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14 miter saw tips • Sliding miter saw review



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#122 July 2006
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Circle No. 27

FIX A MISALIGNED BLADE-GUIDE POST

Q Every time I change the height of the blade-guide post on my bandsaw, I have to readjust the thrust bearings and the guide blocks. Is there any way to fix this?

A The problem is that your blade-guide post is not traveling parallel with your blade. As you raise and lower the post, its position relative to the blade can change from front to back and from side to side. This requires readjustment of the thrust bearing and the guide blocks with each setting.

The condition can be remedied on a cast-iron saw by shimming the joint where the upper arm connects to the base or riser block. Brass shims are easy to use and come in a variety of thicknesses (see Source, below). The process takes a little trial and error, but once you've got the arm shimmed right, your saw is set for life.

1. Use a square to see whether the table is dead-square to the side of your blade. Loosen the table trunnions to correct.
2. Put the square up to the back of the blade to see whether it is square to the table. To correct it, adjust the tracking to center the blade on the wheel.
3. Remove the guard and blade-guide assembly from the blade-guide post. Lower the post all the way and check for square. Note the direction the upper arm must tilt to become square to the table.
4. Release the blade tension and loosen the bolt that connects the upper arm to the base.
5. Shim the joint to correct the out-of-square guide post. You'll have to estimate the size shim needed to align the guide post.
6. Retighten the arm bolt and tension the blade.
7. Check the guide post again. Repeat the procedure using different shim combinations until the post is dead-square front to back and side to side.

Source Lee Valley and Veritas, (800) 871-8158, www.leevalley.com Brass shim stock, sampler pack (one 2-in. x 6-in. strip of 0.001 in., 0.0015 in., 0.002 in., 0.003 in., 0.005 in. and 0.01 in.), #27K07.50, \$7.

If you have a question you'd like answered, send it to us at **Question & Answer, American Woodworker**, 2915 Commers Drive, Suite 700, Eagan, MN 55121 or e-mail to qanda@readersdigest.com. Sorry, but the volume of mail prevents us from answering each question individually.



GLUE-LINE RIP BLADE

Q I use my jointer to clean up sawn edges before glue-up. The results are great except when I try to joint figured wood. Any suggestions?

A Jointing highly figured wood often leaves nasty tear-out. It's times like these that a tablesaw and a specialized blade called a glue-line rip blade come in handy. A glue-line rip blade produces a much smoother edge than even the best 40-tooth combination blade can.

Glue-line rip blades are designed and used differently than standard rip blades. General-purpose rip blades are made for fast, rough cuts. Typically, they have 24 flat-ground teeth. A typical glue-line rip blade, on the other hand, has 30 teeth with every other tooth having a "triple-chip grind." The triple-chip tooth hogs out most of the material and the flat tooth cleans up what's left. This produces an ultra-smooth cut that's ready for glue-up.

You set up a glue-line rip blade differently than you do a typical blade (see photo, left). You'll get the best results by feeding the stock at a slow, steady rate.

Sources Freud, (800) 472-7307 www.freudtools.com 10-in.-dia. glue-line rip blade, #LU74R010, \$60. • Amana Tool, (800) 445-0077, www.amanatool.com 10-in.-dia. glue-line ripping blade, #610301, \$80.



The glue-line rip blade should be set so no more than one-quarter of the height of the tooth is above the wood.

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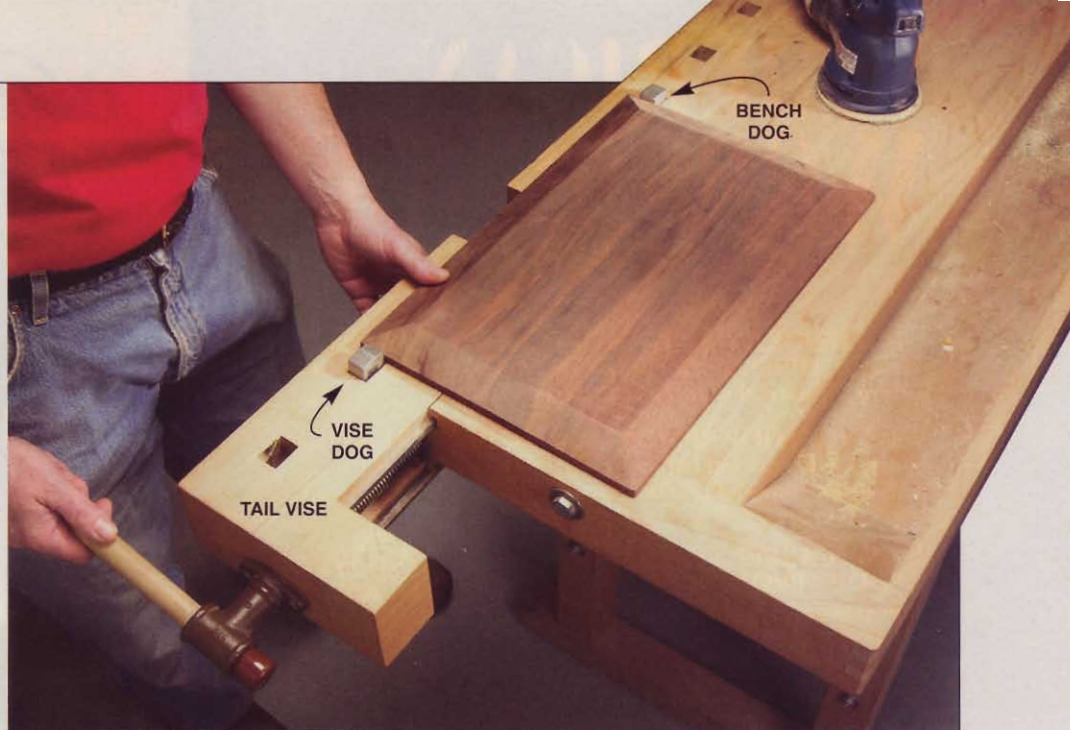
PARALLEL JAW CLAMPS

WHAT'S A TAIL VISE?

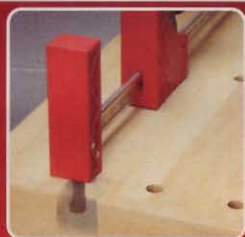
Q I am really puzzled as to how the tail vise actually works as I have only used a front vise.

A A tail vise's main purpose is to hold a board flat on the bench for planing, routing, sanding and so on. The tail vise pushes a board tightly against a bench dog so the board can't swivel or move. The bench dog fits in a series of holes cut in the top to accommodate different sizes of boards. Think of your bench as a big clamp: The bench dog is the fixed end or

head of the clamp, and the dog in the tail vise is the clamp's adjustable end. Both the bench dog and the vise dog are adjustable in height so they won't stick above the board and get in your way.



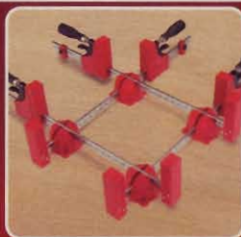
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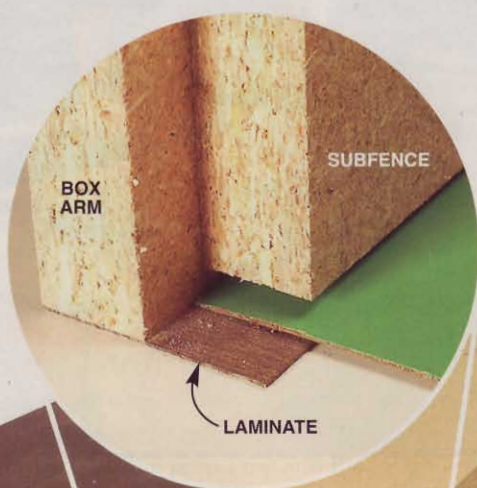
edited by Tim Johnson

Rip Fence for Plastic Laminate

I used to work in a cabinet shop that churned out countertops by the truckload. We used this simple jig to keep plastic laminate from lifting during the cut or from slipping under the saw's rip fence, since most fences rest slightly above the saw's table.

The jig is a simple box that fits snugly over the saw's fence and is clamped or screwed in place. A subfence and a piece of plastic laminate glued to the bottom of the box arm corral the piece of laminate that's being cut. To set the fence when using the jig, simply add the 3/4-in. thickness of the box arm to the overall width.

Joe Gohman



ART DIRECTION AND PHOTOGRAPHY: VERN JOHNSON

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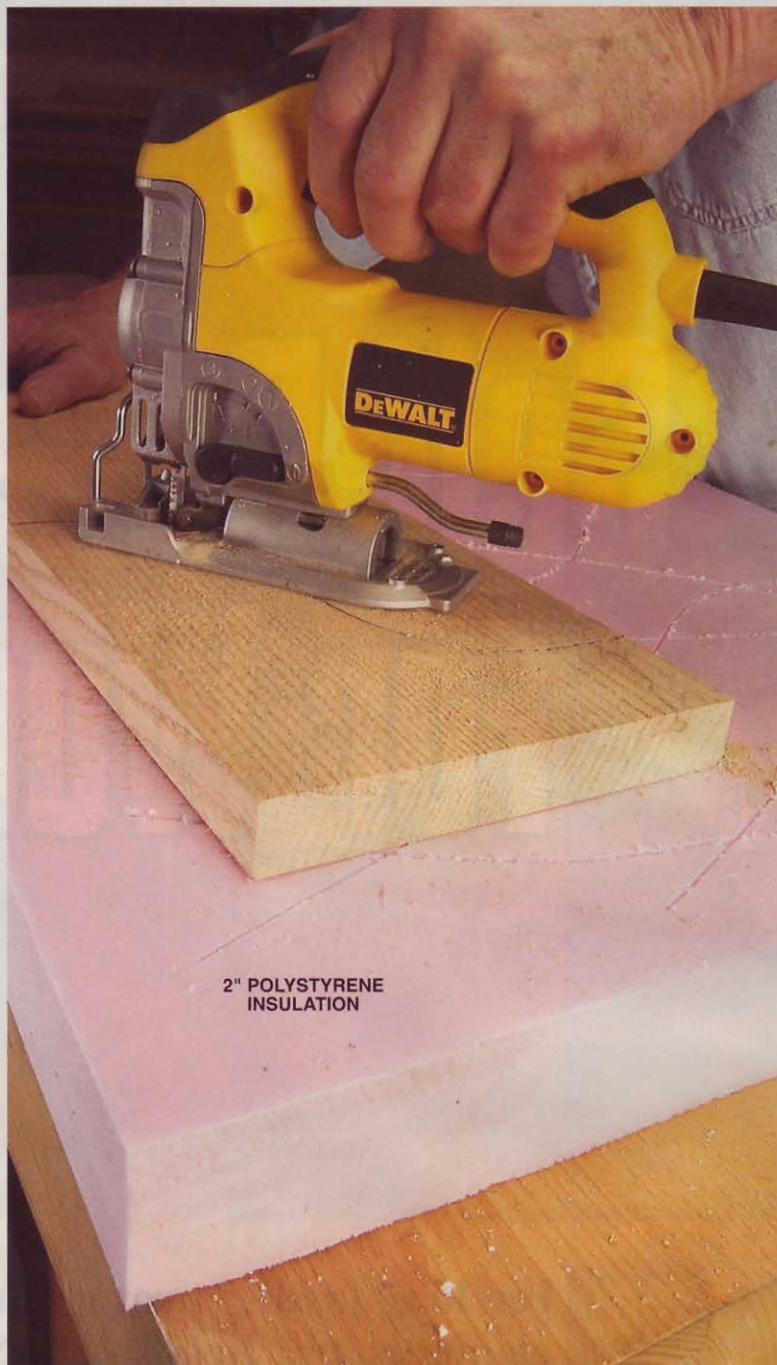
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Vern Johnson

Circle No. 191

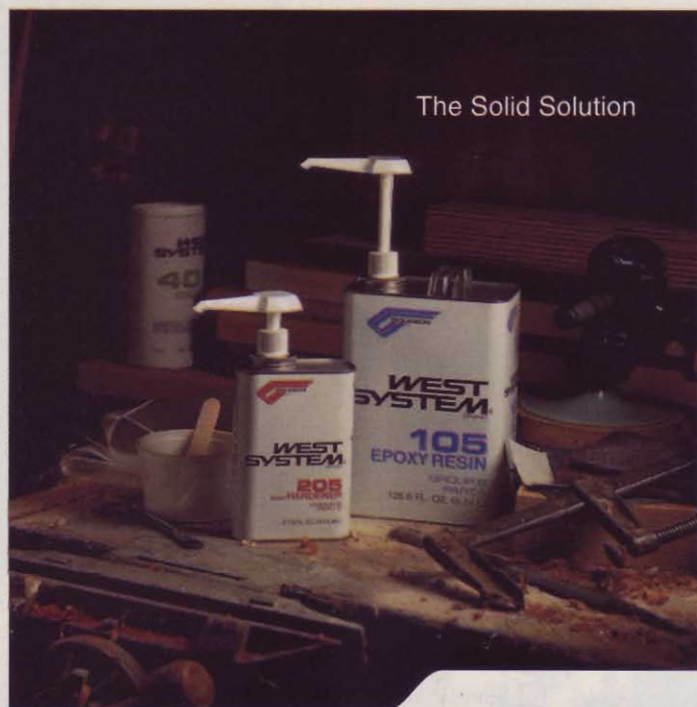


SCRATCH-FREE FLUSH CUTS

No matter how carefully I cut with my economy-model flush-cutting saw, it always left scratch marks on the wood's surface. To solve the problem, I attached a playing card with double-faced tape. Now I don't have to worry about scratches, because my carded saw doesn't quite cut flush. Attaching the card limits the saw's depth of cut, so I saw the dowel halfway, then finish from the opposite side. Sawn dowels stand a wee bit proud, but they're easy to sand flush.

Yaniv Matza

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One of my favorite sharpening tools is a diamond paddle. I use it for router bits, knives and, most importantly, scrapers. The problem is that it cuts so fast the tiny spaces between the diamonds quickly fill with metal particles, called swarf, which slows or even stops the cutting action. Most instructions suggest using water to wash away the swarf. Water works well enough, but household oil works much faster.

I put a few drops of oil on the paddle and a few more on a rag. When the swarf builds up, I wipe the paddle on the rag. In no time, the paddle is clean as a whistle. I oil the paddle again and it's ready to go back to work.

Every sharpening tool, whether it's a file, waterstone, sandpaper or this diamond paddle, cuts faster when it's free of swarf buildup. Fast is good, because the fewer strokes you take, the more accurate you'll be.

Tom Caspar



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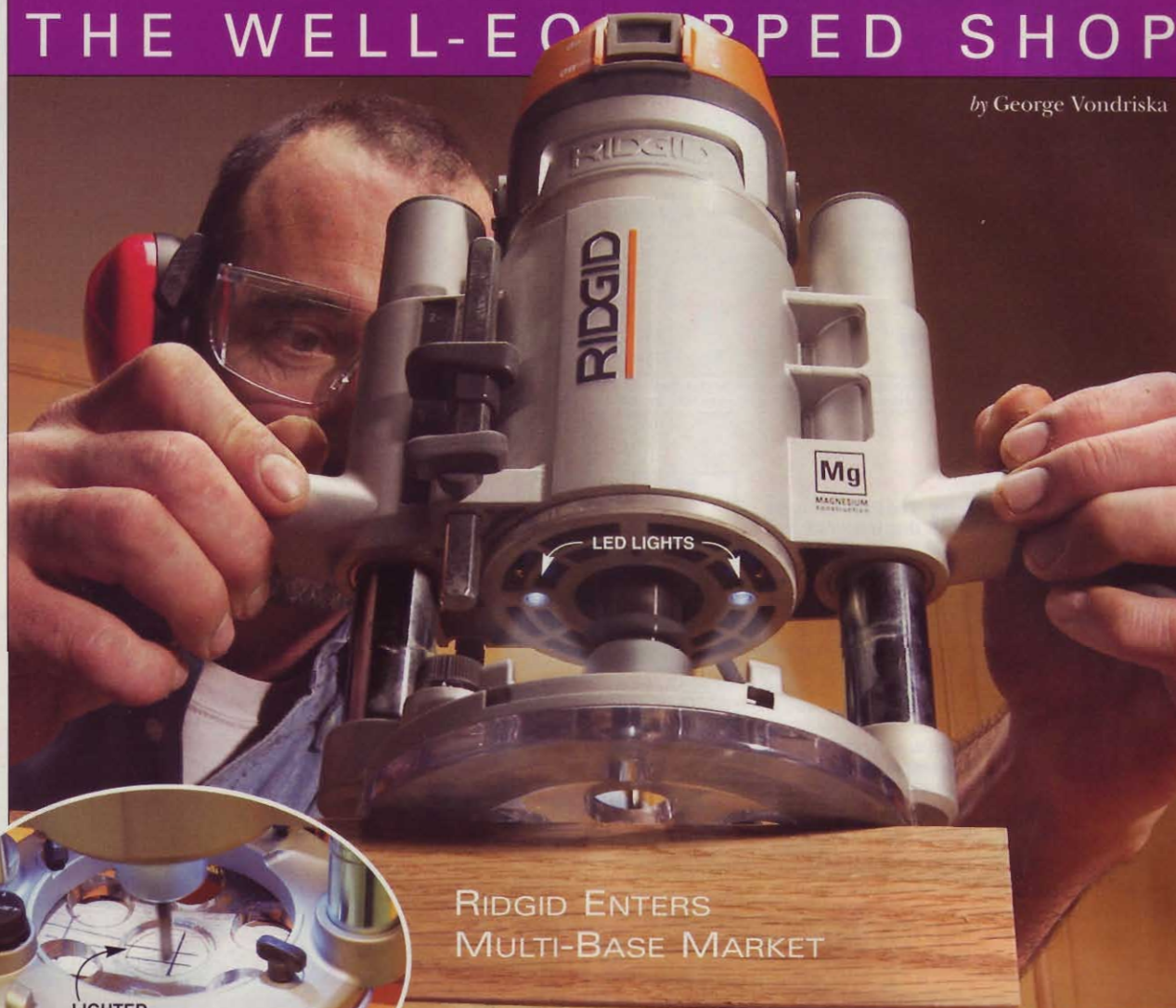
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THE WELL-EQUIPPED SHOP

by George Vondriska



RIDGID ENTERS MULTI-BASE MARKET



Ridgid has jumped into the fray with its new R2930 router, \$199.

One of the coolest features on this machine is the pair of LED lights built into the bottom of the motor. The lights come on automatically when you turn on the router. Boy, was this handy when I was mortising with this machine. It really helped my tired old eyes see the start and stop points of the mortises.

Unlike some other multi-base routers, the R2930 comes with dust-collection attachments. Both are easy to install. The above-the-base shroud works well, but the below-the-base shroud, used for edge routing, could be larger.

An adjustment knob controls depth of cut on the fixed base. Fine-tuning is easy. If the fixed base is mount-

ed in a router table, you can access the control from above the table using the included T-wrench. You'll need to drill a hole in your router table to do this, though.

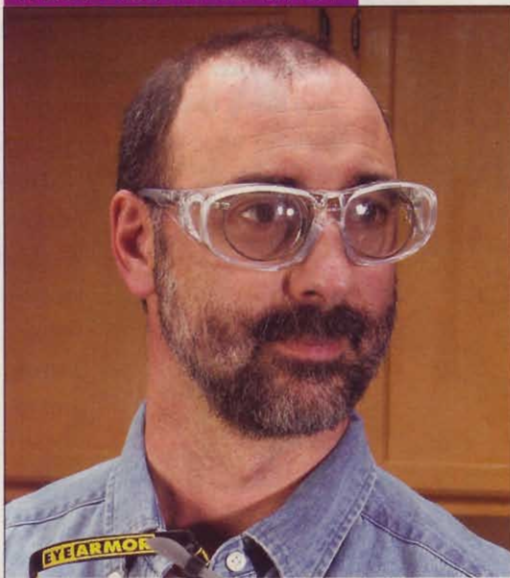
The depth-of-cut scale on the plunge base could have a finer pointer. The stop-rod system includes an excellent micro-adjust but lacks a turret, which is commonly used on plunge routers for stepping depth of cut.

The motor specs on the R2930 are similar to those on other machines in this category: 2-1/4 hp, 12-amp, variable speed (10,000 to 23,000 rpm) and soft start. The router comes with 1/4-in. and 1/2-in. collets, uses Porter-Cable-style guide bushings, and comes with a soft-sided carrying case. The R2930 is available through Home Depot.



Source: Ridgid, (800) 474-3443, www.ridgid.com Multi-base router, #R2930, \$199.

EDITOR: RANDY JOHNSON • ART DIRECTION AND PHOTOGRAPHY: JOE GOHMAN



SAFETY GLASSES FOR YOUR GLASSES

Are you making your prescription glasses double as safety glasses in the shop? Unless you purchased prescription safety glasses, your eyes aren't really protected. Regular eyeglasses don't have the impact resistance of safety glasses. It creates a dilemma: You need your glasses on to see, but fitting additional safety glasses over prescription glasses can be really uncomfortable. If you've got this problem, try EyeArmor safety glasses, \$25. They're specifically made to fit over prescription glasses, and they're comfy to wear.

Three sizes of EyeArmor glasses are available, depending on the size of your prescription glasses. Medium will fit over glasses that measure 1-5/8 in. high by 5-3/8 in. wide. Medium/large fits over glasses that are 1-5/8 in. high by 5-1/2 in. wide. Large fits over glasses 1-7/8 in. high by 5-1/2 in. wide. Each pair comes with a head strap, which does a great job of keeping the safety glasses in place on the bridge of your nose.

EyeArmor safety glasses are available in clear, yellow and smoke colors.

Source Live Eye Wear, (800) 834-2563, www.liveeyewear.com
EyeArmor safety glasses in medium, medium/large or large, \$25, available from Heavy Glare, (888) 548-0558, www.heavyglare.com.



CYCLONE FOR SHOP VACUUMS

I keep a shop vacuum connected to my portable sanders and routers and love the way it stops dust and chips from becoming airborne. Unfortunately, fine dust quickly clogs the filter on my vacuum, which means I have to frequently stop to clean it, even though the canister isn't full. Oneida can help you short-circuit dust *before* it reaches your vacuum. You just need to get deputized.

The Dust Deputy is an in-line cyclonic unit that drops most of the dust out of the airflow and into the canister before it reaches your vacuum filter. It's designed specifically to be used with shop vacuums, not with dust collectors. When I tried the Dust Deputy, I found very little performance drop in the dust-collection power of my vacuum.

You can get deputized in your shop in one of two ways. A complete unit including the cyclone and a 10-gal. drum costs \$199. You can also get just the cyclone with instructions for mounting it to your own 5-gal. pail for \$96. Both units use the same cyclone. Drum capacity, of course, is smaller on the build-your-own unit. And you'll need to be careful to make all the connections airtight so you don't lose performance.

You'll need a 2-in. hose to go from your shop vacuum to the Deputy. The Deputy's inlet port for connecting to your tools has a 1-1/2 in. diameter.

Source Oneida Air Systems, (800) 732-4065, www.oneida-air.com Dust Deputy with 10-gal. drum, \$199, without the drum, \$96.





EASY-TO-USE FLEXIBLE CURVES

Generally, when I need to form a curve, I grab a skinny piece of wood and bend it to the shape I need. Then I struggle, trying to hold the form of the curve and trace it at the same time. Yeah, I've used a piece of string to bow the stick. Yeah, I've used spring clamps to hold it to the wood. But none of those shop solutions work as well as the Blending Curves from Lee Valley. They're available in two lengths—18 in. for \$16 and 36 in. for \$30—and you can easily bend them to your will.

What makes these curves work so well is their multiple-layer composition. The layers are interlocked along their length but fixed on one end. The layers slide past each other while you're forming the curve. They take shape and form like a dream. And the best part is that they hold that shape when you let go. The 18-in. curve will form a minimum radius of 4-1/2-in. The 36-in. curve, which is slightly thicker and wider, will form a 5-1/2-in. minimum radius.

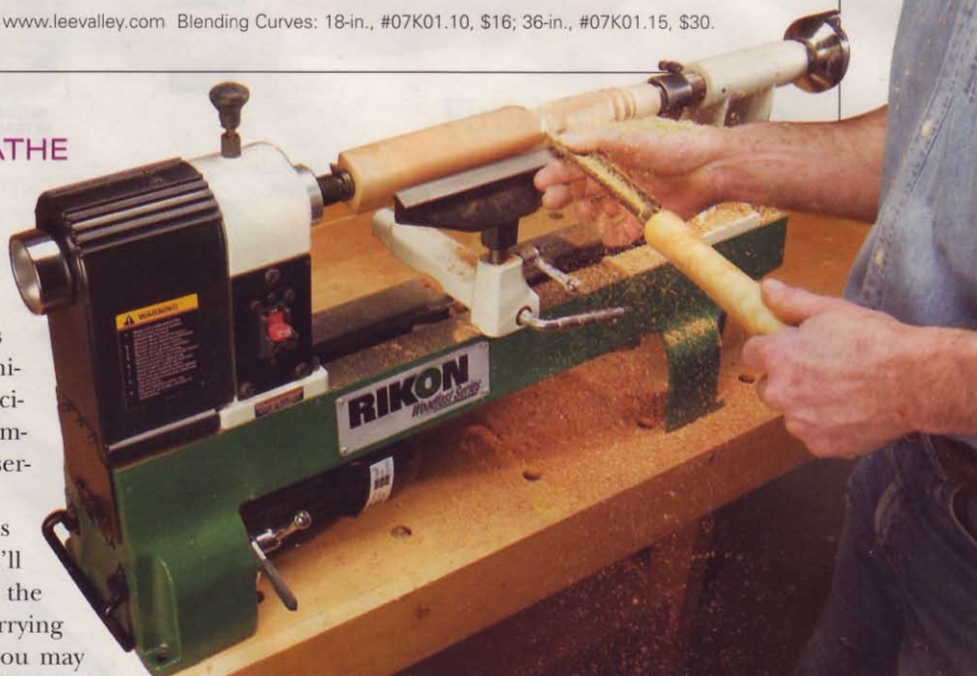
Source Lee Valley Veritas, (800) 871-8158, www.leevalley.com Blending Curves: 18-in., #07K01.10, \$16; 36-in., #07K01.15, \$30.

MAXI-SIZED MINI-LATHE

Rikon's new 70-100 mini-lathe, \$250, is pushing the envelope on what we call a mini-lathe. With a 12-in. swing and 16 in. between centers, this machine's capacity is at the top of the chart in the mini-lathe category. In addition to capacity, Rikon turns in a good performance by including additional user-friendly features.

If you're going to move this machine to and from a bench, you'll love the handle that's built into the head-stock end, which makes carrying the machine much easier. What you may not like as much is the weight. At 89 pounds, this is one of the heaviest mini-lathes on the market. But weight is a good thing in a lathe, since it dampens vibration.

The 8-in.-long tool rest is longer than what's standard on most mini-lathes, and the step pulley speed range is greater, from 430 to 3,900 rpm.



With the addition of a bed extension, \$60, the spindle capacity increases to 40-3/4 in. Keep in mind that this machine, like most mini-lathes, is driven by a 1/2-hp motor. Big spindles and large-diameter bowls can cause these relatively small motors to bog down if you're not careful with your cutting techniques.

Source Rikon Power Tools, (877) 884-5167, www.rikontools.com Rikon mini-lathe, #70-100, \$250.

Tips for Building Cabinets with Pocket-Hole Joinery

Many production shops use pocket-hole joinery to build cabinets because it's fast, easy and efficient. You don't need an armload of pipe clamps. There are no unsightly face-frame nail holes to fill. And you don't have to wait for glue to dry before you move on to the next step.

All these advantages are a boon to the small home shop, too. In addition, pocket-hole joinery doesn't require large, stationary machinery. Everything you need can be stored in a drawer.

Pocket holes are amazingly simple to make. All you need is a drill, a drilling jig and a special stepped drill bit. Kreg Tool Co., which specializes in pocket-hole joinery systems, has some terrific new jigs and specialized clamps I'll show you. I'll also share some techniques that make pocket-hole joinery easier than ever.

NEW TOOLS AND
IMPROVED TECHNIQUES MAKE
POCKET-SCREW ASSEMBLY
FASTER THAN
EVER.



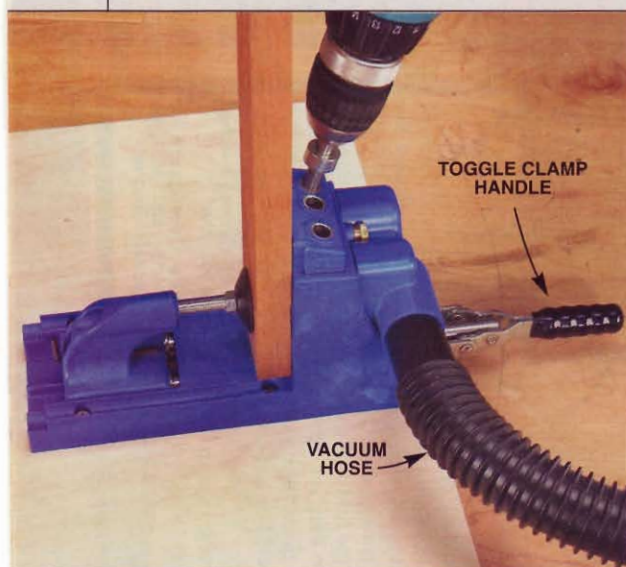


WHAT IS A POCKET HOLE?

A pocket hole runs at a 15-degree angle. It's created by a stepped drill bit guided by a jig (see Tip 1, below). The bit's leading end makes a pilot hole; the rest of the bit enlarges the pilot hole to accept the screw's head, forming a counterbore.

Pocket-hole joinery uses specialized screws. They're hardened to prevent the screw from snapping and the head from stripping out. They have self-tapping ends,

so you don't have to drill another pilot hole into the mating piece. Screws with fine threads are designed for hardwoods. Screws with coarse threads are designed for softwoods, plywood, particleboard and MDF. A combination thread is also available for general-purpose use. Pocket screws' heads have a large, flat bottom to help pull the parts together.



DRILL HOLES FASTER

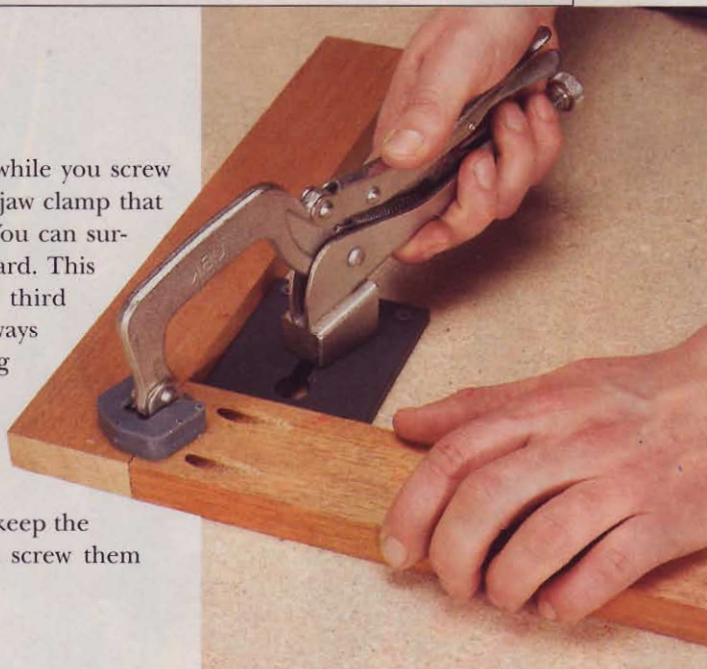
My favorite new pocket-hole jig has a slick attachment for a vacuum hose. I can just hear you saying, "Who cares about a little drilling dust?" Well, I was skeptical, too, until I tried it. I can drill much faster with the vacuum attached because I don't have to remove the bit to clear chips. In addition, the bit never clogs, and there's no mess to clean up.

The vacuum attachment is part of the new Kreg K3 Master System (see Source, page 32). It's also available as an upgrade kit to the Kreg Standard Pack. The Master System has a new front-mounted toggle clamp that makes setting up a board for drilling super easy. (The toggle clamp is mounted in the rear on older Kreg models.)

USE A BENCH KLAMP

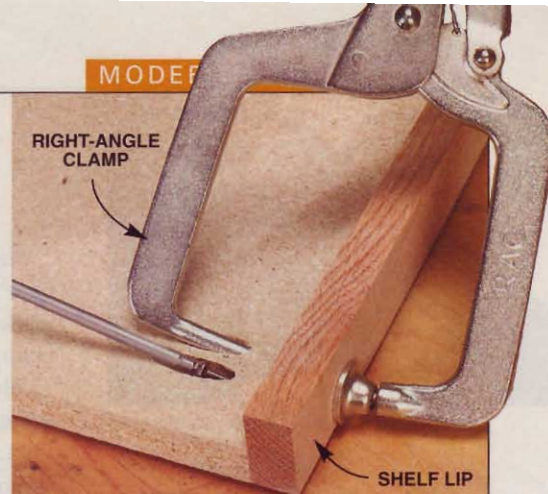
Here's a way to hold parts perfectly even and flat while you screw them together. It's the Kreg Bench Klamp, a locking-jaw clamp that fits into its own special plate (see Source, page 32). You can surface-mount the plate on a benchtop or a separate board.

This device provides that third hand you've always wished for when trying to hold pieces in place and screw them together at the same time. The edges of the plate help you keep the pieces aligned as you screw them together.



3 CLAMP NEAR THE SCREW

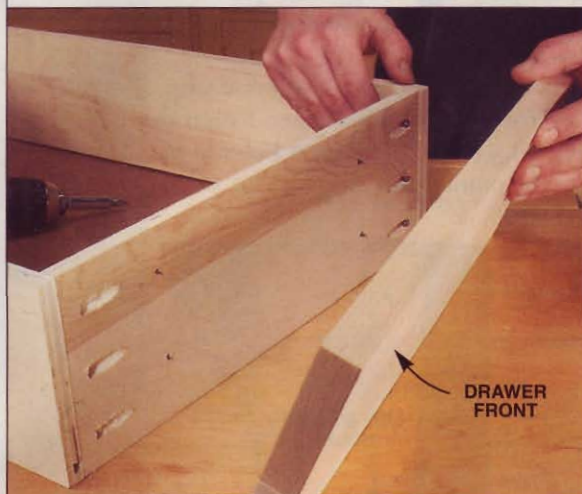
When parts have to fit just so—for example, when you're attaching a hardwood lip to a shelf, as shown here—it's best to clamp as close to the screw as you can. In these situations, I drill two holes side by side. I put a specialized Kreg Right Angle Clamp in one hole and drive the screw in the other. This locking clamp has one round jaw that fits right into a pocket hole (see Source, page 32).



4 ASSEMBLE DRAWERS IN MINUTES

Drawer boxes are quickly and easily assembled using pocket holes. Drill the holes on the front and back pieces of the box. Then cover the holes with an attached front.

Use 1-in.-long pan-head screws for 1/2- to 5/8-in.-thick sides. These short screws have small heads, which dig in an extra 1/16 in. when you drive them. Set the drilling depth 1/16 in. shallower than you would for longer screws.



5 ASSEMBLE AN ENTIRE CABINET

You can use pocket screws when you fasten and glue all the parts of a plywood cabinet, even the top rails. You don't have to fumble with pipe clamps or protect the cabinet's sides from clamp dents. The only trick is to figure out—in advance—where the holes will go so they won't show.

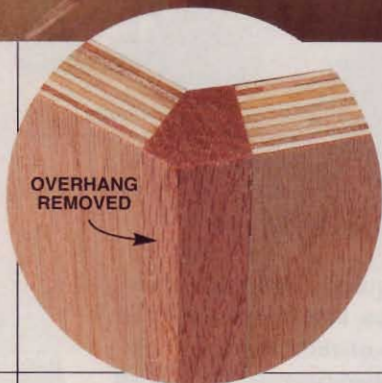
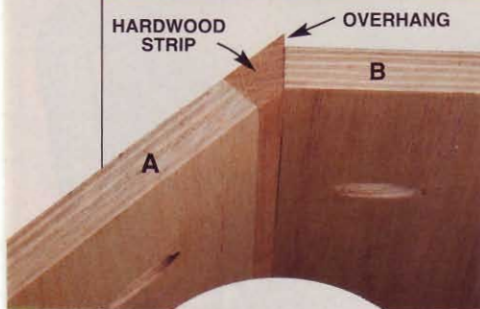


6 ATTACH A FACE FRAME

When you're using clamps, face frames are a pain in the neck to glue on a cabinet—you'll wish you had three arms! Pocket holes make the job a lot easier, because the screws do the clamping. For easier alignment, it sure helps to use a Right Angle Clamp.

Because this side won't show when I install the cabinet, I'm putting the pocket holes on the outside. On a finished side, drill the holes inside the cabinet.





7 ASSEMBLE A TRICKY CORNER

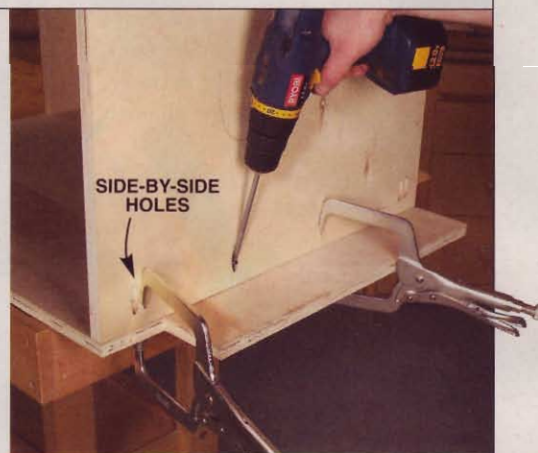
Slanted corners look great on plywood cabinets, but they are a real bear to assemble. Where do you put the clamps? It's much easier to let pocket screws do the work by drawing the pieces together without clamps.

This method uses a strip of hardwood, rather than just the plywood panels, to form the corner. Using a hardwood strip offers two benefits. First, a solid piece of hardwood is much more durable than plywood veneer. Second, aligning the parts isn't as fussy. You plane, rout or sand the strip's overhanging point after the joint is assembled (see photo, left bottom). You can't do that with plywood.

To make this joint, rip an angled edge on a hardwood strip. The strip must be at least 1 in. wide for a 135-degree corner. Fasten the strip to panel A with 1-in.-long pocket screws. Drill pocket holes in panel B and assemble the corner. Trim the point flush.

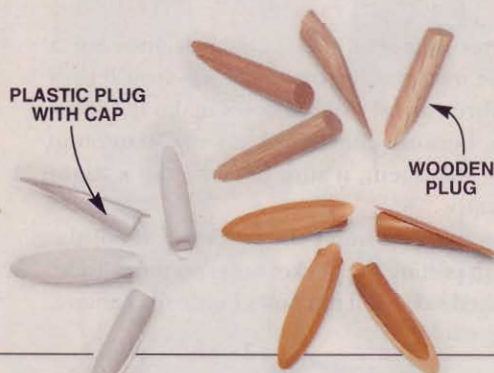
8 INSTALL BOTTOMS AND SHELVES

You don't have to fuss with dados or rabbets when you use pocket screws to join bottoms and shelves. Drill holes on the underside to keep them out of sight. I use two Right Angle Clamps and drill the outer holes in pairs. During assembly, I work from the outside in. I align the shelf by putting clamps in the innermost side-by-side holes, and then put screws in the other holes.

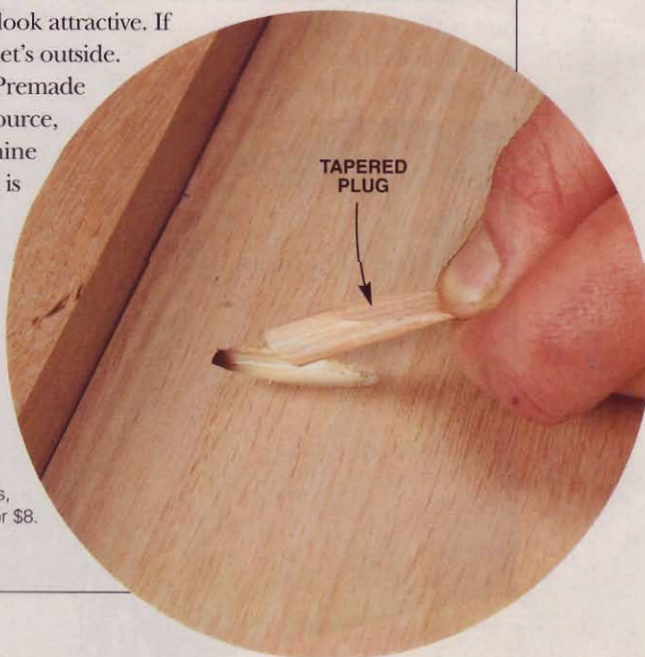


9 IF YOU CAN'T HIDE 'EM, PLUG 'EM

No doubt about it, a cabinet full of pocket-screw holes doesn't look attractive. If the holes will show, you sure won't want to drill them on the cabinet's outside. They should go inside instead, where you can fill them with plugs. Premade tapered plugs are available in seven different wood species (see Source, below). Glue them in the holes and sand them flush. For melamine cabinets, use plastic plugs. Their caps cover the holes so sanding is unnecessary. You can also use plastic plugs in wood cabinets.



Source Kreg Tool Co., (800) 447-8638, www.kregtool.com K3 Master System, #K3MS, \$150. Standard Pack, #K3SP, \$80. Upgrade kit, #K3UP, \$70. Bench Klamp, #KBK, \$35. Right Angle Clamp, #RAC, \$25. Solid-wood plugs and caps, 50 plugs for \$7, 50 caps for \$8.



Flattening Wide Boards



You don't need monster machinery to flatten monster boards.

Big, wide boards make my heart race with anticipation. Panels and tabletops are so pleasing to look at when they're made from a single board. Absent are jarring grain patterns and color changes caused by multiple board glue-ups. And I avoid the hassle of trying to match boards for a uniform, pleasing appearance.

I used to shy away from these beautiful wide boards because I thought I needed an aircraft carrier-sized jointer to flatten them. Over the years, I've learned a few tricks that allow me to take advantage of what a wide board has to offer—even in a small shop.

Don't limit your woodworking to boards that fit on your jointer or planer. Here are four tried-and-true techniques to tackle any size board with confidence.

Power-Plane by Hand



1 Flatten big slabs of wood in several steps. Place the board on a flat surface and add shims to steady the board. Use a shop-made marking gauge to transfer the flat surface onto the edge of the board.



2 Plane the high spots down to the line using a handheld power planer. First use a lumber crayon to mark the high areas. Skew the planer so the heel rides on the previously cut surface. Cut with the grain to avoid tear-out. Check your progress frequently with a straightedge.

For really wide boards, you'll have to abandon stationary machines. A handheld power planer is the key to this technique. First, you need a flat surface larger than the board. Shim the board under the high spots so it won't rock. A cupped board should be set convex side up at first to prevent rocking. Mark all four edges of a wide board with a marking gauge to indicate its high spots (Photo 1). The gauge is just a 2-in.-thick block with a 5/8-in. dowel set in a hole. Power-plane the board down to the marks (Photo 2). Use a set of winding sticks to fine-tune the flatness (Photo 3).

Big, thick planks are best flattened in stages.

You don't want to remove all the wood at once. That's because removing wood releases tension, causing the board to slightly change its original shape. Remove about 75 percent of the wood you need to take off the first side. Then flip the board and remove another 75 percent. Let the wood sit for a day or two on stickers. Then re-mark and finish flattening the board.

If you're lucky enough to have access to a wide-belt sanding machine, you can get the finish-sanding done there. For the rest of us, a belt sander, a random-orbit sander (preferably a 6-in. model) and elbow grease will finish smoothing the board.

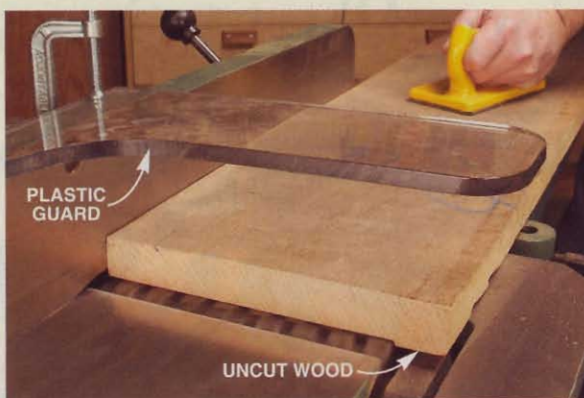


3 Fine-tune the flatness of your board using winding sticks. When the two end sticks are parallel, run a third stick back and forth between the two to check for high areas in the middle. Mark any high spots and remove them with light cuts. Check your work frequently.

Joint & Hand-Plane

There's no need to cut an inch or two off a board's width so it'll fit your jointer. Instead, remove the jointer's guard and make a full-width pass (Photo 1). Then hand-plane the remainder (Photo 2). Now the board is ready for the planer. You may have to repeat the steps to get the whole length of the board flat.

Removing the jointer guard is no casual thing; you *must* take precautions! Clamp an acrylic guard to the fence to keep your hands clear of the cutterhead. And always, always use a pair of push blocks.



1 You can flatten a board that's slightly wider than your jointer by removing the guard. It's just like cutting a giant rabbet: The uncut portion rides over the rabbeting ledge on your jointer.
Caution: Secure a temporary acrylic guard over the cutterhead.

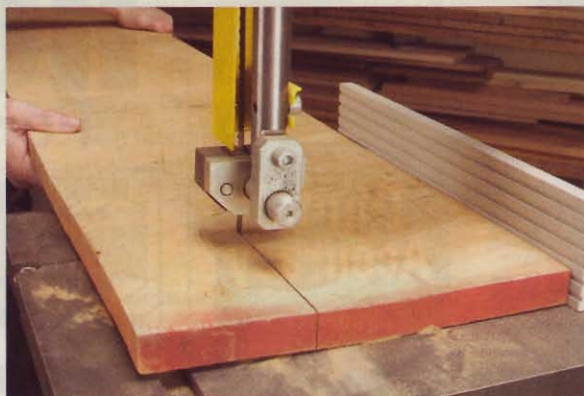


2 Hand-plane the uncut strip of wood flush. Skew the plane so its heel rides on the jointed surface of the board. A power hand planer will also do the job.

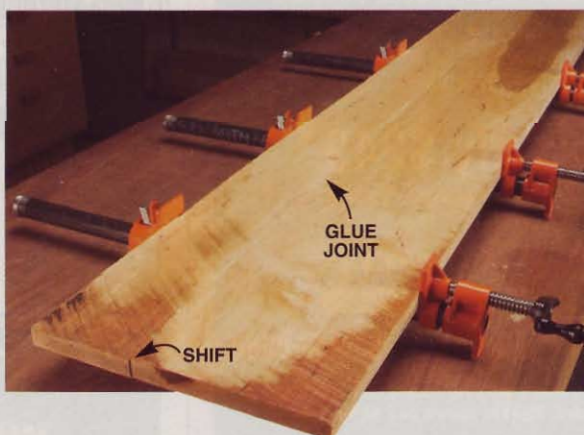
Rip, Joint & Reglue

If the board is more than 2 in. wider than your jointer, hand-planing is a chore. Try this technique instead: Joint an edge of the board and then rip it on the band-saw (Photo 1). Joint and plane each board separately; then glue them back together (Photo 2).

To minimize grain interruption at the joint, it's important to avoid cutting through cathedral patterns. They're hard to align when the board is reassembled. Follow the straight grain and your joint will be almost invisible.



1 Rip a wide board into jointer-sized pieces on the band-saw. Make sure the board has one straight edge to go against the fence. Make the cut where the grain runs straight on the board. That way, the joint will be less visible when the board is glued back together.



2 Glue the board together again after it has been jointed and planed. Leave the board a little thick so it can be planed to finish thickness after the glue dries. Shifting the boards a bit may help blend the grain and hide the joint.

Turn Your Planer into a Jointer

Build a sled to hold a wide board steady through the planer (see photo, right). Fasten a stop at the front of the sled to keep the rollers from pulling the board through without the sled. Add a backerboard to prevent kickbacks. Shim under the high spots to prevent the planer rollers from flattening out the board before it's cut. You'll find it's best to position a cupped board concave side up because it's easier to shim around the perimeter than the middle of a board.



Joint a really wide board with your planer using a shop-made sled. Support the board on the sled with shims and double-faced tape. After you joint one side, remove the board from the sled and plane the second side normally. The sled is simply a piece of 3/4-in. sheet stock. Stops and a backerboard are fastened to the ends to hold the board on the sled.



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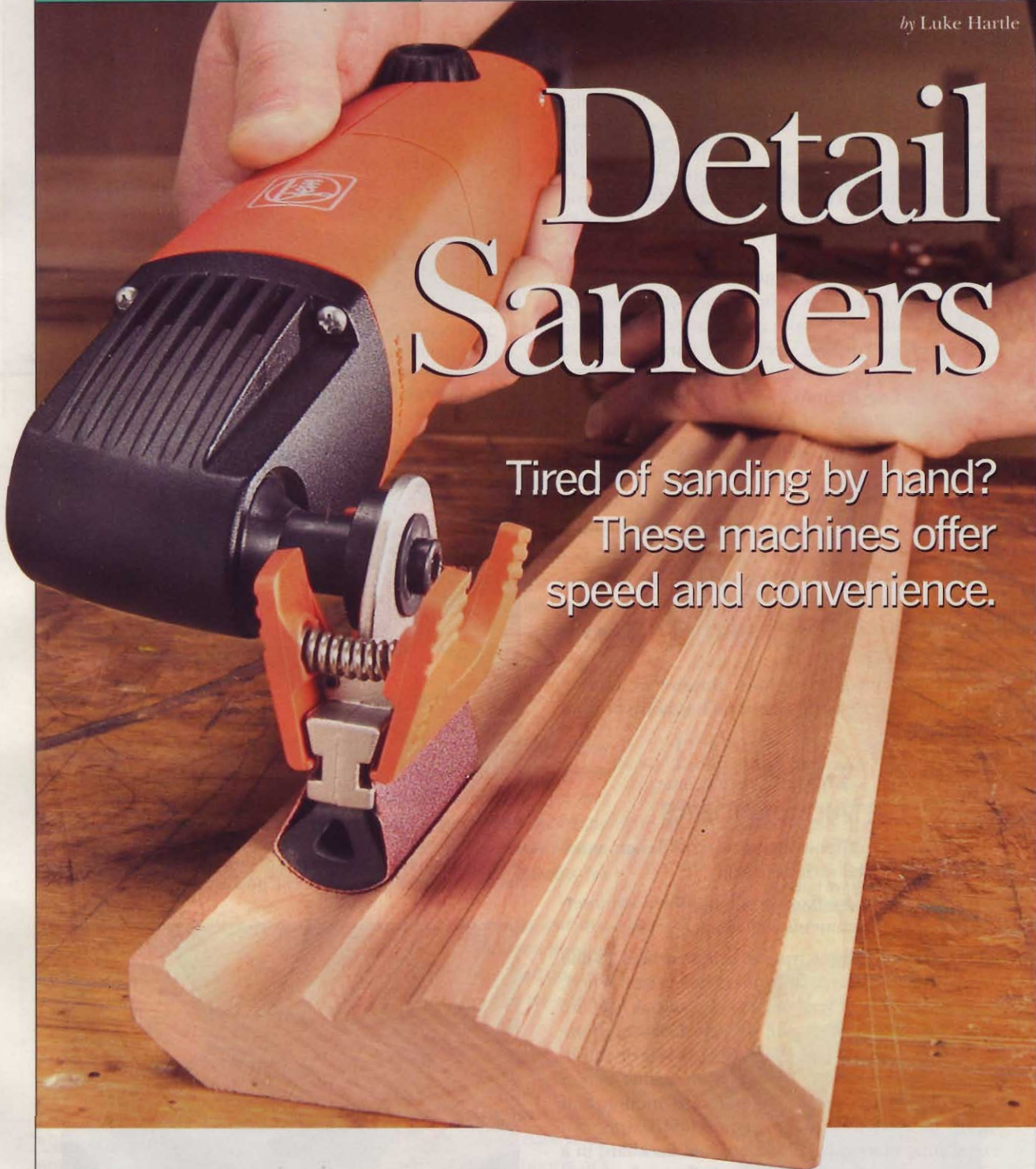
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by Luke Hartle



Detail Sanders

Tired of sanding by hand?
These machines offer
speed and convenience.

I really don't like sanding, but it's a necessary evil. Most times I turn to my trusty random-orbit sander, but it can't sand moldings or get into corners. For that work, I used to sand by hand. It took forever! Eventually, my fingers would tire, so

I'd settle for a second-rate job. Now I turn to a new addition to my tool kit: a detail sander. A detail sander isn't a must-have tool, but it can make an unpleasant job go much faster and easier. It has saved my skin many times.

APPLICATIONS

Here are some applications in which I find detail sanders most useful:

Inside corners. If you sand before assembly, you shouldn't have to sand into a corner, but it happens. Corners are very awkward to sand by hand. Some detail sanders have large pointed pads for corner sanding (Photo 1); others have small triangular attachments to do the job. On both types, you sand a corner by applying pressure to the pad's point.

Moldings. Moldings look much better if you sand off mill marks, but this is tedious work when done by hand. Detail sanders work much faster. Some detail sanders have concave, convex or flat attachments for beads, coves and fillets, the individual elements of all moldings (Photo 2). On complex moldings, you sand one shape at a time.

Narrow edges. Many detail sanders have relatively small flat pads that are easy to control on narrow edges, such as face frames (Photo 3). If you need to maintain a very square edge on narrow stock, this is the way to go.

Refinishing. Sanding fuzzy, raised grain or removing stain on moldings is a lot of work. Often you must sand into corners as well. Detail sanders make this work go faster.

Old metal. Most sanders have abrasive or buffing pads that quickly bring tarnished hardware or tools back to life.

TYPES OF DETAIL SANDERS

Detail sanders differ in four ways: pad design, sanding action, grip and variable speed.

Pads. Some pads are fixed and flat; others are interchangeable attachments with shaped profiles.

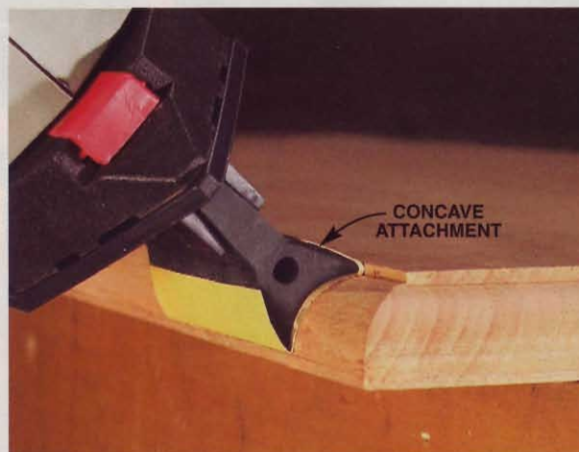
Action. There are three types of action: orbital, in-line and oscillating. On detail sanders with orbital action, the pads rotate in very small circles, about 1/16 in. dia. The pad doesn't spin, though, like a random-orbit sander's pad. These models work best on finish-sanding flat surfaces. Sanders with in-line action move their pads in a back-and-forth motion and work best on moldings or contoured shapes. An oscillating motion rocks forward and backward in a short arc and is suitable for both flat surfaces and moldings.

Grip. Two grip designs are available: palm and barrel. Choose whichever you find most comfortable.

Variable speed. Many models have a variable-speed control, a major plus. High speed can remove a lot of material fast, while slow speed offers more control.



1 Detail sanders are ideal for getting into corners. Most have pointed tips, which can go places that round-pad random-orbit sanders can't go. Some pointed pads are quite large, like the one shown above, but others are much smaller.



2 Sanding a routed profile is easy using a detail sander. It's faster and less tiring than sanding by hand. Some sanders include an assortment of concave, convex and flat attachments in addition to a pointed pad.



3 Detail sanders with small, flat pads are easy to control on narrow edges. Random-orbit sanders, with their larger pads, tend to tip and round-over these edges.

Detail Sanders with Attachments

Attachments make a detail sander more versatile. They come in a wide variety of sizes and shapes. Both palm and barrel-grip models are available. Those with palm grips have an orbital action. Their attachments screw onto the tip of a standard clothes-iron-shaped pad, which can be awkward to install. Palm-grip models include the Craftsman 11647 Detail Sander (\$35), 11683 Mouse Detail Sander (\$40) and Cyclone 3-in-1 Sander 11684 (\$55, bottom right), the Skil 7300 Octo (\$40) and the Black and Decker MS 550GB Mouse Sander (\$40) (see Additional Sources, below).

Barrel-grip sanders have a wider variety of attachments, including a triangular one, which are easier to swap in and out. Some barrel-grip sanders are orbital; others are in-line. Barrel-grip models include the Bosch 1294VSK (\$130, top right), Fein MultiMaster XL (\$340, center right), Porter-Cable 9444 VS (\$135) and Dremel 6000-01 (\$56) (see Additional Sources, below). The Porter-Cable and Dremel models have in-line action; their attachments include concave, convex and flat shapes.

Additional Sources Skil, (877) 754-5999, www.skil.com
 • Black and Decker, (800) 544-6986, www.blackanddecker.com
 • Porter-Cable, (800) 487-8665, www.porter-cable.com
 • Dremel, (800) 437-3635, www.dremel.com



BOSCH 1294VSK, \$130

This variable-speed, orbital-action sander has three pad extenders, perfect for getting into confined areas. It doesn't include a concave pad extender, though.
 Source Bosch, (877) 267-2499, www.boschtools.com



FEIN MULTIMASTER XL, \$340

This sander has an oscillating action. It comes with six profiles, two triangular pads and attachments for sawing, scraping, rasping and slicing. The profile attachment, which clamps the paper in place, works extremely well. Less-expensive kits with the same sander are also available.
 Source Fein, (800) 441-9878, www.fein-us.com



CRAFTSMAN CYCLONE 3-IN-1 SANDER 11684, \$55

This machine doubles as a 5-in. random-orbit sander when you replace its iron-shaped pad with a round disk. The pointed end of the iron-shaped pad has a two-position tip. You also get a flat-pad finger attachment for sanding in confined areas.

Source Sears, (800) 377-7414, www.sears.com/tools

Flat-Pad-Only Detail Sanders

All flat-pad detail sanders use orbital action. Flat-pad sanders with a palm grip look like random-orbit sanders, but their orbital action isn't as aggressive. The pad's front is pointed for getting into corners, but you can cover a large area with the rest of the pad. The Ryobi Corner Cat CFS1501K (\$30, top right), the Grizzly H3120 (\$25) and the Festool DS 400EQ (\$190) are palm-grip models (see Additional Source, below).

Barrel-grip flat-pad sanders have smaller, triangular pads. They're best for corner or narrow-edge sanding only. The Festool Deltex DX 93 E (\$260, bottom right), and Ryobi DS11008 (\$25) are barrel-grip sanders.

Additional Source Grizzly, (800) 523-4777, www.grizzly.com



RYOBI
CORNER CAT
CFS1501K, \$30

This sander's hook-and-loop paper has two sections. The front section can be removed and rotated into three positions, giving you three tips. The sander also comes with three buffing sheets, which are useful for removing rust.

Source Ryobi, (800) 525-2579, www.ryobitools.com



FESTOOL
DELTEX DX 93 E, \$260

The Festool features an exceptionally smooth orbital action that helps reduce wrist fatigue. It has variable speed and large and small triangular pads. A package of 100 sheets costs about \$16.

Source Festool, (888) 337-8600, www.festoolusa.com

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CHOOSING A SLIDING COMPOUND MITER SAW

by Eric Smith

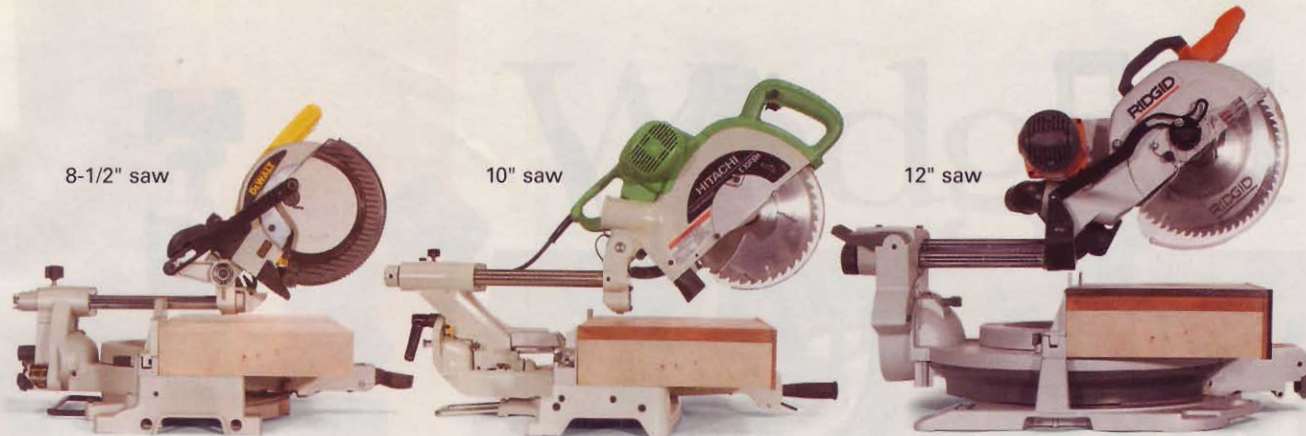
Is it wise to super-size?

Picking the right sliding compound miter saw can be a daunting task,

because there are so many choices. The 12-in. saws have the most capacity. The 7-1/2-in. and 8-1/2-in. saws are the most portable. The 10-in. saws balance capacity and portability—but aren't they really just less-capable versions of bigger saws? And then there's the price. A 12-in. slider can cost nearly twice as much as an 8-1/2-in. slider, and they all cost more than comparable nonsliding miter saws.

As part of our tool test of 12-in. sliding compound miter saws (see "Tool Test," page 49), we examined nearly every available sliding saw, including 7-1/2-in., 8-1/2-in. and 10-in. models. Our side-by-side comparisons of the different size models produced eye-opening results.





Thickness capacity is the major difference between small and large sliding saws. Every saw easily cuts through 8/4 stock, but only the 10-in. and 12-in. sliders allow cutting dimensional 4x4 timbers as well. It's also easier to miter wide moldings and cut baseboards on the larger saws. Surprisingly, the differences in width capacity are marginal for the various saw sizes: Even the smallest slider cuts dimensional 2x12 boards.

Typical 12" saw capacity: 4-1/4" x 12-1/2"

Typical 10" saw capacity: 3-3/4" x 12-3/16"

Typical 8-1/2" saw capacity: 2-7/8" x 11-7/8"

SURPRISING SIMILARITIES

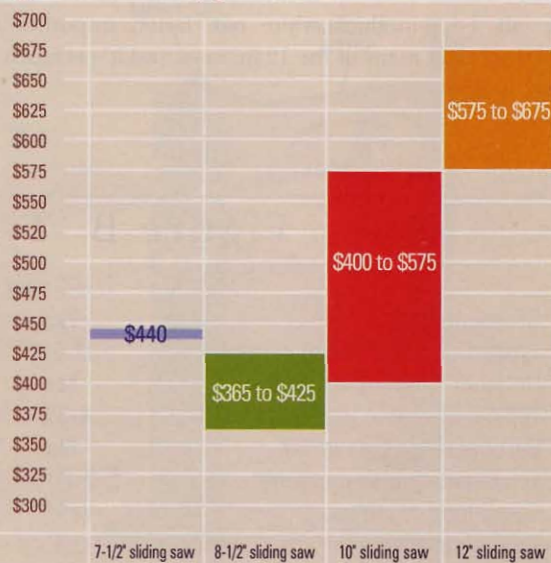
First and foremost, differences in size don't necessarily mean big differences in capacity (see photos, above; Fig. B, page 44), or in the amount of space the saw takes up in your shop (see photo, page 44, top left).

All the saws we looked at, even the diminutive 7-1/2-in. Makita, can easily crosscut dimensional 2x12 boards, even at a 45-degree bevel. Almost any board that can be cut on a 12-in. saw can be cut on a 10-in. saw. Most of those boards can also be cut on the smallest saw, but not always as easily. For instance, on a 10-in. or 12-in. saw, you can cut 1x4 baseboard standing up against the fence and it's easy to shave a fraction of a degree off the cut

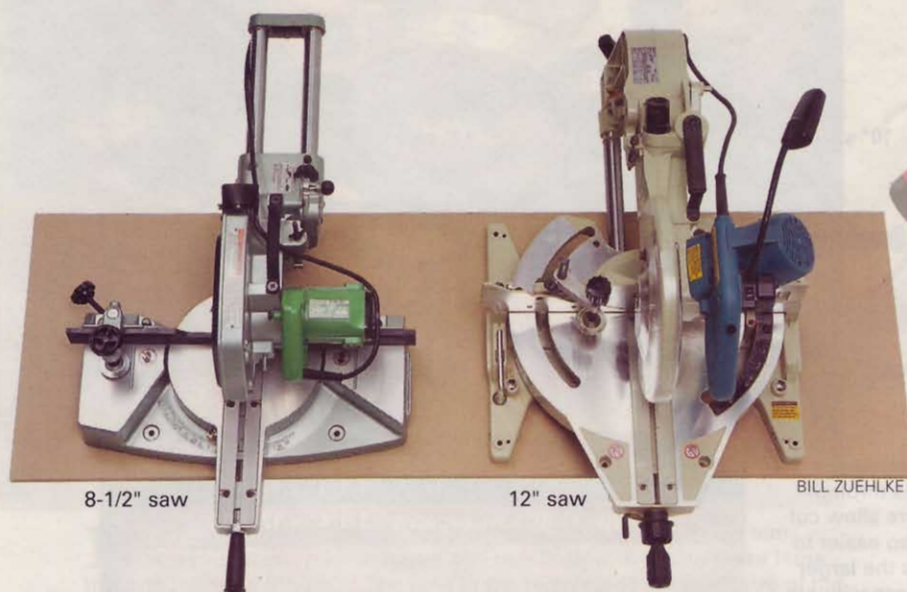
to make it fit right. You can make the same cut on an 8-1/2-in. saw, but the baseboard has to be lying flat. This makes the cut slightly more difficult to set up and much more difficult to fine-tune, because the bevel scales are small and hard to read. On small saws, fractional bevel adjustments are hit or miss.

Crown molding can also be cut on any of the saws, but on small saws, the molding has to be cut flat using compound miter cuts—a skill that takes practice to master,

Figure A Typical Street Prices



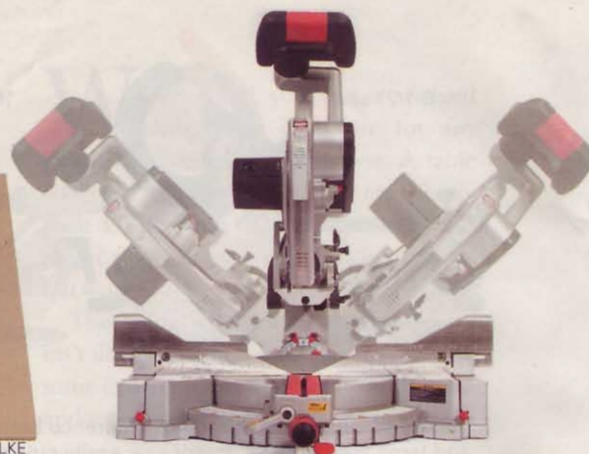
Even small sliding miter saws are big-ticket items, and each step up in size carries an increase in price, typically about \$100 per step among saws of similar quality.



8-1/2" saw

12" saw

BILL ZUEHLKE



Small sliding saws require just as much front-to-back space as large ones, because of the rails. All sliding saws require more space than the largest nonsliding miter saw.

Virtually all 10-in. and 12-in. saws tilt both left and right. Bevel cuts can be more challenging on 7-1/2-in. and 8-1/2-in. saws, because they only tilt to the left.

especially with 7-1/2-in. and 8-1/2-in. saws that only bevel in one direction (see photo, above right). On 10-in. and 12-in. saws, standard crown molding can be cut leaning up against the fence, which makes cuts easier to visualize.

PERFORMANCE AND FEATURES

The price difference between small and large saws (Fig. A, page 43) doesn't translate into differences in performance. In side-by-side comparisons cutting the same hardwoods, we discovered little difference in the cutting speed and power of the different size saws. Surprising maybe, but it makes sense, because it doesn't take as much power to drive a smaller-diameter blade. In our tests, the Makita 7-1/2-in. saw cut 1-3/4-in.-thick white oak faster, smoother and straighter than many of the 12-in. saws, and it was much less noisy, to boot.

However, the smallest saws are not available with laser guides, and some have fewer accessories. Small blades cost less, but there are fewer to choose from. You'll have numerous choices in 10-in. and 12-in. blades. Usually, 12-in. blades cost the most.

MAKING THE DECISION

If you really need to cut big timbers, a 12-in. saw is the way to go. However, 10-in. saws have virtually the same crosscut and bevel capacity as 12-in. saws. They cut just as well, weigh less and cost less. And if you never cut anything thicker than 8/4 stock, the 7-1/2-in. and 8-1/2-in. saws deserve a close look.

My personal choice? My shop is in my basement, I'm remodeling my attic three floors up and my back is acting up. A 28-lb. saw that effortlessly slices 12-in.-wide boards of 8/4 hardwood sounds great to me.

Figure B Typical Capabilities

	7-1/2" saw	8-1/2" saw	10" saw	12" saw
Crosscut 2x12	Yes	Yes	Yes	Yes
Typical crosscut width capacity	11-3/4"	11-7/8"	12-3/16"	12-1/2" *
Horizontal miter cuts in 2x8	Yes	Yes	Yes	Yes
Typical max. width at 45 degrees	8-3/8"	8-1/2"	8-5/8"	8-7/8"
Vertical miter cuts in 1x4	No	No	Yes	Yes
Typical thickness capacity	2-1/16"	2-7/8"	3-3/4"	4-1/4"
Compound miter cut	Yes **	Yes **	Yes	Yes
Typical bevel-cut thickness capacity	1-3/4" **	1-7/8" **	L 2-3/16", R 1-5/16"	L 2-5/8", R 1-5/8"
Weight	28 lbs.	39 to 43 lbs.	43 to 55 lbs.	51 to 70 lbs.

* Largest capacity is 13-1/2"; one saw cuts 16" with modifications. ** Left bevel only.

Wedged Mortise & Tenon

This joint will never loosen!

by Tom Caspar

Tap, tap, tap. The wedges go home, the glue squeezes out and a big smile lights up your face. "This joint isn't coming apart for a hundred years," you say. "It's as solid as a rock!"

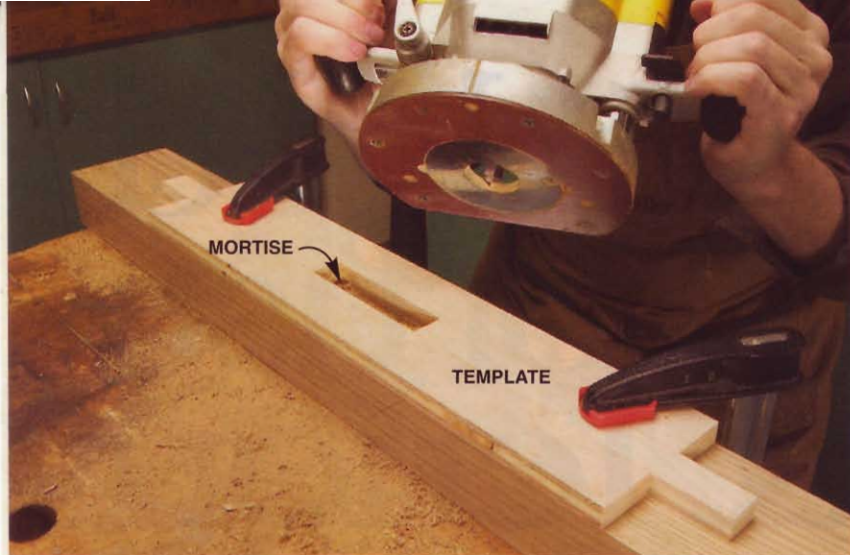
Making a wedged mortise-and-tenon joint is richly rewarding. Once you understand how it works (see photo, below), you can't help but admire the joint's elegant simplicity. It also sends a message. A wedged joint says to one and all, "This was made by a skilled woodworker."

How the Joint Works

Here's a cutaway view of a wedged mortise-and-tenon joint. Driving in the wedges forces the tenon to flare into a fan or dovetail shape. The mortise is tapered to match the angle of each wedge. Like a dovetail, this joint can't pull apart after the wedges go home.

This tenon has two unusual features: saw kerfs that create flexible strips and holes that disperse the strain that the wedges create. The wedges cause the strips to bend; the holes prevent the bend from splitting the rail.

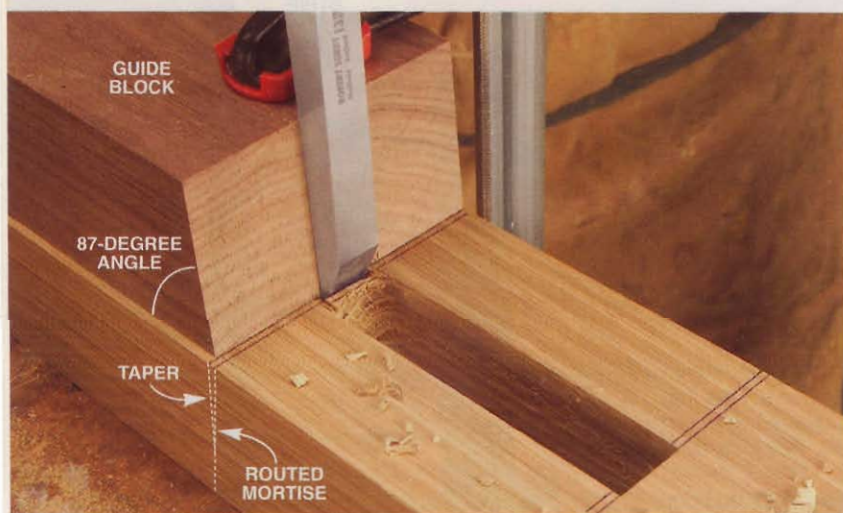
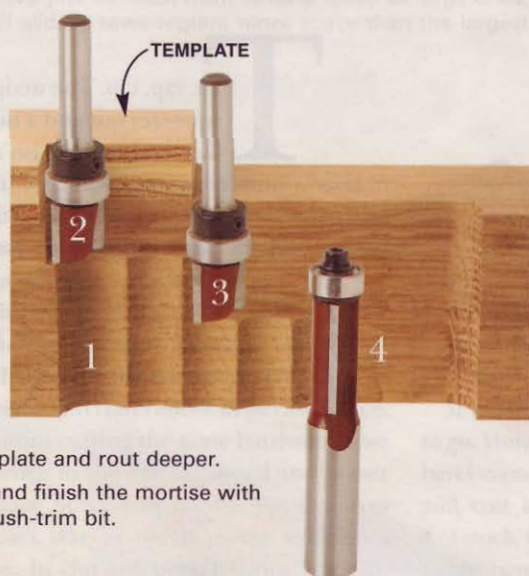




1 Make the mortise before you cut the tenon. I use a shop-made template, a drill press, plunge router and two flush-trim bits to make large through mortises (Photo 2). The hole in the template is the exact size of the mortise.

2 Here's a cross section of the mortise in various stages of completion. You make it in four steps:

1. Drill out most of the waste.
2. Follow the template with a short top-bearing flush-trim bit.
3. Using the same bit, remove the template and rout deeper.
4. Flip the workpiece and finish the mortise with a bottom-bearing flush-trim bit.



3 Using an angled guide block and chisel, taper the mortise's ends into a flared shape. The taper leans 3 degrees from square. Make the taper about three-fourths the depth of the mortise. Turn the mortise over and square the remaining corners.

Where could you use a wedged joint? It's a candidate for any joint that receives a lot of stress. A table base is a good example (see top photo, page 45). Pushing or leaning on this table might slowly force a standard joint apart, but wedges keep this joint locked together.

The wedged mortise-and-tenon joint isn't difficult to make, but you should have some experience making standard mortise-and-tenon joints before tackling it.

TOOLS REQUIRED

To make this joint, you'll need a table-saw, drill press, plunge router, chisel and a bandsaw. If your mortise's width is 5/8 in. or more, like the mortise I made, you'll need a 1/2-in.-dia. top-bearing flush-trim bit (\$19). If the mortise is more than 3/4 in. deep, you'll need a bottom-bearing flush-trim bit (\$20) (see Source, page 48). For a mortise less than 5/8 in. wide, you'll need a straight router bit and a fence or jig for your plunge router.

ROUT THE MORTISE

Before you begin your project, make a prototype joint (see "Designing Your Wedged Joint," page 47).

It's good practice to start with the mortise for any type of mortise-and-tenon joint. It's easier to fine-tune a tenon to fit a mortise than the other way around.

This is a through mortise, meaning it goes all the way through the workpiece. My favorite way to make a fairly large one is to remove most of the waste on the drill press and then use a plunge router and template (Photo 1). This method works particularly well in thick stock, because it makes a mortise with absolutely straight walls. That's important for appearance's sake in a through joint, because you can clearly see from the outside how well the mortise and tenon fit together.

Make the template from plywood or solid wood by gluing four pieces together. The inner two pieces are the exact width of the mortise, but their overall length is unimportant. The outer pieces must be long enough to allow room for clamps. Space the inner pieces apart by the length of the mortise.

Designing Your Wedged Joint

Before you start routing, use the template to draw the mortise on the workpiece. Drill out most of the waste using a Forstner bit that's 1/16 to 1/8 in. smaller than the mortise's width. Make overlapping holes to remove as much wood as possible. Rout the mortise (Photo 2).

TAPER THE MORTISE

Tapering the ends of the mortise requires a razor-sharp chisel; there's no practical way to do it with a router. You must use a chisel to square the ends of a routed mortise anyway, so tapering isn't that much extra work.

Make a 1-1/2- to 2-in.-thick block to guide your chisel. Cut one end square. Cut the other end at the angle you've chosen for tapering the mortise and wedges. I've found that a 3-degree angle works well.

Use the guide block's right-angle end to square the back of the mortise. Chop about one-fourth of the mortise's depth. Turn the workpiece over and position the block a short distance away from the end of the mortise (Photo 3). The exact distance depends on the mortise's depth. You'll want the taper to extend approximately three-fourths of the way down the mortise. On a 3-degree taper, shifting the block 1/16 in. from the mortise's ends results in a taper about 1 in. deep.

MAKE THE TENON

Make the tenon any way you want. I use a tablesaw tenoning jig to cut its cheeks, a bandsaw equipped with a fence to rip its top and bottom sides and a tablesaw's miter gauge to cut all four shoulders. The tenon's length is up to you; it can be flush or stand proud of the joint.

Fit the tenon to the back, untapered side of the mortise. It should be no more than a paper-thickness smaller than the opening. If your tenon stands proud, chamfer its end using a block plane or file.

The next two steps are unique to this joint: making the strain-relief holes and

Each part of a wedged joint must often be tailored to fit the joint's size, intended strength and type of wood. Make a prototype following these steps:

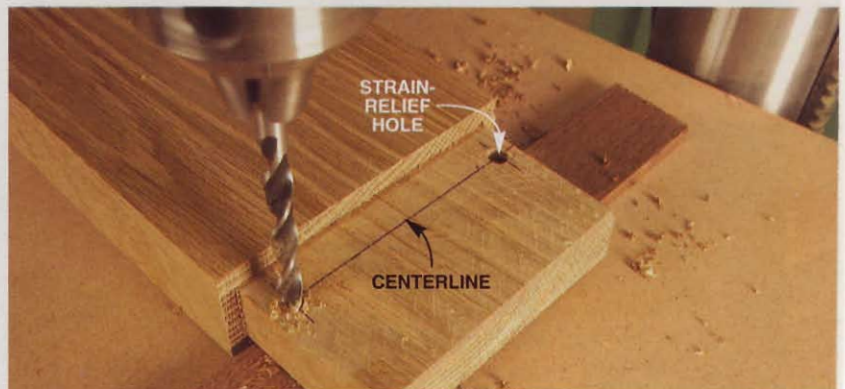
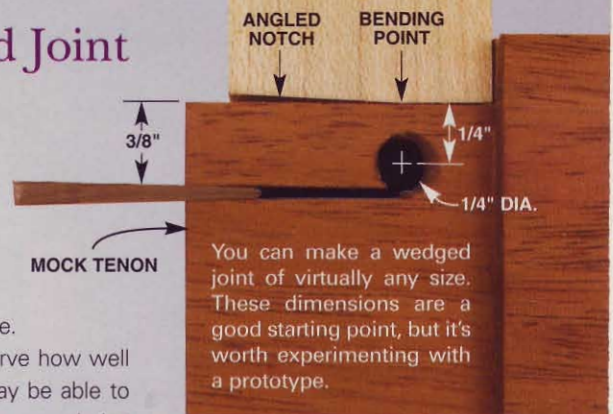
1. Substitute a notch made with a dado set for the mortise (see "How the Joint Works," page 45). Taper both of the notch's sides by angling the miter gauge.

2. Make a full-size tenon. Observe how well the flexible strips bend. You may be able to use smaller strain-relief holes or no holes at all.

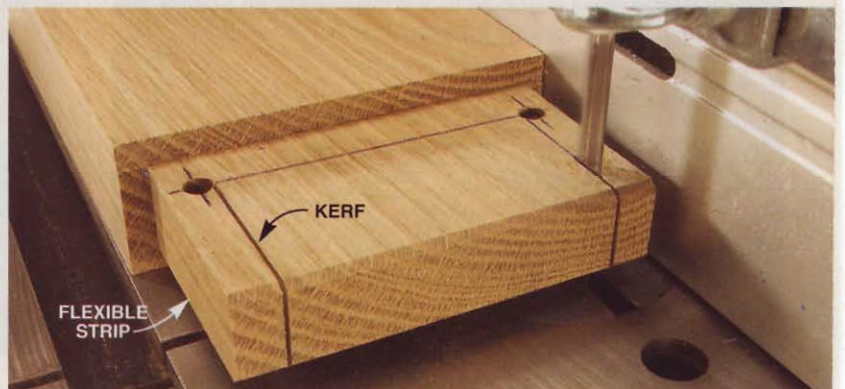
3. Experiment with the notch's angle. The wider the taper, the stronger the joint. My taper is 3 degrees, but you can increase it up to 8 degrees.

4. Test the bend. My flexible strips are only 1/8 in. thick opposite the strain-relief hole, so they bend easily.

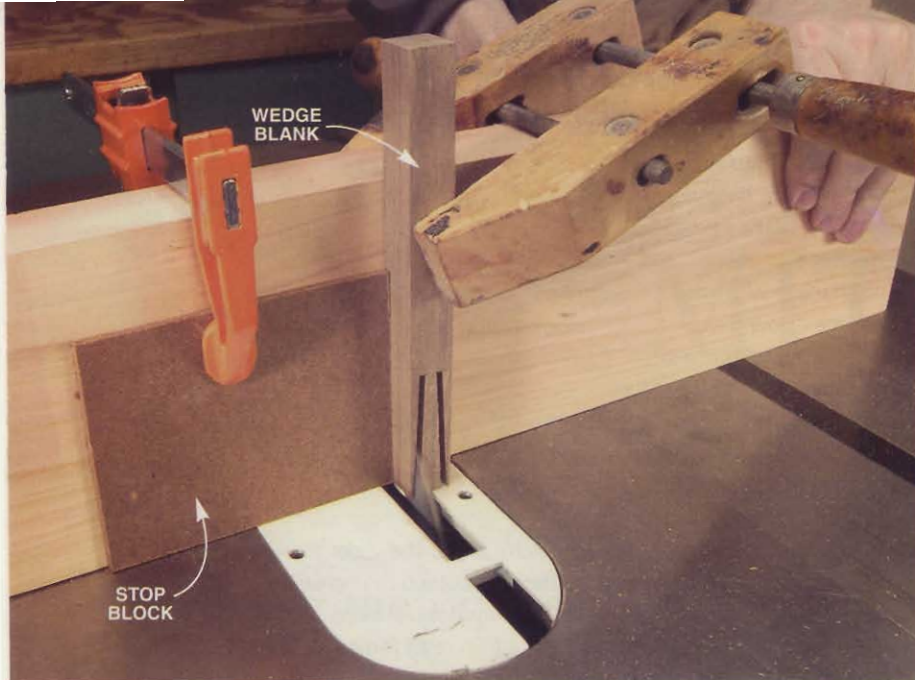
Depending on the wood, this thickness can be increased to 1/4 in. or so to improve the joint's appearance.



4 Cut a tenon to fit tightly into the back of the mortise, where there's no taper. On the tenon, draw a centerline directly opposite the point where the mortise begins to taper outward. Drill two strain-relief holes all the way through the tenon.

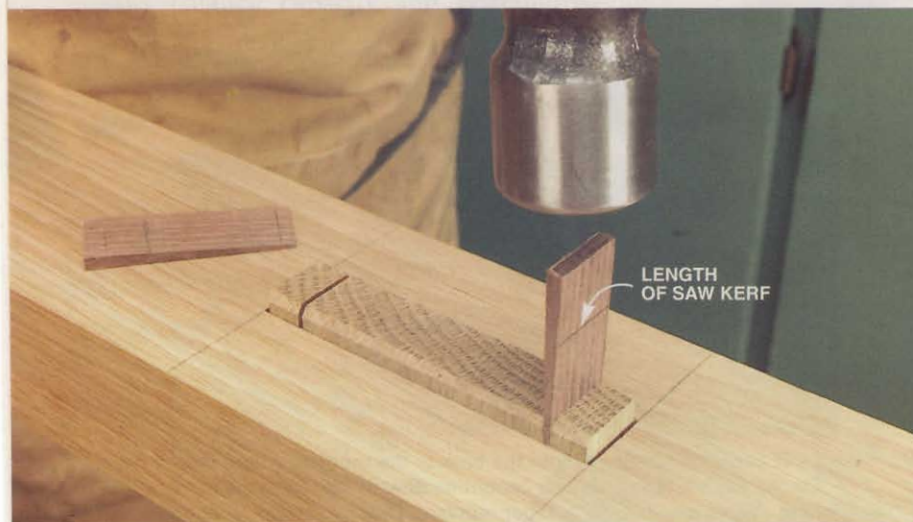


5 Saw kerfs in the tenon to receive the wedges. This creates strips that can flex without breaking. I aim for the inner edge of the hole, so the kerfs don't end up too close to the tenon's edges.



6 Cut extra-long wedges on the tablesaw. Tilt the blade 3 degrees—the same angle as the guide block you used to taper the mortise. Crosscut the wedges from the blank with a bandsaw.

Caution: You must remove the blade's guard for this cut.



7 Test-fit the wedges without glue. You have to get their thickness just right to completely flare the tenon before the wedges hit bottom. Adjust the tablesaw setup until the wedges are the right size. You're ready for gluing.

sawing kerfs for the wedges. Start by marking and drilling the holes (Photo 4). Their location and diameter determines the flexible strips' thickness. In most woods, such as the white oak I'm using here, I drill 1/4-in.-dia. holes centered 1/4 in. from the edge. This makes the bending strip a flexible 1/8 in. thick. Holes that are only 1/8 in. dia. are commonly used for this joint, too, for types of wood that bend easily, such as maple and ash.

For the saw kerfs, draw lines that connect the holes to the tenon's end. Traditionally, the kerfs go to a hole's center, but I aim for the hole's inside edge (Photo 5). Looking head on at the completed joint, I believe this divides the tenon into more pleasing proportions.

SAW THE WEDGES

Make wedges using the tablesaw (Photo 6). This method allows you to

cut a precise angle and fine-tune each wedge's thickness. Make a wedge blank from straight-grained wood. I prefer one that contrasts in color from the tenon. Make the blank about 3/4 in. thick and as wide as the mortise.

Tilt the blade to the guide block's angle. Here, it's 3 degrees. Raise the blade to make wedges that are about 1 in. longer than the tenon.

For a trial cut, position the stop block so the thin end of the wedge is the same thickness as the tenon's kerfs. Clamp the blank to a tall fence using a wooden handscrew. (A wooden clamp protects your blade from damage if you accidentally place the clamp too low.) Flip the blank around to cut a second wedge. Remove the blank and crosscut the wedges by hand or on the bandsaw. File chamfers all the way around the wedge's thin ends.

TEST THE WEDGE'S FIT

Push the tenon all the way through the mortise—without glue, of course. Tap in the wedges, but not too hard (Photo 7). If they're too skinny, cut the wedge shorter or adjust the stop block and saw new ones. If your wedges become stuck, pull them out using locking pliers. The wedges should go in as far as possible but not be so long that they hit bottom before fully spreading the tenon. Marking the bandsaw kerf's length on each wedge will help you prevent this problem.

ASSEMBLE THE JOINT

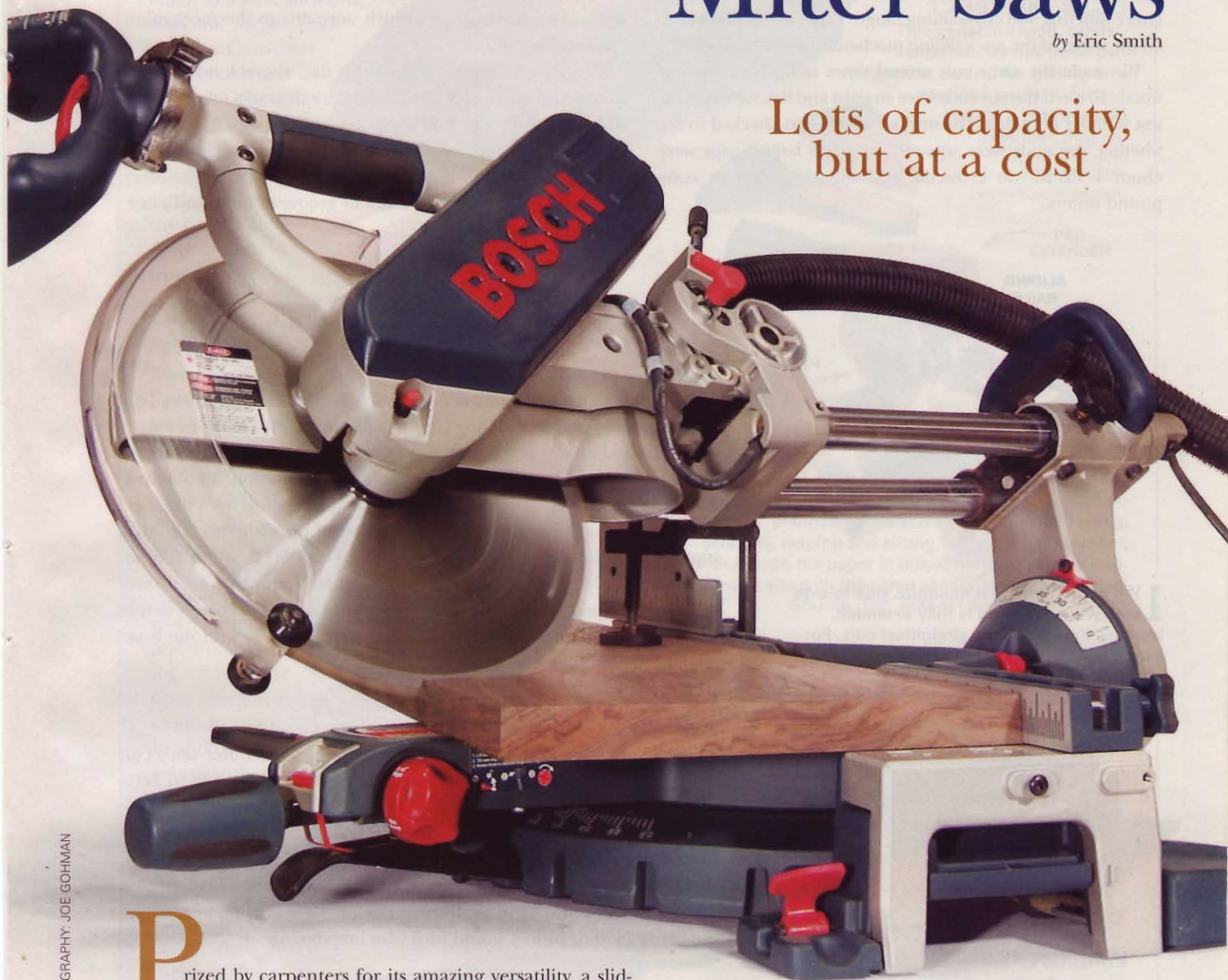
When everything is ready to go together, you only have to put glue on the mortise's long sides and the tenon's cheeks. Clamp the joint so the tenon's shoulders are tight to the mortise. Then brush glue into the saw kerfs and the mortise's tapered spaces. Tap in both wedges and clean up the glue squeeze-out. Saw off the wedge's excess length after the glue dries. Use a file or low-angle block plane to level the wedges flush to the tenon.

Source MLCS Woodworking, (800) 533-9298, www.mlcswoodworking.com 1/2-in. pattern/flush-trim bit, 1/4-in. shank, #16509, \$19. 1/2-in. flush-trim bit, 1/2-in. shank, #17803, \$15.

TOOL TEST 12-in. Sliding Compound Miter Saws

by Eric Smith

Lots of capacity,
but at a cost



Prized by carpenters for its amazing versatility, a sliding compound miter saw is also great to have in a woodworking shop. The blade swivels for miter cuts and the head tilts for bevel cuts. To make compound miter cuts, you simply swivel the blade and tilt the head. Compared with a nonsliding compound miter saw, the big difference is capacity: A typical sliding saw easily cuts 12-in.-wide boards. That's 3 to 4 in. wider than the largest nonsliders can cut.

A sliding compound miter saw easily makes cuts that are difficult on a tablesaw. For example, accurately mitering the end of a long, wide board on your tablesaw is virtually impossible, because the miter gauge is too small and the saw table isn't big enough to support the angled board during the cut. With a sliding miter saw, just position the board,

swivel the blade, line up the laser guide and go. Switching from crosscutting big timbers to cutting compound miters in delicate trim takes only seconds. Making 60-degree cuts for an equilateral triangle is simple and cutting exotic compound miters for complex assemblies is no sweat.

Sliding miter saws are available in many sizes, which are determined by blade diameter. We tested 12-in. saws because they have the largest capacity and are available in the widest variety of models. We also compared different sizes of saws (see "Choosing a Sliding Compound Miter Saw," page 42).

How We Tested the Saws

To evaluate each saw's performance, controls and features, we made multiple crosscut, miter, bevel and compound miter cuts in 3/4-in. mahogany and 1-3/4-in. white oak using the factory-supplied blade. We used 9-in.-wide and 12-in.-wide pieces of both thicknesses to test each saw's capability over its entire mitering and crosscutting range. These extreme cuts tested the merit of the saw's sliding mechanism as well as its blade.

We made the same cuts several times using both types of wood. To see if the cut ends were straight and flat, we stood the test samples on a dead-flat steel plate. We also checked to see whether the ends were squarely cut. The largest gaps were about 1/32 in. on crosscuts and slightly wider on compound miters.



1 We prefer saws that minimize side-to-side play when the head is fully extended, because they make the straightest cuts. For example, the Metabo's widely spaced rails effectively limit play.



2 A good blade is key to a clean cut. The Makita saw's blade consistently made amazingly clean cuts and saves you spending \$90 for an upgrade.



Our results were consistent. On every saw, cut-quality imperfections we noted in the 3/4-in. mahogany were amplified in the thicker white oak. Comparing the results from subsequent tests with top-quality blades installed on every saw revealed which imperfections were due to the blade (roughly cut faces and surface tear-out) and which were due to the mechanism (gaps and uneven cuts).

Top-ranked cuts were perfectly flat, showed no tear-out around the edges and had minimal tooth marks on the faces. Middle-ranked cuts noticeably rocked or showed daylight between the cut and the steel plate. Bottom-ranked cuts showed daylight and areas of tear-out or splintering. With almost every saw, the blade's teeth left a mark or groove in the board's face at the end of a sliding cut.

Important Features

LIMITED PLAY IN THE HEAD

All the saws we tested made accurate chopping cuts in stock up to 4 in. wide, but when we made sliding cuts in wider stock, the results varied.

A 12-in. sliding compound miter saw cantilevers a lot of weight on the rails when the saw head is fully extended. In this position, all the saws exhibit noticeable side-to-side play. The amount depends on a number of factors, including the spacing and location of the slide mechanism's support rails and the number and location of support bearings (Photo 1). Side-to-side play can allow the blade to wander. Cutting problems are most likely on wide boards, because the amount of play decreases as the saw head moves toward the fence. In our tests, the saws with the least amount of play made the straightest cuts.

A GOOD BLADE

The blade has a big impact on a sliding compound miter saw's cut quality. Most of these saws come with blades that sell for \$40 to \$60. The Makita saws, which are outfitted with a \$90 blade, made the cleanest, smoothest cuts (Photo 2). Switching blades among the saws confirmed our findings: The Makita blade improved the cut quality of every other saw. Switching out the DeWalt's rough-cutting blade transformed that saw into a top performer. On almost every saw, upgrading the blade (\$70 or more) would be a wise investment.

COMPACT SIZE

Because of their slide mechanisms, these saws occupy a lot of space, on average about 40 in. from the lever in front to the sliding rails in back (Photo 3). We prefer saws that are most compact. When the saw isn't in use, you can limit its intrusion by rotating the miter table to the left or right. With the extension wings closed or removed, widths hover around 2 ft.

3 We like saws that save space. Many sliding saws require more than 30 in. between the bench front and the wall. The DeWalt saw takes only 26 in., thanks to its compact sliding rail design.

Maximum Capacity Has a Price

The Ridgid and DeWalt saws feature the largest crosscut capacity, 1 in. to 1-1/2-in. more than any other saw we tested. (The DeWalt cross-cuts up to 16 in. with modifications). Both saws achieved this, in part, by dropping the blade deep into the bed of the saw so it cuts closer to its full diameter. The downside of this design is that during a sliding cut, the teeth on the blade's back edge rotate directly up into the board. If the board isn't firmly clamped in place, especially during wide compound miter and bevel cuts, the blade can violently kick it up. Owner's manuals for both these saws strongly urge using the hold-downs for all cuts. We second that.

You can eliminate kick-up on the Ridgid saw by adjusting its depth stop to raise the blade and change the exit angle of the teeth. But when you raise the blade on the DeWalt saw, you have to add a 3/4-in.-thick sub-fence to finish the cut.



SIMPLE BEVEL ADJUSTMENT

Each saw head tilts left and right to make bevel cuts, but the process of operating the bevel controls while supporting the heavy saw head ranges from simple to complicated (Photo 4). Unlocking and tilting the head can require up to four steps, depending on the saw. Obviously, fewer steps are better. On most saws, the location of the bevel controls isn't as important as the number of steps needed to make adjustments. On some saws, however, the control's location makes the adjustment process awkward.

READABLE SCALES

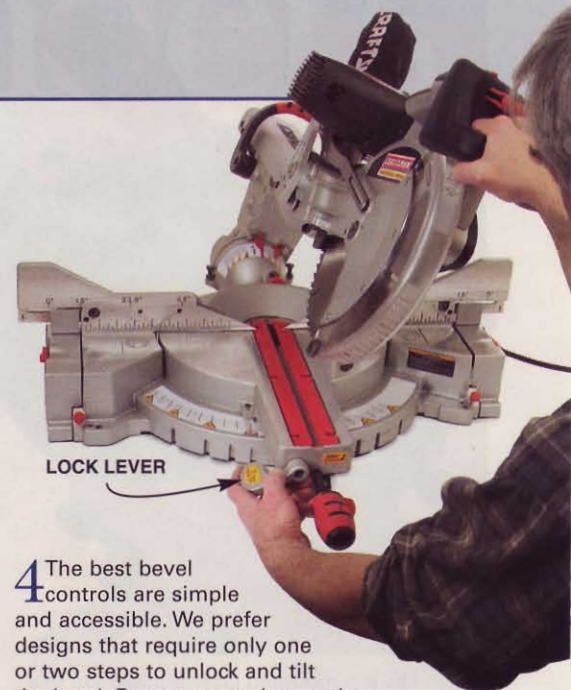
The saws' miter scales vary in appearance, but they're all large, easy to read and precise. Unfortunately, most of the saws' bevel scales were hard to read (Photo 5). To set anything less than half a degree was really just a guess—which was a little annoying given that some of the owner's manuals include long tables with 1/10-degree settings for cutting crown molding when it's lying flat. Most saws have detents for common angles.

Cursors are a mixed bag. Generally, we prefer metal cursors, although some are so wide they make precise settings difficult. Most of the clear-plastic cursors were hard to read. Some even trapped sawdust underneath. We liked the Hitachi saw's digital display, but we wish it were more finely calibrated (see "Digital Display," page 52).

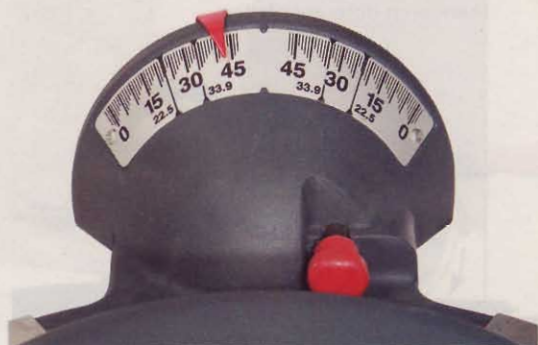
EFFECTIVE HOLD-DOWNS

Hold-downs help with accuracy and general safety, particularly when you're cutting large pieces (Photo 6). These saws all have small support beds and, even with perfectly aligned outfeed supports, it's both difficult and dangerous to hold big pieces of wood with hand pressure alone (see "Maximum Capacity Has a Price," above).

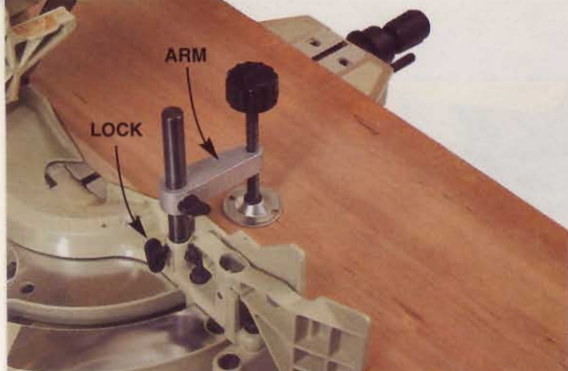
Manufacturers recommend using hold-downs for every cut. We tested each saw's hold-down by cranking it down tight and marking the board's position against the fence. Then we checked to see whether the board moved during demanding compound miter cuts.



4 The best bevel controls are simple and accessible. We prefer designs that require only one or two steps to unlock and tilt the head. Front-mounted controls mean you don't have to support the saw head with one hand while reaching to the back with the other to release the bevel lock.



5 We like large, readable scales. Although the miter scales are good on every saw, a readable bevel scale, like this one on the Bosch saw, is rare. On most saws, the bevel scales are so small or awkwardly located that it's tough to dial in fractional degree settings.



6 A hold-down that securely locks the workpiece to the saw table is a must for safe operation. Locking firmly in the base is one requirement. The ability to set the arm low—close to the workpiece—is another. This squat position minimizes play between the parts.



7 We like top-mounted laser guides, like this one on DeWalt's saw, because they light both the face and front edge of the board. They independently switch on and off, so you can position the board without starting the saw. They're also adjustable, so you can use them with different blades.



8 Good dust collection is rare. Metabo's double-port design draws dust down through the saw bed and up behind the blade, capturing most, but not all, of the dust.

For easy removal, some saws employ hold-downs that don't lock securely in the base. These loose-fitting hold-downs were harder to tighten. Several saws have quick-release hold-downs, some of which held more securely than others. In general, short, squat hold-downs—and those that could be adjusted to be short and squat—were a little more tenacious, and every hold-down worked better when solid out-feed supports were used to help support the board.

TOP-MOUNTED LASER GUIDES

Laser guides are included or are available as accessories for all these saws. We prefer the top-mounted lasers (Photo 7) because their guide lines stayed on the mark through each cut. The line from a rear-mounted laser is blocked and disappears as the saw head is lowered. Several saws use arbor-mounted laser guides that aren't adjustable and only come on when the saw is running. We think it's safer to line up cuts with the saw turned off.

EFFECTIVE DUST COLLECTION

On most of these saws, dust collection is just plain dreadful. When attached to a shop vacuum, only the Hitachi and Metabo saws collected dust adequately (Photo 8). However, to make Metabo's innovative system work, you have to buy a dust-extraction accessory (\$35) or use two jury-rigged hoses.

Additional Features

- The swiveling miter tables are all easy to adjust, even by as little as 1/8 degree. The detents for commonly used angles are solid but easy to override if you need to shave a quarter-degree. All the saws will cut at least several degrees past a 45-degree miter on both sides, and most go to 60 degrees on at least one side.
- All the saws bevel both ways. We prefer those with a bevel capacity beyond 45 degrees. This extra capacity is invaluable when you're bevel-cutting tall baseboards and need to tweak a cut to 45-1/2 degrees.
- Handles on the saws are horizontal, vertical or adjustable.

Digital Display

What looks like an alien eyeball on top of an insect's body is actually a welcome step by Hitachi toward precision woodworking: a digital display of miter and bevel angles.

Unfortunately, the scale is only calibrated in half-degree increments, which isn't quite precise enough. Also, it's hard to read the display and make adjustments at the same time. But when the bugs are worked out, this could be a great feature.



Adjustable handles allow choosing the position you like best. We thought all the handles were easy to use, so our advice is to try before you buy.

- The same is true for the fences. They're all tall and consist of two sections. The top sections are adjustable and/or removable. Some swivel and some slide.

- We prefer the saws that come with extension wings. They're handy if you frequently move the saw or don't have an outfeed support table.

- Almost every saw has a double-depth stop for limiting the depth of cut—a useful feature for making rough dados or multiple shallow kerfs. These stops can be set, then moved out of the way for regular cutting.

- We prefer blade guards that are mounted on the outside of the blade housing. Blade guards that fit inside the housing were more likely to hang up on the leading edge during compound miter trim cuts. They also occasionally jammed when small offcuts got stuck inside the housing.

- A few saws we tested needed the miter and bevel settings trued right out of the box. This process is not always obvious, so save the owner's manual.

- Most saws' manuals include helpful instructions and charts for setting up compound miter cuts.

Recommendations

Every saw has likeable features, but the Makita LS1214F and LS1214L models come closest to getting the whole package right. Fine woodworking demands perfect results, so a saw's ability to cut cleanly and accurately carried the most weight in our ranking. The Makita saws delivered top-grade cuts every time. There's nothing flashy about these saws; their features are straightforward, dependable and user-friendly.

The other saws are capable, but every one would benefit from a higher-quality blade, which would add at least \$70 to the bottom line. These saws have different strengths. If effective dust collection tops your list, look first at the Hitachi and Metabo. For maximum capacity, check out the Ridgid and DeWalt saws. The saws from Bosch and Craftsman feature user-friendly bevel controls and adjustable handles. The Hitachi and DeWalt saws are the most compact.

You should also know that locking in precise setups for bevel cuts can be challenging on all these miter saws. Fractional degree settings are almost always a guess. Either the scale is too small to accurately read, the top-heavy saw head is hard to control or both.



Makita LS1214F, \$600
LS1214L, \$630

The more we used these saws, the better we liked them. They consistently made straight, silky-smooth cuts, even on compound miters. The LS1214F has a fluorescent light; the LS1214L has a top-mounted laser guide.

Pros

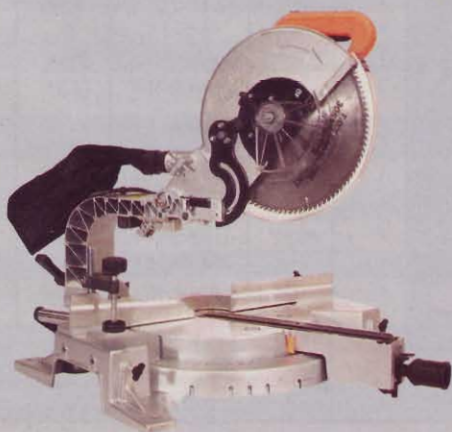
- Feels solid during adjustments and rigid while cutting.
- Minimal side-to-side play, due in part to the way the sliding rails, well-supported underneath the saw bed, actually gain support as the saw is pulled forward to make a wide cut.
- Has a user-friendly soft start.
- The factory-supplied blade is excellent.
- Bevel control is simple and easy to reach.
- Hold-down works well.
- We liked the adjustable fluorescent light.

Cons

- Bevel scale is small and difficult to read.
- Bevel range is limited to 45 degrees.
- Dust collection is average.
- Adjustable fences are not as user-friendly as those on the other saws and don't spread as wide.

Source Makita USA Inc., (800) 462-5482, www.makitatools.com

The \$180 Sliding Compound Miter Saw: In a Class by Itself



Intrigued by its astonishingly low price, we also tested the 12-in. Chicago Electric 91852-2VGA saw. Although this saw isn't engineered as precisely or built as heavily as the expensive saws, it still makes most of the cuts they make, just not as easily or as accurately.

If you only want to construct a deck, frame the basement or do rough crosscutting, the price—one-third the cost of the other saws we tested—makes this saw a real contender.

Source Harbor Freight Tools, (800) 423-2567, www.harborfreight.com



Bosch 5412L, \$650

This saw has many user-friendly features.

Pros

- Front-mounted bevel controls are easy to use.
- Bevel scale is large and readable.
- Quick-release hold-down is tenacious.
- Built-in extension wings are perfectly level with the saw bed.
- Handle adjusts to horizontal, vertical and diagonal (45-degree) positions.
- We liked the viewing slot in the blade guard; some editors preferred it over the laser for lining up cuts.

Cons

- The factory-supplied blade required a good push to get through bevel and compound miter cuts in the 1-3/4-in. white oak.
- Hold-down isn't particularly user-friendly.
- Dust collection is average.
- Saw requires a lot of space.

Source Bosch, (877) 267-2499,
www.boschtools.com



Craftsman 21206, \$600

This saw appears similar to the Bosch 5412L, especially regarding several user-friendly features.

Pros

- Front bevel controls on this saw are simple and appealing—just tilt and lock.
- Bevel scale's readability is above-average.
- We liked the quick-lock lever for setting miter angles.
- Handle adjusts to horizontal and diagonal (45-degree) positions.

Cons

- Cut quality is average.
- Blade guard catches on 45-degree right bevel cuts.
- Built-in extension wings sit below the saw bed.
- Bevel range is limited to 45 degrees.
- Dust collection is average.

Source Craftsman, (800) 377-7414,
www.sears.com/craftsman



DeWalt DW718, \$660

If you need big cutting capacity, this is an excellent choice.

Pros

- Removing the main fence and adding a 1-1/2-in.-thick subbase increases crosscut capacity to 16 in. and miter capacity to 11-5/8 in.
- We like this saw's unique, simple system for truing the miter settings: Instead of aligning the fence with the saw blade, you loosen a few Allen nuts and shift the saw bed into alignment with the fence.
- This saw is light in weight and very compact.
- We like the front-mounted laser, a \$59 accessory.

Cons

- Blade makes rough, splintery cuts.
- Saw head jumps on start-up more than any other tested saw, so can drop down and nick a board if you're not prepared.
- Dust collection is average.
- Hold-down is difficult to securely tighten.

Source DeWalt, (800) 433-9258,
www.dewalt.com

12-in. Sliding Compound Miter Saws

Model	Street price	Limited side-to-side play	Cut quality w/supplied blade	Compact footprint*	Easy bevel adjustment (head tilt)	Bevel scale readability	Hold-down effectiveness	Dust collection	Laser location	Footprint/overall depth++	Bed length	Weight (lbs.)
Bosch 5412L	\$650	1	2	1	3	3	3**	1	arbor	36"/45"	25-1/2"	59
Craftsman 21206	\$600	1	1	2	3	2	1	1	arbor	30"/43-1/4"	26"	66
DeWalt DW718	\$660	1	1	3	2	1	2	1	top***	26"/36"	24-3/4"	53
Hitachi C12LSH	\$650	1	1	3	1	2 (digital)	3	3	rear	24-3/4"/37-1/2"	22-3/4"	66
Hitachi C12RSH	\$600	1	1	3	1	1	3	3	rear	24-3/4"/37-1/2"	22-3/4"	66
Makita 1214F	\$600	2	3	2	3	1	3	1	NA	28-1/2"/37-1/2"	17-3/4"	51
Makita 1214L	\$630	2	3	2	3	1	3	1	top	28-1/2"/37-1/2"	17-3/4"	51
Metabo KGS305	\$650	2	2	1	1	1	3**	2	arbor+	37-3/4"/45-3/4"	26"	68
Ridgid MS1290LZ	\$570	1	2	1	3	2	1**	1	arbor	34-3/4"/43-3/4"	21"	70
Chicago Electric 91852-2VGA	\$180	1	1	2	1	1	1	1	rear	27-1/4"/35"	22-3/4"	44

1 Average 2 Better 3 Best

*1 26" or less, 2 27" to 30", 3 more than 30" **quick-release ***extra-cost accessory \$59 + available late 2006 ++ bench to wall/miter table lever to wall +++ requires special setup



Hitachi C12LSH, \$650 C12RSH, \$600

These saws have many innovative features and the most compact footprint. The C12LSH includes an LCD digital display.

Pros

- The miter table's rack-and-pinion adjustment system works well.
- Dust collection is good, the best in the test.
- Hold-down is one of the best.
- We like the innovative digital display.

Cons

- Cut quality is average. Compound miter cuts are slightly curved.
- We found tilting and locking the top-heavy saw head difficult, in spite of its rack-and-pinion adjustment.
- Tiny bevel scale is nearly impossible to read and the digital display is only calibrated to 1/2-degrees.
- Side-mounted rails allow considerable side-to-side play.
- Bed's surface area is very small and extension supports are extra-cost accessories.

Source Hitachi Power Tools, (800) 829-4752, www.hitachi.com/powertools



Metabo KGS305, \$650

This saw has minimal side-to-side play and a wide, stable base.

Pros

- Widely spaced rails minimize its side-to-side play.
- Dust collection is better than average.
- Quick-release hold-down is effective; an adjustable arm extends its reach by 1-1/2 in.
- Has a wide bevel range.

Cons

- The factory-supplied blade cut smoothly, but left slightly curved faces. However, with the Makita blade installed, this saw cut straight and true.
- Requires a lot of space.
- Awkwardly placed bevel lock doesn't work well enough. It's finicky to adjust; we never got it to securely lock the saw head without being impossible to operate.
- Right-tilt bevels are hard to set accurately because you can't see the scale when you reach around and under to lock the saw head.
- Built-in extension wings sag below the saw bed.
- Bevel scale is tiny; the bubble-style plastic indicators were difficult to read.

Source Metabo Corp., (800) 638-2264, www.metabousa.com



Ridgid MS1290LZ, \$570

This saw features large capacities, big, readable scales and user-friendly controls.

Pros

- Has the widest miter range, second-widest bevel range and second-widest crosscut capacity.
- Has the biggest bevel scale.
- Locking miter handle and detent release are combined into a smooth, user-friendly control.
- Bevel lock is convenient and easy to use.
- Cam wheel design makes blade-depth adjustments easy.

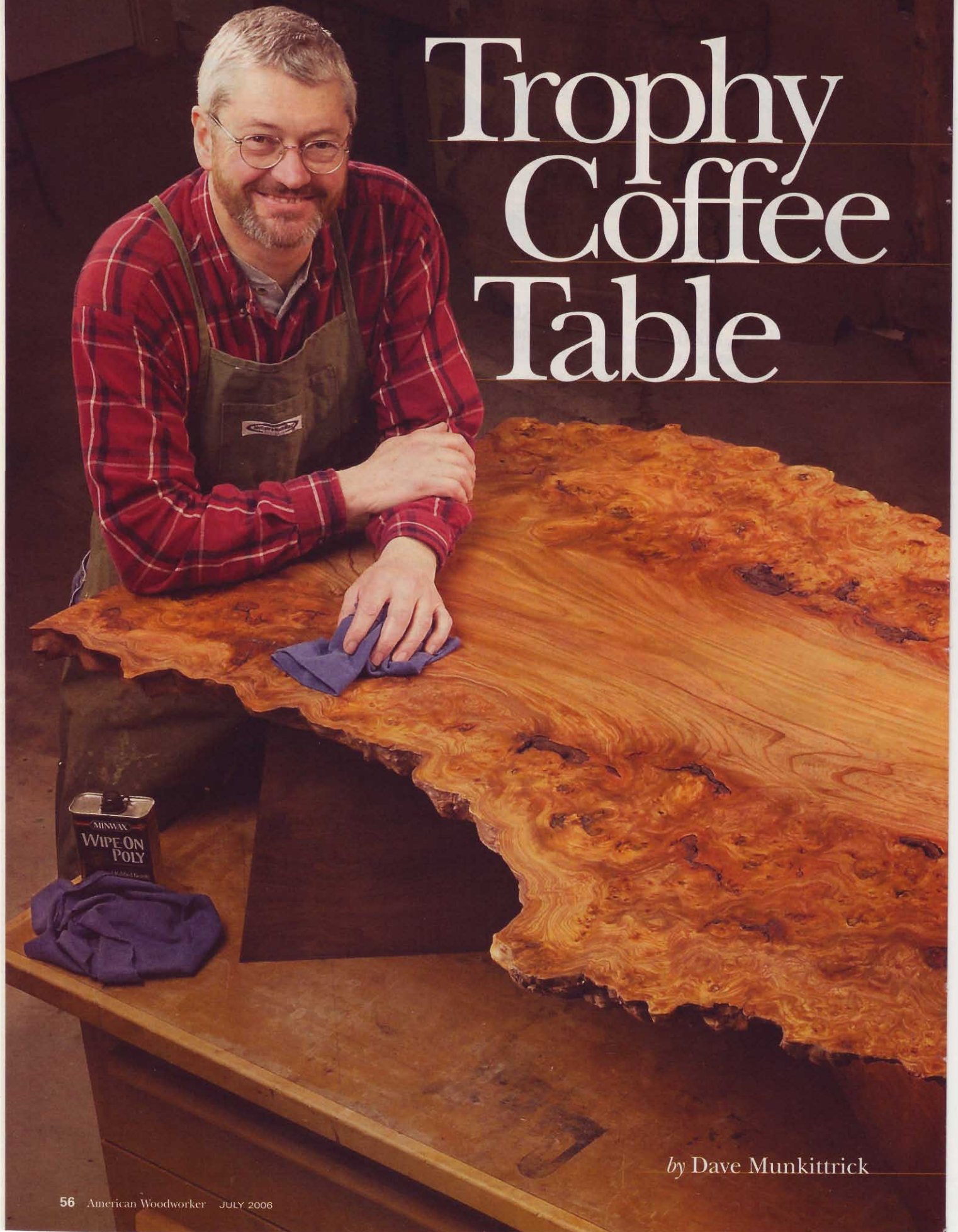
Cons

- Dust collection is average.
- Quick-release hold-down was difficult to securely tighten.
- Bubble-style bevel-scale indicator traps sawdust, making it hard to read. (We had to remove the indicator to clean it.)
- Bed is smaller than most, only 10-1/2 in. from the blade to the edge, and extension supports aren't available.
- Requires a lot of space.

Source Ridgid, (800) 474-3443, www.ridgid.com

Miter range L/R	Bevel range L/R	Crosscut	Board width at 45° miter	Depth	Vertical cut (3/4" stock against fence)	Depth at 45° bevel L/R	Comments
52°/60°	47°/47°	12"	8-1/2"	4-1/2"	4-1/2"	2-3/4"/1-5/8"	Built-in bed extensions; handle is adjustable
47°/60°	45°/45°	12-1/4"	8-3/4"	4"	4"	2-1/2"/1-3/4"	Built-in bed extensions; handle is adjustable
60°/50°	48°/48°	13-1/2"/16"+++	9-1/8"/11-5/8"+++	3-11/16"	6-1/2"	2-3/8"/1-11/16"	Bed extension wings available as accessory (\$37)
46°/57°	45°/45°	12-1/4"	8-5/8"	4-1/4"	4-1/4"	2-3/4"/1-3/4"	Digital display, inside blade guard; bed extension wings available as accessory (\$35)
46°/57°	45°/45°	12-1/4"	8-5/8"	4-1/4"	4-1/4"	2-3/4"/1-3/4"	Inside blade guard; bed extension wings available as accessory (\$35)
47°/52°	45°/45°	12-1/8"	8-5/8"	4-1/2"	4-1/4"	2-5/8"/1-3/4"	Fluorescent light, bed extension wings included
47°/52°	45°/45°	12-1/8"	8-5/8"	4-1/2"	4-1/4"	2-5/8"/1-3/4"	Laser guide, bed extension wings included
50°/60°	47°/47°	12-1/2"	8-7/8"	4-3/16"	4-3/16"	2-5/16"/1-1/2"	Built-in bed extensions, inside blade guard
61-1/2°/61-1/2°	47°/47°	13-1/2"	9-1/4"	4-1/2"	5-1/2"	3"/1-1/2"	
45°/45°	45° (L only)	12"	5-1/4"	4"	4"	1-15/16" (L only)	Bed extension wings included

Trophy Coffee Table



by Dave Munkittrick

STUNNING BEAUTY RIGHT FROM THE TREE

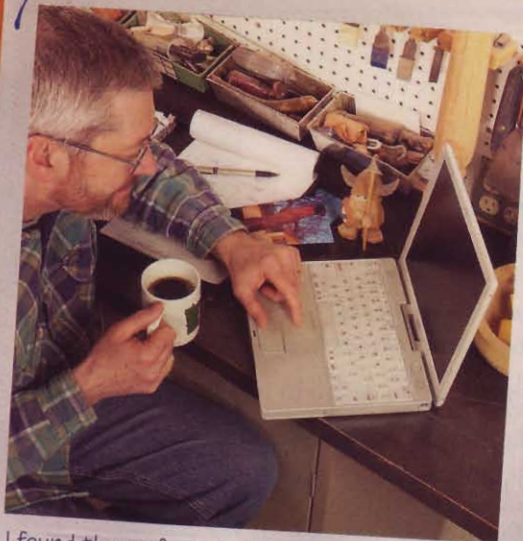
Big planks of wood with natural bark edges make my heart race. Most woodworkers share a desire to build something from a single, thick plank of wood. After 20 years of building custom cabinets and furniture, I finally got my chance.

The first step was finding that perfect slab of wood—not an easy task. Slicing a tree into planks, bark edge and all, is not a common sawmill practice. I started my hunt in the Yellow Pages under “Sawmills.” I found a number of people with portable mills, but without a log for them to saw, I was out of luck. I tried a few tree-trimming companies to see whether they had a tree trunk or two they needed to dispose of. Two strikes.

Finally, I turned to the Internet (Photo 1). I found the slab of my dreams: a huge (14- to 36-in.-wide x 12-ft.-long) slice of English Burly Wych Elm (pronounced “witch elm”) (see “Sources,” page 64). I knew immediately that this was the one.

When the wood arrived at my door (Photo 2), I quickly realized that building with a single rough slab requires a completely different approach than working with individual boards. On one hand, no decisions would be needed about grain pattern or color that individual boards require. With a single slab of wood, your only task is to present the natural beauty of the wood in the best way possible, despite all its inherent defects, such as loose bark pockets, rough edges, dirt, checks and cracks. On the other hand, just handling such an enormous yet delicate piece of wood presents some unique challenges.





1
I found the perfect plank for my coffee table on the Internet. It was a 12-ft.-long slab of Burly English Wych Elm. It was like no other piece of wood I'd ever seen. I couldn't wait.



2
The day the wood arrived, I had to call on a couple of neighbor friends just to get the crate in the shop!



3
Whoa! What a disappointment. The wood had the dull, grey appearance of a corpse. This wasn't what I was expecting.

I had a lot of fun building this table and you will, too, if you decide to build one like it. Because every natural-edged board is unique, it's difficult to give an exact formula on how to design or build a natural-edge table. Even if they come from the same tree, no two boards are alike. What follows is my experience as I built this table in front of the camera.

Arrival Day

After the wood was ordered, I couldn't wait for it to arrive. With all my thoughts on possessing that piece of wood, I neglected to plan ahead and be ready for its arrival. I discovered the hard way that you can't handle a large plank the way you can individual boards (Photo 2).

When we got the wood in the shop, I didn't let practical considerations slow me down. Totally intoxicated by what was inside the crate, I felt a burning desire to see the wood, now! We popped the bands and lifted off the protective cover. My heart sank at what I saw: an enormous slice of tree that looked more like clay than a beautiful figured piece of wood (Photo 3). A quick slosh of mineral spirits over the surface restored my spirits (Photo 4). The burl that grew around the Wych Elm tree came to life. Here was that amazing piece of wood I had seen on my computer screen.

It was like no other piece of wood I'd seen before. It came from an old English estate and I can only imagine what the tree itself must have looked like—really, really gnarly. You

could clearly see the normal grain of the elm in the center of the plank, but its edges were like one big, long burl. The swirling grain was punctuated by tight knots, each radiating small black cracks. The sight reduced us to a stunned stare. I knew we'd be able to breathe life back into this thing.

Broken Dreams

Of course, I had to see the other side of the plank as well. To avoid getting our fingers pinched as we turned the plank over, we let it drop. We heard a sickening crack and saw one of the beautiful burls lying limp at the plank's side (Photo 5). That's when this lesson finally hit home: You have to be very careful of the edges on a slab of wood like this. They are not only an integral part of the slab's character but are also very fragile. With rough-sawn boards, you can always trim off banged up edges—not so for a natural edge you want to preserve.

Enough mistakes: I constructed a "plank train" (Photo 6) to safely handle my precious slice of tree. Now, the plank was mobile, the edges protected and the wood at a height where we could easily lift and turn it for inspection. To help season the plank to my shop air, I set 1-1/4-in. stickers under the plank and draped a polyester dropcloth over the whole thing (Photo 7). As we rolled the slab to the back of the shop, my mind was mulling over how to repair that broken piece of burl.



A slosh of mineral spirits gave us a glimpse of what to expect from the finished wood. My own spirits were restored; I really did have a treasure on my hands.



Oops! In my excitement to see the other side, I managed to snap off a burl as we flipped the plank. I felt like a greenhorn.



My hindsight kicked in. I built a "plank train" from shop carts and chipboard. Now, the plank was mobile, the edges protected and the wood at a height for easy handling.



It was time to let the plank acclimate to my shop for a few weeks. Stickers exposed both sides of the plank to the air. A plastic tarp slowed the moisture exchange.

8



Deciding where to make that first cut was nerve-racking. I used chalk to rough out where the cuts might be made. I like chalk because it's easy to see and I can "erase" it with a stiff brush. The broken burl was set in place for reference.

9



I made a cardboard template of the proposed tabletop. I wanted to see how it would fit my living room. I also used cardboard to play around with base designs.

Making the First Cut

After the wood sat for several weeks in the shop, I was ready to start work on the table in earnest. Now came the scary part: deciding where to cut the plank. Just the thought of making that irreversible step put beads of sweat on my forehead. Our wood had a wild edge all along its length. Still, there were natural breaks where it made sense to crosscut the slab.

This plank was about 36 in. at the butt end and only 14 in. at the top. I wanted to use the widest section for my coffee table. It promised the best proportions with a rich selection of burl on each edge. The rest of the plank would be used for a matching sofa table and the remainder sold to a friend to help defray the cost. It seemed like one cut could be made just past a check that ran up the center of the butt end and the second cut about

50 in. farther up the plank. I made preliminary marks to help me explore where these crucial cuts should be made (Photo 8). The plank dictated a wider coffee table than I had originally planned.

Unlike making furniture from boards, you can't do much to adjust the size of your piece when it's a single

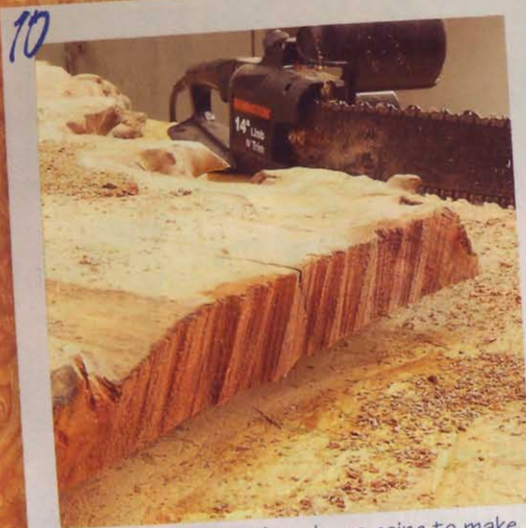
plank. To be safe, I made a cardboard template of the proposed section and used it to check the fit in the room (Photo 9). Cardboard also made it easy to build and test different base designs. I settled on a simple design that's a snap to build with butt joints and screws (Fig. B, page 64).

Edge Treatment

Now that I knew where I wanted to cut the plank, I wasn't sure how I wanted that cut to look. Should the cut be angled? Straight? Free-form? I tried a rough cut first (Photo 10). Then I textured the cut with a chisel (Photo 11). Hmm—it simply wasn't what I had in mind. I even used a jigsaw to cut a free-form edge and then a gouge to mimic the bark edge (Photo 12). I still wasn't happy. I finally settled on a straight cut polished smooth. I took advantage of a split at the butt end of the plank to create an offset cut (Photo 13). Two quick cuts with a circular saw freed my coffee table from the plank. I was glad to have a much smaller piece of wood to move around. At the same time, I felt a touch of sadness at breaking up that long plank.

Bark Side Up?

OK, next question: Which side of the slab should be up? There was a lot to consider here. Did I want the bark edge up, making it a prominent element, or down, tucked under the edge. I liked the overall look of the edge tapering back underneath the top edge. On the other hand, this plank had such gnarly bark, it was a shame to hide it. Neither side had a defect severe enough to tip the scales. After flip-flopping both the plank and my decision, in the end, I went with the bark side down.



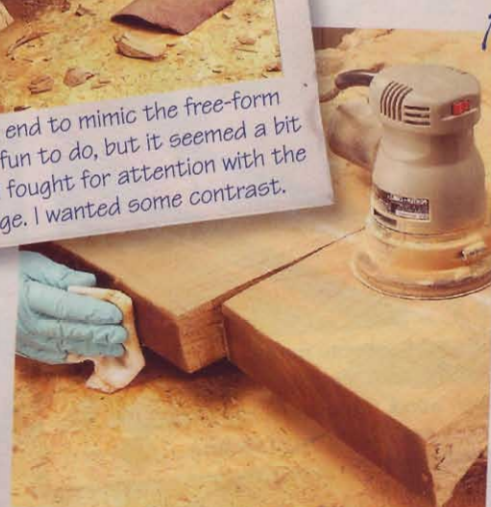
Now that I knew where I was going to make the cuts, I had to decide how they would look. First, I tried rough and raw right from a chainsaw. It looked cool but too rustic.



I tried a little texture with a shallow gouge chisel, but it was a bit busy for my taste.



I even carved the end to mimic the free-form bark edge. It was fun to do, but it seemed a bit heavy-handed and fought for attention with the natural bark edge. I wanted some contrast.



Finally, I chose a straight cut sanded smooth to 220 grit. A little oil made it look like polished marble. I took advantage of a split at the butt end of the plank to create an offset cut.

14



I reattached the broken burl with epoxy. A board on top held the burl in place and wax paper kept the board from being glued to the plank. Padded clamps pulled the broken piece snug.

Fixing the Broken Burl

Now I turned my attention back to the broken piece of burl. Fortunately, the clean break would not require fancy repair work. Padded clamps applied enough pressure to hold the piece in place without damaging the burl edge. (Photo 14). I needed a strong, gap-filling glue with a fair amount of open time to do this repair. I chose epoxy because it does not require a lot of clamp pressure and epoxy's gap-filling properties would fill the voids from any missing splinters of wood.

Making It Flat

I wasn't at all sure how I was going to flatten this monster board. Something crazy happened, though: I went to bed contemplating the problem and woke up with the answer. First I built a cradle in which to set the wood (Fig. A, page 64). The slab was shimmed up under the high spots so it wouldn't rock (Photo 15) and wedged in place so it wouldn't move (Photo 16). Then I fashioned a router carriage out of aluminum channel. The carriage rode on top of the rails and guided the router as it passed back and forth over the plank (Photo 17). I used a special bit called a bottom-cleaning bit (see top left photo, page 63; Sources, page 64). The bottom-cleaning bit cuts on both the bottom and the side. The bit's 1-1/4-in. diameter helped

15



The next task was flattening the rough plank. I built a simple cradle to hold the rough wood. Shims supported the slab and kept it from rocking.

16



I wedged the wood in the cradle to keep it from moving around.



shorten the duration of an odious task.

Starting with the bit set about 1/8-in. below the highest point on the plank, I began to flatten the board. I stepped the bit down in 1/8-in. increments until the whole surface was flat. Then I flipped the plank and milled the reverse side.

Fixing Defects

Most of the cracks were small and added to the wood's natural beauty. Nevertheless, I wanted to fill a few stress cracks that ran across the plank's grain. I used epoxy to fill the largest cracks (Photo 18). It dries to an amber color and blends well with a natural finish. I added a cellulose filler to give the epoxy more body so it wouldn't run out of the cracks.

Cleaning Up the Bark Edge

I found a nylon brush attachment for my drill to be the perfect tool for cleaning the bark edge (Photo 19; see Sources). The stiff nylon brushes are embedded with an abrasive. They work to remove loose bark and dirt without scoring the wood like steel brushes do.

Sanding It Smooth

To smooth the top surface, I turned to my 4-in. belt sander (Photo 20) followed by my random-orbit sander. I started with an 80-grit belt and diagonal strokes for the initial sanding. I followed that with a 120-grit belt running with the grain. Then I switched to a 6-in. random-orbit sander. I backed up one grit when I switched from the belt sander to my random-orbit sander. Then I worked through the grits all the way to 220 grit.

17



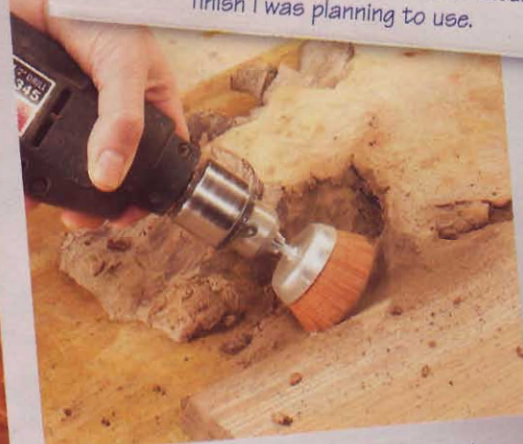
I used a router in a sliding carriage to flatten the top. A wide bit made the task a little less tedious.

18



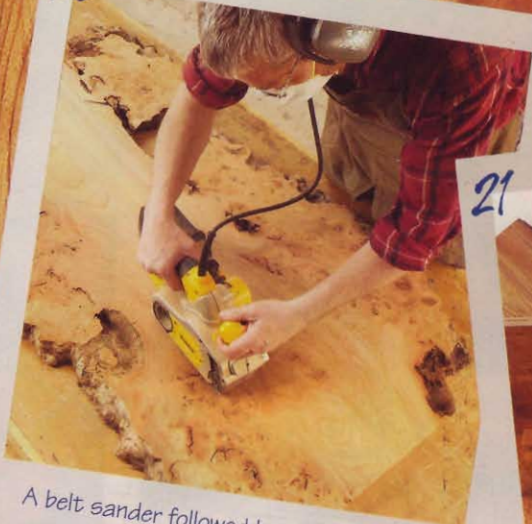
Before sanding the top, I reached for the epoxy again, this time to fill a few unsightly cracks. Epoxy blends well with the natural finish I was planning to use.

19



An abrasive-impregnated nylon-bristle brush worked beautifully to clear away loose bark and dirt from the edges.

20



A belt sander followed by a random-orbit sander smoothed the top.

21



I decided to make a simple plywood base that wouldn't compete visually with the top. I fastened it to the top through cleats screwed onto the base's top edge.

Figure A Flattening Carriage

Use jointed 2x4s that have dried in your shop to start the base. Add a piece of sheet stock about 2 in. wider than the widest section of your plank. The rails need to be dimensioned so they are slightly taller than the thickness of your slab. Space the aluminum channel about 1/8 in. wider than the base of your router.

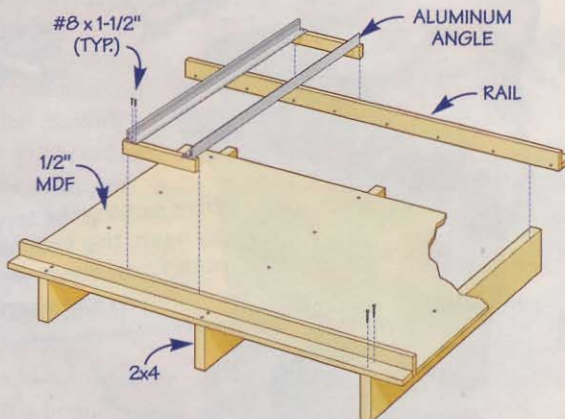
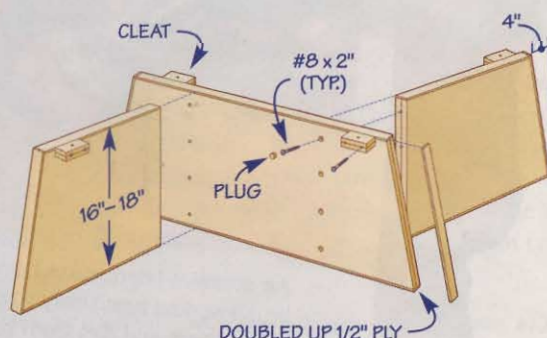


Figure B Base

The base is sturdy, easy to build and unobtrusive. It's made from doubled-up plywood. Support wings are screwed to a main spine that runs diagonally along the length of the slab. This base design can be adapted to any shaped slab of wood.



Finishing the Top

I wanted a clear finish that could be applied to the gnarly bark edge without pooling and dripping. I chose a wipe-on polyurethane because it's applied like an oil finish but it dries hard. It was easy to work into the bark edges. Daubing the wet bark with a dry rag was all it took to clean up the excess finish. Be sure to put as many coats on the bottom as you do on the top.

Attaching the Base

I screwed the base to the top through cleats glued along the base's top edge (Photo 21). At the outside edges where grain movement is an issue, I drilled oversized holes and used washer-head screws.

Sources Hearne Hardwoods, (888) 814-0007, www.hearnehardwoods.com English Burly Wych Elm, 8/4 x 26 in. x 12 ft., \$2,230. • MLCS, (800) 533-9298, www.mlcswoodworking.com 1-1/2-in. bottom-cleaning bit, #7942, \$19. • Epoxy Heads, (866) 376-9948, www.epoxyheads.com 1 quart of resin, \$30. 1/2 pint of hardener, \$16. Thickener, 1.7 oz., \$7. • MSC Industrial Supply Co., (800) 645-7270, www.mscdirect.com Nylon cup brush, medium, #00549204, \$9.

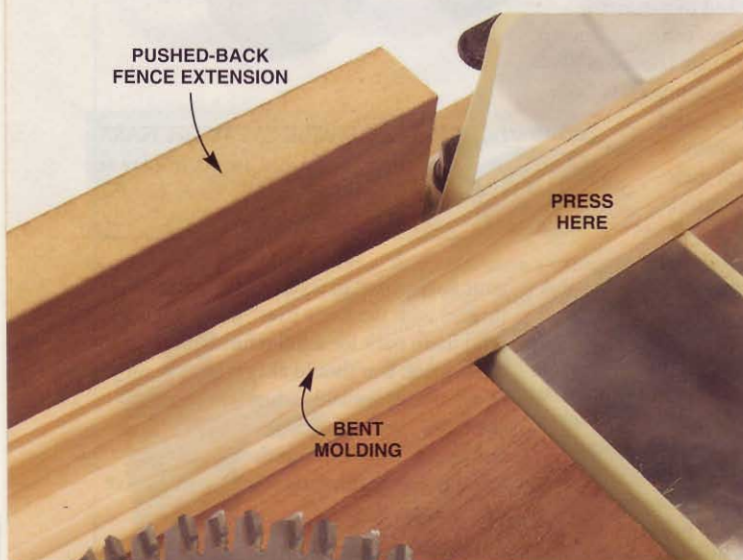
Tips for Mastering the Miter Saw

by Tom Caspar

14 ways to make safe, accurate cuts with no tear-out



At first glance, using a miter saw appears quite simple. But to get good results—that's another story! Here are a handful of techniques and jigs, for pieces large and small, to help you make absolutely straight, splinter-free cuts right on your layout lines.



Push Your Fence Back

Straight pieces of molding are easy to cut on the miter saw, but how about those snarly bent ones? If you have an extended fence, accurately cutting their ends requires one simple adjustment. Push the fence extension back and out of the way, so a bend won't prevent you from holding the molding tightly against the saw's own fence. Use this technique for flat boards that are bent, too.

One Blade Can Do It All

Most miter saws come with a blade that's fine for cutting 2x4s, when a bit of tear-out or a slightly rough surface really doesn't matter. For better performance when cutting hardwood and plywood, replace the original blade with a blade that has a high tooth count and a negative rake. Leave this replacement blade in your saw for cutting all types of wood.

A negative rake means the teeth lean slightly backward and cut less aggressively. A 10-in. high-tooth-count blade has 60 to 80 teeth; a similar 12-in. blade has 70 to 100 teeth. Plan to spend at least \$70 for one; the price increases with the number of teeth.

ART DIRECTION AND PHOTOGRAPHY: JOE GOHMAN



Back Up Thin Stock

Make a sacrificial two-sided miter box when you're slicing thin stock into short pieces. Mount a toggle clamp on the box to safely hold your work (see Source, below). Fasten the box to your saw's fence so it won't move. Then cut a slot partway through. Use the slot to align the layout mark on your workpiece. This box also acts as a back stop so the cutoff won't fly away. It also prevents tear-out below and behind the cut.

Source Woodcraft Supply, (800) 225-1153, www.woodcraft.com
Toggle clamp, #143938, \$12.

Set Bevel Angles with a Block

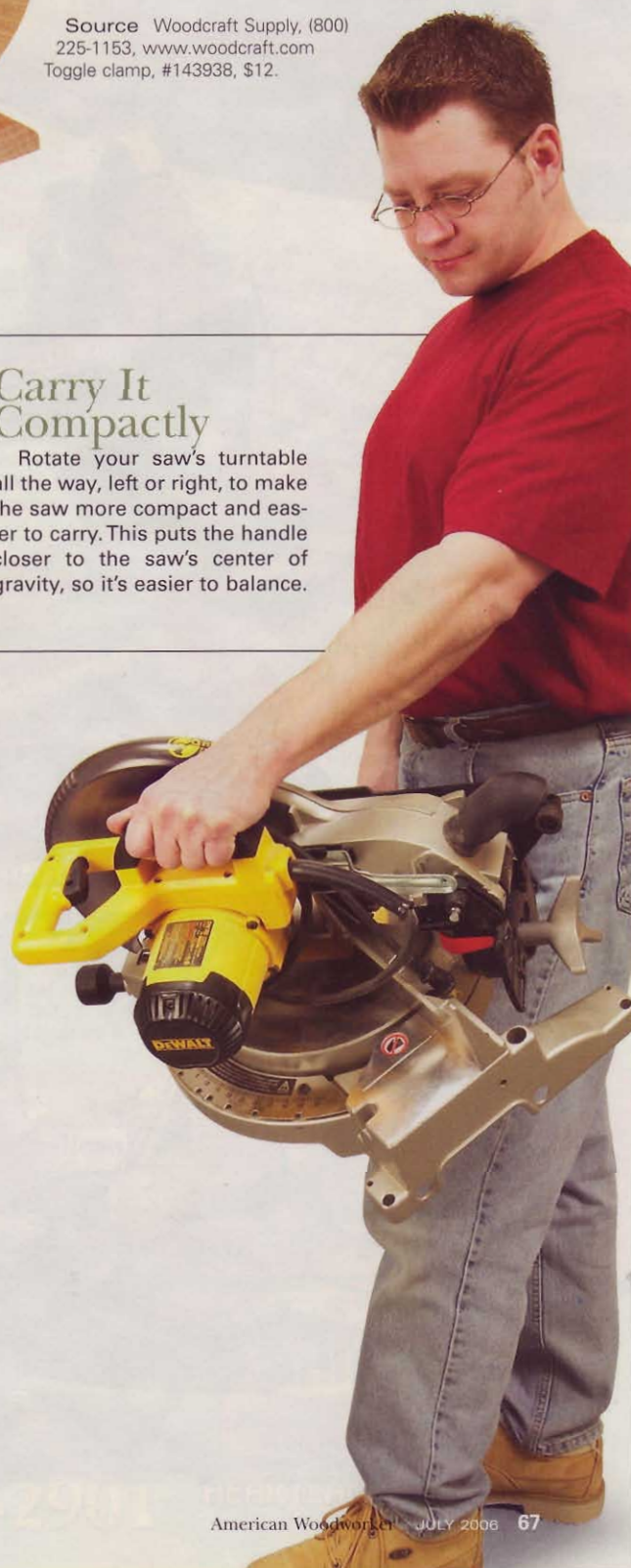
When's the last time you tried to read your saw's bevel scale, the one that tells you how far the blade is tilted? Those scales are often divided by illegible lines and have crude cursors caked with dust. It's much easier to make a setup block than to read the scale.

To make the block, leave the blade at 90 degrees with no tilt. Rotate the saw table to the angle you want. Place the block flat on the table and cut it. Rotate the table back so it's square to the fence. Stand the block on edge to adjust the blade's tilt.



Carry It Compactly

Rotate your saw's turntable all the way, left or right, to make the saw more compact and easier to carry. This puts the handle closer to the saw's center of gravity, so it's easier to balance.





Check Your Throat Plate

Most throat plates are set slightly below the saw's table, as indicated by this piece of paper. The throat plate should be level with the table to reduce tear-out and prevent a thin piece from bending as it's cut. If your throat plate sits too low, remove it from the saw and shim it by putting tape on the ledge underneath the plate.



Use the Hold-Down

A little creep can ruin a good cut. The best way to prevent a board from wiggling is to use your saw's hold-down clamp. I'm sure you've already figured out that regular clamps don't work well for this job. Unfortunately, most miter saws don't have flat surfaces underneath the table to receive a clamp. The backs of many fences don't have flat spots either.

Miter saws' hold-downs are a mixed bag. Some work well; others are difficult to adjust or don't hold the work steady enough. Inconvenient or not, most hold-downs do increase the accuracy of any cut.



Cut Dowels with a V-Block

Make a V-shaped cradle to prevent dowel stock from rotating when the blade hits it. If your saw has a depth stop—a very handy feature—set the stop so the blade won't cut all the way through the cradle.

To make the cradle, tilt your tablesaw blade to 45 degrees. Raise the blade until it cuts about 3/16 in. below the top of the V (see inset photo). Turn the board end for end and cut the opposite side. This partial-cutting method prevents the waste from shooting back at you at the end of the second cut. Snap off the waste piece by hand. Raise the blade and finish the V shape.



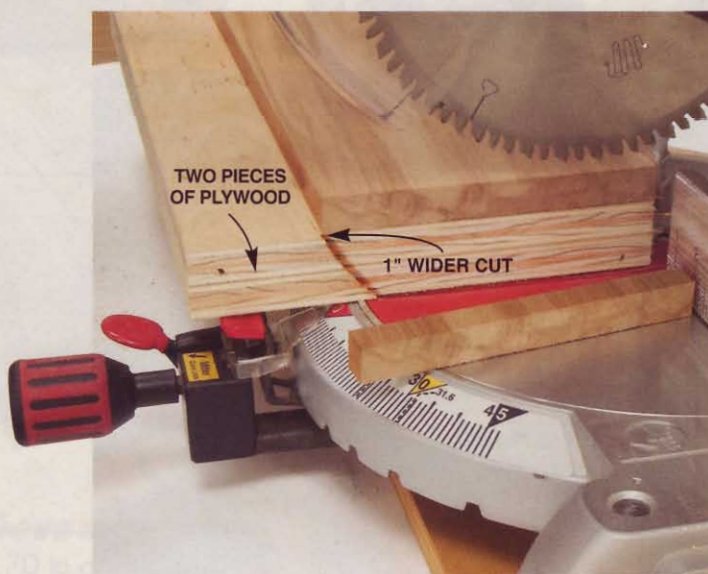
Wait Until the Blade Stops

Be honest: How many dangerous missiles have you launched from your miter saw? We've all done it. Small cutoffs are the worst, of course. But it's not rocket science to figure out how to ground them: Don't lift the blade until it stops. Make the cut, let go of the trigger and count to five. That's not so hard, is it?



Raise Your Work for More Capacity

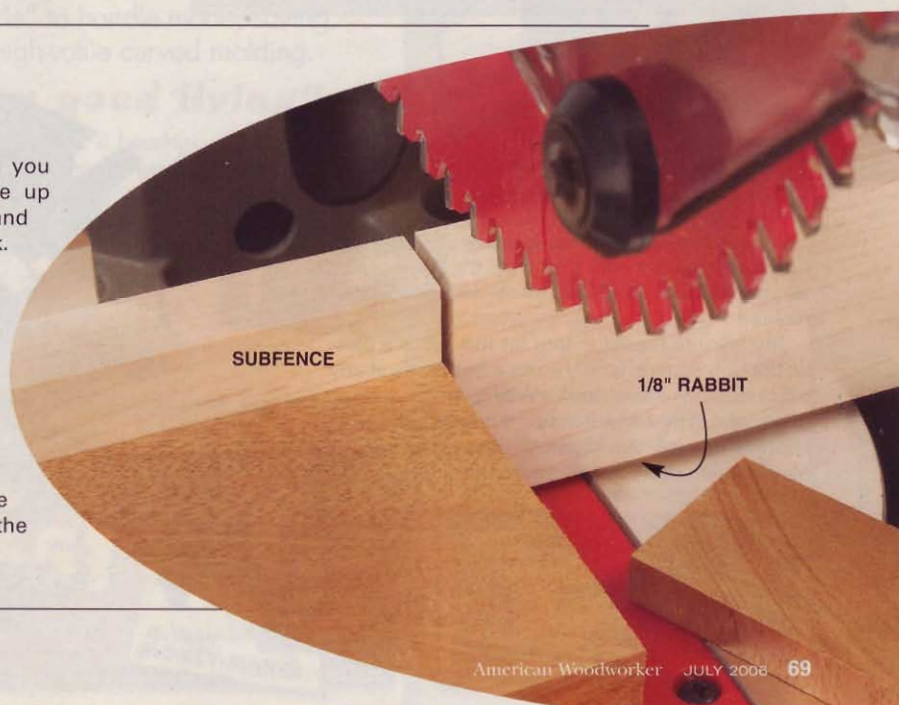
When your blade won't cut all the way across a wide board, try raising the board on a platform. It may seem weird, but this effectively increases your saw's crosscut capacity. The amount varies from saw to saw. Here, on this 10-in. saw, each piece of 3/4-in. plywood placed under the workpiece widens the cut by 1/2 in. Adding two pieces gains 1 in., just enough to make a full-width cut. Be sure to use a hold-down, so the blade's steeper cutting angle at the cut's far side doesn't lift the workpiece.

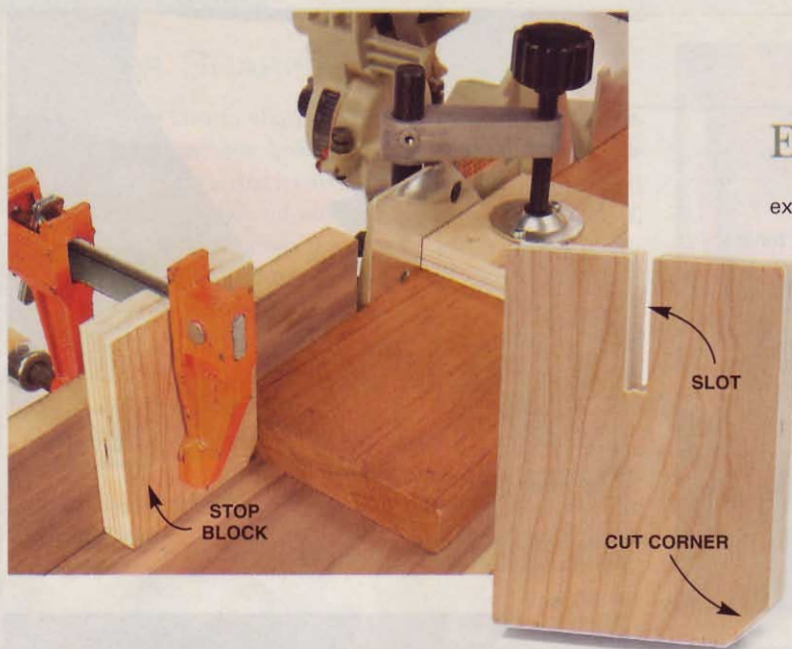


A Subfence Increases Precision

Screw a subfence to your saw when you must make precise right-angle cuts. Line up your pencil mark with the fence's slot and voilà! the blade cuts exactly on the mark. The cut's back side will be as clean as a whistle with no tear-out.

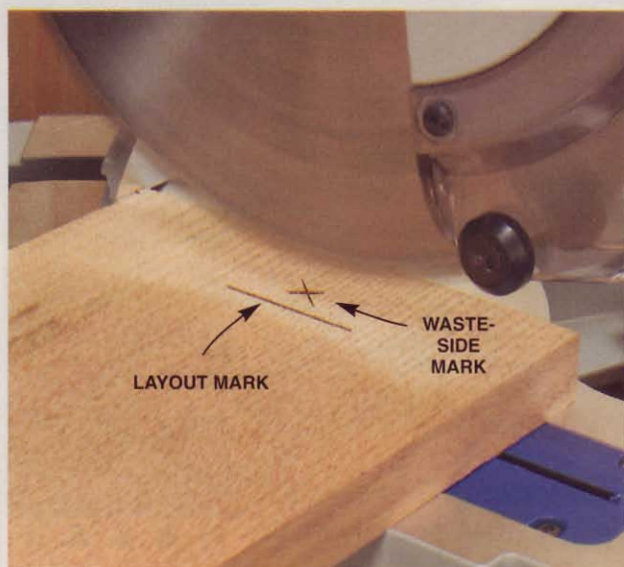
To make a subfence, start with a board that's the full length of the saw's fence. Use a dense hardwood, such as maple. Using your tablesaw, cut a 1/8-in.-wide rabbet along one edge of the board. This creates a small gap for sawdust, so you can hold your workpiece tightly against the subfence. Screw the board to your saw's fence and cut a slot all the way through it.





Economical Stop

Use a stop block to ensure each piece you cut is exactly the same length. This stop is easy to make and adjust. It's just a piece of plywood or solid wood with a carefully cut slot (see inset photo). The slot fits tightly around the bar of an F-style clamp. When you move the clamp, the block goes, too. Use your miter saw to cut off one of the block's corners so sawdust won't be trapped between the block and your workpiece.



Mark the Middle

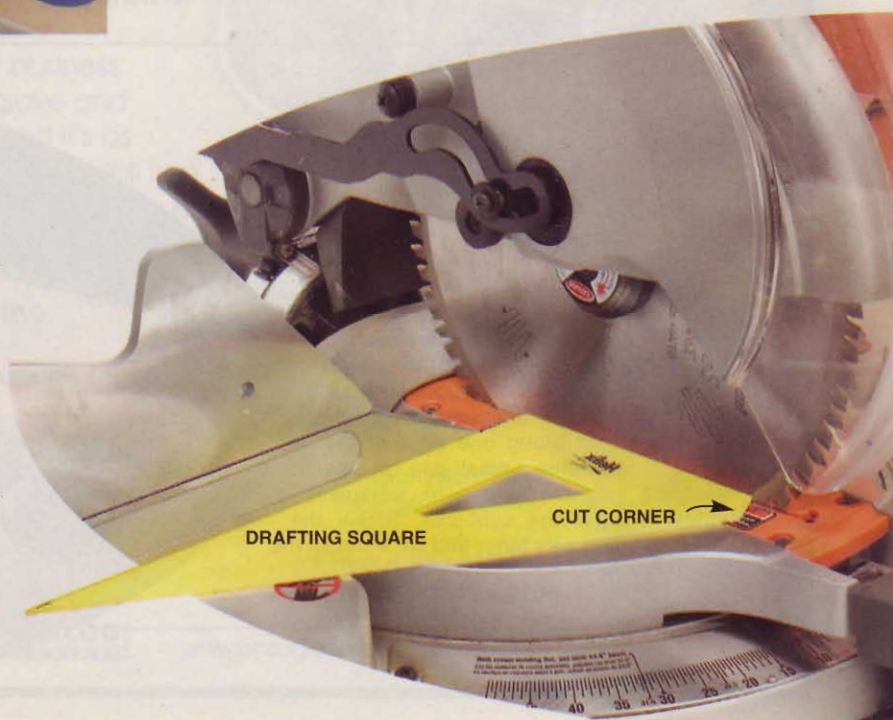
Where does the blade cut first? It starts at the board's middle, of course. That's where your layout mark should be, rather than at the board's edge.

When you mark a board for length, indicate the waste side with a big X. To align the blade with the pencil mark, keep your finger off the trigger and lower the blade until one tooth is a hair above the board. Shift the board until the mark lines up with blade. Raise the blade and then make the cut.

Is Your Saw Still Square?

Most saws cut reasonably square out of the box, but they may not stay that way. It's good practice to check yours now and then and readjust as needed.

My favorite precision tool for this job is a plastic drafting square. It only costs a few bucks at any office supply store and doesn't mind getting dropped. Using my miter saw, I cut off a corner to shorten one of the square's sides. This way, the blades' teeth don't interfere with the alignment check.

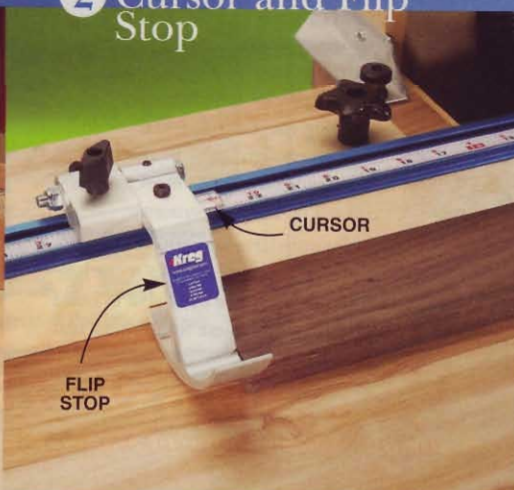
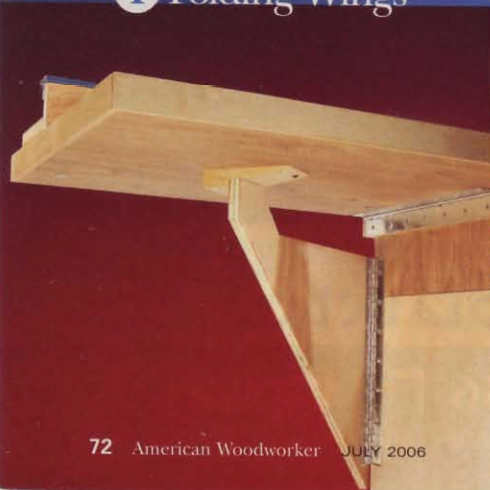




1 Folding Wings

2 Cursor and Flip Stop

3 Removable Saw Platform



Mobile Miter Saw Stand

by Richard Tendick

Get more from your miter saw
with a stand that handles everything.

This stand has everything you could want. With the wings up, it can handle 8-ft.-long boards on either side. With wings down, the stand is only 5-1/2 ft. long. It's on casters, so you can move it anywhere. When the casters are locked, the stand won't budge.

You can make exact, repeatable cuts with a cursor mounted on a flip stop. For jobs outside the shop, just pick up the saw and go. It's mounted to a notched plywood platform that automatically aligns with the fence.

Most sawdust goes through a hose connected to an on-board vacuum. Dust missed by the vacuum bounces against a back stop and drops into a collection box. The vacuum is plugged into a tool-actuated switch. When you turn the saw on, the vacuum comes on, too. When you're done sawing, the vacuum automatically stops.

CUSTOM-FIT YOUR SAW

As designed, this stand should be large enough for most compound miter saws. The Cutting List's dimensions accommodate my saw, a 12-in. Delta 36-412 which measures 25 in. wide and 17-in. deep with a 4-3/8-in.-high saw table.

Altering this stand to fit your saw is easy. The saw sits in a well that's formed by two drawer boxes sitting on top of

a base cabinet (Fig. A, page 74). Custom-fitting simply means changing the well's width so there's a minimal gap between your saw's table and each box. To change the well's width, make the boxes narrower or wider.

You shouldn't have to change the boxes' height. Two supports under the saw platform raise the saw level with the boxes' tops (see photo, below). Change the thickness of these supports to accommodate your saw's table height.

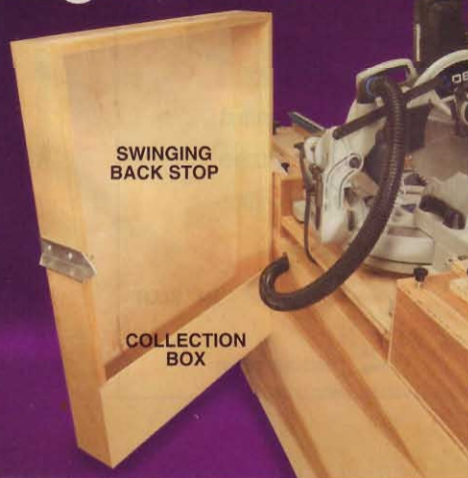
The dust hood's depth may have to be altered to fit your saw. I made the hood as shallow as possible so the stand takes less floor space. When I need more depth for a 45-degree compound miter cut, I remove the hood.

If you have a sliding compound miter saw, you'll probably have to increase the depth of the base cabinet, drawer boxes and dust hood.

A LESS-EXPENSIVE VERSION

I went all-out on my stand, adding my favorite bells and whistles. The cost is about \$500 without the saw or vacuum. That's a lot of dough, but you can slash the cost to \$210 by eliminating the commercial fence parts, using less expensive plywood with no edge-banding, dropping the drawers, doors and dust hood and doing without the tool-actuated switch.

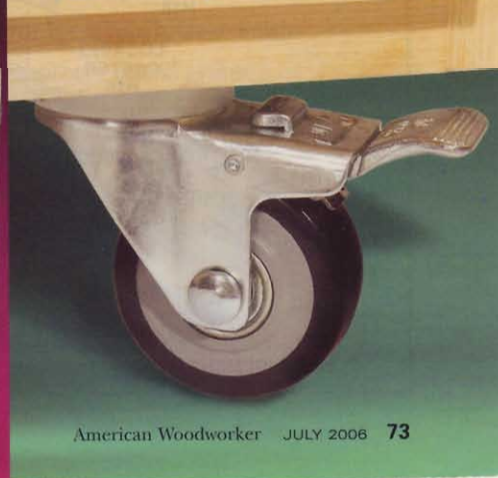
4 Dust-Collection Hood



5 On-Board Vacuum



6 Sturdy Casters



PROJECT REQUIREMENTS AT A GLANCE

Materials:

Four sheets of 3/4-in. 4x8 birch plywood,
one sheet of 1/4-in. 4x8 birch plywood,
13 bd. ft. of 3/4-in.-thick birch

Tools:

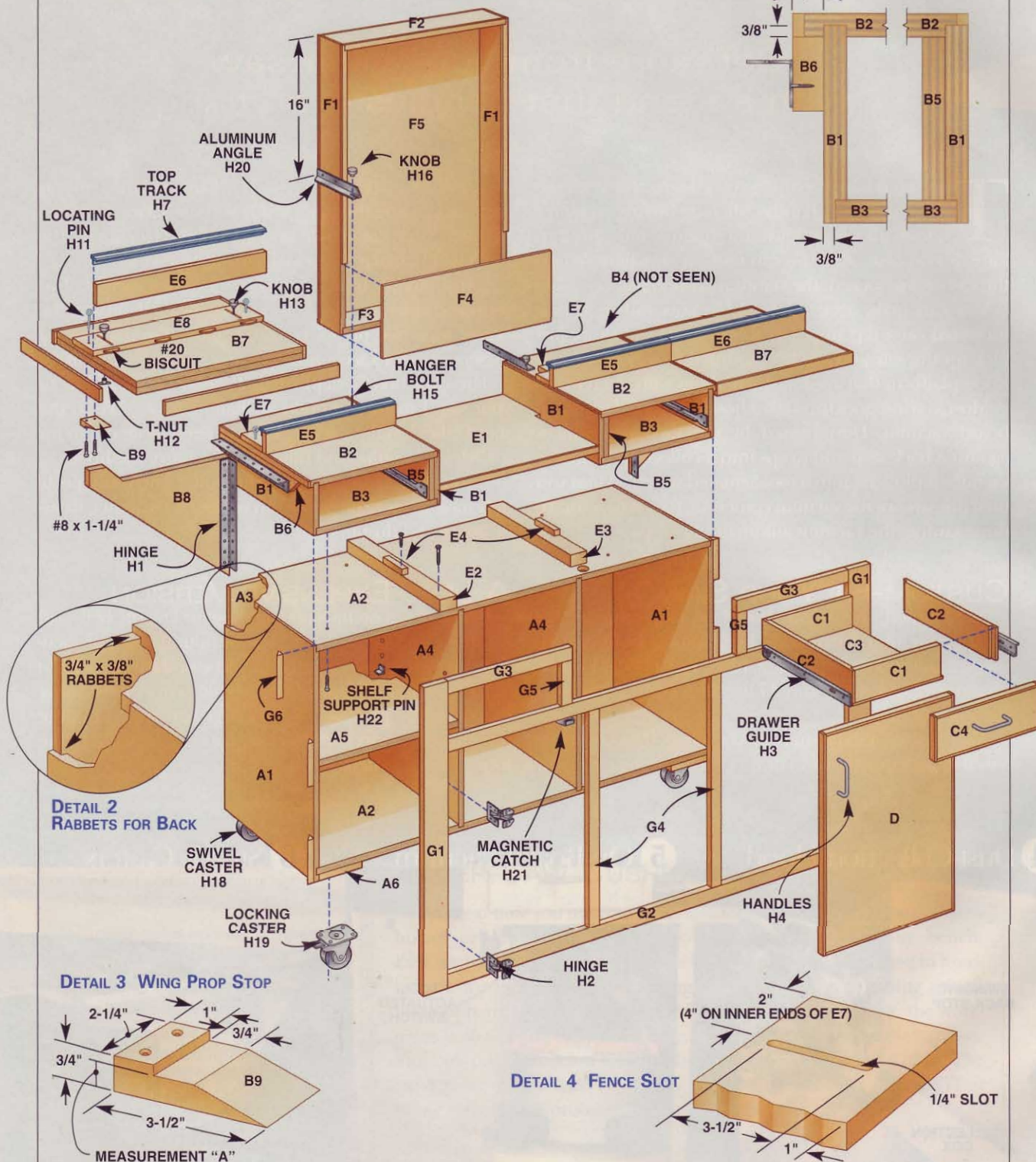
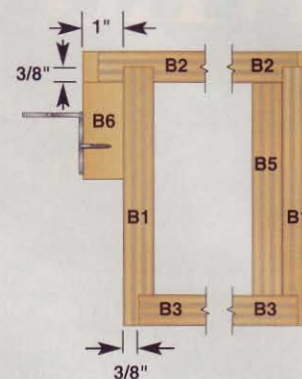
Tablesaw, dado set,
circular saw, pocket-hole jig,
router and biscuit joiner

Cost:

\$500 without saw and vacuum, \$210
for a bare-bones version (see "A
Less-Expensive Version," page 73)

FIGURE A EXPLODED VIEW

DETAIL 1 DRAWER BOX TOP



EDITOR: TOM CASPAR • ART DIRECTION AND PHOTOGRAPHY: JOE GOHMAN • ILLUSTRATION: FRANK ROHBACH

MAKE THE BOXES, CABINET AND WINGS

1. Measure your saw to determine the size of the stand's well. If needed, adjust the sizes of the drawer boxes and cabinet in the Cutting List (page 76). Cut all the plywood pieces to size (Fig. D, page 77).

2. Cut 1/4-in. strips of solid wood to edge-band the sides of the boxes' tops (B2). Glue on the banding.

3. Cut dados and rabbets in the parts for the boxes and cabinet (A1, A2, B1, B2, B3, B4) (Detail 2, page 74). Note that a drawer box's top (B2) overhangs its sides (B1, Detail 1, page 74). This overhang provides clearance for the wing's prop (B8) to fold against the cabinet's side. Assemble the boxes and cabinet. Glue and screw the spacers (B5) to the boxes. The spacers bring the inside of the drawer box flush to the face frame, which will be attached later.

4. Glue the double-thickness wings (B7). Lay the parts on your table saw's top and weight them with cinder blocks to apply clamping pressure. Trim the wings to final size.

5. Cut strips to band the wings, doors (D), drawer faces (C4), saw platform (E1), shelf (A5), dust-hood sides (F1) and dust-hood top (F2). Glue on the banding.

6. Cut out the wing props (B8, Fig. B, below). Glue material to make the hinge spacers (B6). Cut them to final size and glue and screw them to the boxes.

7. Cut the continuous hinge into four 14-in. lengths. Place the boxes upside down on a flat surface. Attach the wings to the hinge spacers flush with the back of the boxes.

8. Screw the upper boxes to the cabinet.

9. Drill holes in the back of the vacuum-cleaner storage area for the vacuum hose and the power strip cord. Drill a hole in the well for the saw's power cord.

10. Attach the casters to blocks (A6). Screw and glue the blocks to the cabinet.

MAKE THE FACE FRAME

11. Cut solid-wood strips (G1 through G5) for the face frame. Assemble the face frame with pocket screws, dowels or biscuits.

12. Glue the face frame to the box and cabinet assembly. Install the glue blocks (G6) behind the wing covers (G1).

FIGURE B WING PROP

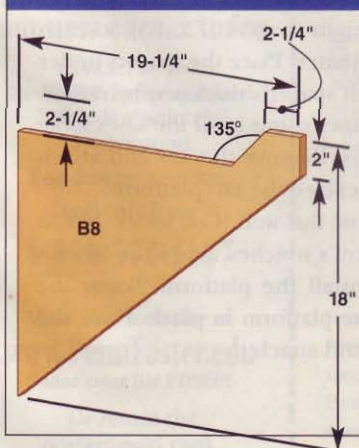
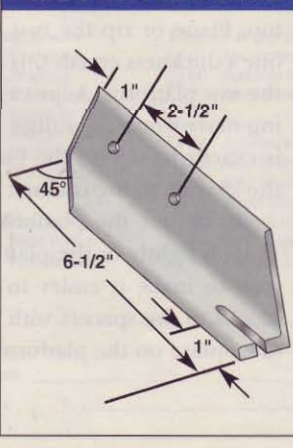


FIGURE C DUST HOOD BRACKET



Multi-Position Fences

You can move the fences on this stand to three different positions, depending on the job. The fences are clamped to the stand's tables by threaded knobs. A pair of steel locating pins pass through a support behind each fence and into a series of holes drilled into the stand's top (see photo, bottom right). This automatically indexes the fence to two of the three positions.



For most cuts, you can line up each of the extension fences with the saw's fence.



For making cuts with no tear-out on the back side or for cutting very short pieces, you can move the extension fence forward to align with a zero-clearance fence.



When you make a compound miter cut, push the extension fences back so you can slide the saw's fence to the left (see photo, above). It's also a good idea to push the fences back for cutting slightly bent or crooked stock.

LOCATING PIN

STRAIGHTEDGE

CUTTING LIST

Overall Dimensions: 34"H x 64-3/4"L x 20-3/4"D

Part	Name	Qty.	Material	Dimensions (Th x W x L)	Notes
Cabinet					
A1	Side	2	Birch plywood	3/4" x 20" x 27-1/4"	
A2	Top and bottom	2	Birch plywood	3/4" x 20" x 58-3/4"	
A3	Back	1	Birch plywood	3/4" x 25-3/4" x 58-3/4"	
A4	Internal partition	2	Birch plywood	3/4" x 19-1/4" x 25-3/4"	
A5	Shelf	1	Birch plywood	3/4" x 19" x 19-3/8"	Edge-band front edge. Final size: 19-1/4" x 19-3/8"
A6	Caster block	4	Birch plywood	3/4" x 3" x 6"	
Drawer box and wing					
B1	Side	4	Birch plywood	3/4" x 6-3/8" x 20"	
B2	Top	2	Birch plywood	3/4" x 17-3/4" x 20"	Edge-band both ends. Final size: 18-1/3" x 20"
B3	Bottom	2	Birch plywood	3/4" x 16-1/2" x 20"	
B4	Back	2	Birch plywood	3/4" x 6" x 16-1/2"	
B5	Spacer	2	Birch plywood	3/4" x 5-1/4" x 19-1/4"	Attach drawer hardware.
B6	Hinge spacer	2	Birch	1" x 2-3/8" x 17-1/2"	Solid wood
B7	Wing	4	Birch plywood	3/4" x 19-1/4" x 23-1/2"	Edge-band all around. Make oversized and cut to size. Final size: 1-1/2" x 19-3/4" x 24"
B8	Wing prop	2	Birch plywood	3/4" x 19-1/4" x 20"	Diagonal cut produces 2.
B9	Prop stop	2	Birch	3/4" x 2-1/4" x 3-1/2"	Solid wood
Drawer					
C1	Front and back	4	Birch plywood	3/4" x 3-3/4" x 13-1/4"	
C2	Sides	4	Birch plywood	3/4" x 3-3/4" x 16"	
C3	Bottom	2	Birch plywood	1/4" x 14" x 16"	1/4" plywood
C4	Face	2	Birch plywood	3/4" x 5-1/4" x 15"	Edge-band all around. Final size: 5-3/4" x 15-1/2"
Door					
D	Doors	2	Birch plywood	3/4" x 19-1/4" x 24-1/2"	Edge-band all around. Final size: 19-3/4" x 21"
Miscellaneous					
E1	Saw platform	1	Birch plywood	3/4" x 19-3/4" x 24-3/4"	Edge-band front edge. Final size: 20" x 25"
E2	Height spacer, left	1	Birch	1-3/4" x 2-1/2" x 18"	Solid wood
E3	Height spacer, right	1	Birch	1-3/4" x 2-1/2" x 16"	Solid wood
E4	Index block	2	Birch	3/4" x 1" x 4"	Solid wood
E5	Box fence face	2	Birch plywood	3/4" x 2-1/4" x 18-1/4"	
E6	Wing fence face	2	Birch plywood	3/4" x 2-1/4" x 24"	
E7	Box fence base	2	Birch plywood	3/4" x 5" x 18-1/4"	
E8	Wing fence base	2	Birch plywood	3/4" x 5" x 24"	
Dust hood					
F1	Vertical sides	2	Birch plywood	3/4" x 4-1/4" x 36"	Edge-band on front edge: 27" long. Final size: 4-1/2" x 36"
F2	Top	1	Birch plywood	3/4" x 4-1/4" x 25-3/4"	Edge-band on front edge: 27" long. Final size: 4-1/2" x 25-3/4"
F3	Bottom	1	Birch plywood	3/4" x 4-1/4" x 25-3/4"	
F4	Front	1	Birch plywood	1/4" x 9" x 26-1/2"	1/4" plywood
F5	Back	1	Birch plywood	1/4" x 26-1/2" x 36"	1/4" plywood
Face frame					
G1	Wing covers	2	Birch	3/4" x 3-3/8" x 34"	Solid wood
G2	Horizontal (long)	2	Birch	3/4" x 1-1/2" x 58-1/8"	Solid wood
G3	Horizontal (short)	2	Birch	3/4" x 1-1/2" x 16-1/2"	Solid wood
G4	Vertical (long)	2	Birch	3/4" x 1-1/2" x 24-1/4"	Solid wood
G5	Vertical (short)	2	Birch	3/4" x 1-1/2" x 5-1/4"	Solid wood
G6	Glue blocks	6	Birch	3/4" x 3/4" x 6"	Solid wood cut diagonal

ADD THE WING PROPS

13. Clamp the wings so they're level with the boxes' tops. Attach the props to the cabinet so there is about 1/2 in. of clearance between the prop's top and the wing's bottom.

14. Measure the gap between the prop and the wing (Measurement "A," Detail 3, page 74). Make a ramp-shaped prop stop (B9) to fit each side. Attach the stops.

MAKE THE DUST HOOD AND DRAWERS

15. Cut rabbets on the drawer sides (C2) and dust-hood sides (F1). Assemble the dust hood.

16. Cut two brackets (H20) from aluminum angle stock. Drill holes in both brackets. Use a hacksaw to cut a notch in the left-hand bracket (Fig. C, page 75). This notch allows the hood to rotate outwardly for cleaning. Attach the brackets to the dust hood. Place the dust hood in position and mark holes for the hanger bolts on the drawer boxes' tops. Drill holes and insert hanger bolts (H15).

17. Assemble the drawers. Attach the drawer guides to the drawers and boxes (H3).

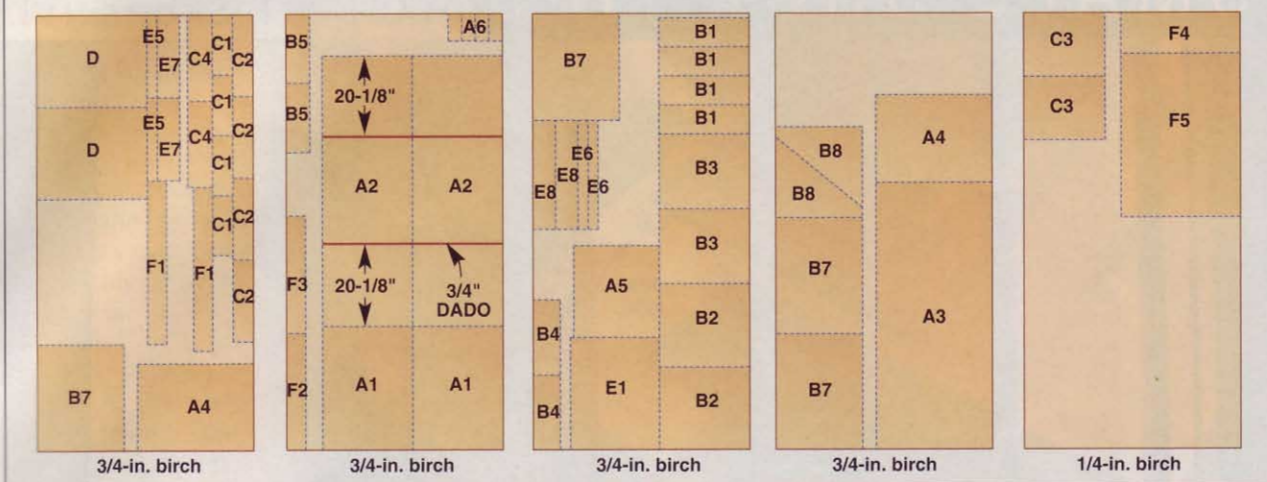
MOUNT THE PLATFORM AND SAW

18. Use a dado set to cut notches in the platform's sides for the index blocks (E4) and power cord.

19. Place the platform on top of the cabinet. (Note: The platform is 1/4 in. shorter than the space between the drawer boxes. This space is necessary for easy removal of the platform and saw.) Place your miter saw on the platform. Measure the distance between the saw's table and the box's top. Plane or rip the two height spacers (E2, E3) so each one's thickness equals this distance. Place the spacers under the saw platform. Adjust each spacer's thickness by removing more wood or adding paper shims until the saw's table is exactly level with the boxes. Remove the saw and attach the spacers to the cabinet. Replace the saw platform.

20. Center the platform in the well. Cut index blocks (E4) to tightly fit the platform's notches. Bevel the block's tops to make it easier to install the platform. Screw the blocks to the spacers with the platform in place. Place the saw square on the platform and attach it.

FIGURE D PLYWOOD CUTTING DIAGRAMS



MAKE AND INSTALL THE FENCES

21. Cut slots on the box and wing fence bases (E7, E8) by drilling 1/4-in. holes at the end of each slot and routing between the holes (Detail 4, page 74). Cut notches on the box fence bases (E7) to accommodate the dust hood's brackets. Cut #20 biscuit slots in the bases (E7, E8) and the fence faces (E5, E6) and glue the fences together. Make sure each face is square to its base.

22. Cut the Kreg Top Trak to the length of each fence. Drill holes in the back of the Top Trak and attach the pieces to the top of the fence faces with the screws provided.

23. Clamp a 3/4-in.-thick sacrificial board to the saw's fence and place a 3-ft. straightedge against it. Slide the box fence against the straightedge. Drill 1/4-in.-dia. holes into the top of the box at the slots' rear. Remove the fence and redrill the holes to 5/16 in. dia. Install T-nuts in the holes.

24. Cut two pieces from a 1/4-in.-20 all-thread rod. They should be long enough to leave 1-1/2-in. of thread sticking out of the knobs (H13). Glue the rods into the knobs with

epoxy or other adhesive. Reposition the box fence against the straightedge and fasten it with the knobs.

25. Raise the wings and support them with the props. Align the wing and box fences with a straightedge. Drill holes into the wing at the rear of the slots and repeat the installation procedure for the T-nuts (see Step 23). Cut two new all-thread pieces so 2-1/4 in. sticks out of the knobs. Glue the rods into the knobs. Clamp the fence in place using the knobs. Repeat for the other wing.

26. With all the fences clamped even with the sacrificial board, drill 1/4-in. holes for locating pins (H11), which index the fences (see "Multi-Position Fences," page 75). Drill the holes all the way through the fence and at least 1 in. into the boxes and wings.

27. Remove the sacrificial board and reposition all the wooden fences so they're even with the saw's fence. Use the knobs to clamp the fences in place. Drill through the locating-pin holes into the boxes and wings. Install the locating pins.

HARDWARE LIST

Part	Name	Qty.	Source	Catalog #	Price
H1	.060" x 2" x 72" continuous hinge	1	MSC	32931271	\$26
H2	Door hinge	2	Rockler	32407	\$10
H3	16" Blum drawer guide	2	Rockler	34843	\$5 a pair
H4	Wire handles	4	Rockler	39859	\$2 ea.
H5	Power strip	1	Home center		\$10
H6	Tool-activated switch	1	Craftsman	00924031000	\$20
H7	4' Top Trak	2	Kreg	KMS7714	\$35
H8	Flip Stop	2	Kreg	KMS7801	\$30
H9	Right-to-left tape	1	Kreg	KMS7723	\$8
H10	Left-to-right tape	1	Kreg	KMS7724	\$8
H11	Locating pin (linchpin)	8	MSC	67972844	\$1 ea.
H12	1/4" T-nut	8	Rockler	30146	\$4 for 10
H13	1/4" tapped hole knob	8	MSC	82502212	\$3 ea.
H14	1/4" x 3' all-thread rod	1	Hardware store		\$2 ea.
H15	1/4" x 1-1/2" hanger bolt	2	Rockler	24406	\$2 a pack
H16	1/4" female through knob	2	MSC	82502113	\$2 ea.
H17	1-1/4" x 6' vacuum hose	1	Home center		\$15
H18	3" swivel caster	2	Rockler	31883	\$11
H19	3" locking swivel caster	2	Rockler	31870	\$16
H20	1-1/2" x 1/8" x 6-1/2" aluminum angle	2	Hardware store		\$7
H21	Magnetic door catch	2	Home center		\$1
H22	Shelf support pins	4	Rockler	30437	\$3/16

ADD THE DOORS

28. The doors are full-overlay style. Attach the door hinges to the cabinet and doors. Install the door pulls and magnetic catches.

29. Attach the drawer faces to the drawer boxes.

30. Sand and finish.

Sources Kreg, (800) 447-8638, www.kregtools.com • MSC, (800) 645-7270, www.mscdirect.com • Rockler, (800) 279-4441, www.rockler.com • Sears, (800) 377-7414, www.sears.com/tools

edited by Tim Johnson

Rollers Ease Plywood Storage

Before I installed these rollers, sliding plywood in and out of my storage rack used to wear me out. It also damaged the edges of the sheets. Now plywood sheets glide in and out.

I cut the 2-1/2-in.-dia. rollers from 3/4-in. hard maple on my drill press using a fly cutter. You could also cut them on a bandsaw with a circle-cutting jig. I drilled out the centers to 17/32 in., so they would spin on the 1/2-in. hex-head bolts I use as spindles.

My rack consists of four evenly spaced blocks attached to uprights and a 4-in.-wide x 6-ft.-long solid-wood backboard. The backboard is screwed to

the wall; the uprights fasten to a board mounted on the ceiling.

Before assembling the rack, I laid out and drilled holes in the uprights and backboard for the hex-head bolts. I counterbored the backboard's holes for the 1/2-in. nuts that the 7-in.-long bolts screw into. After screwing the blocks to the backboard and installing the nuts, I screwed the assembly to the wall. Then I screwed each upright to the block on the floor and the board on the ceiling. Installing the rollers and their 1/2-in. washer spacers was the last step. I slid them onto the bolts before screwing the bolts into the backboard's housed nuts.

Steven Charbonneau

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SMALL SHOP TIPS



CLAMP LEASH

My spring clamps always seem to be out of reach or scattered around the shop. To solve my problem, I suspended my dog's old leash over my workbench. Now my spring clamps are always accessible. They're also easy to transport around the shop so, unlike my dog, they never stray.

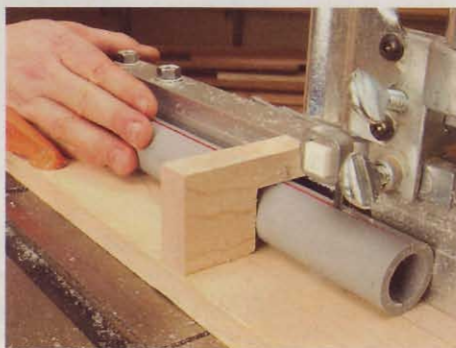
Elbert McMorris



PLASTIC STICKERS DON'T STAIN

I use plastic conduit to make stickers for stacking and drying my wood. These stickers provide consistent spacing and excellent air circulation with minimal contact. I've never had problems with insects, mold or staining, which can occur around wooden stickers, especially when the wood is green and the air is damp.

For strength, I use 1-1/4-in.-i.d. Schedule-80 rigid PVC electrical conduit. Available from home centers and electrical supply stores, it costs about \$12 for a 10-ft. length. Schedule-40 rigid PVC conduit is much less expensive but thinner-walled, so it doesn't support as much weight. I only use it for small stacks. Both Schedule-40 and Schedule-80 rigid PVC conduit are suitable for indoor and outdoor use.



After cutting the conduit to sticker lengths, I cut them in half on my band-saw, using a simple jig to hold the sticker in position (see photo, above). To keep the conduit from rotating during the cut, I follow a straight line drawn on its surface. To draw the line, I simply lay a flat board next the conduit and use the board as a straightedge.

John P. Rose



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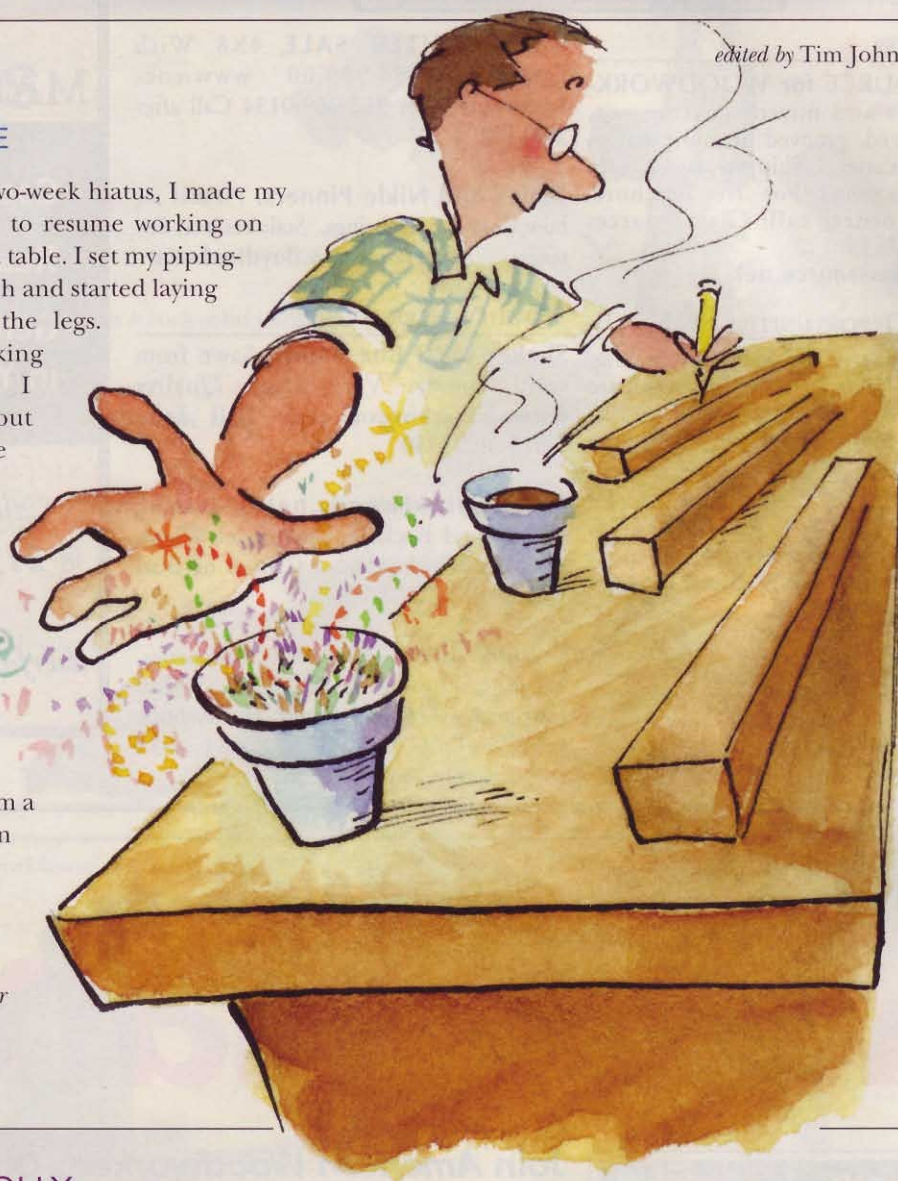
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edited by Tim Johnson

AGED COFFEE

Last night, after a two-week hiatus, I made my way down to my shop to resume working on the legs and apron of a table. I set my piping-hot coffee on the bench and started laying out the mortises in the legs. While double-checking the measurements, I reached over without looking, grabbed the cup and took an extra-large gulp. Instantly, I started to gag. The liquid was ice cold with a revolting texture and nauseating taste. Before my eyes completely teared up, I noticed steam gently rising from a second cup sitting on the bench, and I realized the coffee I'd just swallowed was two weeks old!

Paul Deemer



FIREWOOD FOLLY

A wood stove heats my garage workshop and my wife's painting studio, which is located in the upstairs loft.

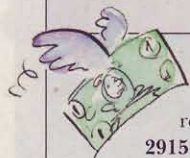
I had just glued together a pair of bookends depicting a train going through a tunnel. To help the glue dry, I placed them near the stove, on top of the woodpile. Then I quit for the day.

My wife was still painting, so when her loft got chilly, she came down to stoke the fire. Innocently,

she grabbed pieces from the top of the pile and pitched them into the fire. She didn't realize she'd thrown in the locomotive bookends until it was too late; the flames had quickly consumed them.

When she told me what had happened, I was upset at first, but pretty soon we both were sharing a good laugh. I'm now a diligent stove-stoker, and I never place any of my projects near the woodpile.

James Van Assche



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