the cost considerably.)

NEW FACE. Well, we're growing again. Jim Downing has joined the *Workbench* team as our Sr. Design Editor. Jim has been designing and building furniture and home improvement projects for over 25 years. (He even built his own sailboat.) He'll be working on some special projects, which I'll be telling you more about in the next few issues. For now, let's just say we're glad to have him aboard.

Tim

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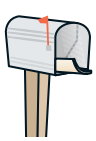

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Questions & Answers

Troubleshooting Fluorescent Lights

Q The fluorescent light in my shop flickers quite a bit. And it buzzes constantly. Can you tell me what's wrong?

Dan Stromberg
St. Joseph, MO

A Most problems with fluorescent lights are caused by one of three things: a bad tube (or poor connection between the pins and sockets); a broken starter (older models only); or a defective ballast, which feeds current to the sockets and tube.

BAD TUBE. Flickering is often the result of a tube that's going bad or isn't making good contact with the sockets on the ends of the fixture. Start by rotating the tube to determine whether the pins on the end are making good contact with the sockets. You'll also want to make sure the pins are straight and the sockets aren't broken. If the pins are bent, remove the tube and gently straighten any bent pins with a pair of pliers.

Sometimes it's difficult to tell that a tube is going bad just by looking at it. As a final check, try replacing it with a new one.

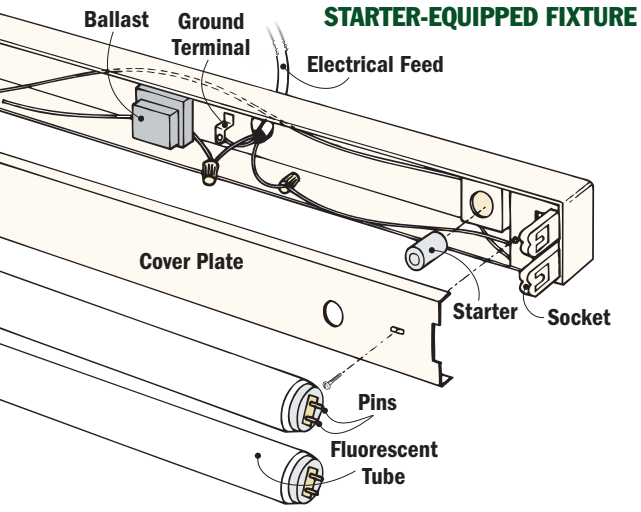
BAD STARTER. If that doesn't fix the flickering, you might have to replace the starter (if it has one). A starter-equipped fluorescent fixture is the oldest type. The starter (shown at left) is a small aluminum cylinder located near the sockets on one end. The starter provides a high-voltage jolt to get the gas in the tube glowing.

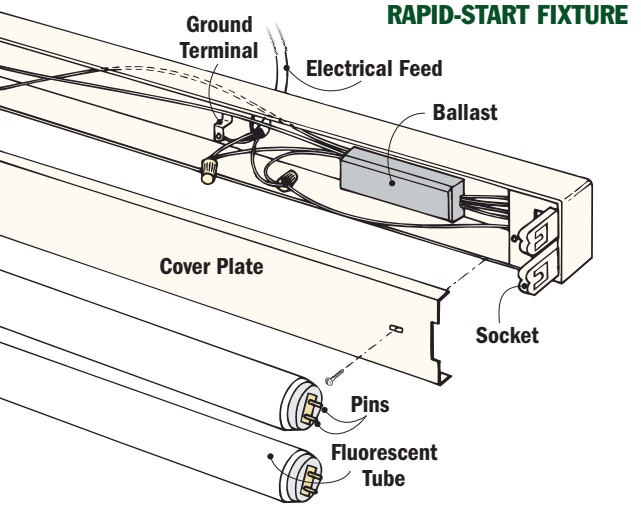
IMPORTANT: Make sure the power is *turned off* before checking the starter. To remove a starter, give it a quarter-turn counterclockwise and pull it out. After replacing the starter with a new one, restore power and test the light.

DEFECTIVE BALLAST. If a new starter isn't the answer, or you have a newer fixture without a separate starter (see *Rapid-Start Fixture* at left), the culprit is almost surely the ballast. A bad ballast will produce a low, steady buzzing sound, and tubes that glow only at their ends.

Ballasts can be easily replaced. Again, just make sure the power is *turned off*. You'll want to make a drawing of the wiring before disconnecting the ballast, too. Take the ballast with you to buy an exact replacement, then reconnect the wires according to your drawing.

It's a good idea to compare prices before replacing a ballast. In some cases, a low-cost shop light is often less expensive than buying a whole new ballast.





SHARE YOUR QUESTIONS!

If you have a question about woodworking or home improvement, write it down and mail it to WORKBENCH Q&A, 2200 Grand Ave., Des Moines, IA 50312. Please include your name, address and daytime phone number in case we have any questions for you. You can also reach us via Fax at (515) 283-2003 or by email message at editor@workbenchmag.com. If we publish your question, we'll send you one of our handsome and fashionable *Workbench* caps.

Determining Lefthand vs. Righthand Door Swing

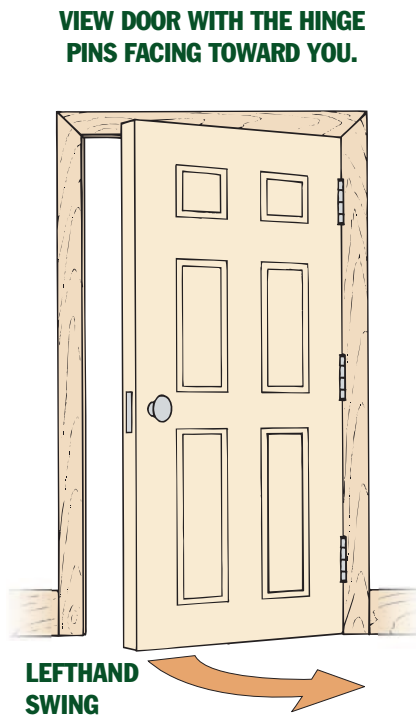
Q *I'm shopping for prehung doors for a couple rooms in my home. But I didn't realize that prehung doors are sold as either lefthand or righthand swings. I'm not sure which I need. Can you explain an easy way to remember this?*

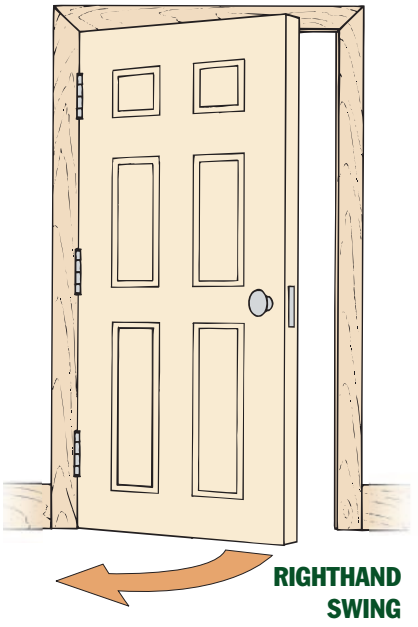
Kim Washington
Portland, OR

A If you take a look at the drawings below, you'll see a quick reference to help you determine which type of prehung door to buy. The important thing to keep in mind as you're shopping and talking with a distributor is to visualize the door after it is hung with the hinge pins facing *toward* you.

LEFTHAND SWING. With that in mind, a door with a lefthand swing will have the doorknob on the left, and it will swing open toward you.

RIGHTHAND SWING. On a righthand swinging door, the doorknob will be on the right. Again, the door will swing toward you.





Replacing a Broken Turned Spindle

Q *One of the turned spindles on the back of my dining room chair broke. Is there any way I can replace it without having to take the top rail, seat and other spindles completely apart?*

David Gergan
via the Internet

A The key to replacing a turned spindle without having to dismantle the entire chair is to create extra clearance in one of the mortises. That will allow you to fit a new spindle into place between the top rail and the seat without having to force it into place.

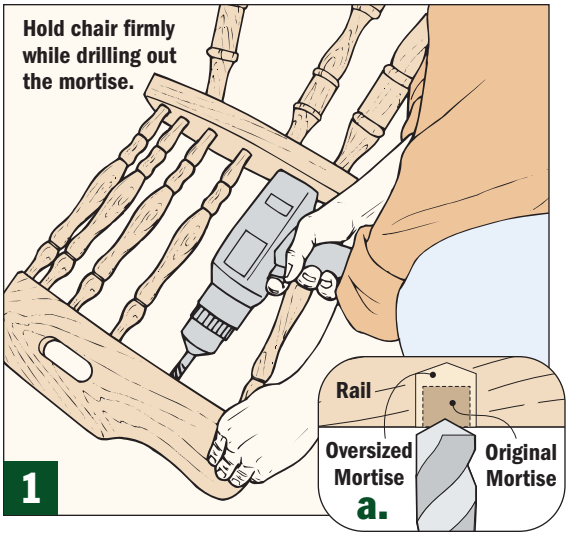
The best way to do this is to cut an oversize mortise in the top rail. This way you can push the spindle up into the rail far enough for the lower end to clear the seat. Since the mortise in the top rail is underneath, the repair will be less noticeable.

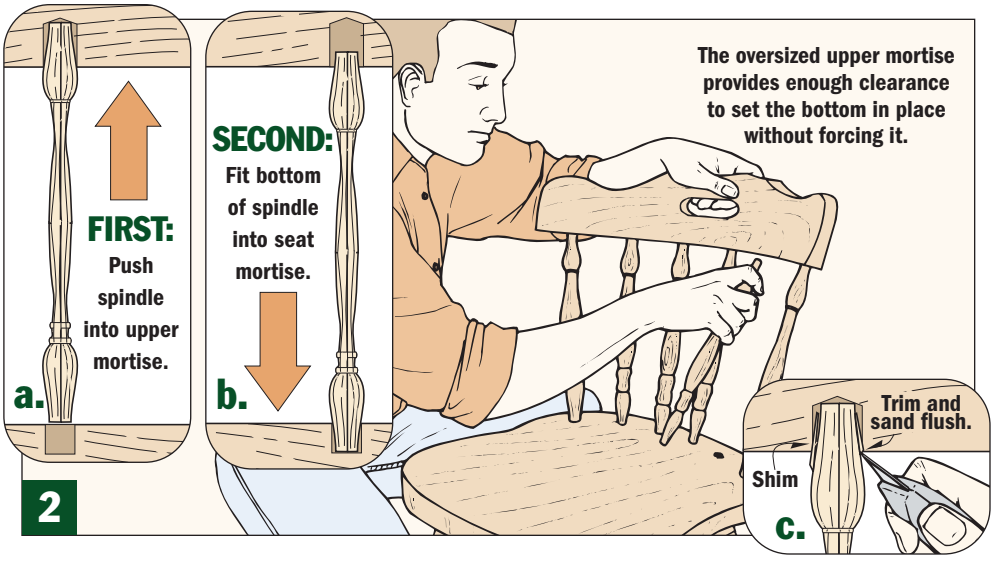
REMOVE BROKEN SPINDLE. The first step is to remove the broken spindle by gently twisting it to break the glue seal inside both mortises. If you're careful enough, you should be able to remove the spindle without breaking it off inside the bottom mortise. If it does happen to break off, you'll have to drill it out.

CREATE CLEARANCE. Next, create the extra clearance needed in the top mortise using a handheld drill *(Fig. 1)*. You'll want to drill about a $^1/_4$"-$^1/_2$" *deeper* and $^1/_8$" *wider* than the original mortise, as shown in *Figure 1a*. This will create just enough clearance for the tapered spindle to fit up into the mortise.

FITTING THE SPINDLE. To install the new spindle, first apply glue into both mortises. Next, push one end of the spindle into the upper mortise as far as possible *(Figs. 2* and *2a)*. Then fit the other end into the mortise in the chair seat (*Fig. 2b*). You can clean up any glue with a damp cloth.

SECURING THE SPINDLE. To help secure the spindle, glue a couple of shims around it in the upper mortise. Finish up by trimming the shims *(Fig. 2c)* and sanding the repair flush with the rail.





Every day, experts at The Home Depot are asked hundreds of questions about home improvement — everything from flooring and cabinetry to lighting and lawn care. In this issue, they talk about how easy it is to organize your closets.

Question: *Are those prefabricated closet organizer kits difficult to install?*

Answer: "Not really." Most closet organizer kits are made of either enameled steel, plastic-coated wire, plywood, or sometimes particleboard. Nearly all of them can be installed in less than a weekend using basic tools.

Although each closet system will be slightly different, here are the steps involved in a typical installation.

Mark Shelf Locations on the closet walls by measuring up from the floor and drawing a level line for each shelf. Drill a series of holes to attach the shelf clips. Space them according to the manufacturer's instructions.

Fit Shelf Supports or, with some kits, the shelves themselves into the clips.

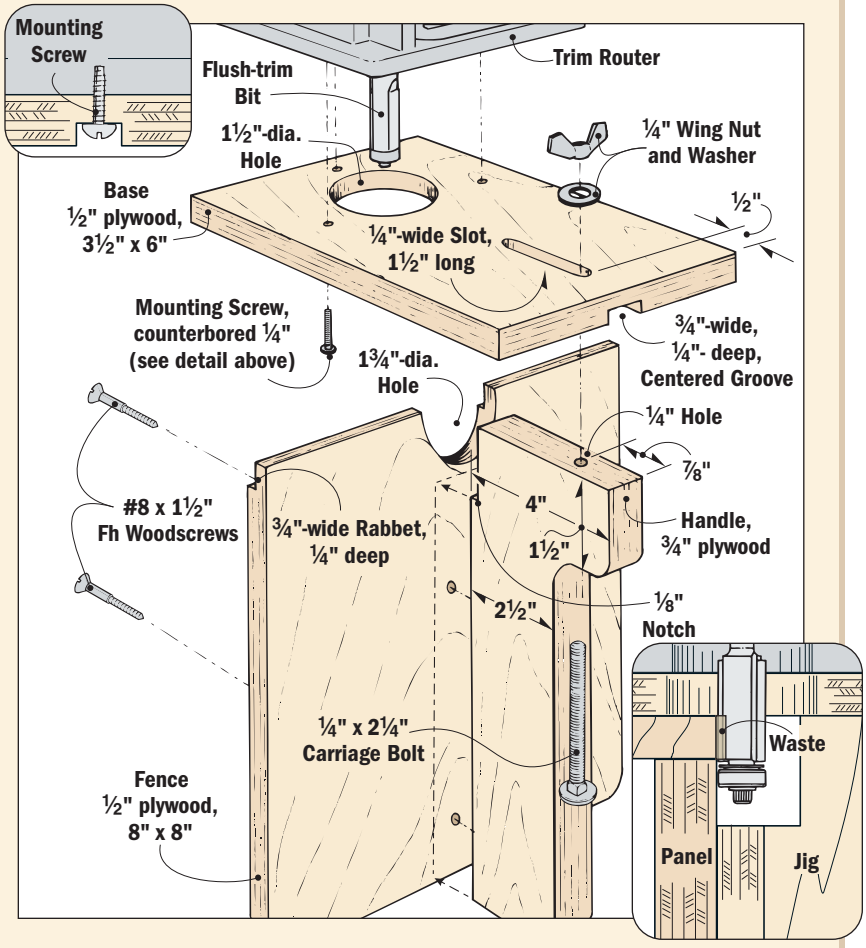
Fasten Uprights to the front edges of the supports or shelves. Be sure to check them with a level to make sure that they're plumb before you tighten them permanently in place.

Cut the Shelving and Clothes Rods to the desired length with a hacksaw. You can install mounting brackets on the side walls and fit the shelves and rods into place.

To learn more about closet organizer kits, check out www.HomeDepot.com

Tips & Techniques

FEATURED TIP



Flush-Trim Jig

I've been building several projects using plywood lately, and that has meant applying a lot of solid-wood edgebanding. So much, in fact, that I bought a trim router and a flush trim bit especially to rout all the edgebanding flush with the face of the plywood.

The only problem I was having was that the router would tip very easily as I tried to balance it on the narrow edgebanding. Each time it tipped, another piece of banding (and the plywood it was glued to) was ruined. My solution was to add an auxiliary base and a fence to the router to make it less "tippy."

I built the jig from — what else — plywood. It has three parts: a base, a handle, and a fence.

The base has a $1^1/_2$"-dia. hole cut in it where the bit comes through. There's also a groove in the underside of the base for the handle to set in and an adjustment slot (see the illustration, above).

The handle is notched at the top inside corner to allow for bit clearance. It's connected to the base with a carriage bolt, washer, and wing nut.

Finally, the fence is rabbeted at the top to provide a recess for the edgebanding. It also has a half-circle cutout at the top for bit clearance. It's screwed to the handle with a couple of woodscrews in countersunk pilot holes.

To adjust the jig for trimming, position the fence against a piece of plywood that *is not* edgebanded. Then adjust the base until the bearing *just makes contact* with the plywood. Now lock the fence in position by tightening the wing nut. The jig is now set up to trim the edgebanding perfectly.

To use the jig, let the base ride on the edgebanding and hold the fence firmly against the plywood as you rout from left to right.

John Samuelson
Tuscon, AZ

The Stanley Works awards $250 in Stanley tools for the featured tip in each issue.
This issue's featured tip was submitted by John Samuelson of Tuscon, Arizona.

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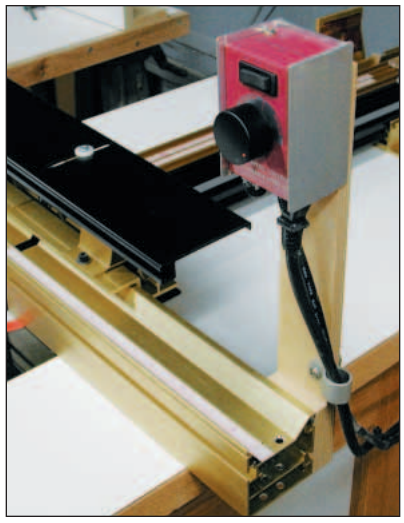
High-mounted Switch for Convenience & Safety

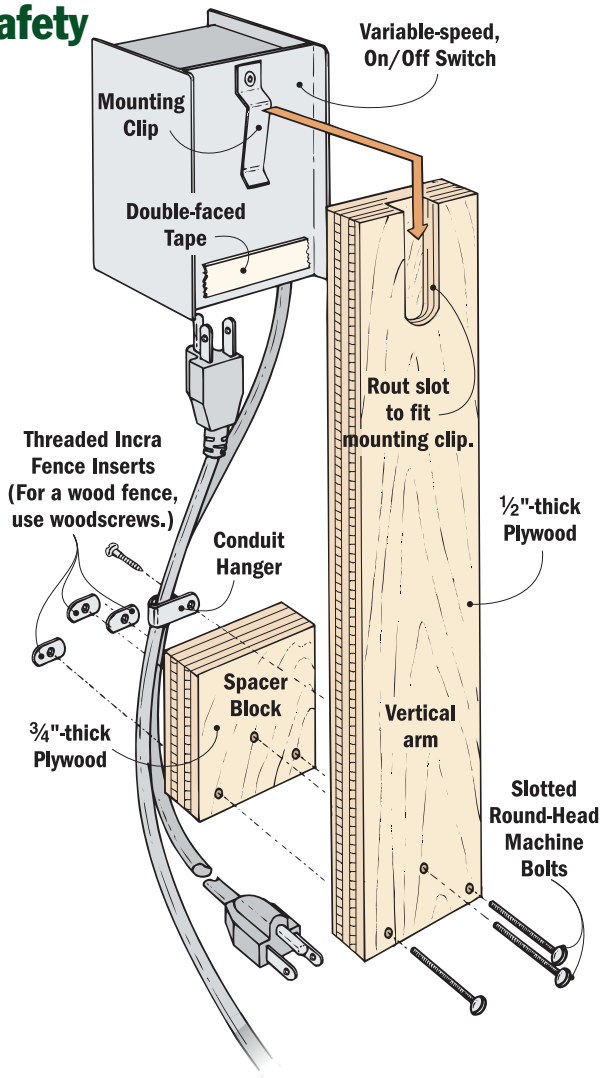
Some time ago I purchased a planer that had the switch mounted *above* the tool rather than underneath like most models. At first, it was difficult to get used to this unusual design. In time, though, I realized that the switch was much more convenient than reaching under the tool to turn it on and off. I also like that the switch is easy to get to if I have to turn the machine off quickly.

I came to like the design so well that I built a similar switch for my router table. It's actually just a variable speed switch that I mounted to a $^1/_2$" birch plywood arm (see photo and illustration). I fastened the arm to my router table fence with a spacer block in between them. That way the switch moves with the fence but is still set back out of the way.

The switch I bought has a belt clip on the back that I used to clip the switch to the arm. Then I used double-faced tape to secure the bottom. To keep the cords out of the way, I screwed them to the arm with a conduit hanger.



Loyal Marsh
Fritch, TX



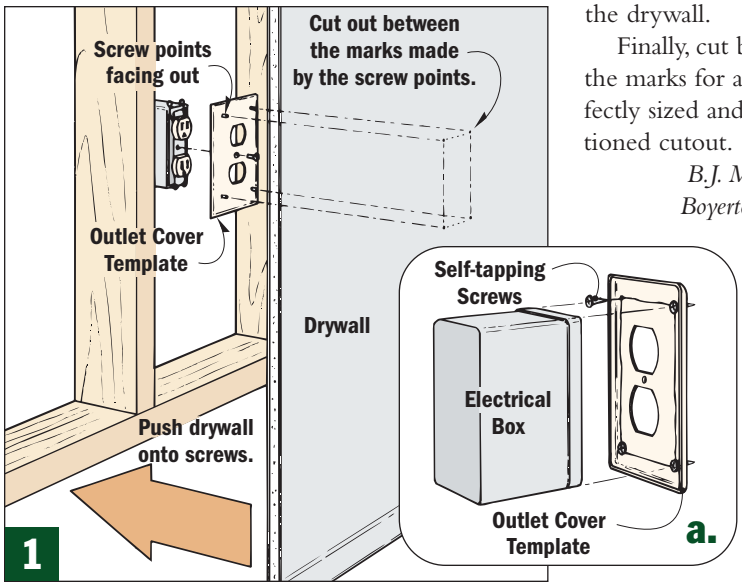
Can't-Miss Drywall Cutout Technique

One of the hardest parts of installing drywall is accurately cutting out the openings for electrical boxes.

My solution is is to use a template made with a plastic outlet cover plate. Make the template by tracing the shape of the electrical box onto the back of the cover plate. Then drive a screw through the plate at each corner of the outline (*Figs. 1* and *1a*). Now attach the plate to the electrical box. Set the drywall in position and press it against the screw points to make marks on the back of the drywall.

Finally, cut between the marks for a perfectly sized and positioned cutout.

B.J. McGinnis
Boyertown, PA



SHARE YOUR TIPS, JIGS, AND IDEAS

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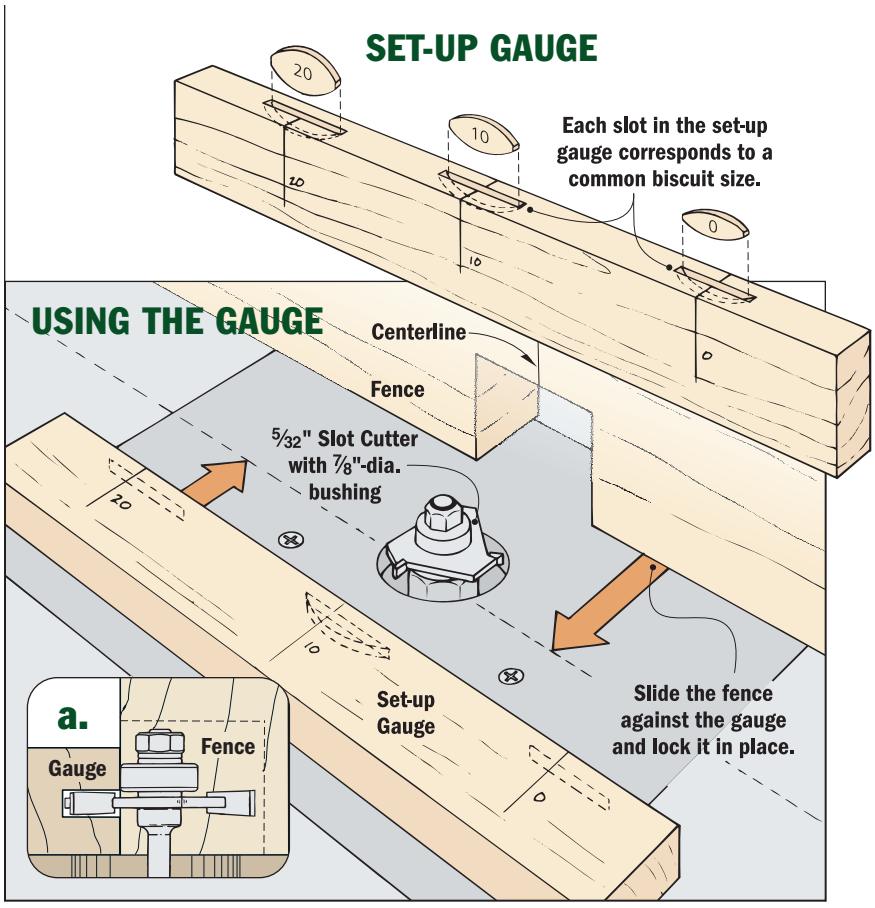


Set-up Gauge for Biscuit Routing

I suppose everyone knows that a table-mounted router with a slot-cutting bit is a great way to cut biscuit slots. But I wonder how many woodworkers have an easy way to set up their router for perfect biscuit slots every time.

My trick is to use a set-up gauge that I designed for this very purpose. The gauge is just a board with three biscuit slots cut in it. Each slot corresponds to a biscuit size: #0, #10, and #20 (see the drawings above).

There are three important elements of the gauge that make it work. First, it should be the same thickness as the stock you're going to biscuit joint. Second, the slots must be *centered in the thickness* of the gauge. Third, each slot should be cut slightly deeper than *half* the width of its corresponding biscuit. (This allows room for excess glue.)

Once you've made a gauge to those guidelines, setting up your router for biscuit cutting is easy. Start by setting the bit height. Place the gauge with the correct biscuit size next to the bit. Then raise the bit until the slot in the gauge just slides over it. Next, set the depth of cut by bottoming out the bit in the slot and locking the fence against the gauge.

To slot a workpiece, lay out the biscuit locations and push the stock into the bit until it stops against the fence *(Detail a)*. For the larger biscuits (#10 and #20) — and depending upon the diameter of the slot cutter — you may have to elongate the hole slightly by feeding the stock right to left after it's bottomed out against the fence. You could take the time to set up stop blocks for this, but I've always had good success by starting just slightly off-center and then finishing the cut approximately the same distance off-center on the other side.

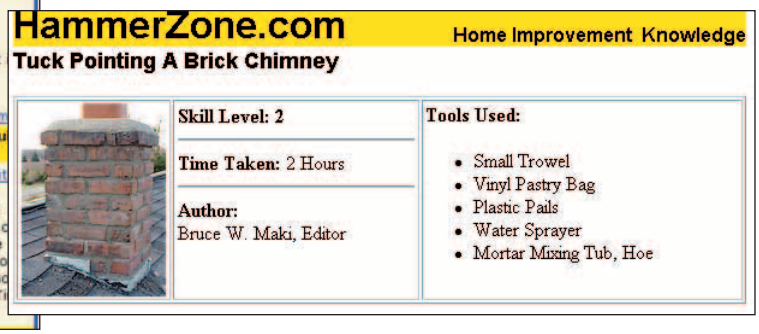
George Long
Macon, MO

HammerZone.com "Nails" Home Improvement

Home improvement is serious business, but that doesn't mean you can't have a little fun with it. And that's precisely what Bruce Maki strives for on his Web site: www.HammerZone.com.

His techniques and advice are sound, and that's important. But he also does a great job of blending the step-by-step details with wry humor. For instance, in an article about repairing a damaged power cable, Bruce begins by poking fun at himself for having drilled through the cable in the first place. Then he turns his mishap into a lesson for other DIY'ers before getting into the nuts-and-bolts of actually fixing the thing.

Personality aside, the site also has one of the best collections of home improvement content I've ever seen. The articles are written in a friendly, easy-to-read tone and leave you with the sense that you really could accomplish what you set out to do by just following Bruce's lead.



JeffGreefWoodworking.com Offers Instruction and Inspiration

Even if you've never heard of Jeff Greef, you may be familiar with his work. He's published over 100 articles in many popular woodworking and home improvement magazines.

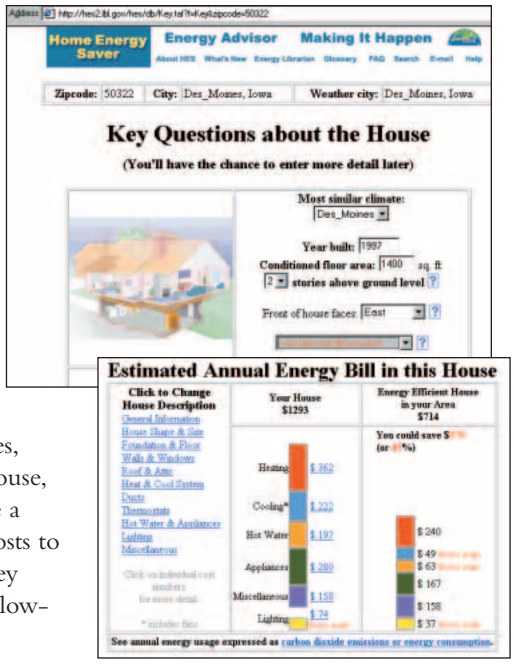
Take a quick look around Jeff's site (www.JeffGreefWoodworking.com) and you'll see why he's such a popular DIY writer. His knack for designing and building attractive projects and then explaining how he did it comes through in every article.

In the *Projects* section of the Web site, Jeff offers plans and how-to articles ranging from an elaborate rounded-glass display case to a corner shelf that can be built in a weekend.

Each article includes several drawings and photographs that clarify different parts of the process. Projects are divided into three categories: Furniture plans, technique plans, and home improvement plans.

The *Techniques* area is also excellent. There are only four articles in here, but they're all good. Check out the article on building curved cope and stick frames and you'll see what I mean. My only complaint is that new content doesn't show up very often.

Home Energy Tune-Up Sites



I spent a lot of time online researching *5 Energy-Saving Tune-Up Tips* on page 46 — looking for sites that offered relief from high energy costs.

Not surprisingly, there are more home energy audit sites out there than you can shake a utility bill at. The ones that I found most helpful were those that gathered specific information about my energy consumption — such as the age of the house, appliance types, how many people live in the house, and so on — and then gave me a report comparing my energy costs to an "energy-efficient" home. They included recommendations for lowering my monthly utility bills.

In particular, I liked www.HomeEnergySaver.lbl.gov. This site is a product of the U.S. Department of Energy and the U.S. Environmental Protection Agency.

The *Energy Advisor* feature on this site is the most complete online energy audit I came across and is simple to personalize. Also, after you've completed the audit, you can research ways to improve energy efficiency in the site's *Energy Librarian* or *Make It Happen* sections. Once you choose which improvements make the most sense for your home, you can revisit your original audit (the site saves the information and gives you a session number) to estimate your potential savings based on the upgrades.

Some other sources of home energy information are the Web sites of local utility companies, many of which also include online audit features. These are also the best place to learn about local incentives for making your home more energy efficient. Check your utility bill for a Web address or call the company.

A couple of other good sites are:

- The Alliance to Save Energy www.ASE.org
- Energy Guide www.EnergyGuide.com

WEB WISDOM

WD-40

So what does WD-40 stand for anyway? Well, here's the official answer from the www.WD40.com history section:

In 1953, a fledgling company called Rocket Chemical Company and its staff of three set out to create a line of rust-prevention solvents and degreasers for use in the aerospace industry, in a small lab in San Diego, Calif.

It took them 40 attempts to get the water displacing formula worked out. But they must have been really good, because the original secret formula for WD-40 — which stands for Water Displacement perfected on the 40th try — is still in use today.

Visit the site for more company history or to join the WD-40 Fan Club. No kidding, they have a fan club.

In The Shop

Gluing Up Wood Panels

Pine boards have a wide range of colors and grain patterns to consider. Pick boards that are similar in color and grain when gluing up.

Gluing up the solid wood panels for the Stackable Storage Bins (page 40) isn't a hard job. It's just a matter of sorting and shuffling boards to make a panel that looks good and is structurally sound.

GRAIN PATTERN

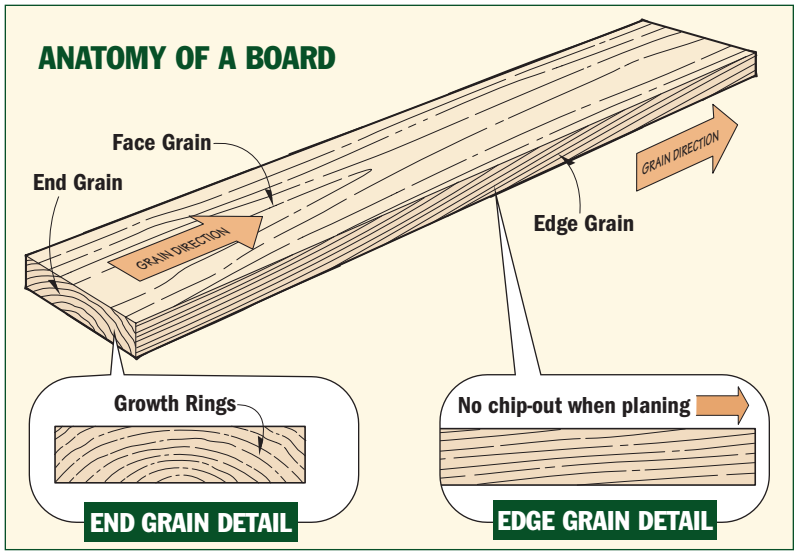
The first step is to look at the grain pattern. This is actually a surface reflection of what is going on inside the board *(Anatomy of a Board)*.

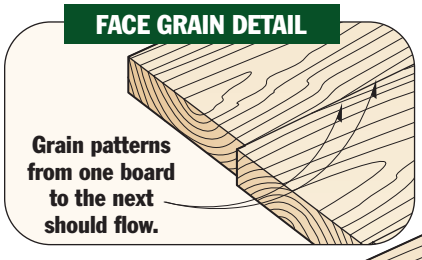
FACE GRAIN. This is the most visible part of the panel you're creating. The goal here is to place boards with similar surface patterns and colors next to each other (*Face Grain Detail*, below).

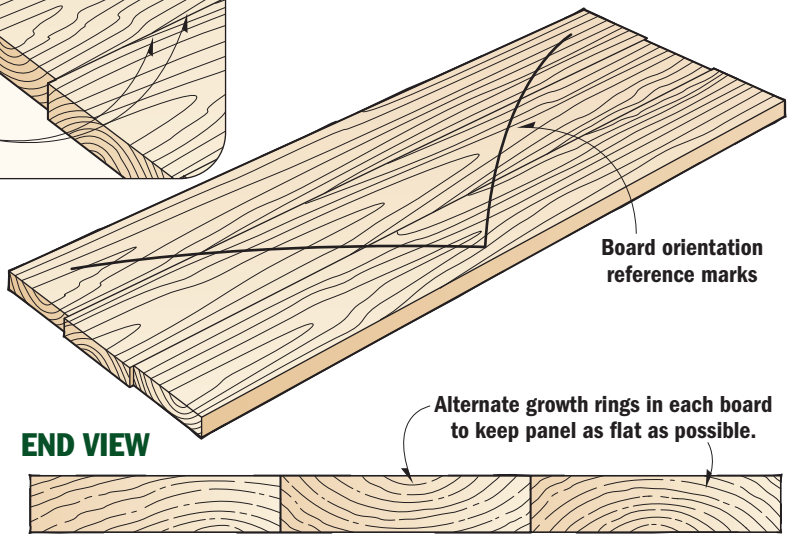
END GRAIN. Looking at the *ends* of the boards will reveal the growth rings (*End Grain Detail,* above). To keep the panel flat, you'll want to alternate the directions of the growth rings as you match boards (*End View* below).

EDGE GRAIN. The next thing that you'll want to consider is the *edge* grain direction. The idea here is to have the edge grain of each board running in the same direction. This will make for easy planing if it's required. Why? Because just like a feather, if you stroke it in the right direction, it won't ruffle, or in this case chip out *(Edge Grain Detail)*.

To be honest, I place the edge grain problem last in line of priorities for several reasons. You can drive yourself crazy pondering the smallest of potential problems that could arise. If needed, I use a belt sander for flattening the panel, which won't chip out the surface of stubborn areas.







SAVE YOUR WORK. You've created a puzzle out of a pile of boards that, if you're not careful, will disappear right in front of your eyes. Before moving on to the next step, mark the panel in a manner that will help you remember how the boards fit back together *(Matching Boards)*.

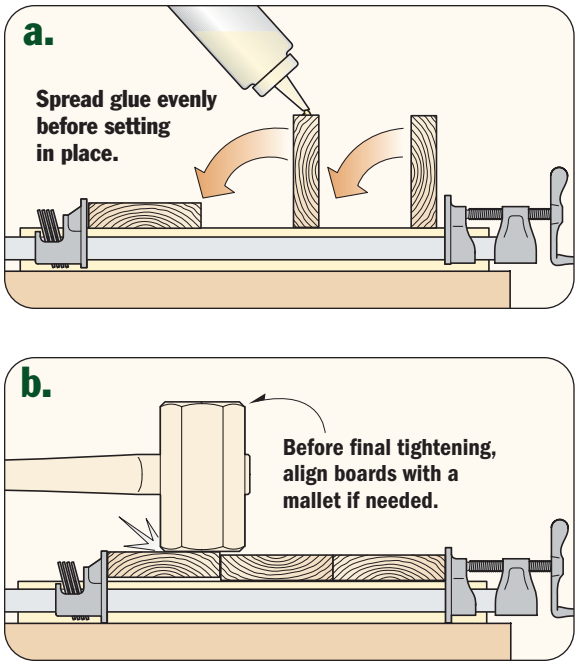
PREPARING EDGES. Now that you have all of your matching panels marked for orientation, you can work on the boards individually. To ensure that you end up with a flat panel, the edges of the boards must be square and smooth.

DRY RUN. A dry run serves as a wake-up call for several things. Do you have enough clamps? Is there a lot of bowing in your panels as you tighten the clamps? This will be partially solved by clamping in an over and under pattern, *(Glue-Up)*. Also, it will remind you to have a wood mallet on hand to "persuade" the boards into alignment *(Glue-Up, Detail b)*.

GLUING UP. Now you're ready for the real deal — gluing up the panel. Place clamps underneath the panels, and flip the boards on edge to apply glue *(Glue-Up, Detail a)*.

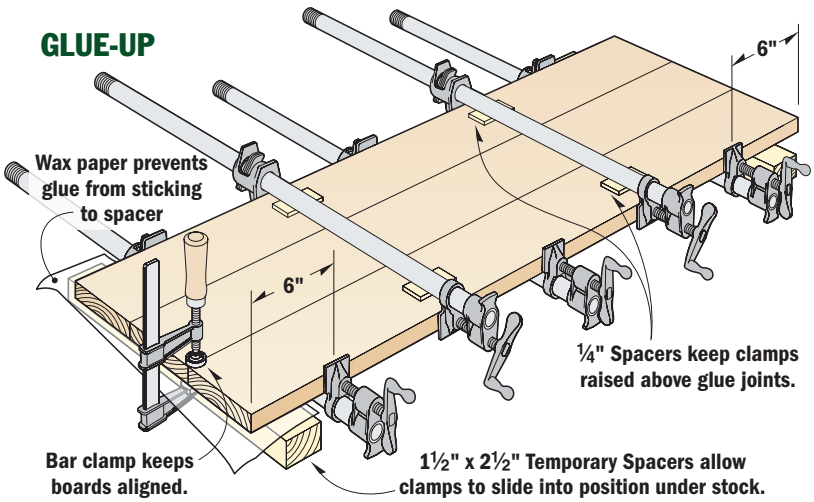
Once the glue is applied, spread it in a thin film. Next, lay the boards back in position. Now, set the

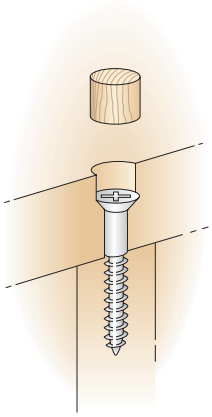
remaining clamps on top of the panel. Note: the clamps should be about 6" in from the ends, and no more than 12" apart across the rest of the panel *(Glue-Up)*.



CLAMPING UP. It's best to begin applying pressure from the clamps at the center of the panel and work your way out. Round one of tightening should be fairly light. This way, if things begin to slide around, you can use your mallet to put them back in place. A neat trick for aligning shifting boards is to use a bar clamp to hold them together. Once everything appears to be flat and flush, you can add more pressure to the clamps. Be careful because too much clamping pressure can starve the joints of glue and make for a weak spot.

I usually pull off the clamps in about one hour, but I wait a full day before doing any further work on the panels.





Using Dowels as Hole Plugs

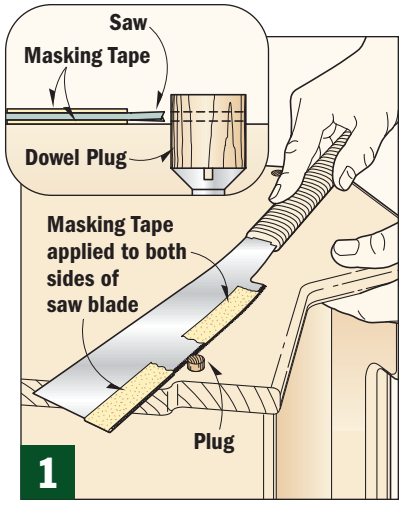
Installing a wood plug is a handy way of hiding screws and giving a project a more finished appearance. The article on Stacking Storage Bins (page 40) is a perfect example. Each hole is counterbored to accept a wood plug that conceals the screw.

There are several ways to plug these holes — pre-made plugs bought at your local woodworking supply store, shop-made plugs using a plug cutter in your drill press, or using hardwood dowels. I chose hardwood (birch) dowels for this project. When stained, the birch dowels contrast with the lighter colored pine sides.

After cutting enough 1/2"-long dowels for the whole project, place several dabs of glue in the hole. Then twist and press the dowel into the opening until it bottoms out on the screw. This will spread the glue onto the plug and down into the hole, which means less glue clean-up on the surface.

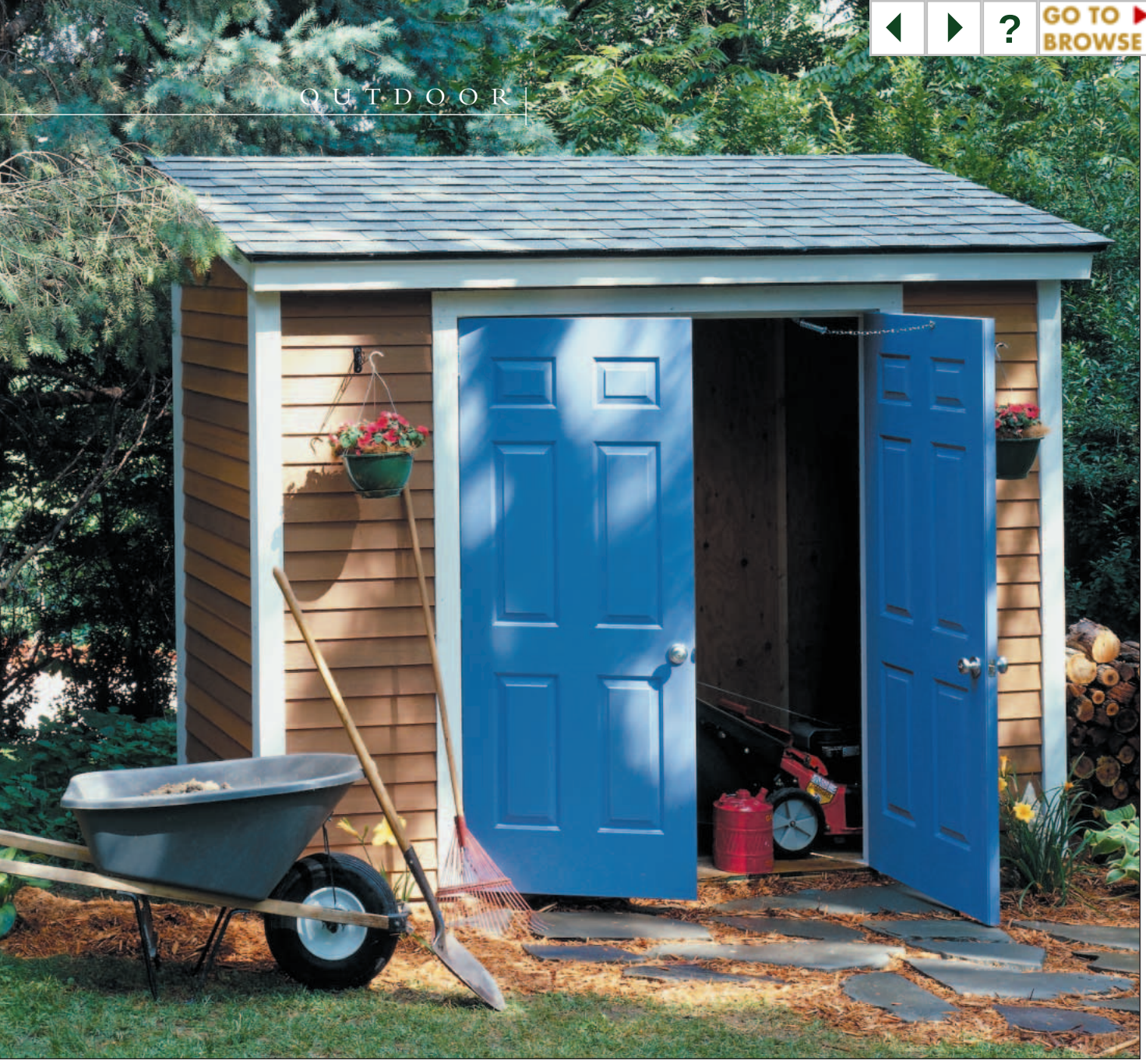
Cutting the plugs flush to the surface is a two-step process. First you'll want to trim the plug with a hand saw as close to the surface as possible. But you don't want to scratch the surface. So, a neat trick here is to use several pieces of masking tape as a shield between the saw and the side of your project *(Step 1)*.

Finally, use a sanding block to remove the saw marks *(Step 2)*.



To avoid scratching your project, use masking tape on a hand saw to raise the saw teeth above the surface.

Use a block of wood with self-adhesive sandpaper to sand the plug flush and smooth to the side of the bin.



Garden Shed

Not too big . . . not too small. If there's a perfect-sized, do-it-yourself shed, this is it. Plus, the cedar siding makes it look great, too.

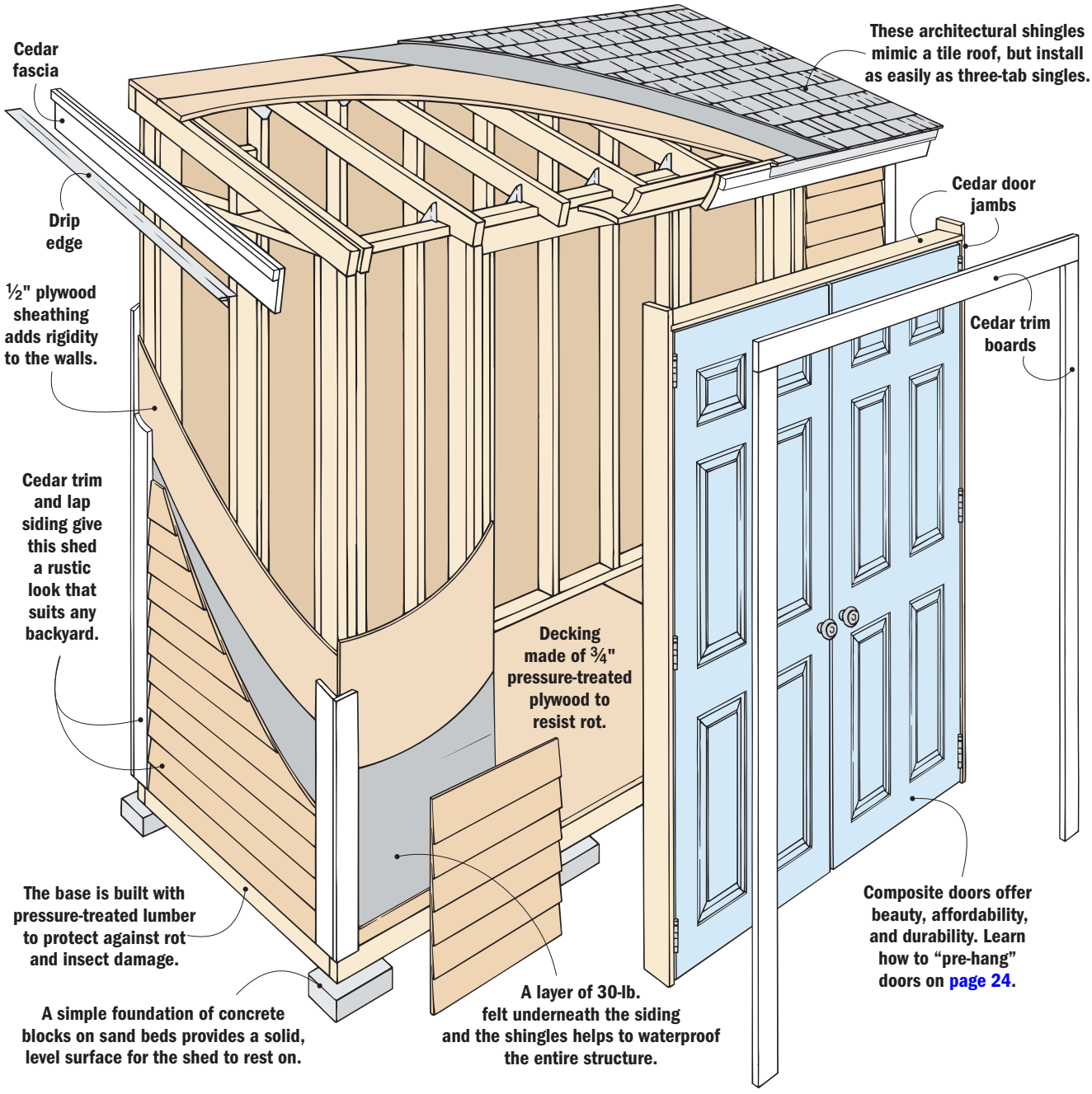
It's hard to believe that a shed this good-looking is so easy to build. But it is. In fact, you can probably build the entire shed — start to finish — in three or four weekends.

As attractive as it is, what I like even more about this shed is it doesn't take up much space in the yard. It's four feet deep, 10 feet long — just the right size to set in the back of the yard or against a house.

Even with its relatively small footprint, there's still lots of storage for a lawnmower, wheelbarrow, and garden tools. And with full-size double doors, there's no need to wrestle stuff through a narrow opening. Not to mention that *you* won't have to duck down to get inside.

But to be honest, a project like this shed offers a lot more than storage. It's also a good opportunity to try your hand at different construction techniques.

MAIN CONSTRUCTION VIEW Overall Dimensions: 4' Wide x 10' Long x 8'10" Tall



MATERIALS LIST & SUPPLIES

BASE

A (2)	Rim Joists*	1½" x 3½" x 120"
B (9)	Floor Joists*	1½" x 3½" x 45"
C	Decking*	¾" ply. (1¼ sheets)

WALLS

D (2)	Top Plates (Fr./Bk. Wall)	1½" x 3½" x 119"
E (2)	Top Plates (End Walls)	1½" x 3½" x 40"
F (2)	Bottom Plates (Fr./Bk. Wall)	1½" x 3½" x 119"
G (2)	Bottom Plates (End Walls)	1½" x 3½" x 40"
H (14)	Wall Studs (Fr./End Walls)	1½" x 3½" x 84½"
I (10)	Wall Studs (Bk. Wall)	1½" x 3½" x 95¼"
J (12)	Blocking (Fr./Bk. Wall)	1½" x 3½" x 16"
K (2)	Trimmer Studs (Fr. Wall)	1½" x 3½" x 81"
L (1)	Header (w/½" ply. spacer)	3½" x 3½" x 68¼"
M	Wall Sheathing	½" ply. (6 sheets)

ROOFING SYSTEM

N (2)	End Rafters	1½" x 3½" x 53"
O (6)	Common Rafters	1½" x 3½" x 53"
P (2)	Barge Rafters	1½" x 3½" x 53"
Q (2)	Fascia Boards	1½" x 3½" x 123"
R (4)	Rake Studs	1½" x 3½" x custom length
S (2)	Cedar Rake Boards	¾" x 5½" x 55½"
T (2)	Cedar Fascia	¾" x 5½" x 125"
U	Cedar Trim Strips (4 strips)	¾" x 1½" x 30 lin. ft.
V	Roof Sheathing	½" ply. (2 sheets)

TRIM & SIDING (All Cedar)

W (8)	Trim Board	¾" x 3½" x (see illus.)
X (1)	Door Casing (Top)	¾" x 3½" x 71½"
Y (2)	Door Casing (Sides)	¾" x 3½" x 79½"
Z	6" Lap Siding	187 sq. ft. of coverage
AA (1)	Soffit	¾" x 5" x 123½"

SUPPLIES

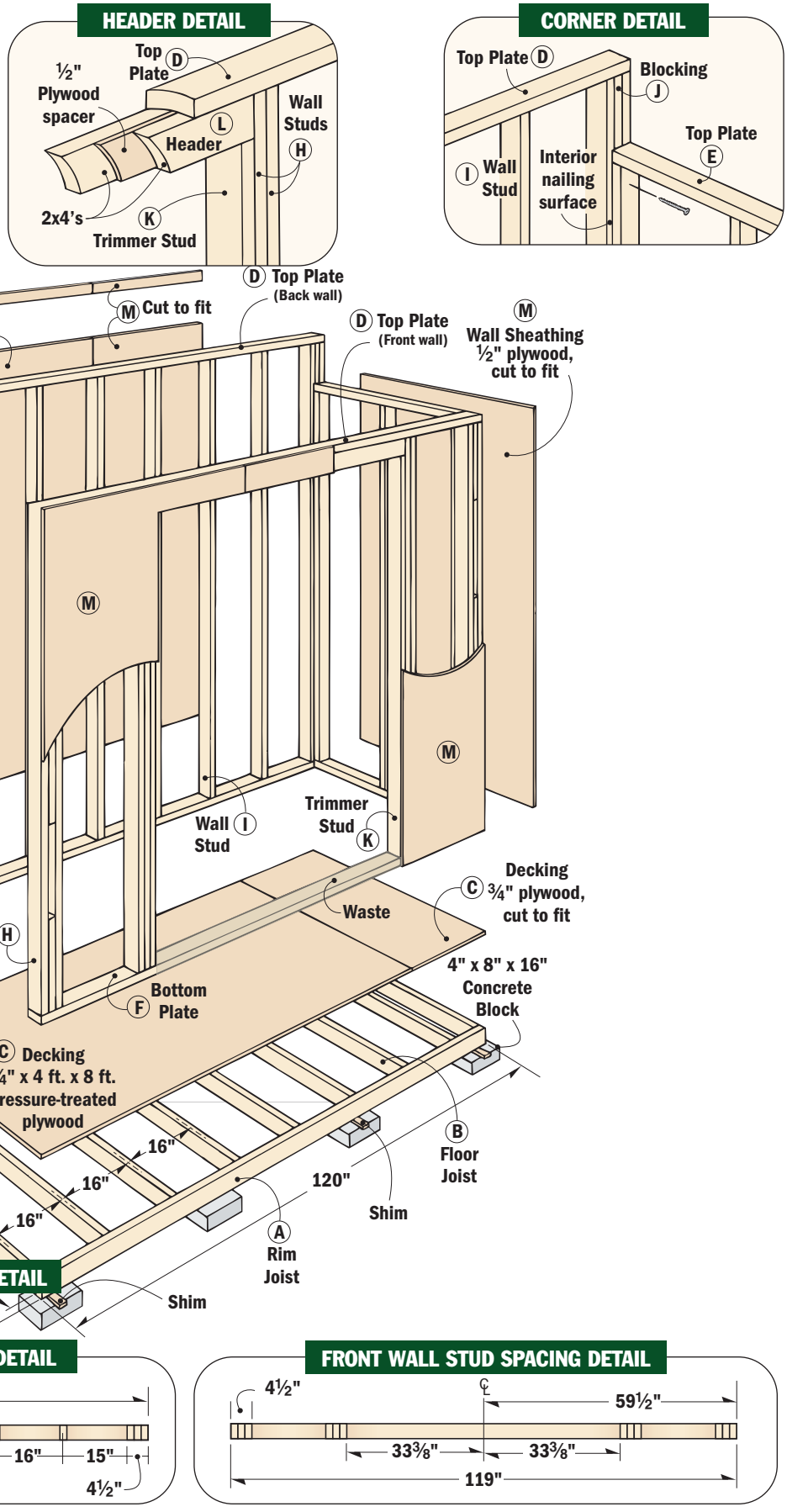
(8)	Concrete Blocks	4" x 8" x 16"
	Sand	1" bed under each stone
	Shims	As needed
	30# Felt	213 sq. ft. (1 roll)
	Drip Edge	⅜" x 3⅝" x 144"
	Shingles	2 bundles

*Indicates pressure-treated material

FRAMING CONSTRUCTION VIEW

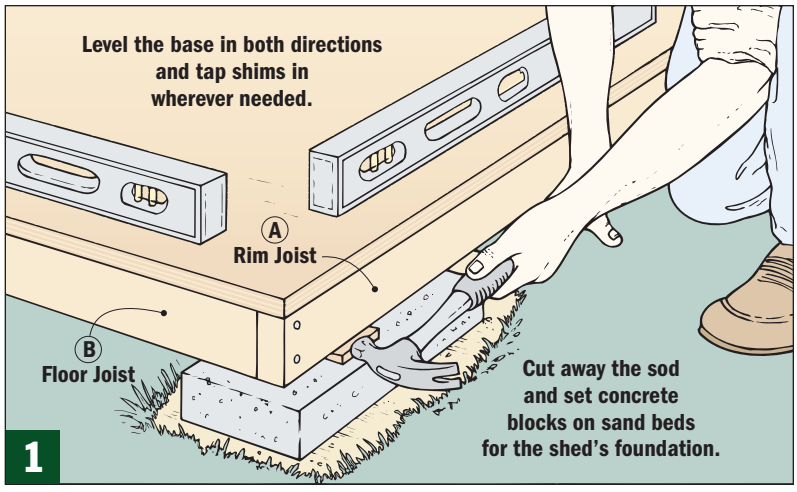
HARDWARE LIST

• 16d Common Nails (galv.)	5 lbs.
• Splitless Siding Nails	5 lbs.
• 8d Box Nails (galv.)	2 lbs.
• 3½" Deck Screws	3 lbs.
• 1¼" Roofing Nails (galv.)	5 lbs.
• Hurricane Ties`	12
• 1½" Joist Hanger Nails	1 lb.



Chances are you've got a spot in mind for your shed that's already close to level. Just the same, it pays to take the time to level the site with a few concrete blocks.

You may have to dig the stones in at the high spots. At the very least, you should cut the sod out and set the blocks on a bed of sand.



BUILDING THE BASE

The best work space for building the base (and eventually the walls) is a flat area such as a driveway. It's much easier to keep the boards flush and square here than on the lawn.

The base is made up of a 2x4 frame with a 3/4" plywood "skin." To protect it against water and insects, I used pressure-treated material.

Start building the base by cutting the rim joists (A) to length (*Framing Construction View*). Then lay out the locations of the floor joists (B) and nail the base together — two nails at each joint should do it .

The next step is to cover the base with the plywood decking (C). If your base is slightly out of square, it's no big deal. The decking should square things up when it's nailed down.

Finally, move the base onto the stones and, if necessary, level it with shims, as shown in *Figure 1*.

FRAMING THE WALLS

As you begin framing the walls, there are a few things to take note of.

First, the back wall is taller than the front and end walls *(Framing Construction View)*. This height difference creates the slope of the roof.

Regardless of the height, each wall is made up of a top (D, E) and bottom plate (F, G) which are connected with studs (H, I).

Another thing to note is that the plates for the front and back wall are 1" *shorter* than the overall length of the base. That's because the 1/2" sheathing on each end wall will fit against the end stud on the front and back wall *(Wall Setback Detail)*.

If you take a look at the *Corner Detail*, you can see that each end of the front and back wall is made up of 2x4 blocking (J) that's sandwiched between two studs. Butting the end wall against this grouping of 2x4's creates a nailing surface in the corner. This way, you'll be able to apply sheet material to the inside the walls if you want.

Just a note about the stud spacing in the back wall. They're spaced 16" on center except on each end where they're 15" apart *(Back Wall Stud Spacing Detail)*. The wall is designed this way so the studs line up with the rafters.

As for the front wall, pay close attention to the three studs on each side of the doorway (*Front Wall Stud Spacing Detail*). These studs provide a nailing surface for the siding and trim. Also, the inside stud in each group — the trimmer stud (K) — is *shorter* than the others to provide support for the header.

Speaking of the header (L), it supports the weight of the roof so the wall won't sag, which would cause the doors to bind. The header is made up of two 2x4's set on edge with a 1/2" plywood spacer between *(Header Detail)*.

SHEATHING

At this point, you could put up the walls. But rather than wrestling with the plywood sheathing that covers them while the walls are upright, it's easier to do it with the walls flat on the ground. (Leave the end walls uncovered for now so you can move in and out of the shed more easily.)

Covering the back wall with the 1/2" plywood sheathing (M) is pretty straightforward — one full sheet of plywood centered on the wall, then a partial sheet at each end. Here again, the plywood helps square up the walls.

As for the front wall, I attached a full sheet on each end and then cut away the waste inside the door opening with a jig saw. That left just a small section of the header that I covered with a scrap piece.

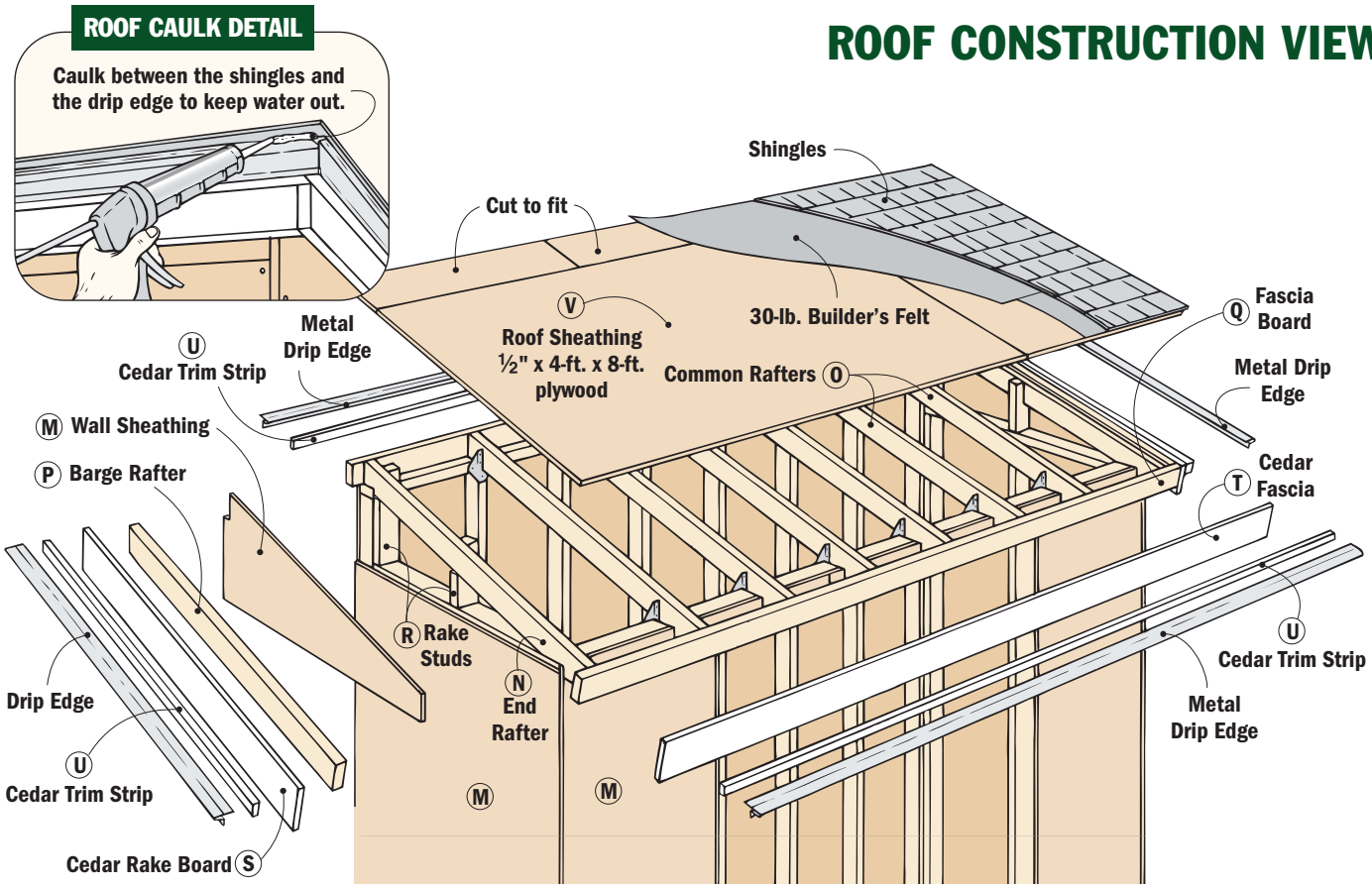
RAISING THE WALLS

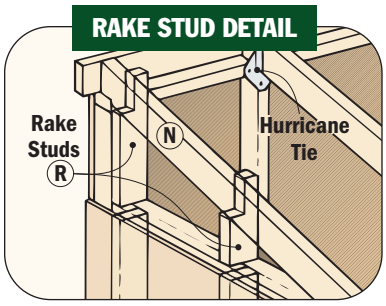
Now it's time to raise the walls into position. This is when the shed really starts to take shape.

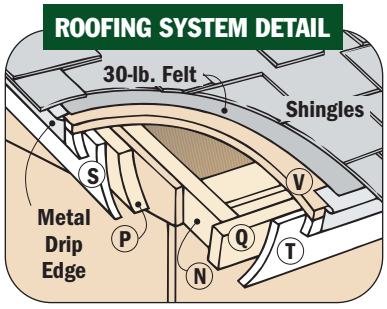
Raise the back wall first, fasten it to the floor panels with deck screws, and then use 2x4 braces to hold it plumb (see photo below). After setting an end wall in place, screw it to the back wall, and then continue working your way around the shed.

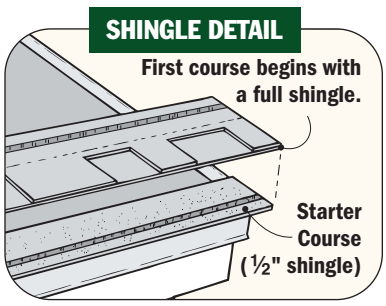
A couple of diagonal braces hold the back wall plumb as you set the end and front walls into position. The walls are fastened to the floor and to each other with 3" deck screws.

ROOF CONSTRUCTION VIEW









SIMPLE SHED ROOF

All roofers will tell you: "It's not a roof. It's a roofing *system*." And they'd be right. It's best to think of everything above the walls as part of the roofing system.

The *roofing system* of this shed-style roof has a single, sloping face that's made up of a 2x4 rafter assembly, 1/2" plywood sheathing covered with felt, and shingles *(Roof Construction View)*.

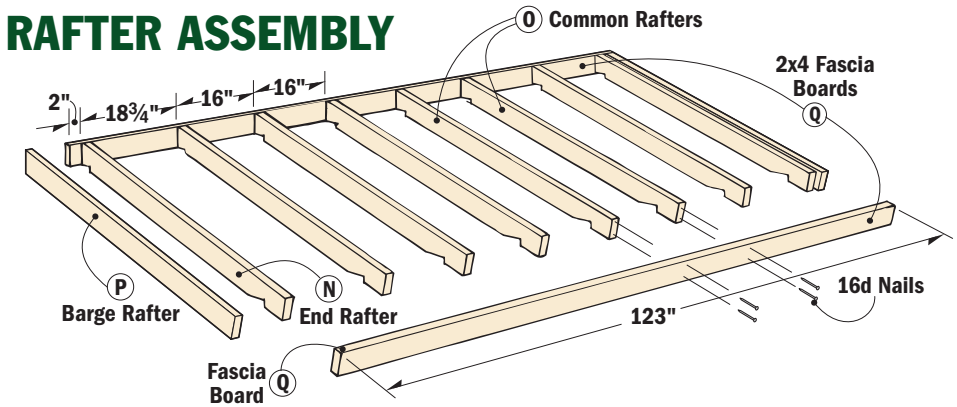
RAFTER ASSEMBLY

There are 10 rafters altogether — two end rafters (N), six common rafters (O), and two barge rafters (P) *(Rafter Assembly)*. To "tie" the assembly together, these rafters are connected to a pair of long fascia boards (Q).

Notice that there's a bird's-mouth notch at both ends of all the rafters *except* the barge rafters. These notches allow the rafters to fit over the top plates on the walls.

To ensure a good fit, it's best to check one rafter before cutting the others. The drawing on page 21 will guide you through this process. Start with an extra-long 2x4 (about 60") and then trim it to length after you cut and fit the bird's mouths.

RAFTER ASSEMBLY

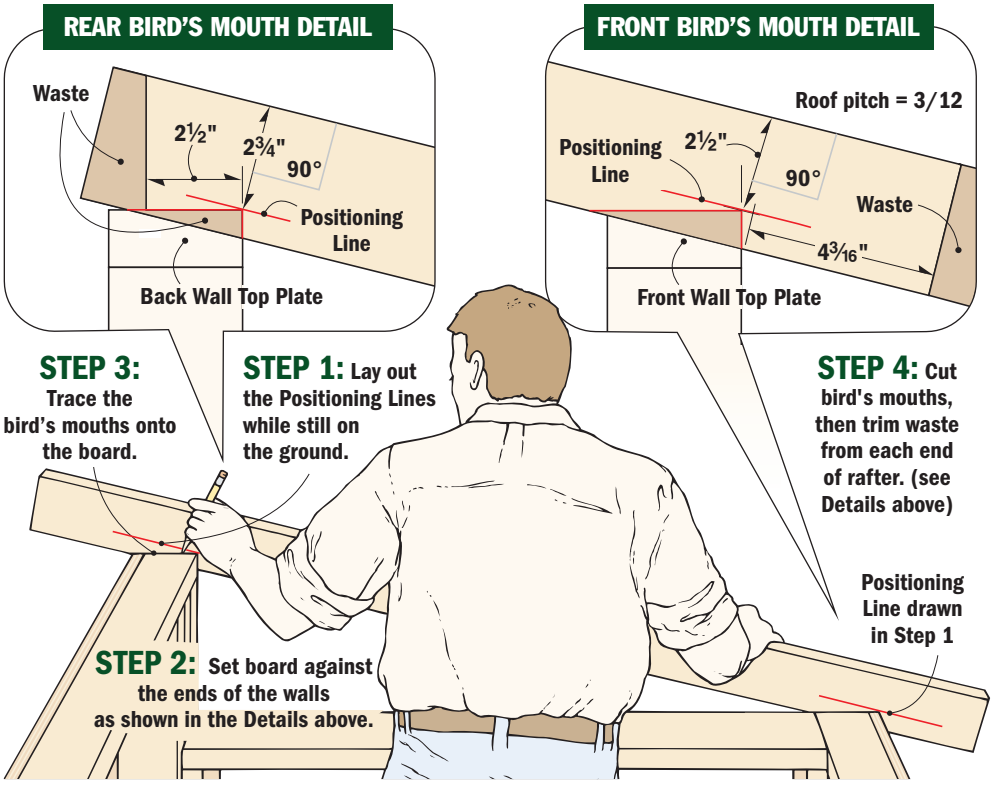


Once you're satisfied with the test fit, use your "pattern" rafter to lay out the rest. Then cut the bird's-mouths in each rafter.

If you take another look at the *Roof Construction View*, you'll see where each of the rafters is located on the roof. To create a nailing surface for a wedge-shaped piece of wall sheathing (M), set the two end rafters flush with the outside of the wall. Each of these rafters is supported by two short rake studs (R) that are notched to fit.

The next step is to install the common rafters (O). They're held in place with a metal bracket called a *hurricane tie* (available at most home centers). Just set each rafter directly over a wall stud and secure it to the tie with joist hanger nails.

Before going any further, you'll need to nail the long fascia boards (Q) to the ends of the rafters. The wedge-shaped pieces of wall sheathing are added next. Then install the two barge rafters, one on each end, nailing them to the fascia boards and "sandwiching" the sheathing between.



CEDAR TRIM & ROOF SHEATHING

With the roof structure in place, it's time to add cedar trim pieces and the sheathing and shingles for the roof.

TRIM. I used ¾"-thick cedar for all the trim pieces. The first step is to nail a rake board (S) to the barge rafters on each end of the roof and a long fascia board (T) across the front. Note: The cedar fascia board is nailed directly to the 2x4 fascia board installed earlier.

All that's needed to complete the trim is to add trim strips (U) all the way around the roof. These are just narrow pieces of cedar that keep water away from the fascia board.

SHEATHING. Now you're ready to add the roof sheathing. Like the walls, the sheathing is ½" plywood that's cut to fit flush with the trim strip and then nailed in place.

SPEAKING OF RAIN

Making the roof watertight requires installing drip edges, felt, and shingles. Start by attaching a metal drip edge to the *front* and *back* trim strips (U) only. (The drip edges at each end of the roof will go *on top* of the starter course of shingles.)

Next, cover the sheathing with felt, overlapping each course by 4" and stapling it about every 12".

Now you're ready to install the *starter course* of shingles. This is a row of shingles cut lengthwise and installed upside down at the eave *(Shingle Detail)*. They're installed this way so the wind seal (that line of sticky, tar-like stuff) is *down*. This way, it will seal the first course of shingles that are laid on top.

To do this, overhang the eave by ½" and leave a 1/16" space between each shingle. Then nail the starter shingles according to the manufacturer's recommendations.

After adding the remaining two drip edges (on the ends of the roof), the shingling should go quickly.

The idea here is to stagger the seams from one course of shingles to the next. To do this, each course is started with a progressively *shorter* shingle. For instance, the first course (installed directly over the starter course) begins with a full-length shingle (36" long). The next course begins with a shingle that's 6" shorter. The third course begins with a shingle that's 12" shorter, and so on.

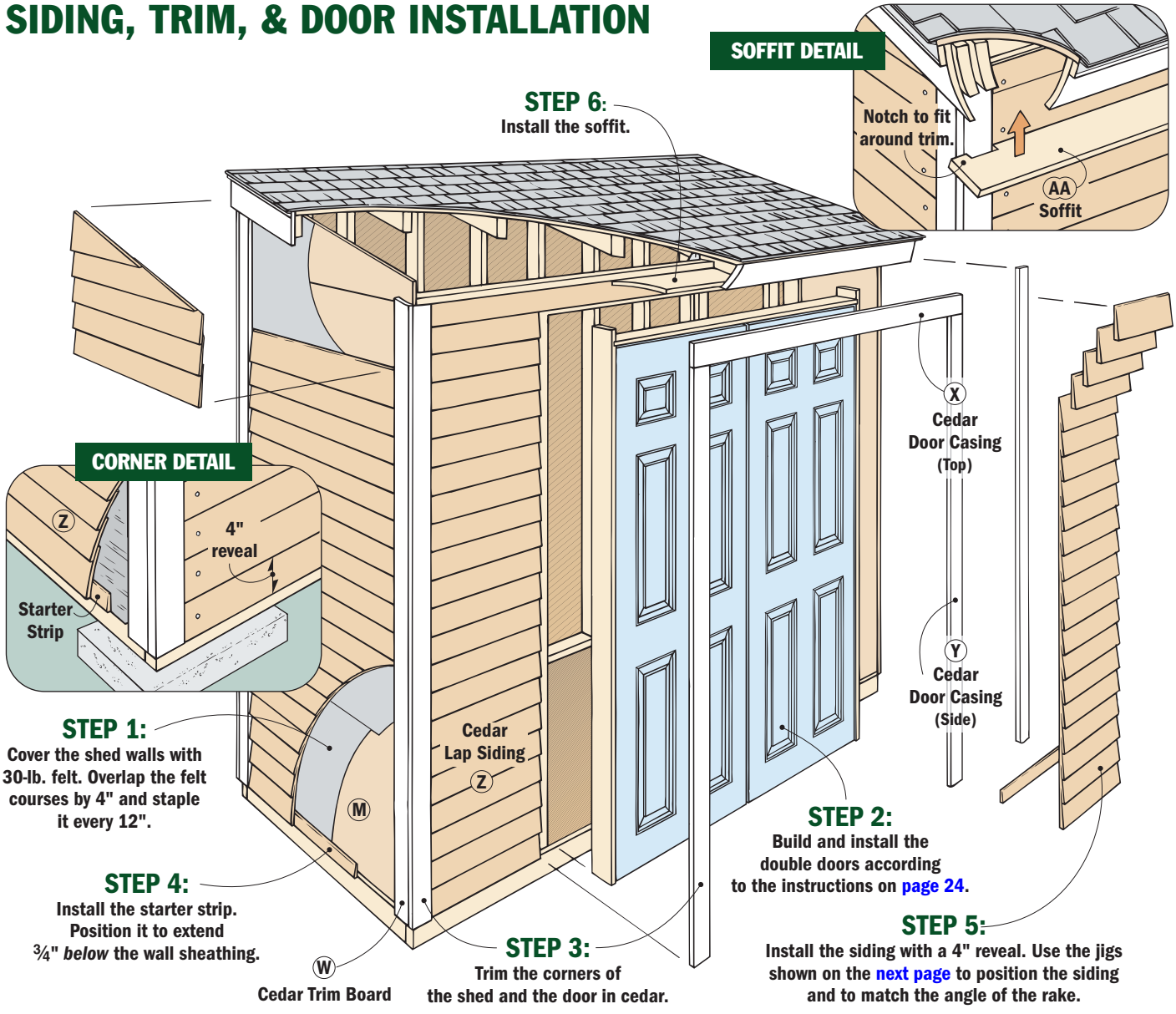
Continue that pattern through the sixth course where you'll start with a 6"-long shingle. At the seventh course, start over with a full shingle and repeat the pattern to the top of the roof.

Let the shingles hang over the far end of the roof until you've finished all the courses. Then trim them with a razor knife, using the drip edge as a guide.

Finally, caulk between the top row of shingles and the drip edge, as shown in *Roof Caulk Detail* (page 20).

Staggering the seams in between courses is part of making a roof watertight. Run a staggered pattern of shingles to the peak before shingling the length of the roof.

SIDING, TRIM, & DOOR INSTALLATION



KNOW WHEN TO ASK FOR HELP

Up to this point, you've probably been able to manage everything on your own. But now it's time to get some help. You'll definitely need a hand to install the doors. (That entire process is explained in detail on page 24.)

And while you've got someone, you may as well ask for some help to wrap the shed in felt (as an extra vapor barrier) before hanging the cedar trim and siding.

Start at the bottom of the shed and work up, letting each course of felt overlap the previous one by 4". You can also allow the felt to cover the door opening for now. It can be cut out after you've stapled the felt to the sheathing.

CEDAR TRIM. There's nothing tricky about installing the cedar trim board (W) at the corners of the shed. Stain or paint the pieces first, and then install them, starting on the end walls. That way the trim on the front and back walls will hide the edge grain of those first pieces you put up.

The bottom of the trim should extend $^3/_4$" *below* the wall sheathing (to cover the edges of the decking). At the top of the shed, the cedar boards butt against the rafters.

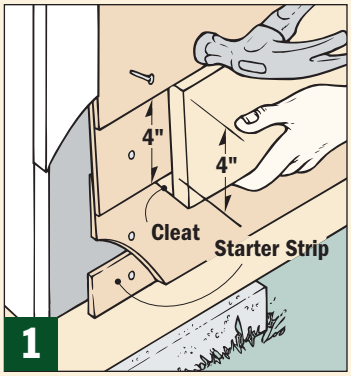
When you install the cedar door casing (X,Y), be sure to leave a slight reveal (about $^3/_{16}$") at the door jamb.

CEDAR SIDING. With the trim done, you can start on the cedar siding. Installing cedar siding (Z) is much like installing any other lap siding with a couple notable exceptions.

First, it may not be immediatley obvious which "face" of the siding is supposed to be showing. The siding I used had a rough face and a smooth face. My first inclination was that the rough face should be showing just like with the cedar trim.

After a closer look (and a quick read of the manufacturer's instructions), I discovered that rough or smooth had nothing to do with it. What I needed to be sure of was that the *beveled* face of the siding was

HANDY SIDING JIGS



Installing siding is a three-handed operation at best. Even short pieces can be a lot to handle when trying to hold them perfectly parallel while nailing them in place.

What I found that worked well is to make the jigs shown here.

ALIGNMENT JIG

This jig is a $^3/_4$" x $4^3/_4$" x 8" piece of scrap with a $^3/_4$"-wide cleat glued to the back. To use the jig, butt the cleat against the bottom edge of a piece of siding that's nailed to the wall *(Fig. 1)*. Then by resting the next piece of siding on the top edge of the jig it will be automatically positioned with a perfect 4" reveal.

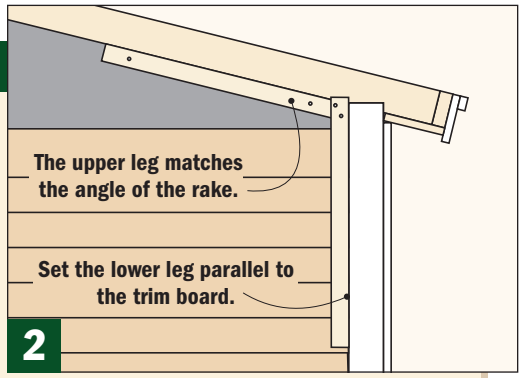
The length of the jig (8") also helps to hold each piece of siding parallel. This way, you can have one free hand for nailing.

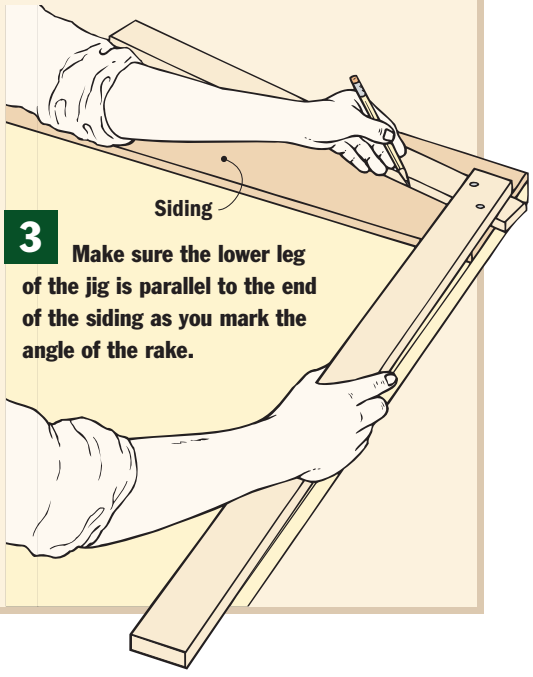
ANGLE-MATCHING JIG

This second "jig" is actually more of a marking tool. In fact, it works a lot like an adjustable square for transferring an angle from one workpiece to another.

I made my jig with a couple of straight 1x2's. To match the angle of the rake, I held the boards in position as shown in *Figure 2* and screwed them together to match the roof pitch.

Then I used the jig to transfer the angle onto the siding pieces that covered the rake *(Fig. 3)*.





Make sure the lower leg of the jig is parallel to the end of the siding as you mark the angle of the rake.

showing. That placed the flat side against the shed wall, which presented a problem.

For siding to shed water as efficiently as possible, its bottom edge needs to be "tipped" away from the structure. With the flat face of the siding against the wall, the angle of the lowest piece of siding wouldn't be enough to keep rain from wicking up between the siding and the wall sheathing. The solution was to install a starter strip underneath the first piece of siding to establish the proper angle.

I made the starter strips by ripping $1^1/_2$"-wide bands from the top (thin) edge of a few pieces of siding *(Step 4 in the Siding, Trim, and Door Installation drawing)*. I nailed those on all the way around the shed before continuing the siding vertically up each wall.

One other important note about cedar siding is that it splits easily when you nail it. (I found out the hard way.) Drilling pilot holes for the nails is the only way to avoid this.

The *Alignment Jig,* above, is a great help in trying to hold the siding in place while nailing it. The *Angle-Matching Jig* comes in handy at the top of the wall.

When all the siding is installed, nail the soffit (AA) underneath the rafters *(Soffit Detail)*. Note: You'll need to notch the soffit to go around the corner trim.

Finally, apply caulk where the siding meets the trim. Then paint or stain the siding to your tastes. I applied a clear sealer to protect the siding from the elements without changing its natural color.

CLOSING DETAILS

There are a couple more pieces of hardware that you should install to help keep the doors under control.

First are barrel bolts at the top and bottom of the "fixed" door (that's the one without the latch). Drill a hole in the head jamb and the floor to receive the bolts.

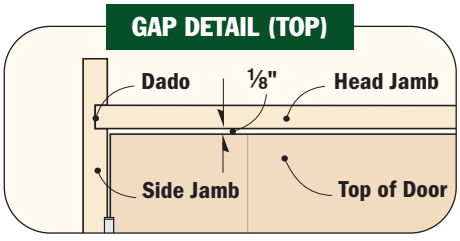
Lastly is some type of a stop to keep the doors from swinging too wide. I used a spring-tensioned chain stop on each door. These unhook easily to let the doors swing to their full-open position.

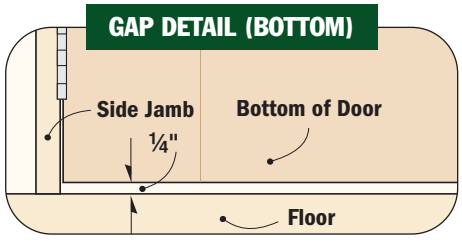
Protect yourself and your shed from doors that swing open unexpectedly by installing barrel bolts in the fixed door and securing both doors with a spring-tensioned chain.

Tips & Techniques:

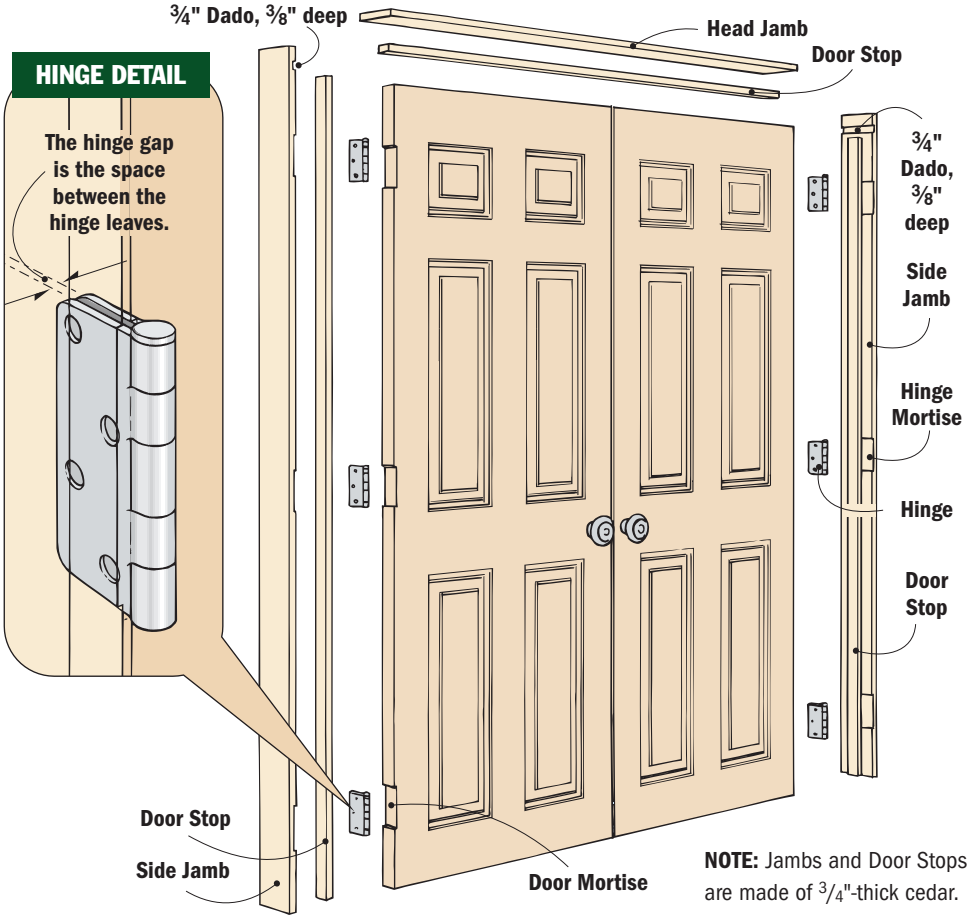
Hanging Double Doors

Hang-'em-yourself doors have it all over pre-hungs when it comes to price and getting just the look you want.





DOOR CONSTRUCTION VIEW



NOTE: Jambs and Door Stops are made of 3/4"-thick cedar.

There were a lot of choices to consider when I went shopping for doors to go in the *Garden Shed*. One choice was to buy whatever pre-hung exterior doors the local home center had in stock. That option was expensive and limited my selection of finishes. Another choice was to special order a set of pre-hung composite doors. Since I could stain or paint these as I pleased, the "limited finish" problem was solved. But they were still very expensive, and I'd have to wait weeks for them to be shipped in.

Ultimately, I decided to save time and money (and get just the look I wanted) by buying two composite door *slabs* and building the jamb assembly myself. Because slab doors come without a jamb assembly and there aren't any holes drilled for the lockset, or mortises for the hinges, they can cost as little as 1/3 of the same type doors bought pre-hung.

The little bit of extra work I had to do was well worth the savings.

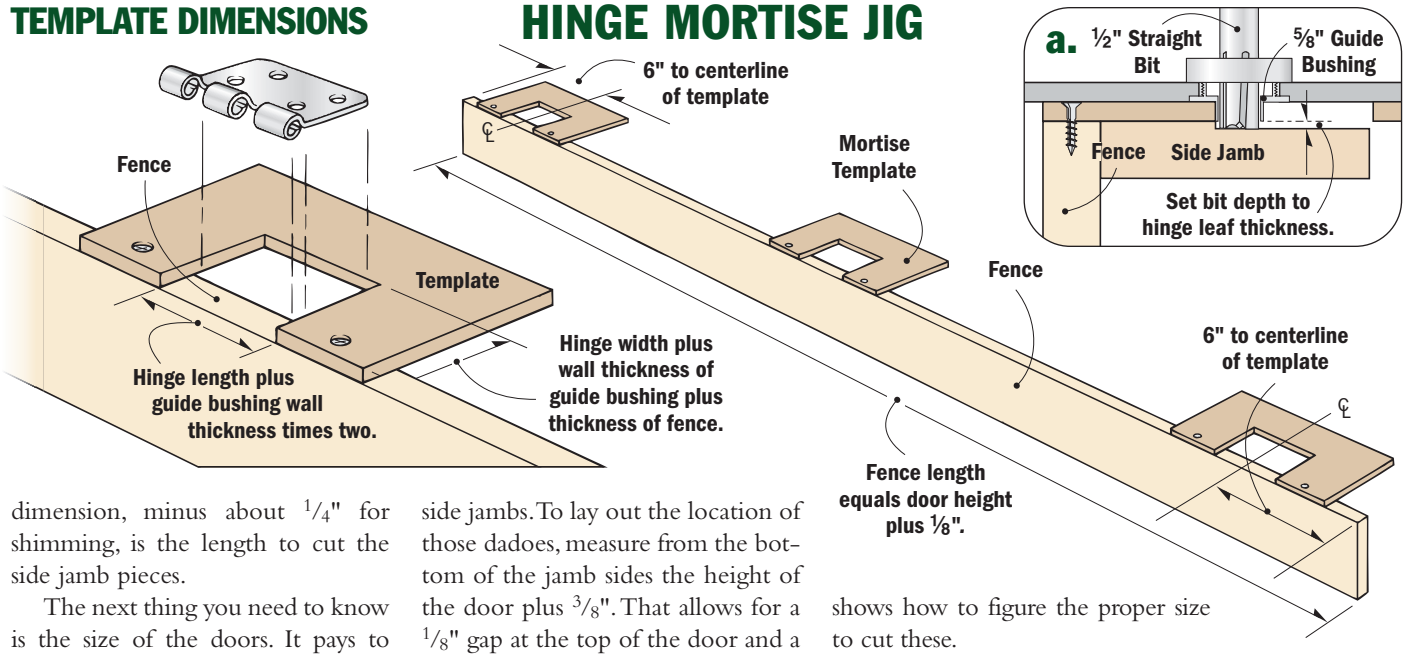
MAKING THE JAMB PIECES

The jamb assembly is the U-shaped framework that the doors are hinged to. It gets nailed into the shed framing to mount the doors. I used 1x4 cedar to build the jamb assembly so that it would match the look of the shed.

To get started making the jamb pieces, there are a few measurements you'll need to know. First is the height of the rough opening. That

TEMPLATE DIMENSIONS

HINGE MORTISE JIG



dimension, minus about ¼" for shimming, is the length to cut the side jamb pieces.

The next thing you need to know is the size of the doors. It pays to measure them rather than accept the manufacturer's claim. My 3'6"-wide and 6'8"-tall doors were about ¼" smaller than that in both directions.

The last number you need to find before you can begin building the door frame is the hinge gap (see *Hinge Detail* on the previous page).

Now, with those dimensions still fresh in your mind, you can figure the length of the head jamb by adding together:

- The total width of the two doors
- The hinge gaps
- ⅛" for the gap between the doors
- ¾" to go into the dadoes

Cut the head jamb to length and lay it aside while you work on the side jambs.

DADOING THE SIDE JAMBS

Take a close look at the *Door Construction View* and you'll see that the head jamb is dadoed into the side jambs. To lay out the location of those dadoes, measure from the bottom of the jamb sides the height of the door plus ⅜". That allows for a ⅛" gap at the top of the door and a ¼" gap at the bottom. Then cut the dadoes ⅜" deep.

ROUTING HINGE MORTISES

The next step in getting the jamb pieces ready for assembly is to mortise the side jambs for the hinges. And while you're at it, you may as well mortise the doors, too.

The one thing to watch for when routing these mortises is that they line up *perfectly* from the door to the jamb. I accomplished this with a jig and a handheld router equipped with a straight bit and a guide bushing (*Detail a,* above).

There are three things that determine the accuracy of the jig. The first is the length of the fence — it has to be *exactly* ⅛" longer than the double doors.

The second is the size of the opening in the mortise templates. The *Template Dimensioning* drawing shows how to figure the proper size to cut these.

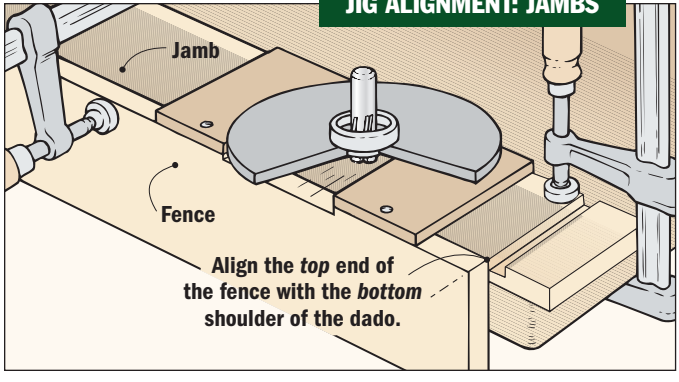
The final thing is the position of the templates on the fence. The templates must be precisely the same distance from the ends of the fence (I nailed my templates 6" in from each end, as shown above).

The *Jig Alignment* drawings below show how to position the jig on each workpiece. Notice that to rout the jamb pieces, the fence rests against the *outside edge* of the jamb and the end of the fence lines up with the *bottom shoulder* of the dado.

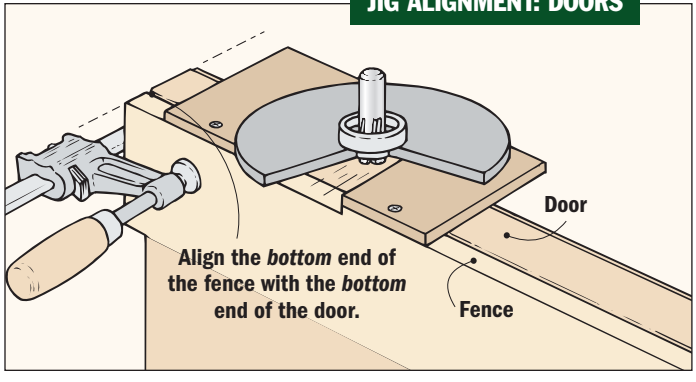
When routing the doors, the fence must be positioned against the *outside face* of the door and with the *top* of the door.

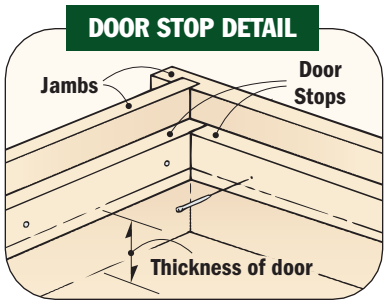
As you rout the mortises, be careful that the router doesn't tip into the template as you move from one end to the other. Now remove the hinge pins and install a hinge leaf in each mortise. Use two short screws that came with the hinges in each leaf.

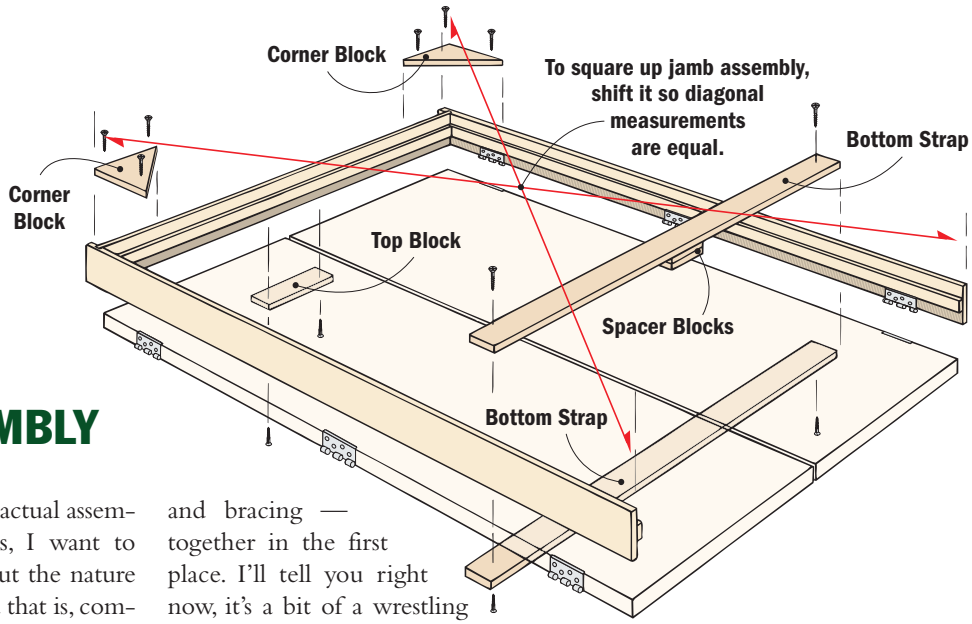
JIG ALIGNMENT: JAMBS



JIG ALIGNMENT: DOORS







DOORS & JAMB ASSEMBLY

Before getting into the actual assembly of the door jambs, I want to share a quick note about the nature of pre-hung doors. And that is, compared to even medium-weight doors like the composite slabs I used, the jamb assembly is a pretty fragile structure. That's why all that bracing shown in the illustration above is so important. It keeps the door from racking or twisting too badly until it gets mounted in the opening.

The challenge then is getting all those pieces — doors, jambs, stops, and bracing — together in the first place. I'll tell you right now, it's a bit of a wrestling match. But with patience and a good plan, it's one you can win.

DOOR ASSEMBLY PLAN

Start by assembling the jamb pieces with the hinges facing *down*. Drive two woodscrews through each side jamb and into the head jamb.

Next, cut the door stops to fit and nail them to the jambs *(Door Stop Detail)*. Take a minute now to square the frame before adding the bracing. Measure diagonally from corner to corner (shown above) and shift the frame until it's square.

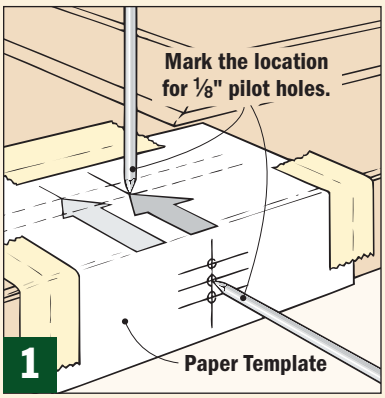
Next, attach the corner blocks and bottom strap (with a spacer block attached, as shown in the illustration above).

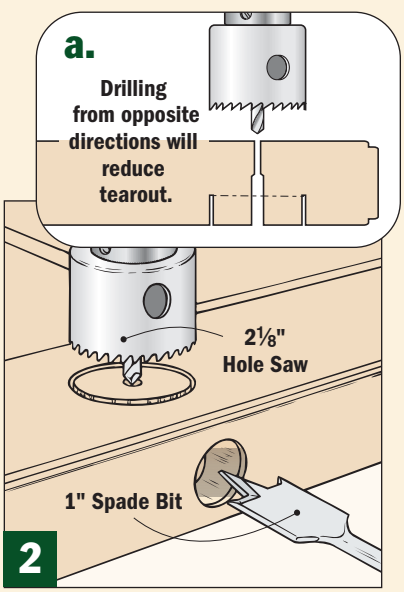
KNOB & LATCH INSTALLATION

Lock sets generally include templates and instructions for drilling new doors. *Figure 1* shows using a template to lay out the center of the 2 1/8" hole for the handle and the 1"-dia. hole for the latch. Drill a 1/8" pilot hole at both of these marks. Now drill the holes as shown in *Figure 2* and *Detail a*.

Notice that the 2 1/8" hole is drilled from both directions. That's to avoid tearout that could happen by drilling all the way through from one side.

After both holes are drilled, center the strike plate over the 1" hole and trace its shape onto the door. Then chisel a mortise in the door edge so the strike plate seats flush *(Fig. 3)*.





DOOR INSTALLATION

SETTING THE DOORS IN

This is where the wrestling I mentioned earlier comes in. Now that the frame is assembled and most of the bracing is in place, the frame needs to be turned over so the hinges are facing up.

One quick side note here: If you haven't installed the lock sets in the doors yet, now is a good time to do that before setting them into the frame. Most lock sets come with templates and instructions for installation, but I've added a few notes on the bottom of the previous page to clarify the process a bit.

Now lay the doors into the frame one at a time, letting them rest on the stops and the spacer block while you replace the hinge pins.

When both doors are in and pinned, attach another strap across the doors near the bottom and a block at the top. These final brace pieces will hold the doors closed as you move and install them (see *Door Installation*, at right).

INSTALLING THE DOORS

In a perfect world, pre-hung doors would set into rough openings plumb, square, and snug, and you'd just need to drive a few screws to call it done. In the real world, rough openings are rarely square and plumb, so they're intentionally made larger than the doors to allow for shimming. Of course, figuring out where and how much to shim is the tricky part. Here's the method that's always worked for me.

First, set the doors into the rough opening with the jamb edges aligned flush with the wall sheathing and hold them snug with a couple of temporary shims on both sides of the door. These should hold the doors just tight enough that you can remove the bottom strap and the block from the outside of the doors.

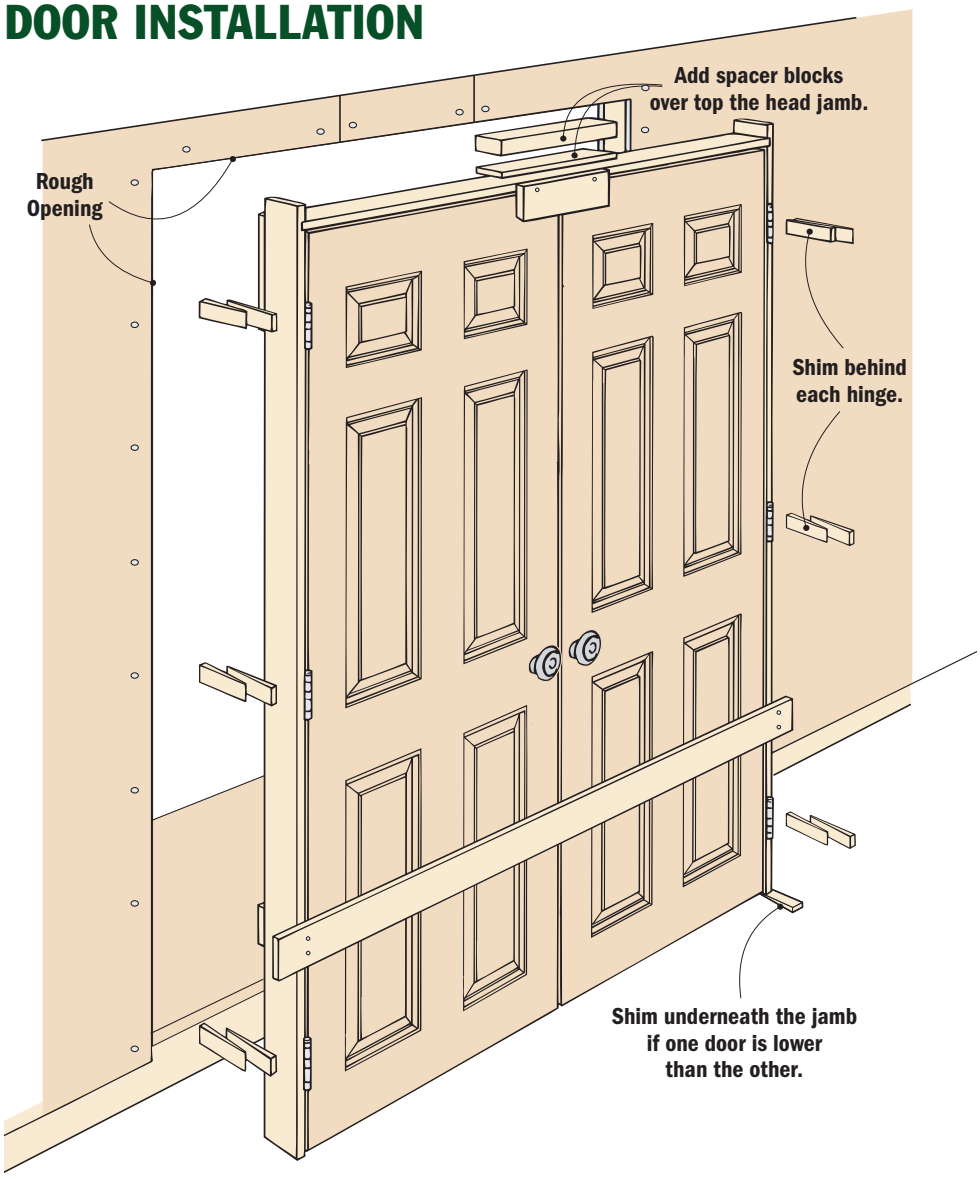
Now take a look at the gap between the doors. The tops of the doors should line up perfectly, and the gap between them should be consistent from top to bottom.

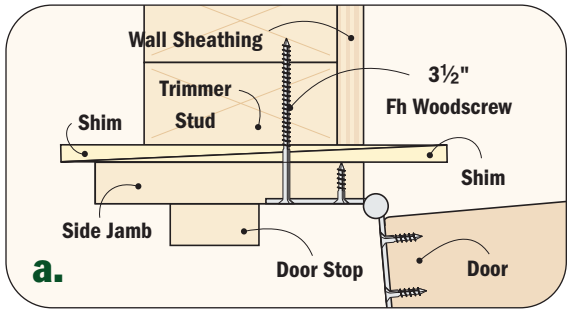
If the doors don't line up at the top, this can be fixed by shimming underneath the jamb of the door that is low. That will usually straighten out the gap between the doors, too, though you may have to fine-tune the gap a bit by shimming a little more or less in spots.

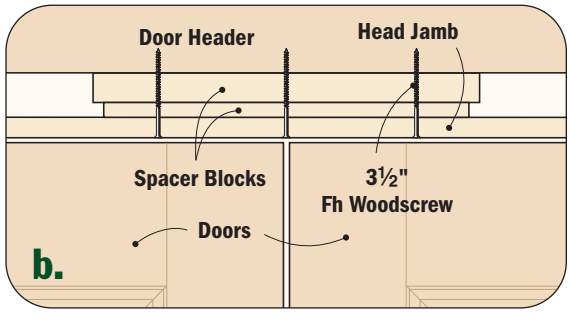
The shims should be placed directly behind the hinges as shown above. Each hinge should have at least one $3^1/_2$"-long screw that goes through the shims and into the framing *(Detail a)*.

Now install spacer blocks over the head jamb, as shown in *Detail b.* Then remove the last of the bracing.

The final test, naturally, is to open and close the doors a few times to check their swing. Both doors should move freely without binding anywhere in the opening.







Install a Trouble-Free Pocket Door

No room for a hinged door? No problem. Instead, hang a door that "disappears" conveniently into a pocket inside the wall.

Now you see it . . . now you don't. That's the beauty of a pocket door. Want to hide dirty dishes from guests after a big Thanksgiving dinner? Easy. Pull the door shut. When you're ready to mingle again, just slide the door into a convenient "pocket" in the wall.

Another benefit of a pocket door is that it can be installed in places where there isn't room for a traditional hinged door. This makes them perfect for half-baths, walk-in closets, and small bedrooms.

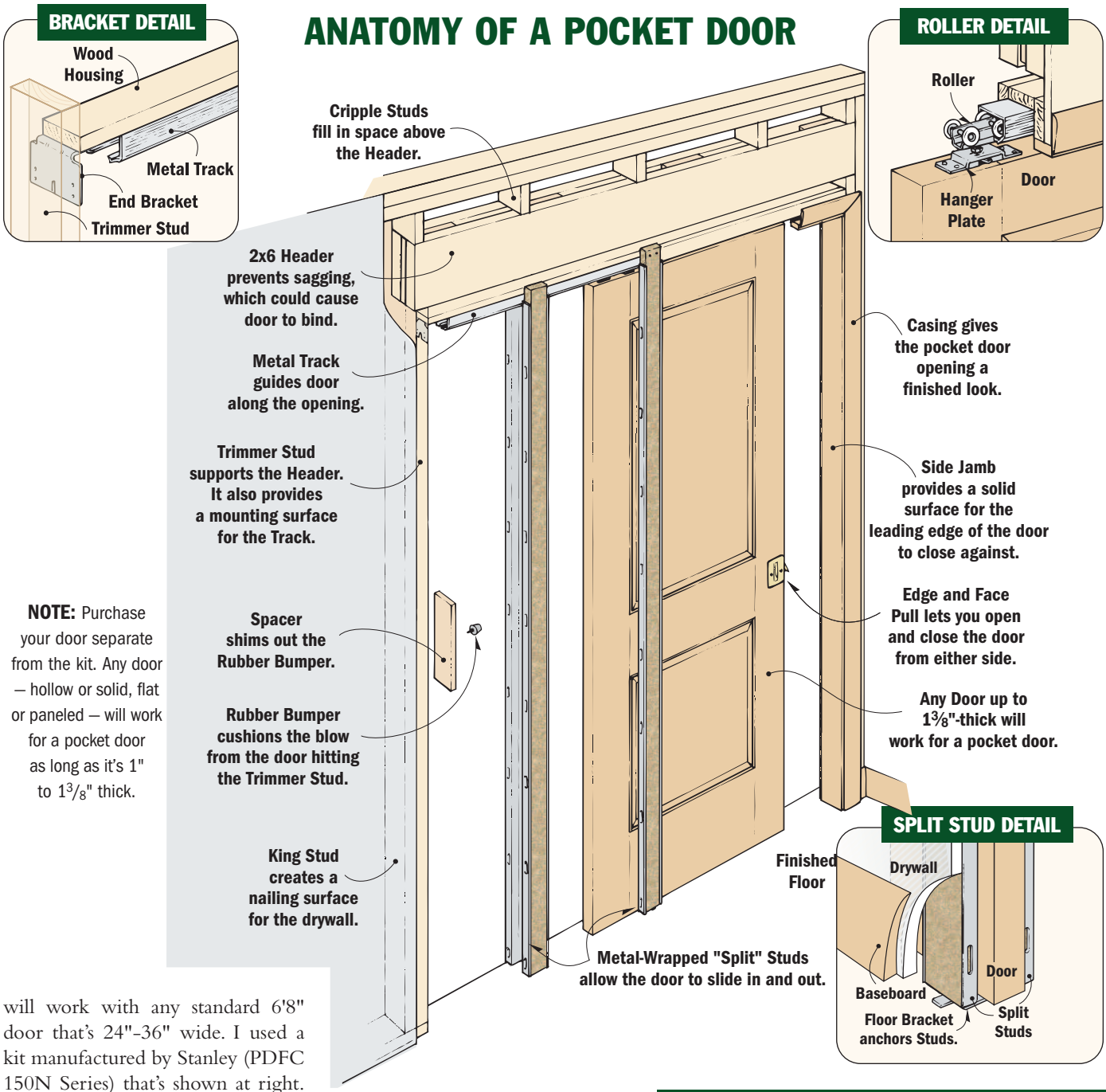
With all of these benefits, why do pocket doors get such a bad rap? Probably because older doors had a bad habit of jumping off track and getting stuck. They could also be difficult to repair and install.

Maybe this explains why a friend of mine had put up with the accordion-style door shown in the *'Before'* photo below for so long. Luckily, I was able to convince her that today's pocket doors are much more reliable than the older units.

The reason has to do with a steel-reinforced "cage" that's formed inside the wall opening and the hardware used to hang the door.

It's best to buy the cage and hardware as a kit. A pocket door kit is pretty straightforward to install. Just make sure you get one that's "universal," which means it

ANATOMY OF A POCKET DOOR



NOTE: Purchase your door separate from the kit. Any door – hollow or solid, flat or paneled – will work for a pocket door as long as it's 1" to 1⅜" thick.

will work with any standard 6'8" door that's 24"-36" wide. I used a kit manufactured by Stanley (PDFC 150N Series) that's shown at right. (For information about kit manufacturers, turn to page 53).

HOW A POCKET DOOR WORKS

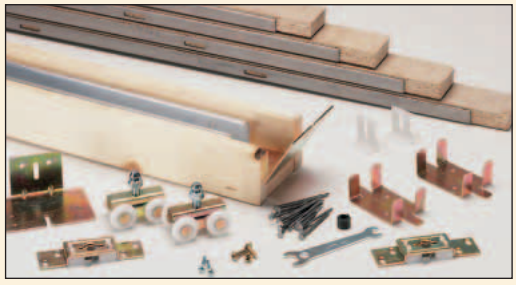
If you take a look above, you'll see how the pocket is formed inside the wall opening. You'll also notice how the door is hung.

At the top of the door opening, a metal track with a wood housing runs between a couple of trimmer studs *(Bracket Detail)*. This track guides a roller unit that's attached to a hanger plate on top of the door *(Roller Detail)*.

To add rigidity, two pairs of metal-wrapped studs (an inner and outer pair) form a "split" — the pocket opening — that lets the door slide in and out *(Split Stud Detail)*. These split studs are nailed to the wood housing of the track and are anchored to the floor by metal brackets.

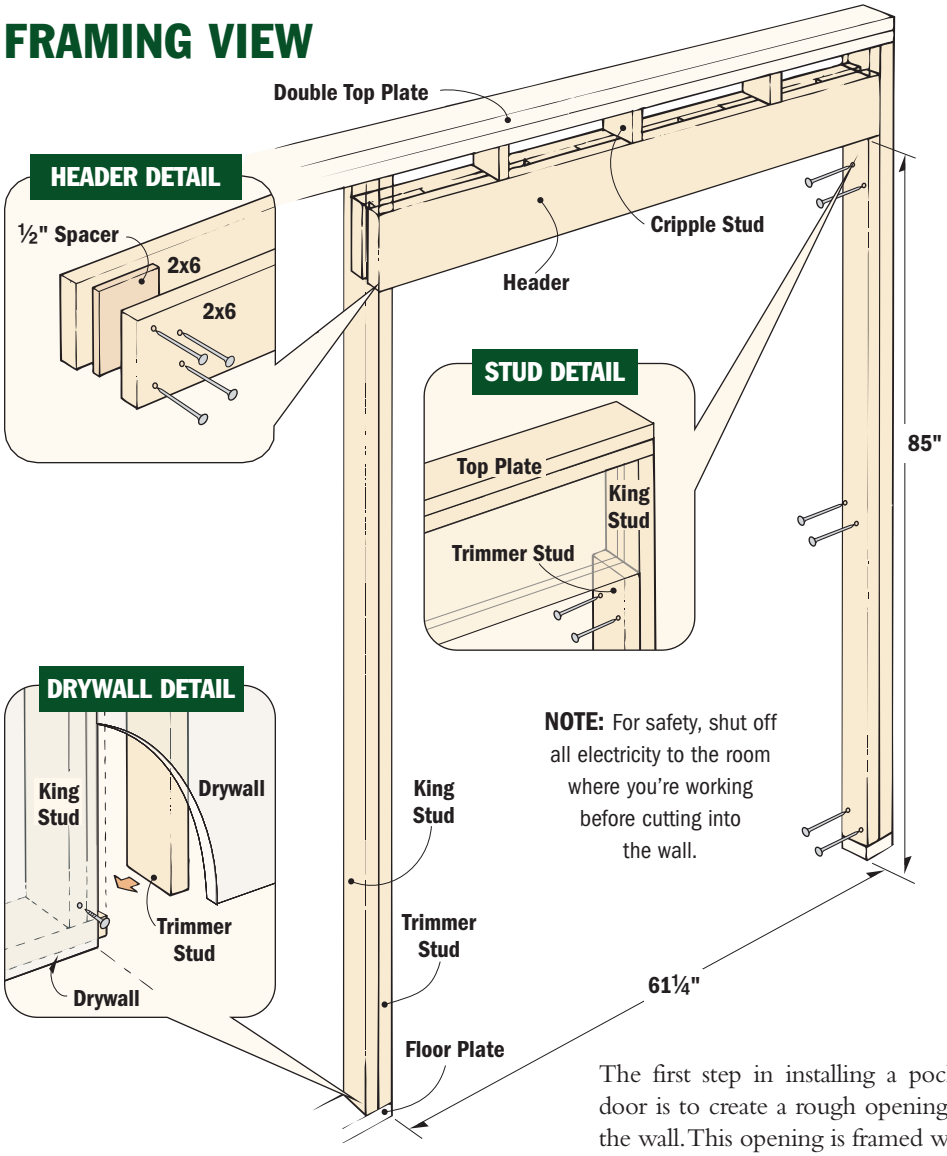
To help keep the door aligned as it slides into the pocket, two adjustable plastic guides are fastened to the first two outer split studs. Finally, a rubber bumper attached to a spacer block cushions the door at the back end of the pocket.

POCKET DOOR KIT

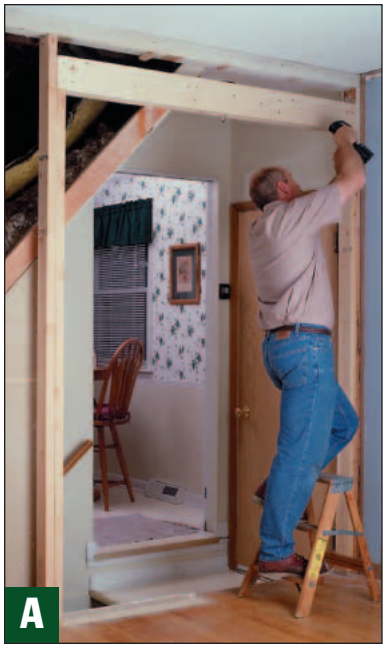


To make it easy to install a pocket door, a univeral kit comes with all the hardware and framing you need to create the cage and hang the door.

FRAMING VIEW



The first step in installing a pocket door is to create a rough opening in the wall. This opening is framed with 2x's to support the weight above it.



After plumbing the king studs and trimmer studs, screw the header in place.

ASSESSING THE SITE

Before you get started, it's important to assess whether there are any hidden obstacles inside the wall.

Usually, an electrical outlet or switch can be moved or removed entirely. But other problems may not be as obvious. For example, if a wall is shared with a bathroom or kitchen, it could conceal plumbing pipes. And a wall vent may indicate furnace ductwork inside. Both of these can be time consuming and expensive to move, so you may want to reconsider adding a pocket door in that location.

SIZING THE OPENING

After completing your assessment of the wall, the next step is to determine the size of the opening. To establish the width, multiply the door width by two and add $1\frac{1}{4}$". (This takes into account the combined thickness of the door jambs and a rubber bumper that will serve as a stop for the door.) Then add $1\frac{1}{2}$" to that dimension. Later, this will create a nailing surface for the drywall *(Drywall Detail)*. As for the height, remove the drywall clear to the ceiling.

Now you can get to work cutting the opening for the pocket and removing the existing studs and header with a reciprocating saw.

FRAMING THE OPENING

With the studs and old header out of the way, it's time to frame the opening for the pocket door. As with any door, the framing transfers the weight above it down to the floor. This will keep the pocket door from binding.

If you look at the *Framing View* at left, you'll see there's a long *king stud* on each side of the opening that's toenailed to the top plate and floor plate. Then a shorter *trimmer stud* is nailed to each king stud *(Stud Detail)*. Together, these two pairs of studs support the header — 2x6's with $\frac{1}{2}$" spacers between *(Header Detail)*.

To complete the framing, screw the header in place, as shown in *Photo 'A'* at left. Finally, toenail a few short *cripple studs* above the header.

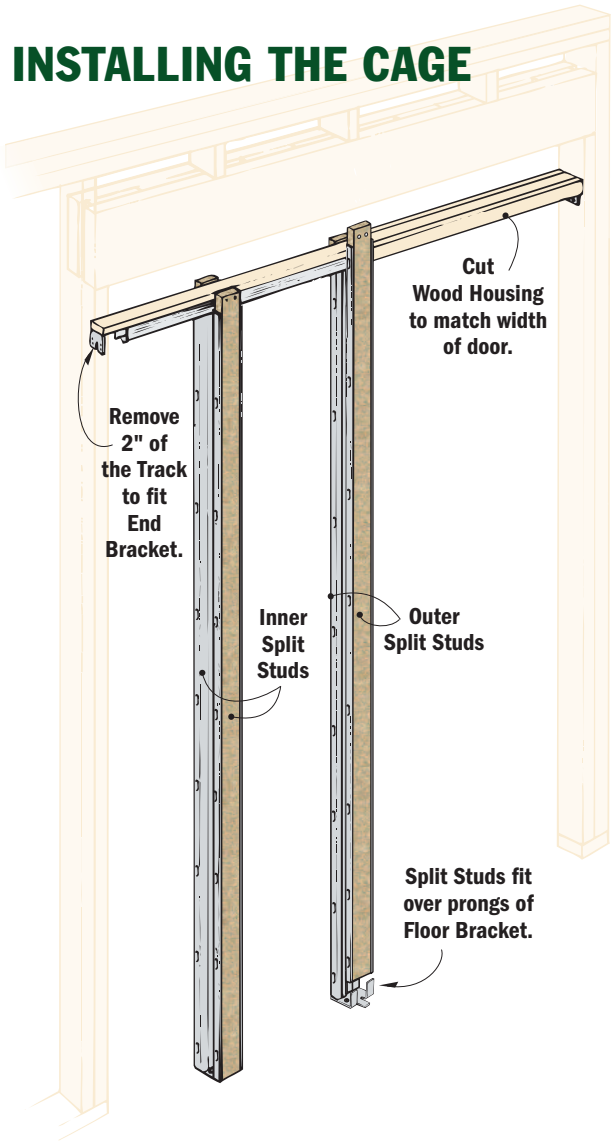
INSTALLING THE METAL CAGE

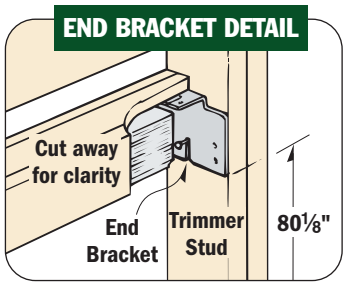
At this point, it's time to install the pocket door cage. It consists of a track that spans the opening and two pairs of metal-wrapped "split" studs *(Installing the Cage)*.

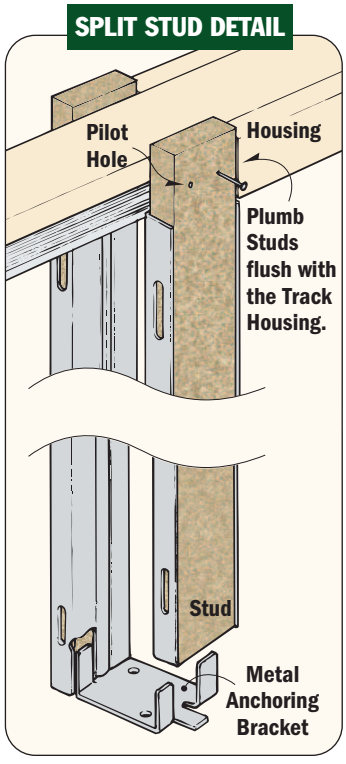
HANG THE TRACK. The key to a smooth-sliding pocket door is the metal track that guides the door. The track is attached to a wood housing with a bracket on each end (one is preattached; the other is unattached).

There are two things to do before hanging the track. First, cut the wood housing to length to match the width of the door. (The most common widths are marked on the housing.) The second thing is to remove part of the metal track to provide clearance for the unattached end bracket on the pocket side of the track.

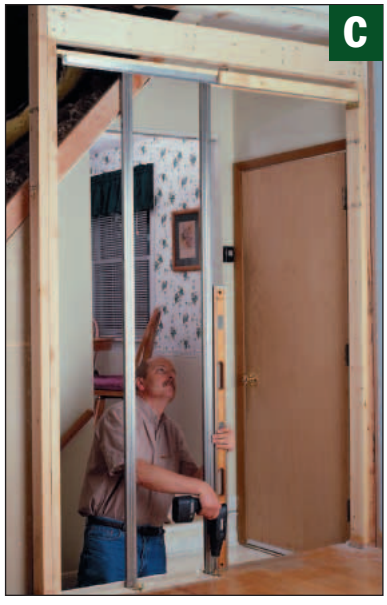
INSTALLING THE CAGE







Check that the metal track for the pocket door is level before fastening it permanently to the trimmer studs.



Also, make sure the metal-wrapped studs are plumb before screwing the metal anchoring bracket to the floor.

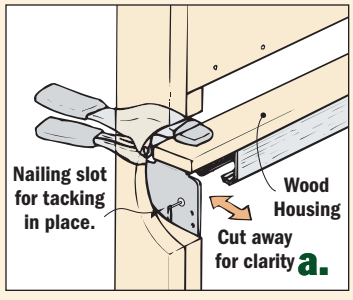
The important thing when hanging the track is that it's level and flush with the outside of the opening. This may take some fiddling. I found it works best to *permanently* fasten the preattached bracket *(Bracket Detail)* to the trimmer stud. Then clamp the unattached bracket to the other end of the housing and *temporarily* tack it in position (see sidebar at right).

Now go ahead and level the track (*Photo 'B'*, above). Finally, check to see that it's flush with the opening and header (*Fig. b* at right) before nailing the end bracket in place.

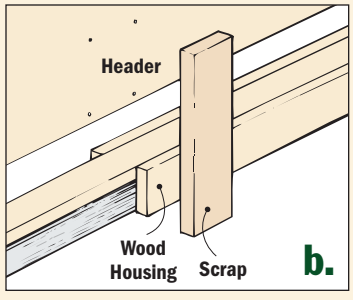
INSTALL "SPLIT" STUDS. With the track in place, it's time to install the metal-wrapped "split" studs — two at the outer end of the pocket and two near the middle. Like their name implies, each pair of studs is "split" apart. The top ends of the studs are nailed to opposite sides of the track *(Split Stud Detail)*. The bottom ends slip over the prongs of a metal floor bracket. This creates a consistent opening for the door.

Just a couple of things to keep in mind when installing the split studs. To avoid knocking the track out of alignment, it's best to drill pilot holes before nailing the studs to the housing. Also, be sure to check the studs for plumb before securing the floor bracket *(Photo 'C')*.

TRACK ALIGNMENT TIPS



Temporarily clamp the unattached end bracket to the housing and tack it in place to level the track.

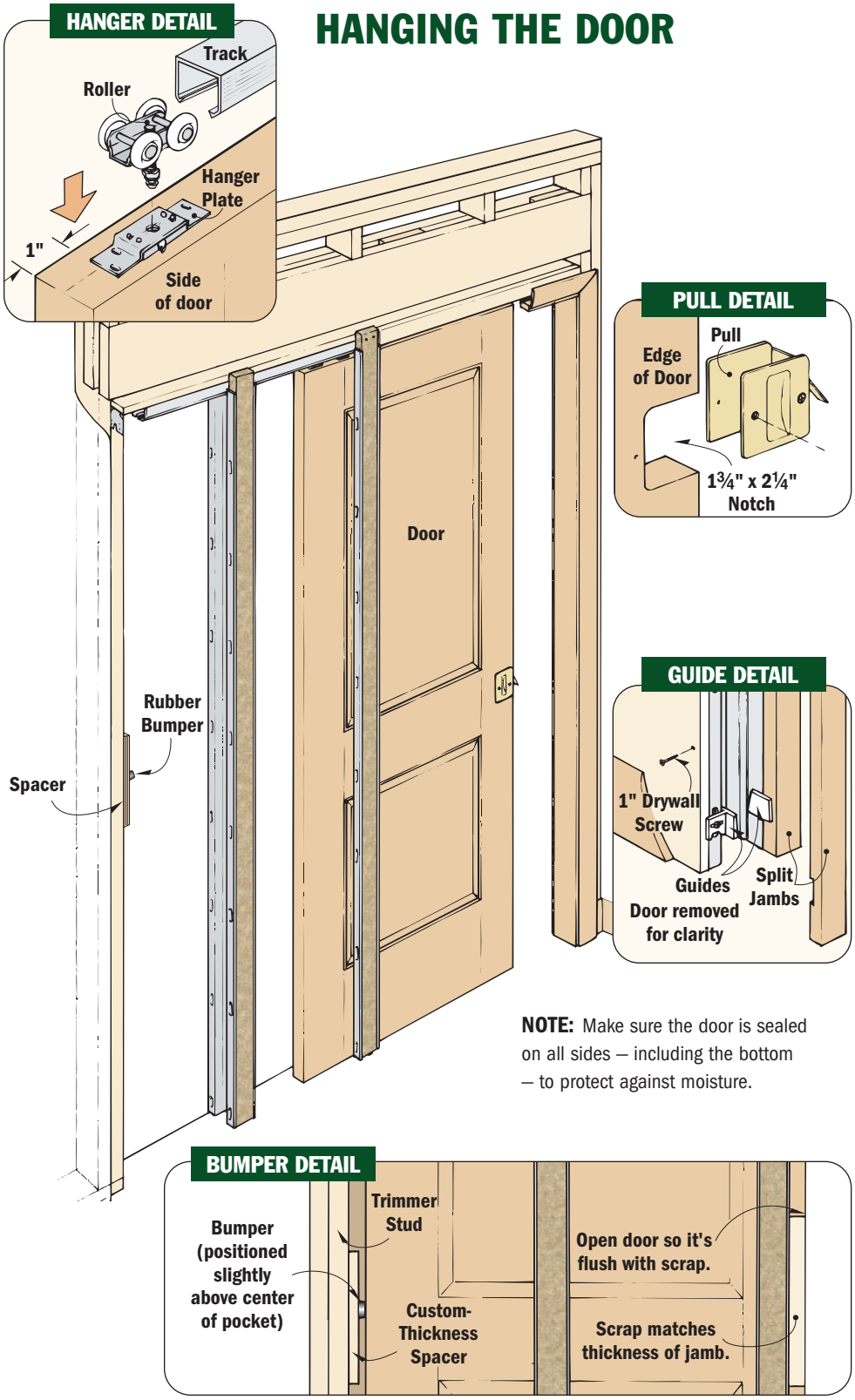


Use a scrap block to align the track housing flush with the header and pocket opening.

INSTALLING THE DOOR

While you still have easy access to the pocket, it's a good time to install the door and check to make sure it slides smoothly without binding. The door is connected to the track by means of a two-part assembly. A metal *hanger plate* is attached near each corner of the door (*Hanger Detail*, below). This plate fits onto a heavy-duty *roller* that rides back and forth in the track.

HANGING THE DOOR



NOTE: Make sure the door is sealed on all sides – including the bottom – to protect against moisture.

HANGER PLATES. When mounting the hanger plates, make sure the screws are long enough to get a solid "bite." (I used 2"-long woodscrews.) Also, they'll hold better if you locate the plate so the screws go into the *edge grain* of the door rail instead of the *end grain* of the stile.

DOOR PULL. The next step is to install the door pull. It has a finger recess on each side and a flipper in the edge, which makes it easy to pull the door out or slide it shut. The pull fits into a large notch cut in the edge of the door *(Pull Detail)*.

HANG THE DOOR. Once the pull is installed, the big moment has arrived — hanging the door. Start by sliding the rollers into the track. Then lift the door until the hanger plates "capture" the posts on the rollers. You'll hear a click when this happens. That's the built-in mechanism that "locks" the roller onto the plate.

This locking mechanism is easy to release if you ever need to repair the door. In fact, you'll *have* to remove it to complete the door installation.

But for now, just slide the door back and forth a few times, (*Photo 'D'* below). If the door rubs on the split studs, don't worry. A couple of plastic guides will take care of that later.

RUBBER BUMPER. While the door is still on the track, it's a good time to add the rubber bumper that comes with the kit. By attaching the bumper to the trimmer stud at the back of the pocket, it acts as a stop for the door *(Bumper Detail)*.

The goal here is simple. When the back (inside) edge of the door

It's best to test the door slide while you can still see what's happening before covering the pocket with drywall.

contacts the stop, the outside edge should be flush with the door jamb that will be added later. This requires making a shim to "build out" the bumper to the correct distance.

A handy way to accomplish this is to use a scrap piece that matches the thickness of the door jamb as a gauge *(Bumper Detail)*. Hold it against one of the split studs and open the door so it's flush with the scrap. The distance between the door and the trimmer stud (minus the length of the bumper) equals the thickness of the shim.

GUIDES. Now it's time to add the plastic guides that keep the lower part of the door aligned. After removing the door, the guides are mounted directly to the split studs (*Guide Detail*, left). Once the door is rehung, the guides can be adjusted close to (but not touching) it. This keeps the lower part of the door from swinging and rubbing against the split studs.

BUTTONING UP

At this point, it's time to "button up" the opening. This involves hanging the drywall, installing a door jamb, and adding some trim pieces.

DRYWALL. When hanging the drywall, just remember, you don't want any screws sticking into the pocket. All that's needed to attach the drywall to the split studs is 1"-long screws. It's also a good idea to mark the locations of the nailing slots in the split studs on the drywall (*Marking Detail*, right). This will make it easy to see where to nail the door jamb that's added next.

JAMB ASSEMBLY. The door jamb is built as a separate, U-shaped assembly *(Jamb Assembly and Trim)*. To allow the door to slide, there's a two-part "split" jamb on the pocket side of the door opening and also across the top *(Split Jamb Detail)*. The single jamb on the opposite side is a solid strip of wood *(Solid Jamb Detail)*.

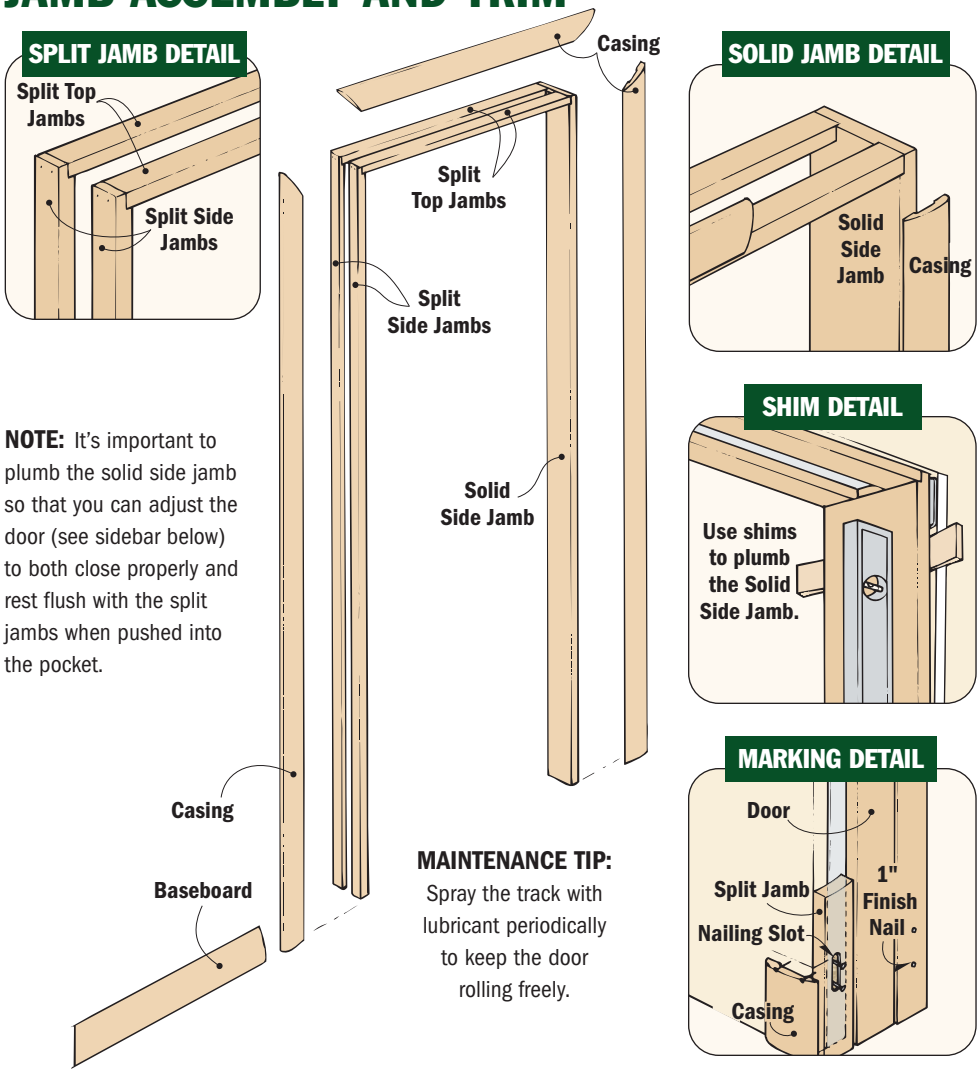
As you can see in the drawings above, the jamb is assembled with rabbet joints and nails. This means it's going to be a bit wobbly until you install it. To do this, fit the jamb assembly against the sides of the opening and use shims to plumb the solid jamb *(Shim Detail)*. Then tack it in place with finish nails.

TRIM. Once the jamb assembly is nailed into place, you can add the trim pieces. The casing is nailed to the door jamb. But it's best to *glue on* the baseboard with construction adhesive. This way, you won't have to worry about nails sticking into the pocket.

FINAL ADJUSTMENTS. All that's left is to rehang the door and make any final adjustments that might be needed.

As you can see in the sidebar at right, a nut and threaded post on the roller — plus a special wrench — make adjusting the height and leveling the door a snap.

JAMB ASSEMBLY AND TRIM

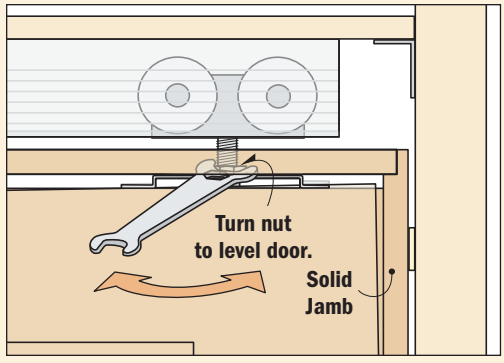


NOTE: It's important to plumb the solid side jamb so that you can adjust the door (see sidebar below) to both close properly and rest flush with the split jambs when pushed into the pocket.

MAINTENANCE TIP: Spray the track with lubricant periodically to keep the door rolling freely.

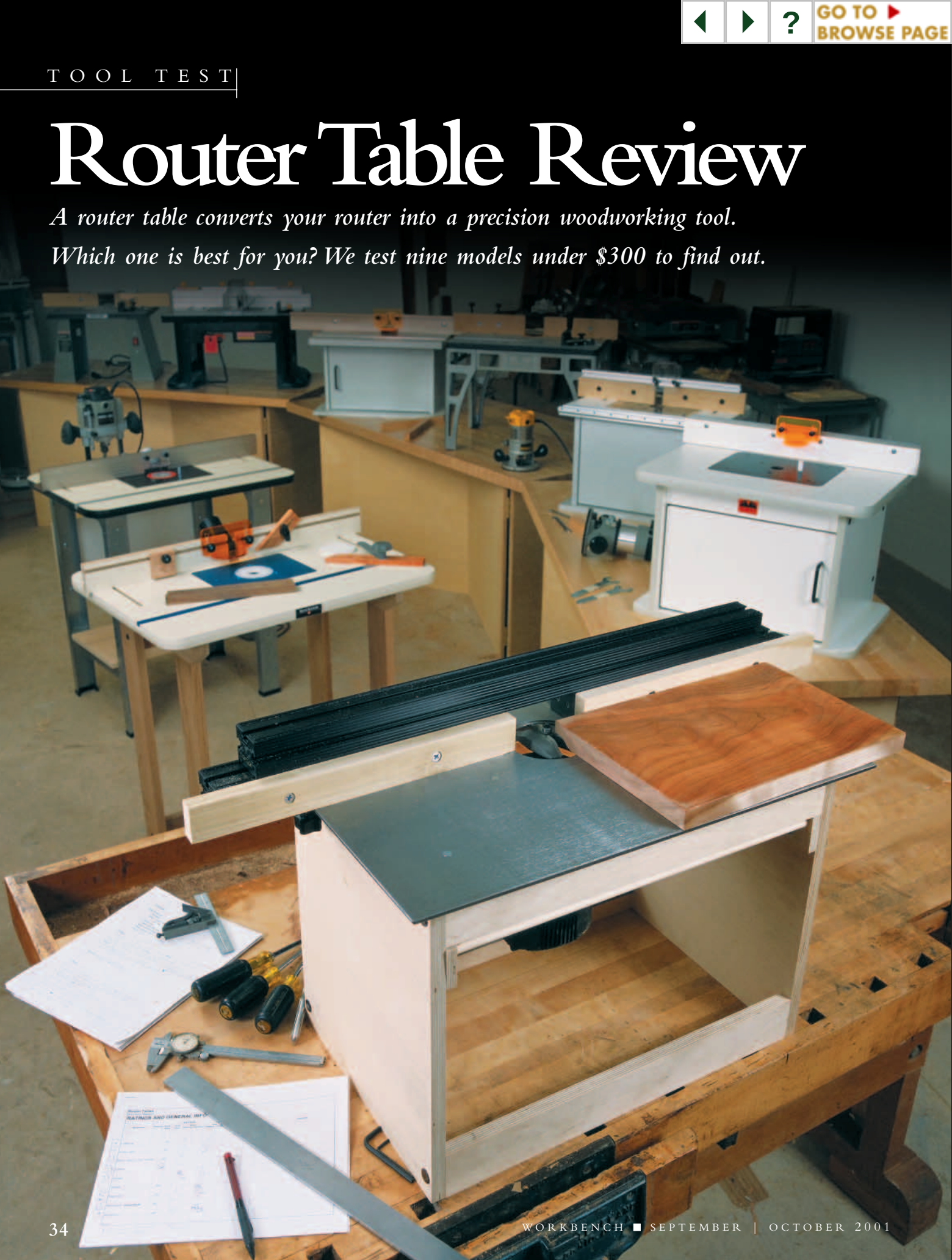
FINAL ADJUSTMENTS

With the jamb assembly in place, you may need to adjust the door height so it doesn't scrape on the floor, or to raise or lower an end so that the door fits flush with the solid jamb. This can be done by screwing the post on the roller in or out with a special wrench included with the kit.



Router Table Review

A router table converts your router into a precision woodworking tool. Which one is best for you? We test nine models under $300 to find out.



A router is probably the most versatile and accurate woodworking machine in your shop. To make the most of it, however, you need the right router table. This indispensible shop fixture opens up a world of possibilities for joinery, grooves, rabbets, panel raising and edge-forming operations.

A router table doesn't have to be expensive or overly fancy to get the job done. It can be as simple as a piece of plywood with a notched board for a fence. In fact, many woodworkers build their own. The reason to buy a commercial table is for the accuracy and conveniences manufacturers build into them. In this tool review, we tested nine router tables for the budget-minded woodworker — all priced under $300.

WHAT'S IMPORTANT

All router tables aren't created equal. We found some significant differences in several key aspects. We'll talk about those in a minute when we get to the individual table reviews. But overall, here are a few things to consider when buying a router table.

TOP. A router table top needs to be very flat for the most demanding work, where slight variations could change the angle of the workpiece or the depth of cut. Overall, the tables in this test scored high in flatness.

The size of top is also important. Larger tops provide more support, but for most operations, smaller tops work just fine.

FENCE. A good router table will have an easily adjustable fence with features such as a dust collection port, a bit guard, and an array of hold-downs, jointing shims, and stops.

We prefer fences that clamp to the edges of the table top rather than attach by bolts through slots. They're easier to remove, and there aren't any sharp edges to "catch" a workpiece.

BASEPLATE. Many commercial router tables have a drop-in router baseplate that fits into a rabbeted recess in the top. Baseplates make bit-changing easier, especially if you're using a plunge router in your table. They also make it easier to mount and remove the router.

Most of the baseplates on our test models came with concentric inserts for added support close to the bit. Phenolic baseplates resist sagging better than acrylic ones, but you can't see through them.

BENCHTOP/FLOOR-MODEL. The word "benchtop" is a bit misleading. For safety and comfort, a benchtop table should be mounted on a stand with the *top surface* at workbench height. Benchtop tables are more portable than floor-models, but they don't have the unlimited router height clearance that full-height tables do. If you plan to use a large plunge router in your table, make sure there's enough headroom.

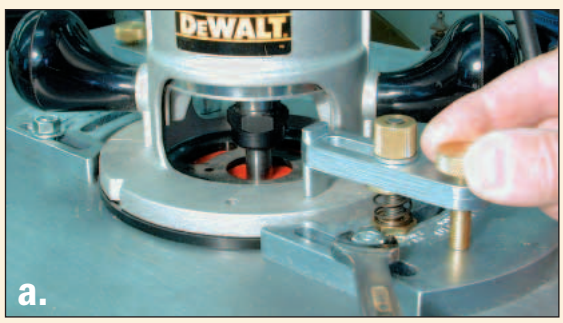
Some of the benchtop tables had enclosed stands. These cut the noise by a few decibels, but the enclosed space can lead to overheating problems. We suggest installing an additional dust port in the enclosed stand to keep air circulating through it.

FEATURES. Many router table manufacturers offer quite an array of optional accessories that you can use to customize your table. If the models shown here don't have every feature you want, check with the manufacturer for available options.

TWO INNOVATIONS THAT BREAK THE MOLD

Router tables have come a long way since they first started to appear in woodworking shops. With two of the models tested, we found features that definitely broke the mold.

MOUNTING THE ROUTER. One of the most innovative ideas is the method that's used to mount the router to the Veritas router table. Underneath the table is a unique clamping mechanism that lets you mount the router (or remove it from the table) in a matter of seconds *(Photo a.* below). And don't worry if you have a router with an irregular-shaped base. This quick-change clamp can be adjusted to fit any router base.

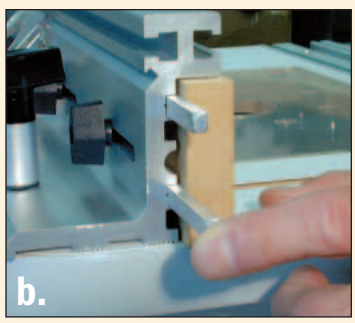


A unique, quick-clamp mechanism on the Veritas router table lets you mount or remove the router in seconds.

JOINTING. Although several of the router tables could be set up to joint the edge of a board, one model in particular had a terrific new twist. But before getting to that, here's a quick overview of jointing on a router table.

The idea is to mount a straight bit in the router and then, with the edge of the board riding against the fence, make a pass. To provide support for the workpiece *after* the material has been removed, the outfeed part of the fence has to be shimmed out a bit.

To accomplish this, the fence on the Bench Dog router table has two aluminum bars that are used to shim the fence *(Photo b.)*. By placing the bars in a different pair of fence slots, you can change the amount of offset.



For jointing, two aluminum bars are used to shim the Bench Dog fence.

VERITAS ★★★★★

Everything about this table is intelligently designed. A unique router-mounting clamp system makes it easy to mount any router quickly and firmly without removing the baseplate. The smooth steel top tilts up for bit changing and flips over to mount the router. Three cam-shaped table inserts drop easily into the table opening and are tightened with a spanner wrench. There isn't a miter gauge slot.

The double-decker split fences are movable and feature a micrometer-style gauge to set positions within .001". You'll need some tools to make adjustments, but Veritas has included a nifty 4-in-1 tool to help.

Options include hold-downs, a right-angle fence for cross-feed routing, a magnetic dust collection chute, a pin router attachment, and blade guards.

At A Glance:

Price: $269
Table Size: 24" x 16"
Under Table Clearance: 16"
Top: Steel
Weight: 40 lbs.

Virtues: Sturdy and accurate; unique router mount; micrometer positioner; instructional video.
Vices: Blade guard and dust chute not included; fence requires tools to adjust.
Verdict: An innovative, very user-friendly table; our unanimous choice for best in test.

WOODHAVEN BENCHTOP ★★★★½

Woodhaven's design expertise and attention to detail are evident in this slick benchtop router table. Although it took 2½ hours to assemble, it was worth the time. The table is solid as a rock, with a great fence, a dead-flat table, a phenolic baseplate with snap-in insert rings, and a superior plate-leveling system. You can have the plate pre-drilled for almost any router at no additional charge.

The fence clamps comfortably to the table top. This makes it easy to remove, and it's free of slots. Extruded fence channels accept Woodhaven's many optional accessories.

On the minus side, the top vibrates when the router is running, although not enough to affect accuracy. We also would have preferred to see a dust collection port in the enclosed base, but it's easy enough to install one yourself.

At A Glance:

Price: $290
Table Size: 23⅞" x 19"
Under Table Clearance: 14 7/16"
Top: Laminate on MDF
Weight: 52 lbs.

Virtues: Excellent fit and finish; unique snap-in insert rings; slick fence system.
Vices: Need screwdriver to adjust fence; top vibrates; no dust port in cabinet.
Verdict: A solid, well-made product with all the bases covered; plenty of add-ons available.

BENCHDOG RT100 ★★★★½

Compact and solid, this benchtop table comes with a lot of standard bells and whistles. Some of these include a beefy T-slot/miter-gauge extrusion, a dead-flat fence that's perfectly square, and an enclosed stand. The miter gauge slot is adjustable with set screws that take up any slop in the fit of the miter gauge's bar.

Our test model had a ⅜"-thick, clear acrylic baseplate with a 2" hole. Interchangeable insert rings aren't available. For different-sized openings, you'll need separate baseplates.

The split-fence adjustment knobs were cramped, but the main knobs that secure the fence to the table were accessible and comfortable.

Besides the solid construction and the full-featured fence, we were especially impressed with the clever aluminum jointing shims. These offset the outfeed fence quickly and positively for jointing.

At A Glance:

Price: $199
Table Size: 22" x 15¾"
Under Table Clearance: 12¾"
Top: Laminate on MDF
Weight: 35 lbs.

Virtues: Flat, solid and nicely made; excellent fence and miter gauge extrusions.
Vices: Minimal router headroom; fence knobs crowded; no dust port in cabinet.
Verdict: Best value in test, with all the features needed in a compact and affordable package.

ROCKLER

★★★★★

At A Glance:

Price: $273
Table Size: 31¾" x 24"
Under Table Clearance: 35½"
Top: Laminate on MDF
Weight: 42 lbs. (w/stand)

Virtues: Full-height; large table surface; sturdy base, convenient fence adjustments.
Vices: Featherboard hold-down only works for material up to ¾" thick.
Verdict: A sturdy, full-featured and workman-like table that is nicely designed and easy to use.

This floor-model table has a full-size top and all the important features. We tested it with a solid oak stand. A pine stand and a metal leg set are also available. The top has an aluminum miter gauge slot that accepts a standard ⅜" x ¾" miter gauge bar. Rockler offers an optional wooden featherboard that locks in the slot with a twist of a plastic knob.

The fence — a simple, straight aluminum angle extrusion — attaches to the top with carriage bolts and large, comfortable knobs. It has two movable subfences with T-slots in the front for a blade shield and an optional featherboard and stop block.

A drop-in aluminum baseplate is flat and rigid, but it vibrates and whines. The hole in the plastic template-guide insert ring was off-center by about 1/32". This was a big drawback for template routing accuracy.

EAGLE RT2000

★★★★★

At A Glance:

Price: $220
Table Size: 24" x 19⅛"
Under Table Clearance: 13"
Top: Laminate on MDF
Weight: 41 lbs.

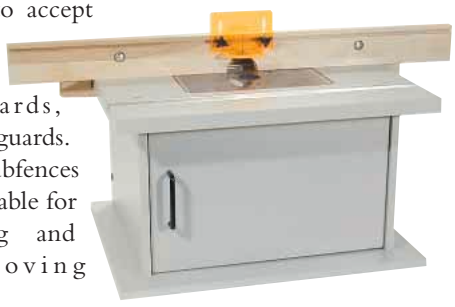
Virtues: Solid cabinet with enclosed base that cuts noise; long fence.
Vices: Sharp edges and corners on top; limited router headroom.
Verdict: A solid, compact router table with a square, straight fence and a catalog full of options.

Eagle America's entry-level table includes all the basic features you need. It also has the longest fence of the benchtop models tested.

The edges of the RT 2000's top are edge-banded with laminate, so they weren't as user-friendly as others with vinyl T-molding. Apart from a dip near the miter gauge slot, the top was flat and solid. A $20 baseplate with four insert rings is available.

The enclosed cabinet can be fitted with an optional dust-collection pickup. You also have to drill the exit hole for your router's power cord. The fence clamps to the sides of the table for fast removal.

The extruded aluminum fence is fitted with MDF subfences and a dust collection port. The subfences are slotted to accept Eagle's wide selection of featherboards, stops and guards. High-rise subfences are also available for panel-raising and edge-grooving operations.



CRAFTSMAN 26464

★★★½★

At A Glance:

Price: $299
Table Size: 27" x 18"
Under Table Clearance: 14⅛"
Top: Die-Cast Aluminum
Weight: 52 lbs.

Virtues: Sturdy; good plate-leveling system; versatile fence; safety switch.
Vices: Ribbed table surface isn't user-friendly; insert rings don't sit flush. Accuracy could be better.
Verdict: A solid, feature-packed table that can serve as a benchtop or floor model.

This latest router table from Craftsman is a full-featured benchtop model. We tested it with an optional steel floor stand. The cast aluminum top is coated with a clear anti-friction finish to prevent marring. A drop-in baseplate, drilled to fit all 1997 and later Craftsman routers, comes with three plastic insert rings. For other routers, you'll need the optional universal baseplate.

The three-piece aluminum fence is easy to adjust and has T-tracks for mounting a large, plastic featherboard, which comes standard with the floor-model version. Reversing the outfeed fence offsets it 1/16" for jointing operations.

The heavy-duty, clear, plastic bit guard enhances dust collection and keeps hands away from the bit. It can be flipped out of the way for miter-gauge operations and taller workpieces.

This table comes with a standard two-outlet safety switch, so you can turn on the router and a shop vacuum simultaneously.

WOODSTOCK REBEL

★★★★★

The Rebel is a lightweight aluminum benchtop router table with a sturdy, bolt-together, cast aluminum stand. The table is flat, the split fences are square to it, and the lock-down knobs can be accessed easily. But it's tedious to adjust both fence sections each time we changed the position of the fence. So we'd suggest a one-piece subfence to solve this problem.

We had to drill the holes in the aluminum baseplate to mount our router, but Woodstock offers custom-drilled plates for an extra charge. We had to remove about $^1/_{32}$" from the plastic insert ring's flange so it would sit flush with the table.

The overarm blade guard doubles for dust pick-up. But it isn't very effective for either purpose when the fences are close to the bit. It also requires a 3"-dia. flexible hose and clamp to connect to the opening.

At A Glance:

Price: $188
Table Size: 24" x 18"
Under Table Clearance: 17"
Top: Cast Aluminum
Weight: 35 lbs.

Virtues: Rock-solid yet lightweight; flat table surface; rigid aluminum baseplate.
Vices: Separate fences tedious to adjust, blade guard not always usable.
Verdict: A solid and accurately machined table, without many frills or accessories.

JESADA

★★★★★

This is Jesada's only router table for under $300. It's a floor-model table with a full-size top, a simple extruded aluminum fence, and a sturdy drop-in baseplate that must be drilled to accommodate your router. The baseplate comes standard with two nested insert rings, but the outer ring stands about .010" proud of the plate surface.

The leg set included consists of two rather flimsy sheet-metal leg units that require a plywood shelf and rails for stability. Once braced, the table is quite rigid.

You'll need to rout slots in the table top to attach the fence. This isn't difficult, but you'll need a $^3/_8$" straight bit and edge guide (no instructions or dimensions included).

We had mixed feelings about the cam-lock levers that held the fence in place. They hold securely enough, but their sharp edges and corners make them uncomfortable to operate.

At A Glance:

Price: $240
Table Size: $31^5/_8$" x 24"
Under Table Clearance: $22^{11}/_{16}$"
Top:Laminate on MDF
Weight: 46 lbs.

Virtues: Large, floor-model table with a straight fence.
Vices: Top has no slots; legs must be braced; no provision for split fence.
Verdict: A full-size, no-frills router table with a large top. But few accessories are available.

PORTER-CABLE 698

★★★★★

This small benchtop table has some good features — easy assembly and a remote router switch. But overall, we were disappointed with its design and operation.

The cast aluminum top is pre-drilled to accept all Porter-Cable routers, but there isn't enough clearance underneath for their $3^1/_4$ HP plunge routers unless you mount the table on a stand or cutout table.

The flat table top came equipped with a miter gauge, but the sharp grooves are intrusive. Also, the steel insert ring sits about .025" below the table surface, so your work tends to catch on the edge of the opening.

The two-piece fence design means you have to adjust each fence independently every time. The fences were straight but weren't square to the table. And the blade guard on the right fence casting was awkward to use and remove.

At A Glance:

Price: $149
Table Size: $19^3/_4$" x $16^3/_4$"
Under Table Clearance: $13^3/_8$"
Top: Cast Aluminum
Weight: 26 lbs.

Virtues: Light and portable; easy to assemble; has remote router switch.
Vices: Fence not square to table; blade guard and dual fences awkward.
Verdict: The least-expensive and least-impressive table tested.

Final Recommendations

Most of our test models excelled in some areas and fell short in others. That's why we suggest you base your final decision on the features that are most important to you.

The first thing to consider is the router you plan to use in your table. If your only router is a 3 HP plunge router, you may find that it won't fit comfortably in a short benchtop table such as the Bench Dog or the Eagle. The Porter Cable table accepts only Porter Cable routers. If you want to be able to stow your router table under a bench or toss it in the truck, choose a benchtop model.

Accuracy, ease-of-use and optional accessories are also important. With only minor exceptions (noted in the individual write-ups), all the tables were accurate enough for normal routing chores. We liked the drop-in baseplates of the Woodhaven, Bench Dog, Eagle, Jesada, and Rockler tables. We also preferred the easy-to-remove fences of the Woodhaven, Eagle, and Veritas models. The Bench Dog had the most comfortable fence knobs.

Because these are entry-level tables, it pays to look ahead to other accessories you might want to add later. It's hard to beat Veritas' extensive line of nifty add-ons; although Eagle, Woodhaven and Bench Dog also offer plenty of options.

TOP PICKS

The Veritas table earned our *Editor's Choice* award because of its innovative features: the solid-steel tilting top, the unique router clamp, the clever insert rings, and the slick fence system. Though it didn't have a drop-in baseplate, the router clamp is more convenient and sturdier. One thing missing on the standard Veritas model was a dust chute, but they offer a great one with a magnetic base that can be used on other machines, too.

Close behind the Veritas were the Woodhaven and Bench Dog tables, with their enclosed stands and wide range of optional fence accessories. The Woodhaven scored slightly higher because of its more ample headroom, snap-in ring system and unbroken table surface. The Bench Dog won our *Top Value* award because of its excellent performance at a very reasonable price.

GOOD TABLES THAT FELL SHORT

The Rockler, Eagle America, and Craftsman tables also earned respectable ratings. Of the three, the Craftsman had the most standard features, including the only dual-outlet switch in the test. But the Eagle America and Rockler tables offer more optional accessories.

We liked Rockler's larger table, open stand and sturdy aluminum baseplate. The Craftsman's ribbed aluminum table surface wasn't as user-friendly as a laminate-surfaced top.

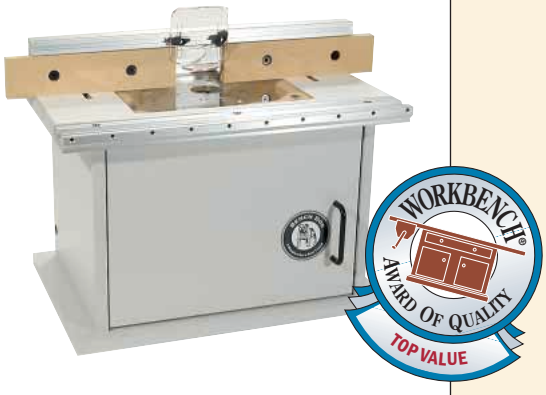
ROUNDING OUT OUR LIST

The Woodstock Rebel and the Porter Cable table both lost points for their independently adjustable fences.

The Jesada model we tested had the virtue of being a floor model, but it didn't offer as many features as our top picks. The uneven baseplate was also a drawback.

VERITAS ROUTER TABLE SYSTEM

BENCH DOG PRO TOP PORTABLE RT100



SOUND OFF ON-LINE

Here's your chance to tell us what you think about this router table test. Do you agree or disagree? How helpful was this review? Even share your own experience with these (or other) router tables. We want your feedback. Just go to the *Tool Reviews* page at **www.WorkbenchMagazine.com**

HOW TO CONTACT THE MANUFACTURERS

Veritas .....800-871-8158 www.LeeValley.com	**Rockler** .....800-279-4441 www.Rockler.com	**Woodstock Int.** ..... 800-840-8420 www.WoodstockInternational.com
Woodhaven .....800-344-6657 www.Woodhaven.com	**Eagle America** .....800-872-2511 www.Eagle-America.com	**Jesada** .....800-531-5559 www.Jesada.com
Bench Dog .....800-786-8902 www.BenchDog.com	**Craftsman** .....800-349-4358 www.Sears.com	**Porter Cable** .....800-487-8665 www.PorterCable.com

Stacking Storage Bins

Stack 'em up for storage. Then reconfigure the bins if your storage needs change. The secret is a unique system of interlocking parts.

There's no doubt that these open-front pine storage bins will come in handy. Put them in a kid's room to get a handle on the clutter, as shown below. Or build them from Medium-Density Fiberboard (MDF) and use them for utility bins (see page 45). But the most intriguing thing about these bins isn't how much stuff they hold. It's how they *stack* together.

KEY & NOTCH. To see what I mean, take a look at the inset photo below. There's a wood *key* on each side that fits into a corresponding *notch*. This interlocking system of keys and notches prevents the bins from moving from side-to-side or front-to-back. Plus, it lets you reconfigure the bins if your storage needs change.

TWO BIN SIZES. Another thing you'll notice is there are *two* different sizes of bins. A large lower unit provides a sturdy base to keep the stack of bins from tipping. The smaller, upper units stack on top.

Once you decide how many bins of each you want, building them is almost as easy as stacking them together. That's because there are a number of identical parts.

TEMPLATE ROUTING. To make these parts quickly and efficiently, I used an old production technique. It involves using a template and a router with a pattern bit to cut pieces to shape.

THREE TEMPLATES

Altogether, there are *three* templates: one for the sides of the upper bin, one for the sides of the lower bin, and a third for the fronts of both units *(3 Templates)*.

Note: The *fronts* of the bins are different in size, but the long, shallow notch in each piece is identical. So you can use the front template when routing the notch in *each* of the front pieces.

I'd recommend using a 1/4" hardboard for the templates. It machines well and produces a nice, smooth edge

for the bearing of the router bit to ride against. This way, you won't have to worry about any irregularities in the template being transferred to the workpiece.

LAY OUT TEMPLATES. When it comes to laying out the templates, all three of them will fit on a quarter sheet of hardboard. The important thing here is to make sure that the critical parts — the key and notch — align with each other. This way, the bins should stack together just right when they're completed.

An easy way to accomplish this is to lay out one side template directly above the other (*3 Templates*). Using the "factory" edge of the hardboard as the *back* edge of these side templates will also help.

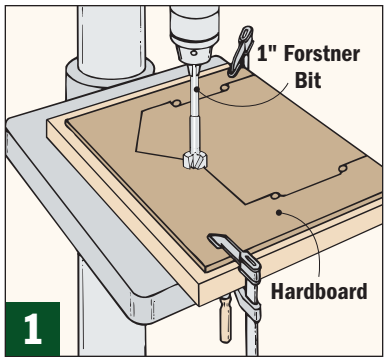
While you're at it, lay out and drill the 1/4" holes that form the radius of the *inside* corners of each key and notch (*Radius Detail*). There's also a 1/2" radius where the bin tilts out, which means drilling a 1" hole (*Fig. 1*).

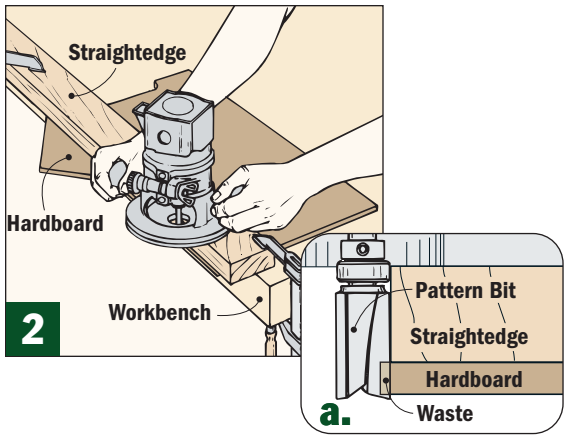
CUT TO SHAPE. Now, you're ready to begin cutting the templates to shape. It works well to rough cut them first with a jig saw, staying about 1/8" outside the layout lines. Then, to remove the rest of the waste material (and to create smooth, straight edges), I used the trick shown in *Figure 2*.

Start by clamping a *straight* wood fence along one of the layout lines. Then use this straightedge to guide a pattern bit mounted in a handheld router *(Fig. 2a)*. As the bearing on the bit rides against the straightedge, the cutting edge trims the template precisely on the layout line. Work your way around the panel, moving the straightedge as needed.

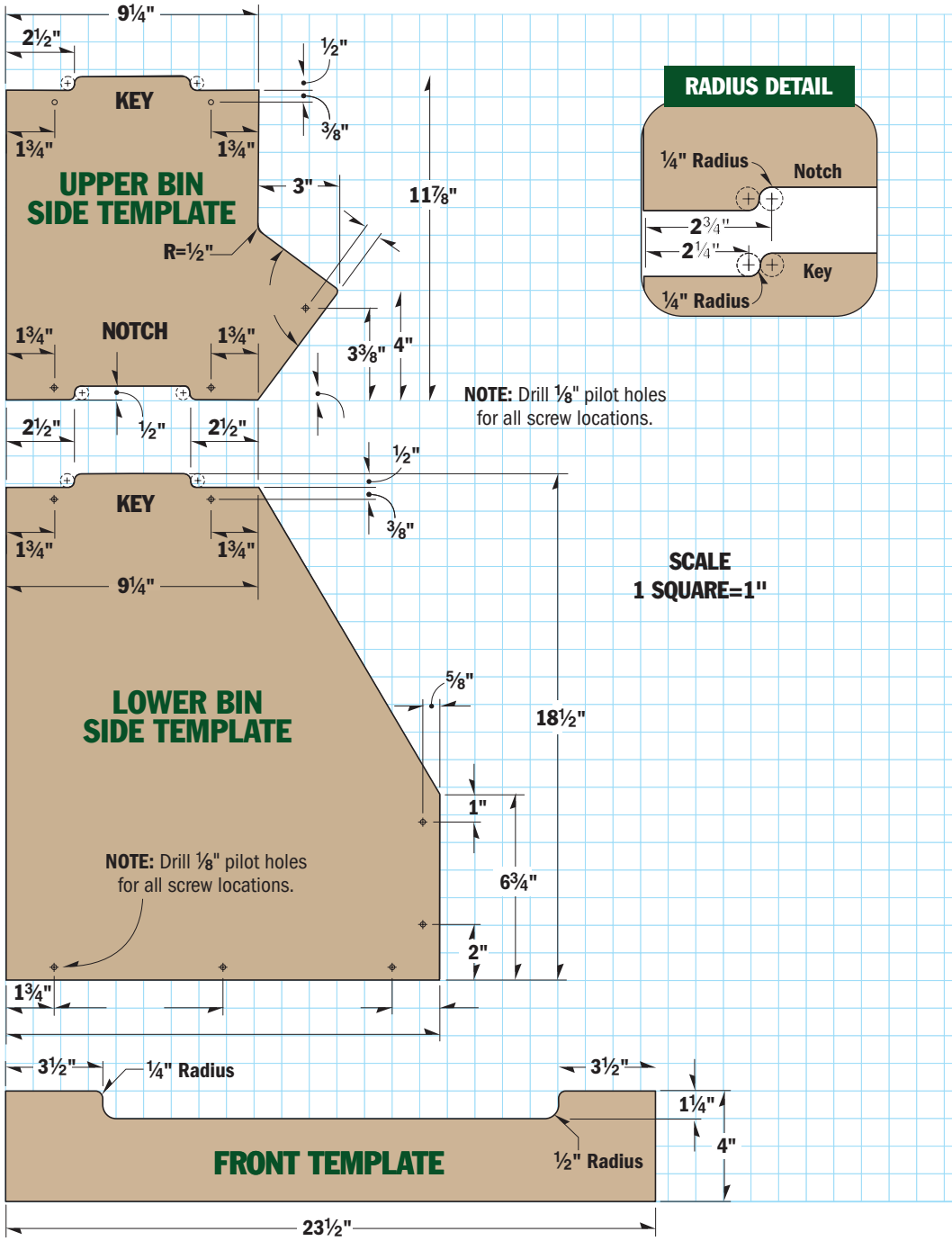
There are two things left to do to complete the templates. First, file and sand the curved, *outside* corners of the key to shape. Now is a good time to set two of the templates together and make sure they fit. If needed, sand lightly to adjust the fit.

The second thing is to drill pilot holes in the templates that will be used to mark screw locations on the sides of the bins. Looking ahead, these holes will do double duty, providing a way to attach the templates to the sides.





3 TEMPLATES



UPPER BIN CONSTRUCTION

MATERIALS LIST

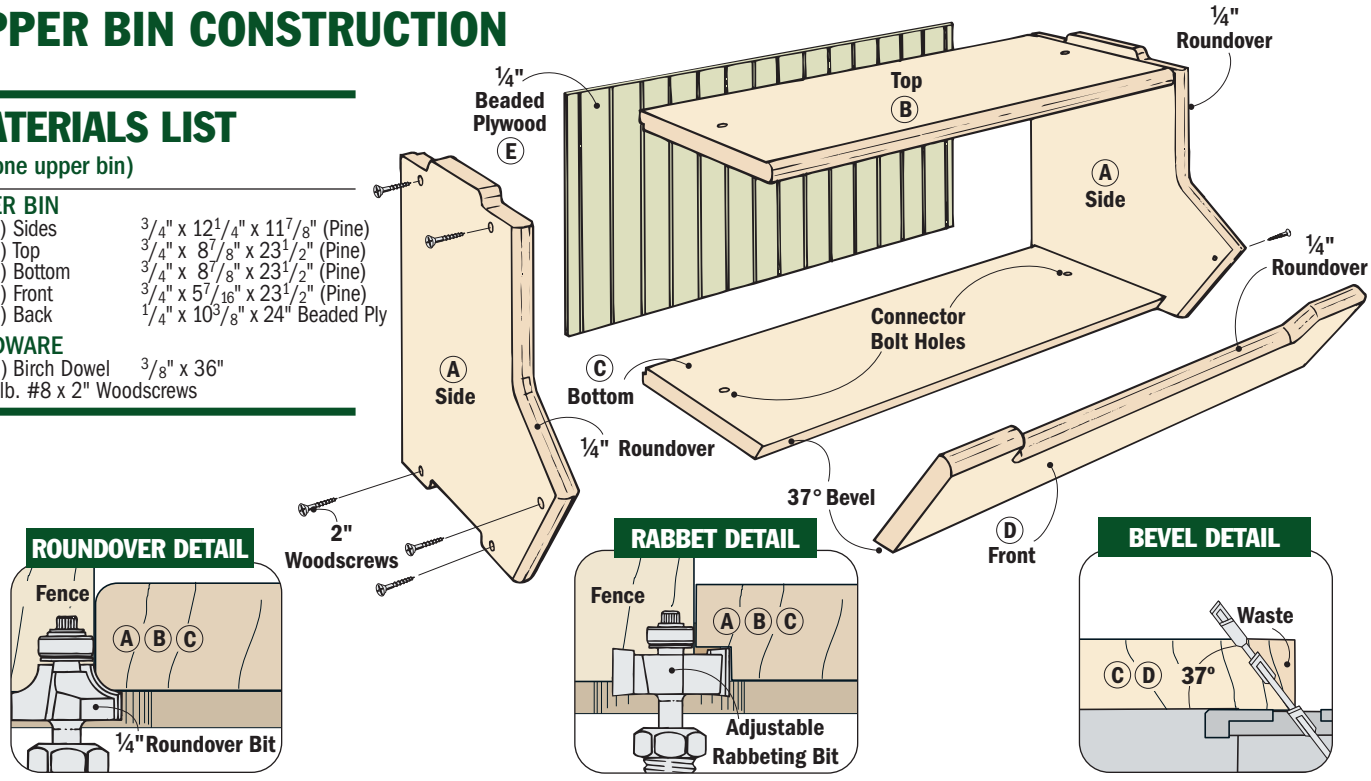
(for one upper bin)

UPPER BIN

A	(2) Sides	3/4" x 12 1/4" x 11 7/8" (Pine)
B	(1) Top	3/4" x 8 7/8" x 23 1/2" (Pine)
C	(1) Bottom	3/4" x 8 7/8" x 23 1/2" (Pine)
D	(1) Front	3/4" x 5 7/16" x 23 1/2" (Pine)
E	(1) Back	1/4" x 10 3/8" x 24" Beaded Ply

HARDWARE

(1) Birch Dowel 3/8" x 36"
1 lb. #8 x 2" Woodscrews



BIN BASICS

With the templates complete, turn your attention to the storage bins. I started by making three *upper bins* from 3/4"-thick stock (pine) like the one shown above.

If you use solid wood, you'll need to edge-glue several boards to make panels wide enough for the sides (A). We've provided some tips for gluing up smooth, flat panels on page 13.

ATTACH TEMPLATE. The next step is to screw the template for the upper bin sides to one of the glued-up panels. Use the pilot holes in the template to locate the screws. As for the screw holes in the panel, don't worry about them. Later, they'll automatically locate the holes used when screwing the bin together.

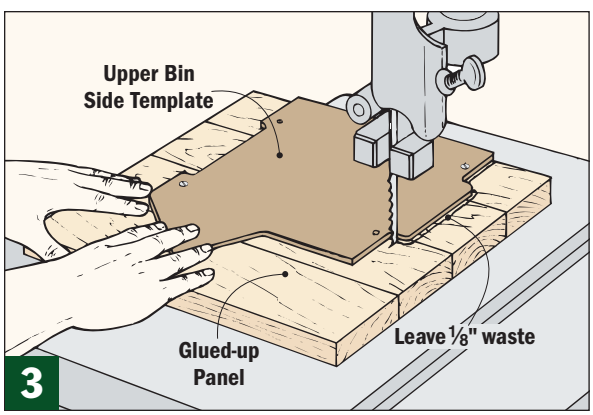
REMOVE WASTE. With the template in place, use a band saw (or jig saw) to remove the bulk of the waste (*Fig. 3*). Be careful not to cut into the edge of the template. I make it a point to stay at least 1/8" away from the edge. This leaves a small amount of waste that can be removed easily.

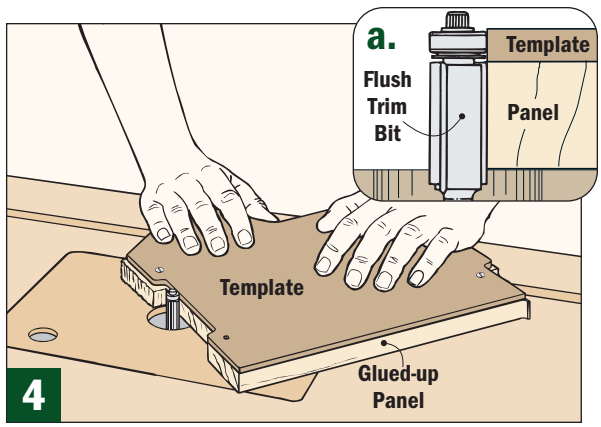
ROUT SIDES TO SHAPE. Now it's time to rout the side to shape. The idea here is to use a flush trim bit mounted in a router table *(Fig. 4)*. After adjusting the height of the bit so the bearing rides against the template *(Fig. 4a)*, rout the sides, moving the workpiece from *right to left*.

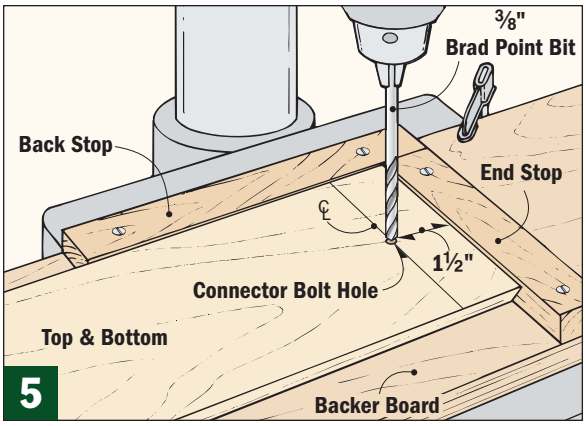
This works fine for the long, straight cuts. But there's a problem where the sides comes to a point, and also near the outside corners of the key and notch. In these areas, the bit may tear out the end grain fibers.

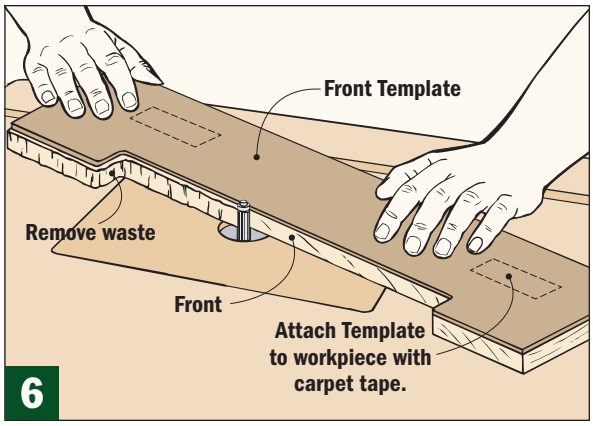
To prevent this, I *backrouted* in the *opposite* direction (left to right). Safety Note: To prevent the bit from "grabbing" the workpiece out of your hands, get a firm grip and backrout *only* in these areas.

After routing the first side (A), remove the template, attach it to another glued-up panel, and then just repeat the process. Remember, there's no need to worry about the screw holes in the sides. They mark









the locations of the screws that hold the bins together.

I didn't want these screws to show when the bin was assembled. So I drilled a counterbore at each hole location to hold a wood plug that will eventually cover the screw head.

Next, I routed a roundover on the front edge of each side *(Roundover Detail)*. This eases the sharp edges, plus it creates a decorative touch.

To complete each side, you'll need to rout a shallow rabbet in the back edge *(Rabbet Detail)*. Later, this rabbet will hold the back (E) of the bin. Be aware that the sides are mirror images of each other, so don't accidentally rout the wrong face.

TOP & BOTTOM. Now you're ready to add the top (B) and bottom (C). These pieces are $8\frac{7}{8}$" wide, so just as before, start by edge gluing a wood panel from $\frac{3}{4}$"-thick boards.

As with the sides, you'll need to rout a rabbet in the *back* edge to hold the back of the bin. But the *front* edges of these panels are different.

Here again, the exposed front edge of the top is rounded over. But in order to fit against the tilted front of the bin, the front edge of the bottom panel is beveled at a 37° angle *(Upper Bin Construction, Bevel Detail)*.

All that's left to complete the top and bottom is to drill a couple of holes in each piece. These holes accept bolts that will be used to hold the bins together. To make it easy to stack the bins in any combination, it's important that the holes align. So I used a simple alignment jig shown in *Figure 5* to accurately position the workpieces when drilling the holes.

BIN FRONT. With most of the work on the bin completed, it's time to concentrate on the front (D). To provide easy access, the front is tilted out. Plus, there's a long, shallow notch in the top edge.

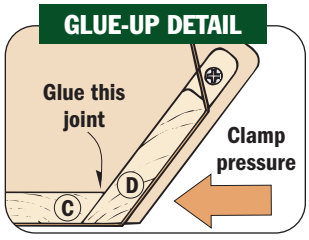
If you look at the *Glue-Up Detail* below, you can see that the front will fit against the beveled edge of the bottom piece. To create a flat-bottomed bin, this requires cutting another bevel, this time on the lower edge of the front piece. Here again, ripping a 37° bevel should produce a tight-fitting joint.

The next step is to cut the long notch in the top edge of the front piece. This is where the *third* template comes in. Attach this template to the front with carpet tape and rough out the notch as before. Then use the same template routing technique to cut it to final shape *(Fig. 6)*.

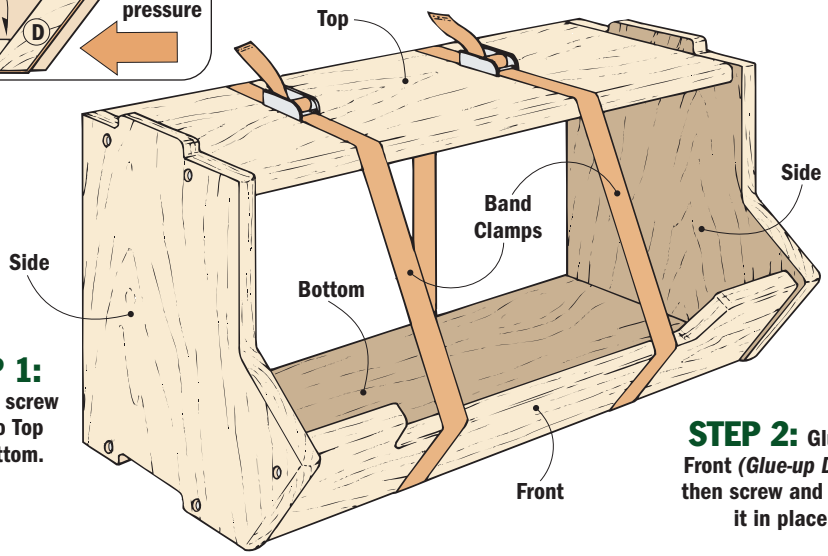
BEADBOARD BACK. You're almost ready to assemble the bin. But first, you'll need to make a back (E). I used a $\frac{1}{4}$" beadboard panel to create an old-fashioned look, but plywood would work fine, too.

ASSEMBLE THE BINS. Finally, it's time to glue and screw the bins together. The assembly sequence shown below worked great for me. Just a quick note — installing the screws will "clamp" the bins together. The band clamps are used *only* to draw the glue joint together between the front and bottom of the bin.

Once the glue dries, it's just a matter of installing wood plugs to cover the screws. For some tips on this, turn to page 15.



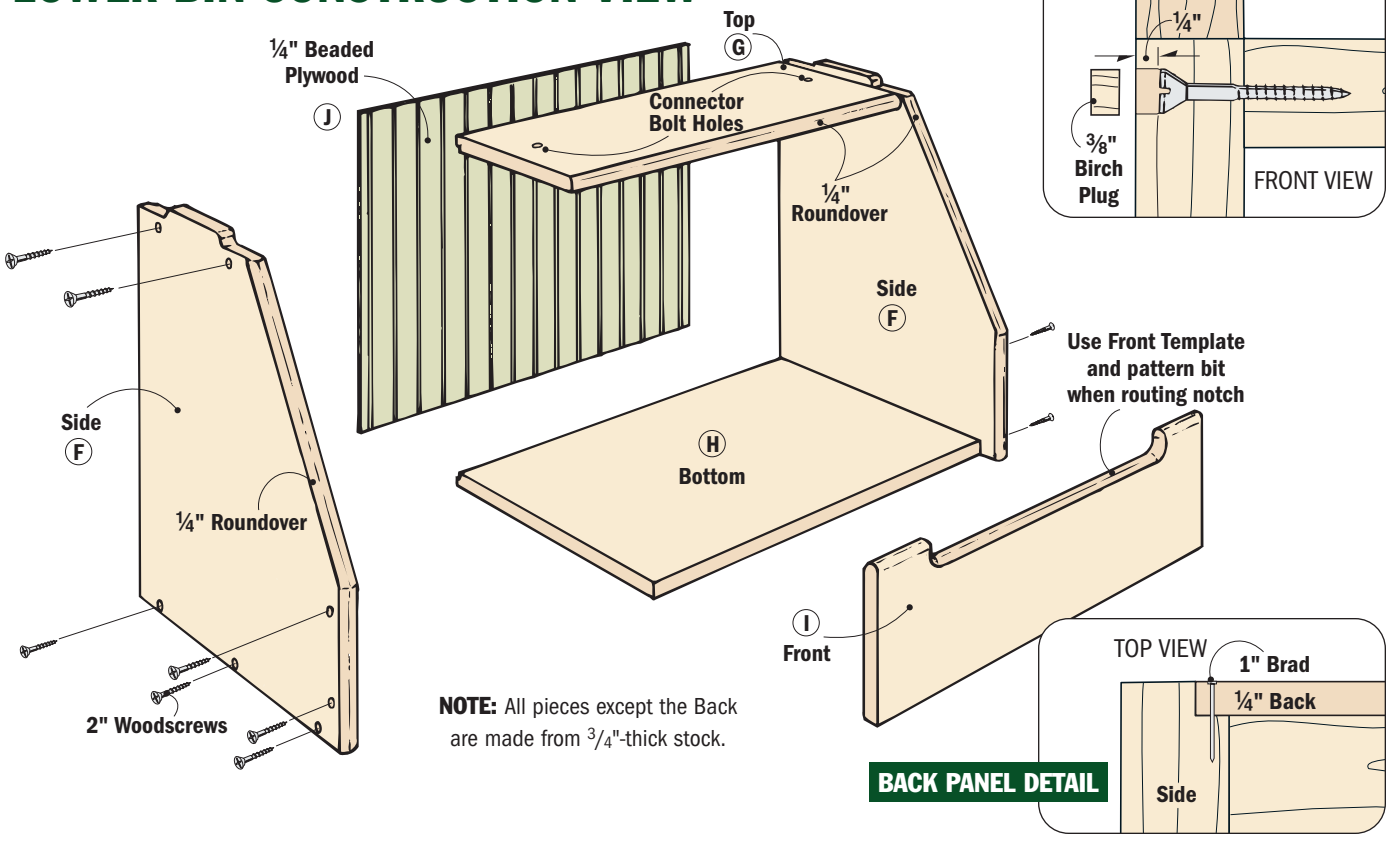
ASSEMBLY SEQUENCE



STEP 1: Glue and screw Sides to Top and Bottom.

STEP 2: Glue on Front *(Glue-up Detail)* then screw and clamp it in place.

LOWER BIN CONSTRUCTION VIEW



After stacking up the bins, installing connector bolts "locks" them securely in place.

BUILD THE LOWER BIN

The lower bin is designed and constructed very similar to the upper bins — an open pine box with a beadboard back. But there are some differences between the upper bins and the lower bin that are worth noting.

SIZE. First, the lower bin is wider (from front to back) than the upper bins. This creates a larger footprint, which gives the stack of bins more stability to keep it from tipping. The lower bin is also taller than the upper bins, so it holds more stuff (or larger items). To provide easy access to what's inside, the opening of the bin is also larger. This is accomplished by tapering the sides all the way from the top to the front of the bin.

If you take a look at the *Construction View* above, you'll notice another difference between the upper and lower bin. The front of the lower bin sits straight up and down instead of at an angle like the upper bins. This prevents it from sticking too far into the room.

TRUSTY TEMPLATES

Here again, it's important that the side pieces of the lower bin are identical to one another. An easy way to get accurate results is to use the same template routing technique as before. Only this time, be sure to use the Side Template for the lower bin shown on page 41.

As for the front (I) of the lower bin, it's *taller* than the front on the upper bins. But the notch is the same size and shape, which means you can use the same Front Template when routing it to shape.

CONSTRUCTION DETAILS

Like the upper bin, the lower bin consists of two sides (F) connected by a top (G), bottom (H), and front (I), *(Construction View)*. And here again, a ¼" beadboard back (J) fits into a rabbet in back of the bin *(Back Detail)*.

As before, a key in the top of each side fits into a corresponding notch in an upper bin. Since the base won't be stacked on top of another bin, there's no need to notch the bottom edge. But don't forget to drill pilot holes in the top (G) for the connector bolts that hold the bins together.

ASSEMBLY. The assembly of the lower bin goes fairly quickly. Just glue and screw it together, and then add wood plugs, as shown in the *Plug Detail* above.

CONNECTOR BOLTS. To hold the bins together, I used a special fastener called a *connector bolt*. As you can see in the margin, it's a bolt that passes through the holes in the bins and a T-nut that tightens on the end of it. This secures the bins and leaves a virtually flat surface inside. (Connector bolts are available at most home centers).

MATERIALS LIST

(for one lower bin)

LOWER BIN	
F (2) Sides	¾" x 15⅞" x 18½" (Pine)
G (1) Top	¾" x 8⅞" x 23½" (Pine)
H (1) Bottom	¾" x 15⅛" x 23½" (Pine)
I (1) Front	¾" x 6⅝" x 23½" (Pine)
J (1) Back	¼" x 17" x 24" Beaded Ply.

STAINING & FINISHING PINE

A project isn't finished until it's finished. But since these Storage Bins are made of pine, staining and finishing them can be a challenge.

The problem is that the pores of the wood alternate from large, open pores to small, dense ones. These variations affect the way a stain is absorbed into the wood. Most of the time, the result is ugly blotches.

That's why projects made of pine are often finished without a stain. Or, they're just painted. But for these bins, I wanted to create that warm look of aged pine — without waiting for it to develop naturally.

Using a honey-colored stain turned out to be just the ticket. But to avoid blotches, I first treated the wood with a conditioner.

WOOD CONDITIONER. The type of wood conditioner I used is a thinned-down oil that penetrates all the pores of the wood. So when the stain is applied, it doesn't penetrate as deeply. But it colors more evenly. This means there's less blotching.

Many manufacturers make wood conditioners. (They're also called stain controllers.) I used a product called Pre-Stain Wood Conditioner, which is manufactured by Minwax (See photo at right).

There's nothing mysterious about wood conditioner. It's applied just like an ordinary coat of oil finish. Wipe (or brush) on the conditioner liberally, and let it soak in before wiping off the excess. Then be sure to apply the stain right away — *before* the wood conditioner has dried completely.

STAINING. As a rule, I use lighter-colored stains on a project made of pine. They don't seem to highlight the dents, torn wood fibers, or swirl marks from sanding as much as dark-colored stains.

FINISHING. With most oil-based stains, you usually have to wait about 24 hours before applying a finish. But I took a shortcut. To save time, I used a product called Polyshades that combines a honey-colored stain *and* a polyurethane finish. You can find Polyshades at most home centers and hardware stores.

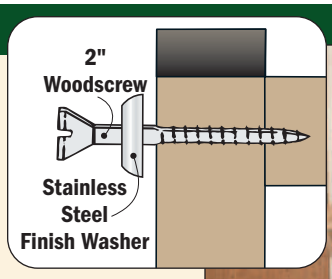
To avoid blotching, treat pine with a wood conditioner first. After wiping off excess conditioner — and before it dries — brush on Polyshades, a combination stain and finish.

STACKING UTILITY BINS

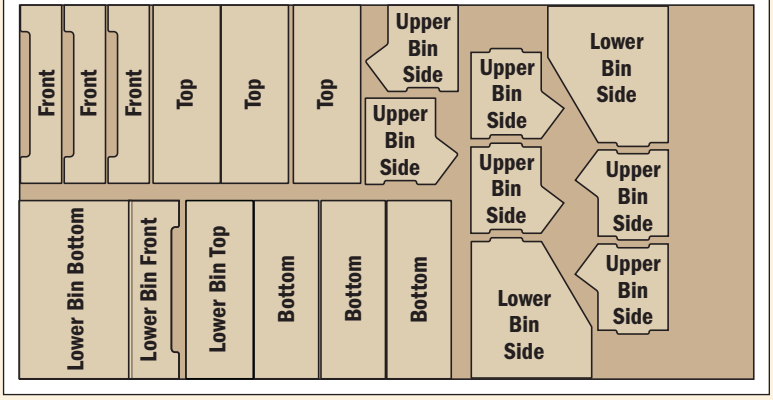
These stacking storage bins are ideal for a utility area such as a garage. Plus, they're inexpensive and can be built quickly.

The bins shown here are made of $^3/_4$" Medium-Density Fiberboard (MDF). Like any sheet material, MDF provides a ready-made supply of wide panels. And it produces a clean, crisp edge when routed. All it takes is a single sheet of MDF (about $19) to make a lower bin and three upper bins *(Cutting Diagram)*.

Here again, the bins are glued and screwed together. As you can see in the detail above, finish washers provide a decorative touch.



CUTTING DIAGRAM ($^3/_4$" MDF 49" x 97")



5 Energy-Saving Tune-Up Tips

Five simple tips guaranteed to take the chill out of your energy bill.

After last year's rise in energy prices, it's a good idea to prepare for whatever winter might throw at you this year. Here are five simple tips you can use to button up your home *and* save money on energy bills in the process.

What's more, implementing these energy-saving measures won't chew up a lot of time. In fact, you can probably knock them out in a weekend and still have time to watch your favorite football game.

1 Dealing with Drafty Doors

One of the biggest culprits when it comes to high energy bills are drafty doors.

OLDER DOORS. Many older doors have a flexible rubber gasket in the threshold that seals out air (*Detail a,* below). If it gets brittle or tears, the gasket will let air enter in. When it's time to replace it, be sure to bring the old one along so you can get the same style and size of gasket.

WEATHERSTRIPPING. The door threshold isn't the only potential air leak. Don't forget to inspect the weatherstripping on the door jamb.

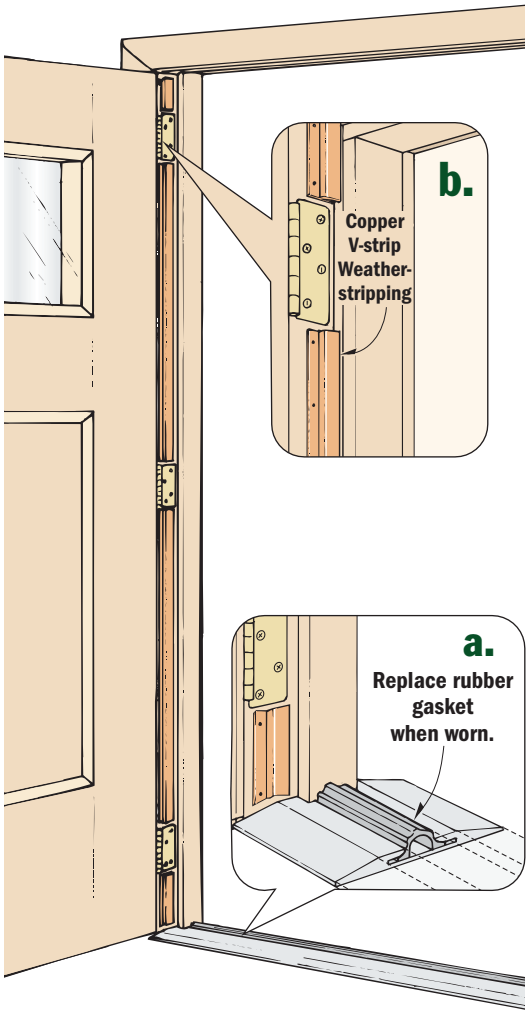
Adhesive-backed foam and vinyl weatherstripping are tempting to install, but they wear quickly. For a more permanent fix, I prefer spring-metal "V" strips made of copper *(Detail b).* The copper is flexible, so when the window or door closes against it, the sides of the "V" push out to fill the gap, stopping air from coming through.

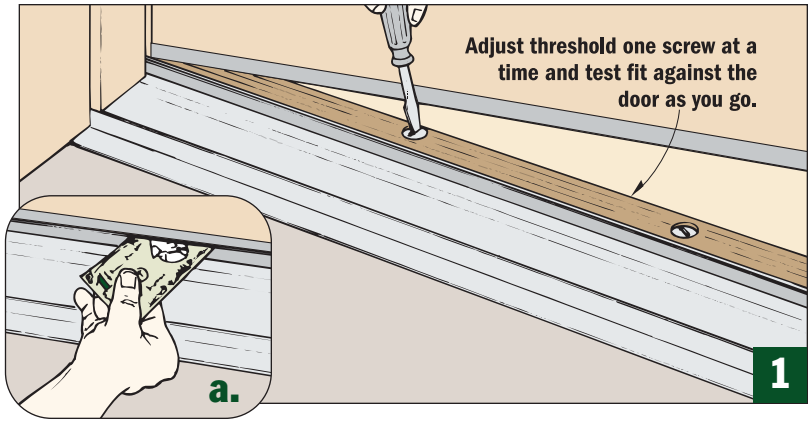
NEWER DOORS. Most new doors have a handy way of sealing air leaks — built-in weatherstripping that fits directly into the jambs and header. But over time, even this weatherstripping may begin to wear. And it's fairly specialized, so it may be difficult to find.

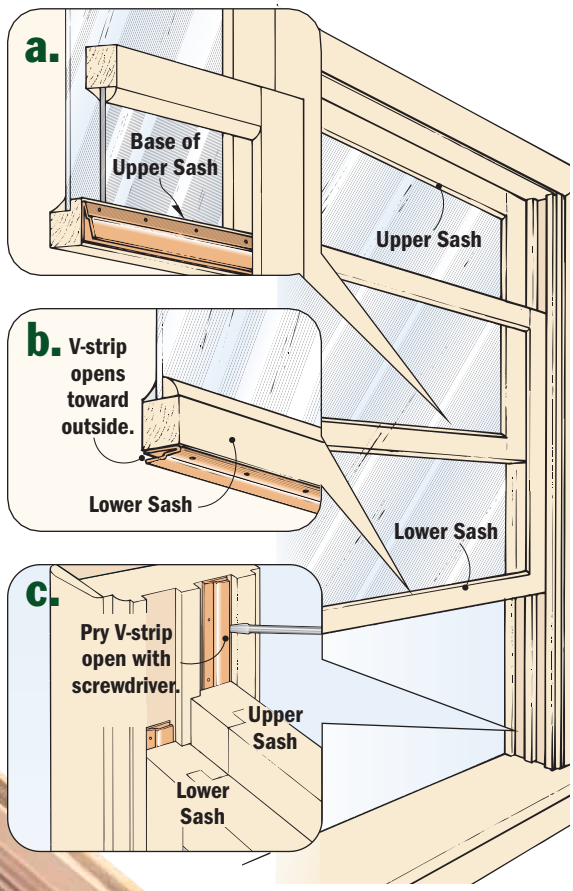
That's when the reliable old weatherstripping products that are available at most hardware stores and home centers come in handy. (We've shown three different types in the margin on page 47.)

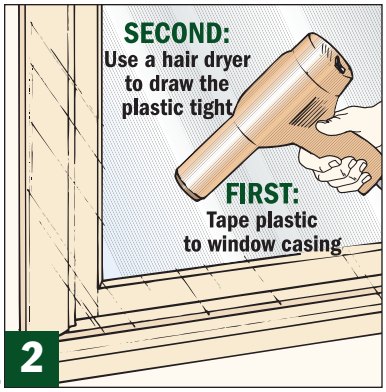
ADJUST THRESHOLD. Another plus of the newer style doors is that they usually have an *adjustable* threshold. Simply turning an adjustment screw raises or lowers the threshold to fit against the bottom of the door *(Fig. 1).*

Start at the hinge side of the door and work your way across. You'll know the adjustment is right when you can pull a dollar bill between the door and threshold with firm resistance *(Fig. 1a).*









2 Weatherstrip Windows

On short, winter days, it's nice to let in as much sunshine as you can. What you *don't* want to do is let in cold air. That means plugging all the nooks and crannies around your windows where air can leak in or out.

The drawing at left shows the areas in a *double-hung* window where chilly air is likely to creep inside your home. But *all* window styles — awning, casement, and horizontal sliders — have their own "weak links."

Regardless of what style of windows you have, the solution is the same — inspect the weatherstripping and replace it if necessary. The three types of weatherstripping shown in the margin at left are just a sample of what's available. We used the copper V-strips for this illustration.

So where *should* you install the weatherstripping? With a double-hung window, there are three important areas.

The first place is where the two sashes meet when the window is closed. Notice in *Detail a* that the V-strip is tacked to the inner edge of the base on the upper sash. This way, when the window is closed, the V-strip pushes against both sashes and keeps air out.

Another place that needs attention is where the bottom of the inside sash meets the window sill *(Detail b)*. All that's needed here is to apply the V-strip so the open side of the 'V' is pointing toward the outside.

The last place to install strips of weatherstripping is the track between the sash and the window jamb *(Detail c)*. They don't have to extend the full length of the jamb. Just cut two strips the same length as the sash height for each side. Then raise the lower sash as high as possible, tack the strips in place, and gently pry the 'V' open. After lowering the upper sash, that strip is applied the same way.

METAL JAMBS. Of course, all this assumes you have wood jambs, not metal ones like those that were popular during the '50s. Since you can't tack weatherstripping to these jambs, the best alternative is to seal the entire window.

SHRINK-FIT PLASTIC. One of the easiest ways to seal the entire window is to "wrap" it in shrink-fit plastic, as shown in *Figure 2*. Although there are several brands available, the basic idea is the same. Tape the plastic all the way around, and then use a hair dryer to "shrink" it so it draws tightly across the window.

Just a reminder here. Don't get carried away and seal every window in the house. You'll still want to have some ventilation.

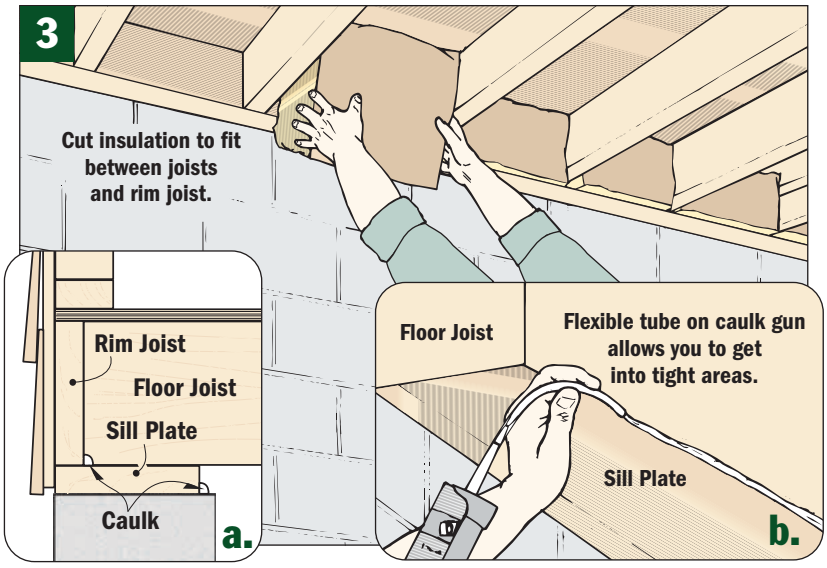
REMOVABLE "CORD" CAULKING

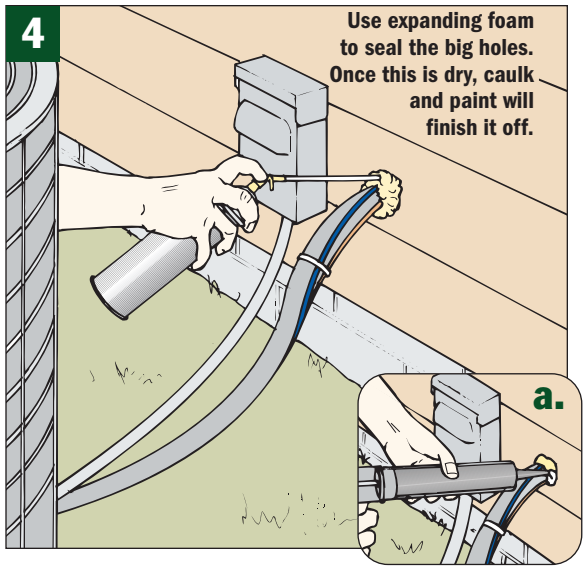
One of the most intriguing new products I've seen for sealing drafty windows is this removable "cord" caulking. (It also fixes rattles.)

The flexible cord is simply cut to length and pressed into a gap with a putty knife. In the spring, just pull it out and save it for future use.

If the diameter of the cord is too big around (it's about the size of a 16d nail), you can peel off strings to fill smaller gaps.

When working with the cord, it feels a bit sticky, almost as if it's been waxed. But it won't damage the wood surfaces of the window or jamb. And there's no clean-up required. (For sources, refer to page 51.)





3 Sealing Air Leaks

There are all sorts of entry points for wind and weather around the foundation of your home. Often, they go unnoticed because they're not in the main living area.

BASEMENT BREEZE. The basement is a good example — especially the cavities between the rim joist, floor joist, and sill plate *(Fig. 3)*. This is where the foundation of the house stops and the framing starts, and it's usually under-insulated.

One thing you can do to seal this area is apply two beads of caulk — one at the joint line of the rim joist and sill plate, and the other where the sill plate meets the foundation *(Fig. 3a)*.

There's only one problem. In such a cramped area, it's hard to hold the tube of caulk at the proper angle to lay down a tidy bead. So to avoid making a mess, I slip flexible tubing over the nozzle on the caulking tube *(Fig. 3b)*. This makes it easy to apply caulk right where I want.

Once that's accomplished, there's one more thing to do — insulate the cavities. This is just a matter of cutting a batt of insulation to match the height of the rim joist and then tucking it in place *(Fig. 3)*.

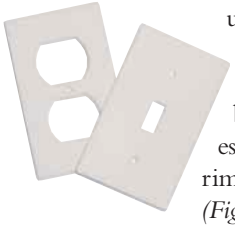
EXTERIOR OPENINGS. Often, the exterior of a house is an open invitation to air leaks. A typical entry point is where the air conditioning lines enter the house *(Fig. 4)*. But check *every* point where there's a clearance hole for a cable or phone line, gas pipe, or electrical conduit.

It only takes a minute to fill these openings — just spray expanding foam into the hole *(Fig. 4)*. Once the foam cures, top it off with paintable caulking for a tidy finish *(Fig. 4a)*.

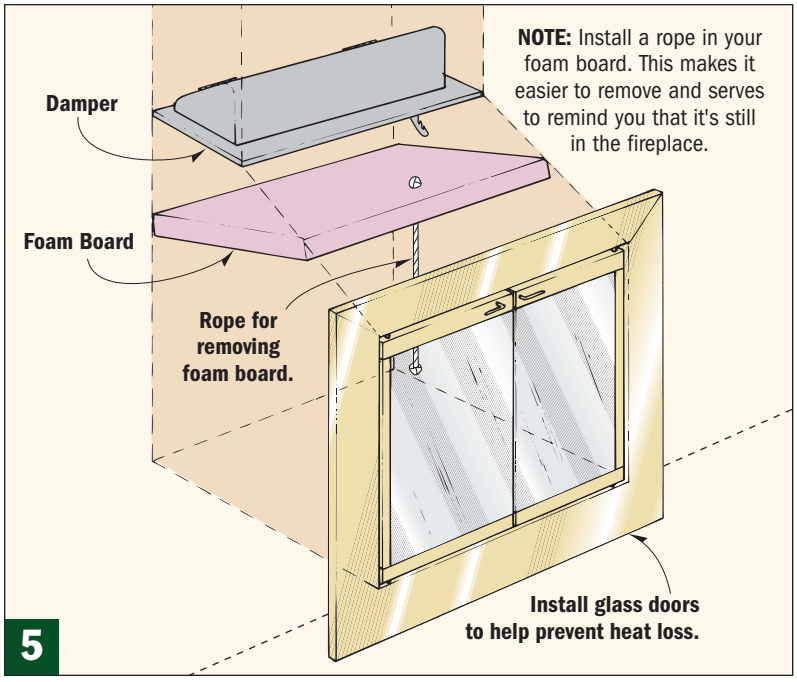
FIREPLACE. One final source to check for air leaks is the fireplace. Although it's nice on a cool, autumn night, a fireplace is one of the weakest links in the energy conservation chain. That's because all that stands between the warmth of your home and the cold, outside air is a cast iron plate called a damper *(Fig. 5)*.

A damper is designed to control airflow while a fire is burning, but it does little to prevent heat from escaping your house when the fire is out.

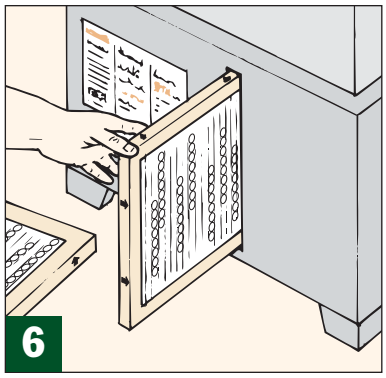
Adding glass doors to your fireplace makes a big improvement. Also, cut a sheet of 2" rigid foam insulation to fit the upper section of your firebox. To make the foam easy to remove (and to act as a reminder it's still in the fireplace), it's a good idea to install a rope in the foam.



Installing foam gaskets behind electrical cover plates is a small thing. But it can save as much as 2% in heating costs.



4 Check Your Furnace



Changing the furnace filter monthly saves money *and* prolongs the life of the furnace.

A blue flame is the sign of a well-tuned furnace.

A yellow, lazy-campfire flame means it's time for a tune-up.

FURNACE FILTER. One of the simplest things you can do to keep your furnace in tiptop shape is change the filter monthly *(Fig. 6)*. It will operate more efficiently *and* more safely.

A local service repair person told me that 31 percent of the calls that they receive are related to the filter. In short, a dirty air filter can wreak havoc on the best furnaces money can buy.

That's because when the filter is dirty, less air passes through the furnace. This causes the heat exchanger to overheat. When the furnace senses this, it will shut down momentarily to cool off. This tripping on and off is called "limiting out," and the furnace ends up not heating as well as it should.

TUNE-UP. But your furnace may need more than a filter. To find out, look inside the furnace window while it's running. The color of the flame will tell you if a tune-up is needed, as shown in the photos above.

Even if there isn't a visible problem, it's a good idea to have your heating system checked by a professional once a year. The list below shows you what a reputable heating and cooling contractor checks for when inspecting a furnace. A tune-up costs about $85 dollars, or less with some of the "early bird" specials that are offered.

Furnace Tune-Up Checklist

Here's a checklist of the tune-up procedures followed by most reputable cooling and heating contractors:

- ☑ Clean pilot ignition assembly, burners, and heat exchanger.
- ☑ Check the "firing rate" of the gas pressure to your furnace.
- ☑ Examine electrical connections.
- ☑ Test for proper ventilation.
- ☑ Check the amperage drawn by the blower motor.

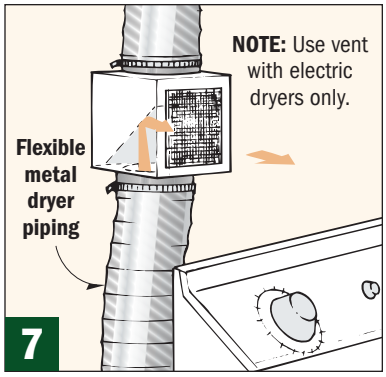
5 Maintaining Appliances

Appliances can be an energy "hog". But some minor modifications and maintenance are all that's needed to chip away at high power bills.

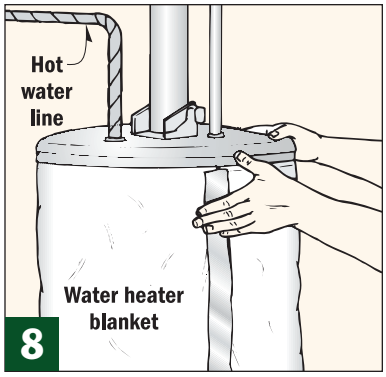
DRYER VENT. One easy way to save energy is to install a dryer vent. *Figure 7* shows an in-line vent with flexible metal piping. The benefit of this type of vent is it reclaims some of the heat and humidity that's needed in the winter. Safety Note: Don't use this system with a gas dryer.

WATER HEATER. I'd also recommend putting an insulated "blanket" around your water heater to provide a buffer from cool, basement air *(Fig. 8)*. While you're at it, don't forget to insulate the hot water pipes.

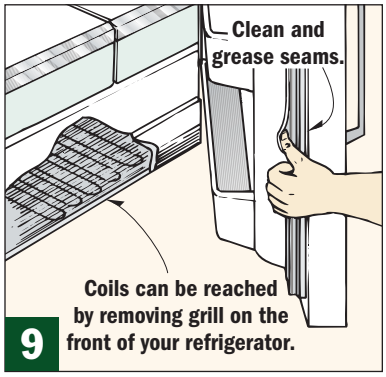
REFRIGERATOR. Finally, it's worth vacuuming the coils on your refrigerator at least twice a year *(Fig. 9)*. And greasing the seams of the magnetic door gaskets with petroleum jelly ensures a tight seal.



To reclaim heat and humidity from your clothes dryer, install flexible metal piping and a dryer vent heat recycler.



Wrapping your water heater and insulating outfeed lines saves energy and reduces the number of heating cycles.



Cleaning the coils and greasing the door gaskets twice a year keeps your refrigerator operating smoothly.

Sources & Resources

Hurricane Rafter Ties
SKU# 461938

Garden Shed Components – page 16

RAFTER TIES

The shed roof rafters are connected to the walls with H1 – Seismic and Hurricane Rafter/Truss Ties. These ties are manufactured by Simpson Strong Tie and are available online and in stores from Home Depot: SKU #461938

SIDING

We chose 1/2" × 6", A-and-better, beveled cedar lap siding distributed by Mid-America Cedar (MAC). To find a MAC dealer near you, visit their Web site or call their toll-free number (see below).

1/2" x 6" Cedar Lap Siding

SHINGLES

Owens Corning's Architectural Series Shingles offered just the look we wanted to cap the shed roof. We used Oakridge 25 shingles in Estate Gray. Visit the Owens Corning Web site or call their customer line to learn more about their products or to locate a dealer near you.

Oakridge 25 Shingles in Estate Gray

DOORS

Alterna Exterior Doors (a Jeld-Wen company) makes the 32" insulated six-panel composite doors we used for our shed. Visit their Web site to locate dealers in your area.

32" composite door, SKU# 202979

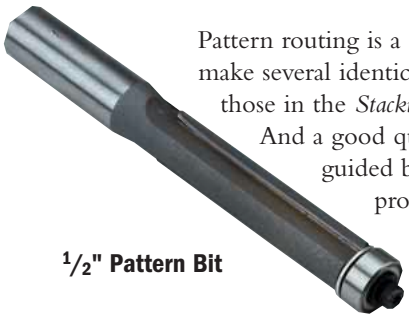
Home Depot	**770 - 433 - 8211**
www.HomeDepot.com	
Mid-America Cedar	**800 - 328 - 1403**
www.MidAmericaCedar.com	
Owen's Corning	**800 - 438 - 7465**
www.OwensCorning.com	
Jeld-Wen	**425 - 259 - 9292**
(maker of Alterna Exterior Doors)	
www.Jeld-Wen.com	

Cord Caulk – page 47

Cord Caulk is a great alternative to tube caulk to seal older windows. Not only does it block drafts, but it also helps quiet rattles. It's available from Lee Valley Tools in two colors. Each cord is actually a series of strands that can be separated to create smaller cords for stuffing into tight areas. Contact Lee Valley Tools for more information. SKU #99W39.4B

Lee Valley	**800 - 871 - 8158**
www.LeeValley.com	

Stacking Storage Bins: Bit and Hardware – page 40



1/2" Pattern Bit

Pattern routing is a great way to make several identical pieces like those in the *Stacking Storage Bins*. And a good quality bearing-guided bit makes the process all the easier. Look for carbide edged bits from Jesada, The Woodsmith Store or Rockler Woodworking.

For the hardware to connect all those newly-routed parts, log on to the Home Depot Web site or visit a local store. Rockler Woodworking and McFeely's also carry many similar connectors.

#8 x 2" Spax Screws & #8 Finishing Washers

Home Depot	**770 - 433 - 8211**
www.HomeDepot.com	
Rockler Woodworking	**800 - 279 - 4441**
www.Rockler.com	
McFeely's	**800 - 443 - 7937**
www.McFeelys.com	
The Woodsmith Store	**800 - 835 - 5084**
www.WoodsmithStore.com	
Jesada	**800 - 531 - 5559**
www.Jesada.com	

1/4" x 12MM Bronze Cap Nuts & 1/4" - 20 x 40MM Connecting Bolts

Pocket Door Installation – page 28

There are several manufacturers that offer quality pocket door framing and hardware kits. Although some kits fit only specific-size doors, most, including the L.E. Johnson Products 1500, the Sterling 1630, and the kit we used — Stanley PDFC 150N Series — are universal. These kits can be sized for any door up to 3 ft. wide.

Most of the kit companies also sell handles for pocket doors. You can also find pocket door handles at most home centers, lumberyards and hardware stores.

When it comes to doors, we chose a hollow-core Craftmaster Door Design by Masonite. You can call the number below for the name of the nearest supplier.

The Stanley Works .....800 - 782 - 6539
www.Stanley.com

L.E. Johnson Products .....800 - 837 - 5664
www.JohnsonHardware.com

Sterling .....800 - 367 - 5726
www.JohnSterling.com

Craftmaster by Masonite .....800 - 405 - 2233
www.Masonite.com

FEEDBACK AND FOLLOW-UP

SORRY, WRONG NUMBER

On page 48 of the July/August issue, we listed an incorrect phone number to contact McFeeley's to find the new nylon composite vertical toggle clamps from De-Sta-Co. The correct number is 800 - 443 - 7937.

The clamps are also available through McFeely's online store at www.McFeely's.com.

For more information on the clamps, visit De-Sta-Co's site at www.DeStaCo.com.

Heavy-Duty Mortising

This early Barnes mortising machine is a perfect example of 19th and early 20th century foot-powered tools.

The cast-iron frame of this heavy-duty mortiser provides stability and guarantees it will last a lifetime. And like so many other cast-iron tools of the time, the frame bears colorful handpainted pinstriping, decorative patterns, and even sculptured feet.

To use this mortising machine, a bit is lowered into a board by stepping on a spring-loaded foot pedal. Two adjustable rods keep the board from lifting as the bit is withdrawn (see the photograph below). To take each additional bite, the board is simply slid along the fence. In order to cut a square edge on both ends of the mortise, a handle on top of the shaft rotates a beveled bit.

To see this old-time mortiser in action, visit our Web site at WorkbenchMagazine.com

Mortiser courtesy of *Workbench* reader John Trier