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Better Homes & Gardens

WOOD®

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Then and now

It was 25 years ago this month that I came home after my airshift at the radio station to find my latest issue of *WOOD*® magazine had arrived. There, on page 4, I stumbled upon an invitation to become general-interest editor for the magazine, a job for which I possessed none of the required qualifications except "knowledge of woodworking processes and an interest in woodworking tools." So, I applied. The worst they could do was say no.

They didn't.

So, on the day after my 35th birthday, I started my new career in publishing, which I figured might last a year before the boss—or I—recognized the abject horror of the situation and I returned to radio. To my surprise, every person on the *WOOD* staff treated me with respect even when I had the most basic idiot questions, and they patiently taught me the finer points of both woodworking and publishing. It was as if they really wanted me to succeed!

I'll never forget that feeling, and tried to bring that same helpful spirit into print whenever I researched and wrote a tool review or a step-by-step woodworking technique. I hope you recognize that we've worked hard to maintain that voice of the "friendly authority" in every issue since. We really want you to succeed!

Lucas Peters' path mirrors mine in some ways. Like me, he was a *WOOD* subscriber who responded to a call in the magazine and got the job. Unlike me, though, he possessed all the necessary qualifications, and soon proved that his value to the team went well beyond producing videos. In fact, some of the best ideas I've gotten credit for in my 10 years as the chief editor started with him. He's one of the smartest (and snarkiest) people I know.

That's why I'm so pleased to pass the baton to Lucas as the new Editor-in-Chief of *WOOD* magazine, only the fourth in our 38-year history. I'm confident he and the rest of the team will continue working harder than ever to help you succeed.

As for me, I'm blessed beyond reason, and thankful for your support as I figured out this whole publishing thing. I'm looking forward to a lot more shop time in my retirement. My honey-do list is long, but first, I need to figure out how to run that CNC router I just bought. And I think I have just the spot in the backyard for the solar kiln on *page 48*…

See you in the shop!

Dave

Dave Campbell
Facebook and Twitter: @WOODeditor
Instagram: @wood_editor



Left: My first appearance in *WOOD* magazine issue 117 (October 1999), about a year after I started my career here. Right: Me today. Hair area and belly volume are inversely proportional, apparently.

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DEEP CUTS

Hey, ladies and SERPs! (Google it.) We're coming to you today from the Deep Cuts Department of *WOOD*® magazine, where we dig way down into the catalog to unearth seldom-seen nuggets of woodworking knowledge. Where we dare to plumb the unplumbed and sing of the unsung. This is the corner of our vast information infrastructure that the great Googley eyes of the Internet rarely alight on. You won't find these on page one of the search results. Hey, it ain't obscure; it's erudite! (Google it.)

Sure, you *could* brush on a coat of poly.

First: Just don't. Use one of these three finishes instead.
woodmagazine.com/aintpoly
Second: Lose the brush, too. Wipe instead.
woodmagazine.com/wipeywipey
Deep cut: Use a bundle of lint-free cloth to apply the secretions of the lac beetle (*Kerria lacca*), which have been ground into flakes and dissolved in alcohol, rubbing to a high-gloss finish utilizing an unbroken swirling motion.
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Sounding Board

YOUR VOICE

99 problems, but a bench ain't one

I recently made a couple of Adirondack chairs with footrests from your plans in issue 219 (July 2013, and at woodstore.net/adirondackrest). But, as with most chairs of this style, some "less flexible" family members have difficulty getting in and out of them.

So when I saw the Cozy Outdoor Bench on the cover of issue 275 (July 2021), I knew it would be a great companion to that set. To make it match the Adirondack chairs better, I redesigned the armrests and back to look more thematically correct.

The set is a big hit with the family for nights at the fire pit. Thanks for the inspiration

—Randall Pope
Binghamton, N.Y.





When we say jump, you say…

I dog-ear pages of magazines to remember articles for reference. Your article "Shock dead batteries back to life," in issue 281 (May 2022), is one such article.

A couple of days after reading that, as I was rearranging drills and batteries in my shop, I also put them on their respective chargers. One of the youngest—a high-capacity Bosch—did not want to participate! I connected two batteries together as shown in your article and after a few minutes, voila*! It took a charge like a champ.*

Not having to replace that battery pack more than paid for my WOOD® *magazine subscription. Thanks!*

—Bob Moore
Canton, Mich.



Tread likely

Thanks for your article "Hidden Gems at the Home Center" in issue 281. The big-box stores are about my only choice, as the closet woodworking store is some 90 miles away.

In that article, Jim Heavey pointed out stair treads and mentioned a couple things that they would be good for. I have used them for a few projects, such as a bookcase and TV stand. Because they are a hefty 1" thick, I don't need to worry about them sagging under heavy objects.

—Dave Oberg
Wausau, Wis.

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This family has issues

I really wanted to read up on some of the projects in issue 280 (March 2022). However, my copy was stolen. I know the perpetrators, but can't bring myself to turn them in or punish the behavior.

My sons, Stephen (left) and George, are completely enthralled with the plethora of construction equipment shown on page 8, and the chainsaw in the 3-foot Bowl article. I simply cannot pry this issue out of their hands. Guess I know what to get them for Christmas: the Construction-grade Toy plans and their own subscription!

In all seriousness, my boys and I enjoy going through every issue of your magazine. Keep up the good work!

—Paul Vidmar
Lincoln, Neb.

Beauty calls

Just finished reading Dave Campbell's "Bring Back Beauty" column in issue 281 (Taking Measure, May 2022) and I thought you might appreciate this well-timed example of form over function. My original intent was to make one of those retro-styled phone docks out of rough-sawn lumber and a beat up old speaker horn.

However, the walnut board I'd chosen for the project just seemed to demand a more elegant fate and my simple plan began to go horribly awry. What emerged from the shop is shown above*: a passive phone-amplifying lamp. Or, what I'm calling a "PhLamp."*

I restored the horn from an old Atwater Kent radio, painting it with an automotive coating called VHT Wrinkle Plus (vhtpaint.com). After some modifications, the brass knobs function, dimming the "tubes:" 4" LED vintage amber lights from Feit Electric (feit.com).

The PhLamp uses no electronics to amplify the sound from my phone, just an acoustic chamber and the horn. But there's plenty of internal space to add Bluetooth someday.

—Bruce Larsson
Dudley, Mass.

Just wanted to express my appreciation for Dave's timely column "Bring Back Beauty" in issue 281. I, too, miss the beauty and elegance of Queen Anne, Chippendale, Sheraton, and many other beautiful styles that graced so many homes, and were loved and considered works of art. Having built many period pieces over the years, I am aware that today's market is mostly "no frills" and that is what the public desires. I still maintain hope that the revolving door of public taste will someday return to inherently beautiful pieces, but certainly don't expect that to occur in my lifetime—if at all.

—Charles Caranna
Columbus, Ohio

Sounding Board

YOUR PROJECTS

*To showcase the medieval stringed instruments she builds, such as the trumpet marine she's playing here, **Kate McWilliams**, of Shoreview, Minn., designed and crafted these wall units inspired by the 14th-century choirstalls at Winchester Cathedral. She used oak harvested several years ago from her backyard.*



***John Willcox**, of O'Fallon, Mo., built this nightstand in memory of his brother-in-law, who left him the walnut lumber when he passed away. John assembled the drawers with stopped sliding dovetails for hidden strength.*

*His wife asked him to make the bed, so **Dennis Greenwell**, of Burnsville, N.C., started cutting poplar trees that looked like bed parts. And, after "a few hundred hours" of peeling, shaping, sanding, and assembling, he completed this rustic bed. His wife contributed the quilt.*



Sounding Board

YOUR PROJECTS

After many years of building other projects from WOOD® *magazine,* ***Arnie Birkemeier****, of Delphos, Ohio, finally got around to building the Auburn "Boattail" Speedster from issue 110 (December 1998). It was definitely worth the wait.*



Download plans for the Auburn Speedster at woodstore.net/auburn, or point your smartphone at this code.



This "floating" chess table, built by ***Tim Offenstein****, of Champaign, Ill., features a raised board of 2" black walnut and hard rock maple squares. He also designed the chess pieces (his "Spool Pattern" with a 4¼" king) with an Art Deco influence.*



Jim Lacy*, of McFarland, Wis., spends his days working in the local university's geography department; in his spare hours, he created this 40×43" land-cover map of his state from more than 1,100 pieces of laser-cut hardwoods, including aspen, yellowheart, purpleheart, bloodwood, maple, cherry, and Peruvian walnut. Learn more about this amazing project at wiscmapper.net.*



To complement an Arts & Crafts bookcase he'd built, ***Wayne Wiebe****, of Okotoks, Alta., challenged himself with this arched entry table. He made it primarily from white oak, and pinned the joints in the frame and aspen drawer boxes with dowels.*

Send us a photo of your work

Want to see your work showcased in WOOD® *magazine? Send a high-resolution digital photo of your completed project to* woodmail@woodmagazine.com.

Group Dynamic

Dual SawStop tablesaws and large outfeed tables form the heart of the machine area in the shop. Accessories store below each outfeed table.



A pair of Oneida 3-hp cyclone dust collectors on opposite walls service major tools, while vacuum stations scattered throughout encourage shop users to keep the area clean.

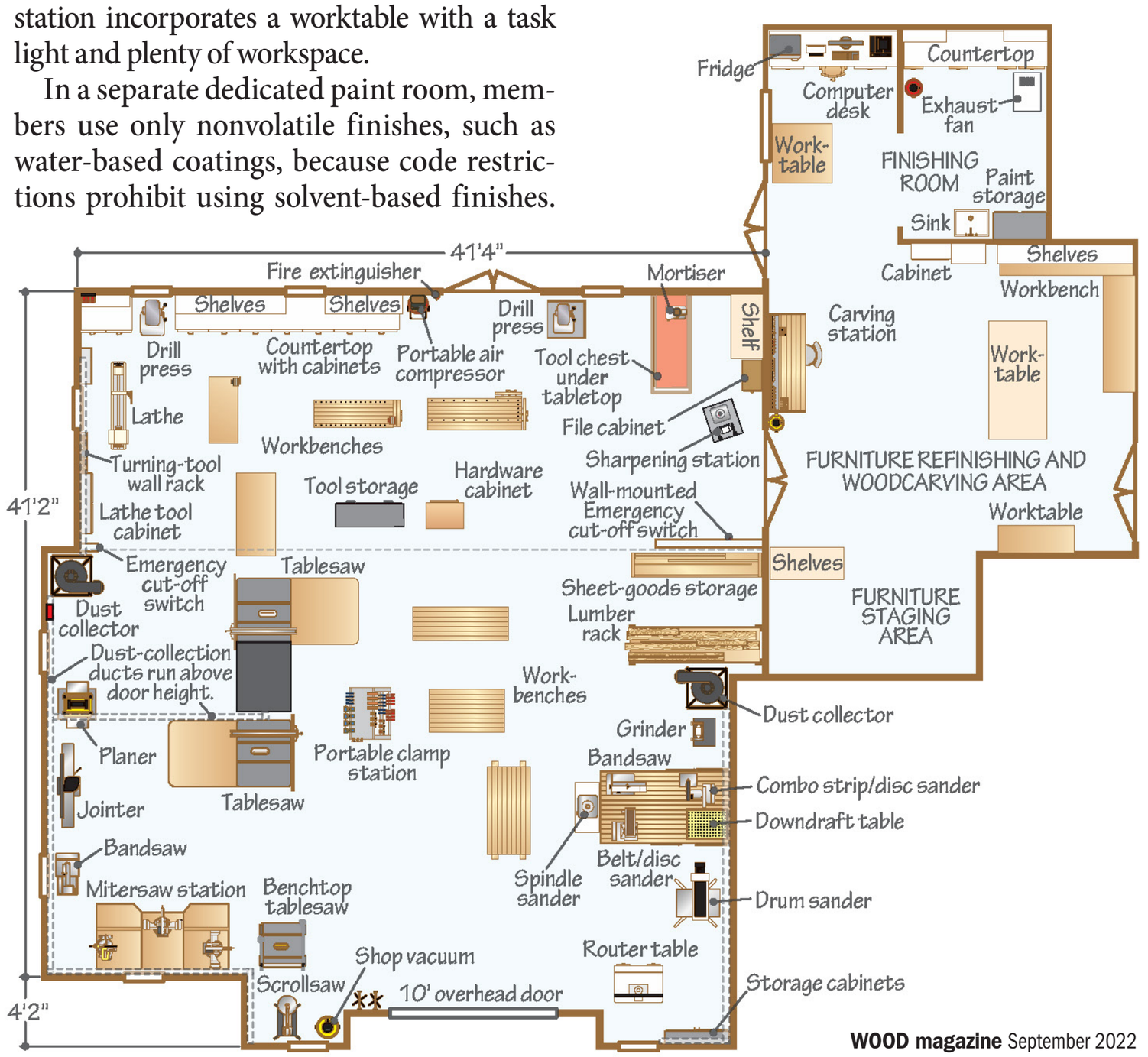
After their previous workshop burned to the ground in 2020, members of the woodworkers association at the Peter Becker Community in Harleysville, Pennsylvania, envisioned a new, fully-equipped shop. They provided input for the design and layout of a 2,300-square-foot facility. It opened in April 2021 with all new equipment. Located on the property of the nonprofit retirement community, the workshop serves only its residents.

The shop incorporates a 1,600-square-foot main room where stationary tools and workbenches share space with racks for lumber and sheet-goods storage. A 10' overhead door makes it easy to move equipment, supplies, and finished pieces in or out. A number of windows, along with plenty of LED lighting and white painted walls, make for a bright, shadow-free work environment. Two heat pumps condition the air for the shop.

Ductwork for two dust collectors runs along the walls, with drops at every major tool. When one of the 55-gallon collection drums fills to near capacity, a red light on the wall flashes to alert shop users.

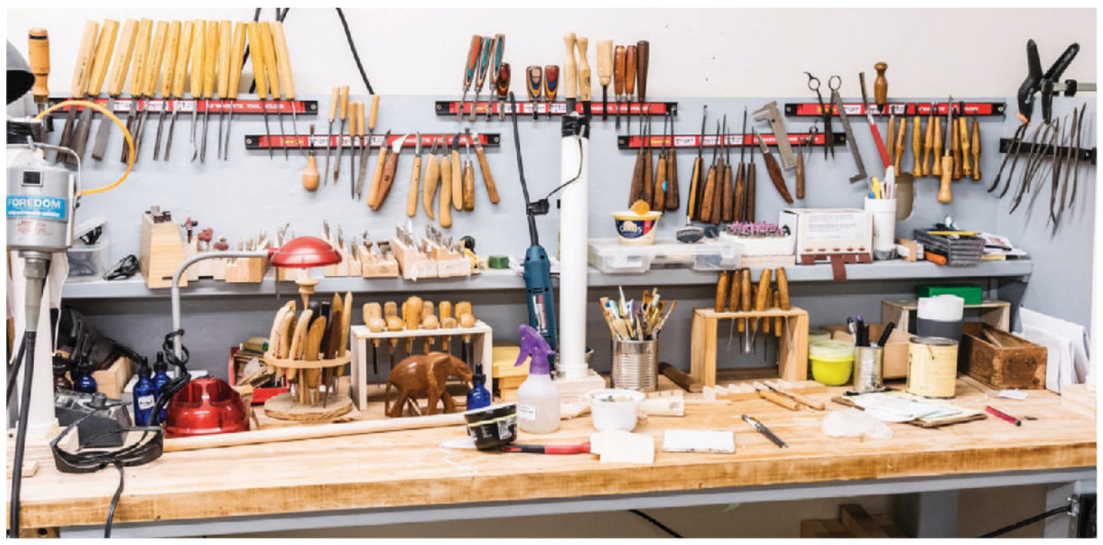
The adjacent workroom houses a workbench and table for furniture repair and refinishing. Tucked along one wall, a carving station incorporates a worktable with a task light and plenty of workspace.

In a separate dedicated paint room, members use only nonvolatile finishes, such as water-based coatings, because code restrictions prohibit using solvent-based finishes.





A wide variety of workbenches throughout the workshop meet the needs of both power- and hand-tool users.



A well-equipped workstation caters to carvers. It features magnetic tool racks on the wall, and plenty of room on the benchtop for custom tool racks, supplies, and projects.



Mobile and versatile, the dedicated crosscut and miter workstation features long, auxiliary fences, making it easy to accurately break down lengths of lumber at 90°.

This sanding center includes a downdraft sanding table, a variety of sanders and a small bandsaw. A shop-made manifold puts dust-collection blast gates for each tool right on the tabletop.



A ceiling-mounted exhaust fan helps eliminate any lingering odors from the finishes.

Because of the community nature of the shop, it has to comply with some regulations most home shops don't. For insurance purposes, each user must sign a "Rules of Use" and release of liability form. Also, each user receives training on tool operation before being permitted to use the woodshop.

Woodworkers are encouraged to have a buddy on site and, if they work alone, they must wear an emergency pendant device.

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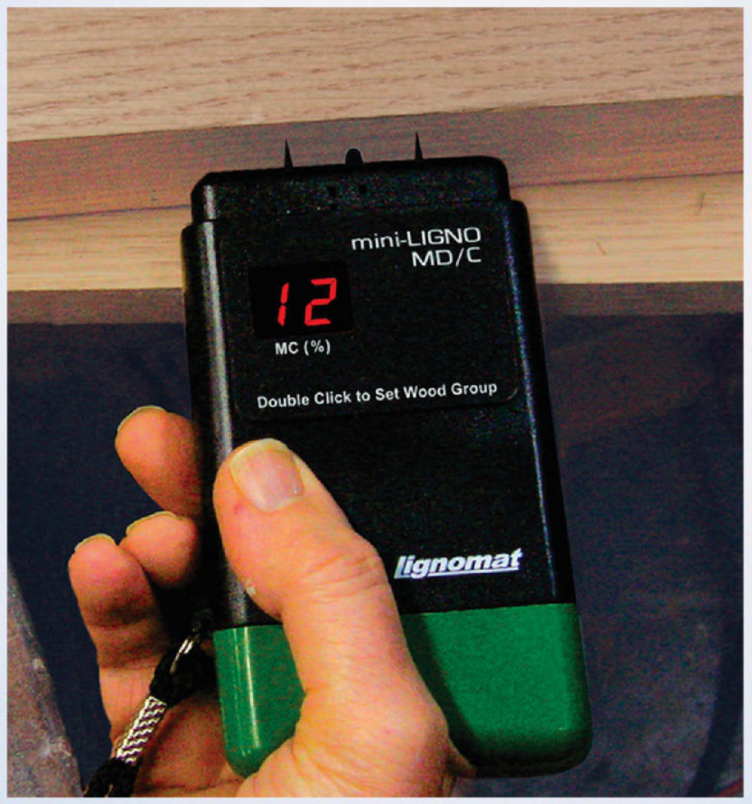

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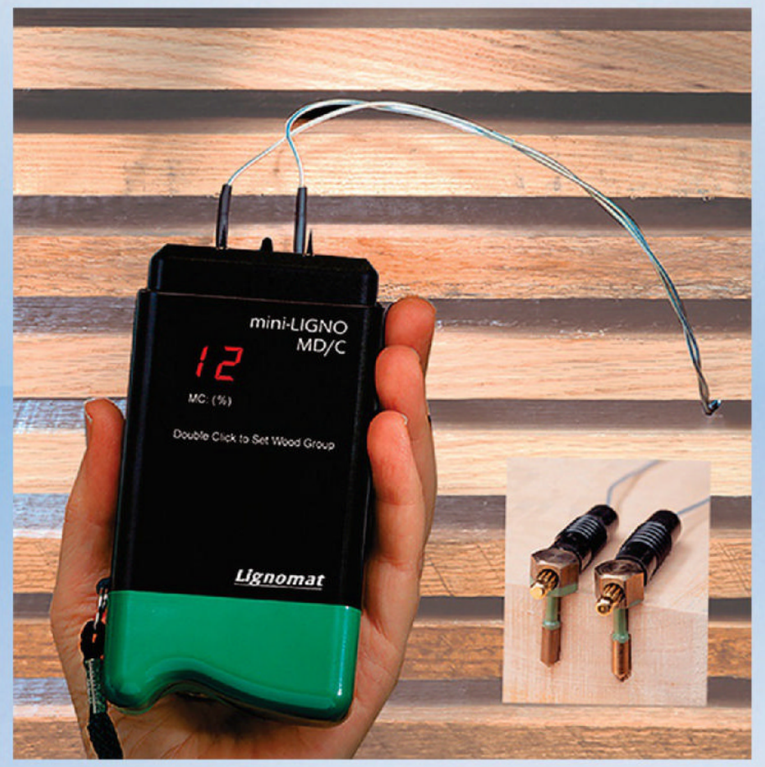

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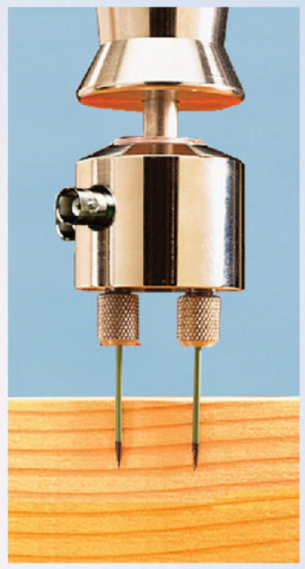

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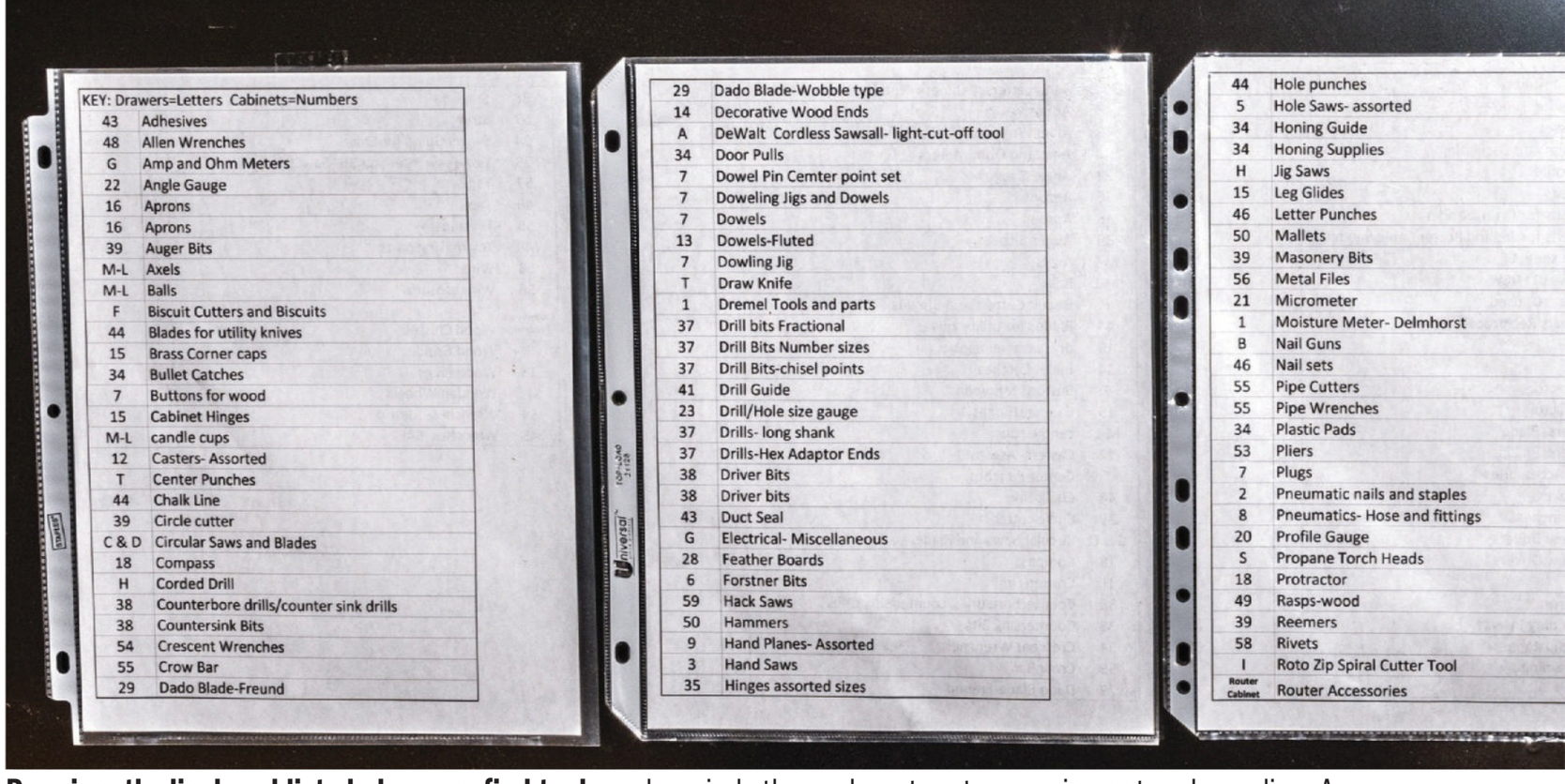
Near one of the exit doors a large first-aid kit contains supplies needed for minor injuries, such as a splinter or small cut. The shop's 100-amp electrical service features two emergency cutoff buttons in prominent locations in the machine room.

Ongoing funding for the shop comes from donations from residents for furniture repairs made by association members and the sale of wooden items in the gift shop. The workshop has become a showcase for the community's woodworkers, providing a dedicated workspace, and encouraging other residents to try their hand at woodworking.



Prominently displayed lists help users find tools and reminds them where to return equipment and supplies. A letter or number identifies every cabinet door and drawer.



Photography by Howard Dickinson

The Peter Becker Community Woodworkers Association boasts a membership of more than 20, and it keeps growing. The residents of the community benefit from their handiwork and woodworking instruction.

Front Row: Jim Rich, Joe Bondi, John Walz, Ron Foley, Jody Law, Doug Law
Back Row: Chet Bergy, Mark DePorry, George Finnin, Dave Wolff, Larry Moss, Larry Kratz, Barry Troxel, Howard Dickinson, Bill Rose, Bob Coble, Roy Feiss, Wayne Whitney, Curt Michener
Absent: Chuck Forsythe, Joe Bussmann, Wayne Shaw

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Photo: Urban Lumber Co., Oregon

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A **Once the glue thickens** but remains soft to the touch, remove it easily with a putty knife, scraper, or a chisel, bevel up.

Q Put the squeeze on excess glue

What is the best way to deal with glue squeeze-out when assembling a project? I'm fed up with discovering errant glue spots and fingerprints when I apply finish.

—Brian Albone, Biloxi, Miss.

A Squeeze-out defines any well-glued joint, Brian, so every woodworker should know how to deal with it. Follow these tips to avoid overlooked spots of dried glue showing up during finishing like DNA evidence under a crime-scene black light.

Effective glue removal comes down to the timing. Wipe it off too soon and you just force it into the pores of the wood, making it more difficult to remove; but wait too long and you risk tearing out chunks of wood along with the hardened glue. Instead, wait about 30 minutes after applying clamps and check the glue. Once it congeals to a rubbery consistency, you can remove the gelled glue cleanly, without pulling up any surrounding wood fibers [**Photo A**].

For places where a tool can't easily reach, head off squeeze-out at the pass by masking along the joints before assembly [**Photo B**]. Once the glue dries partially, peel away the tape and the squeeze-out along with it. For areas where masking isn't practical, finish your project parts before assembly, keeping the stain and finish off glue surfaces. PVA glue won't adhere to the finish, allowing you to pop off the dried glue with a putty knife or the edge of an old credit card.

Regardless of how diligently you remove squeeze-out, always double-check for dried glue before applying a finish. Wiping down project surfaces with mineral spirits reveals any overlooked spots of glue [**Photo C**]. Remove them by scraping and sanding.

Have a question? Drop us an e-mail. askwood@woodmagazine.com



B **Apply masking tape along the joints** of boxes, drawers, and small assemblies before gluing. Peel off the tape after the glue sets up.



C **Dried glue shows up clearly** when wiped with mineral spirits. The mineral spirits evaporates quickly and won't interfere with the finish.

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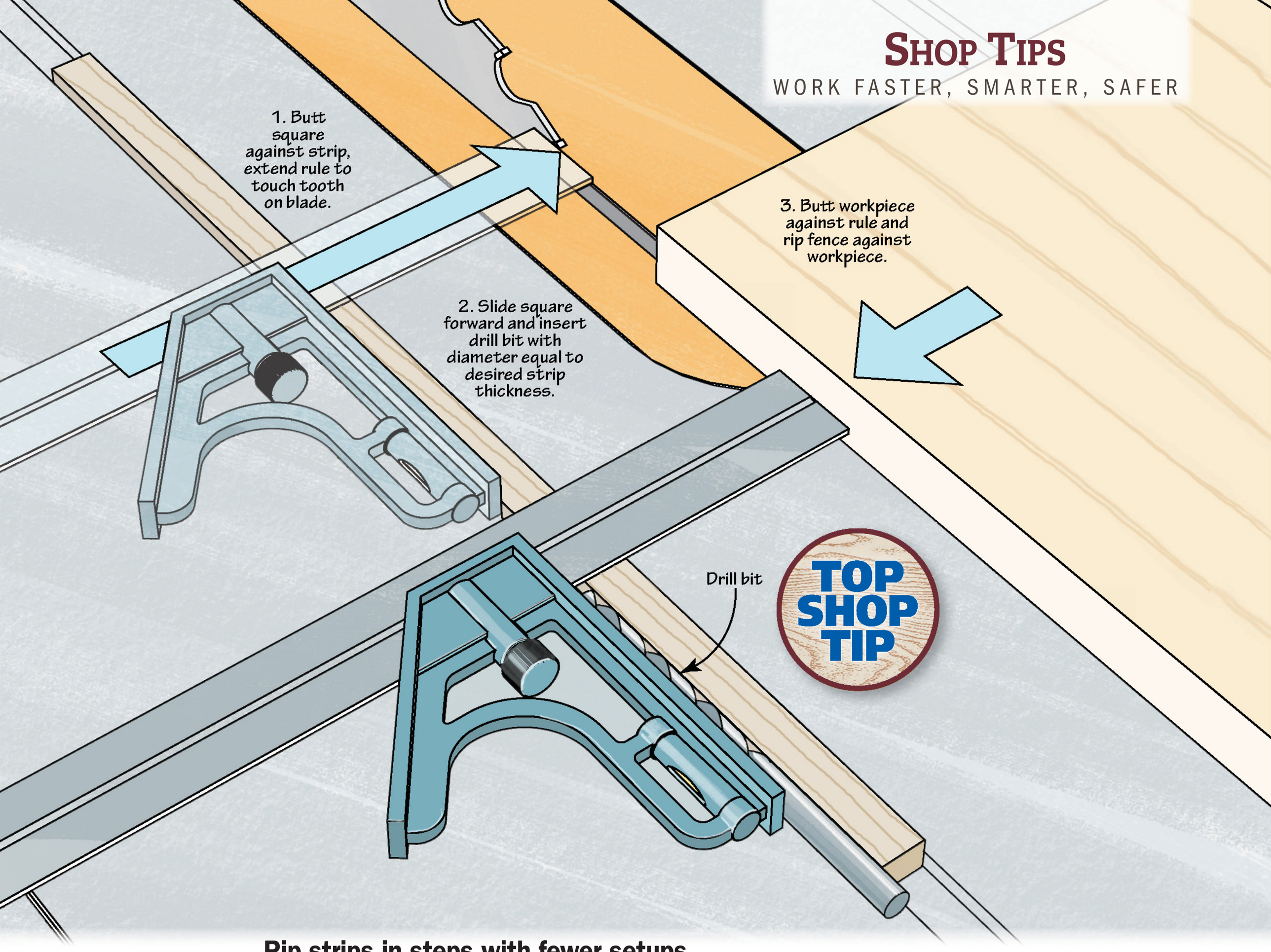

Rip strips in steps with fewer setups

I've seen lots of techniques for ripping consistent, thin strips at the tablesaw. But by using a combination square and drill bits for saw setup, I can quickly and precisely cut strips of different thicknesses by simply varying the size of the bit.

After fitting a ¾×¾" hardwood strip in the saw's miter slot, butt the head of a combination square against it, extend the rule to touch a saw tooth, and lock it in place. Now, insert a drill bit that matches the desired strip thickness between the square and wood strip, as shown.

Finally, slide the rip fence over until the workpiece touches the rule and lock the fence. Remove the square and bit, then rip a strip. Repeat the process for subsequent strips.

—Bill Ibbotson, New Braunfels, Texas

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Send your tip, photos or drawings, and contact info to
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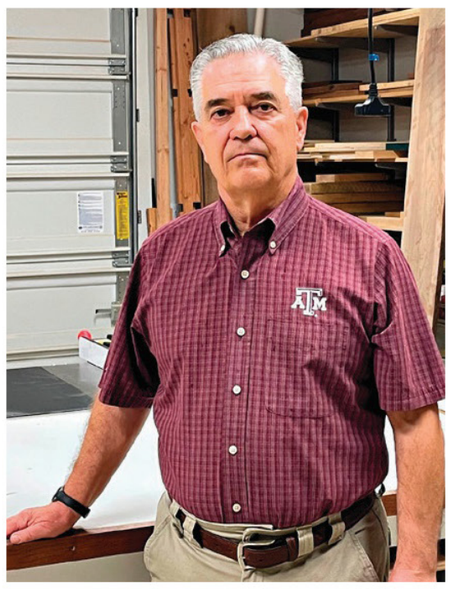


For sending this issue's Top Shop Tip, Bill receives tools from WorkSharp and Drill Doctor worth $585.

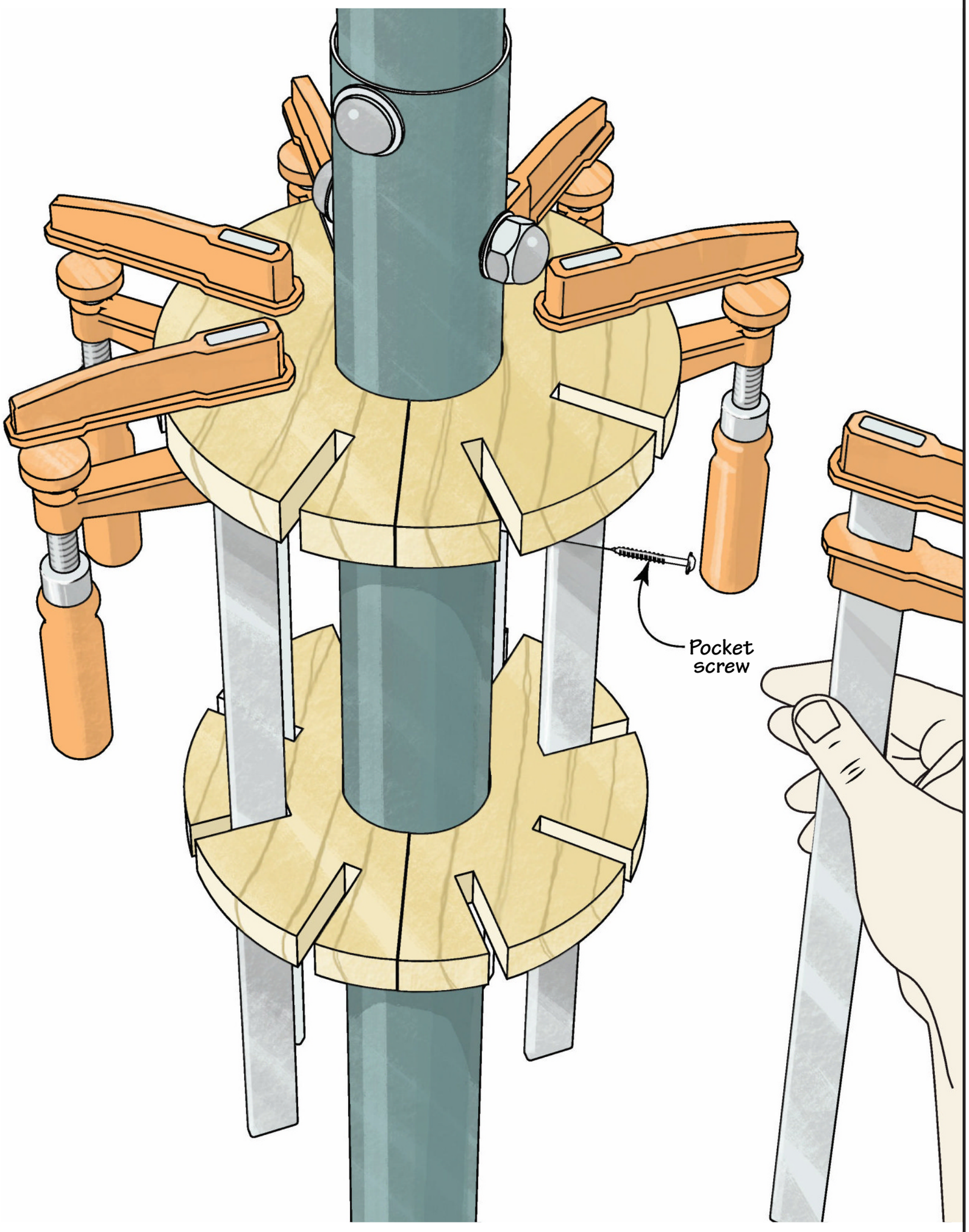


Clamp down on storage without leaving your post

As long as I have to work around the steel jackposts in my small basement shop, I figured I might as well put them to work for clamp storage. From 1"-thick scrap, I first cut two 9" discs on the bandsaw. Then I clamped each disc to a tall auxiliary fence on my miter gauge and cut dadoes around the circumference to fit the clamp bars.

I used a holesaw to drill out the inside diameter to match the diameter of the post, then bandsawed each disc in half. After drilling pocket holes on the bottom of one half, I attached the collars around the post with screws.

—Vern Honken, Forest City, Iowa



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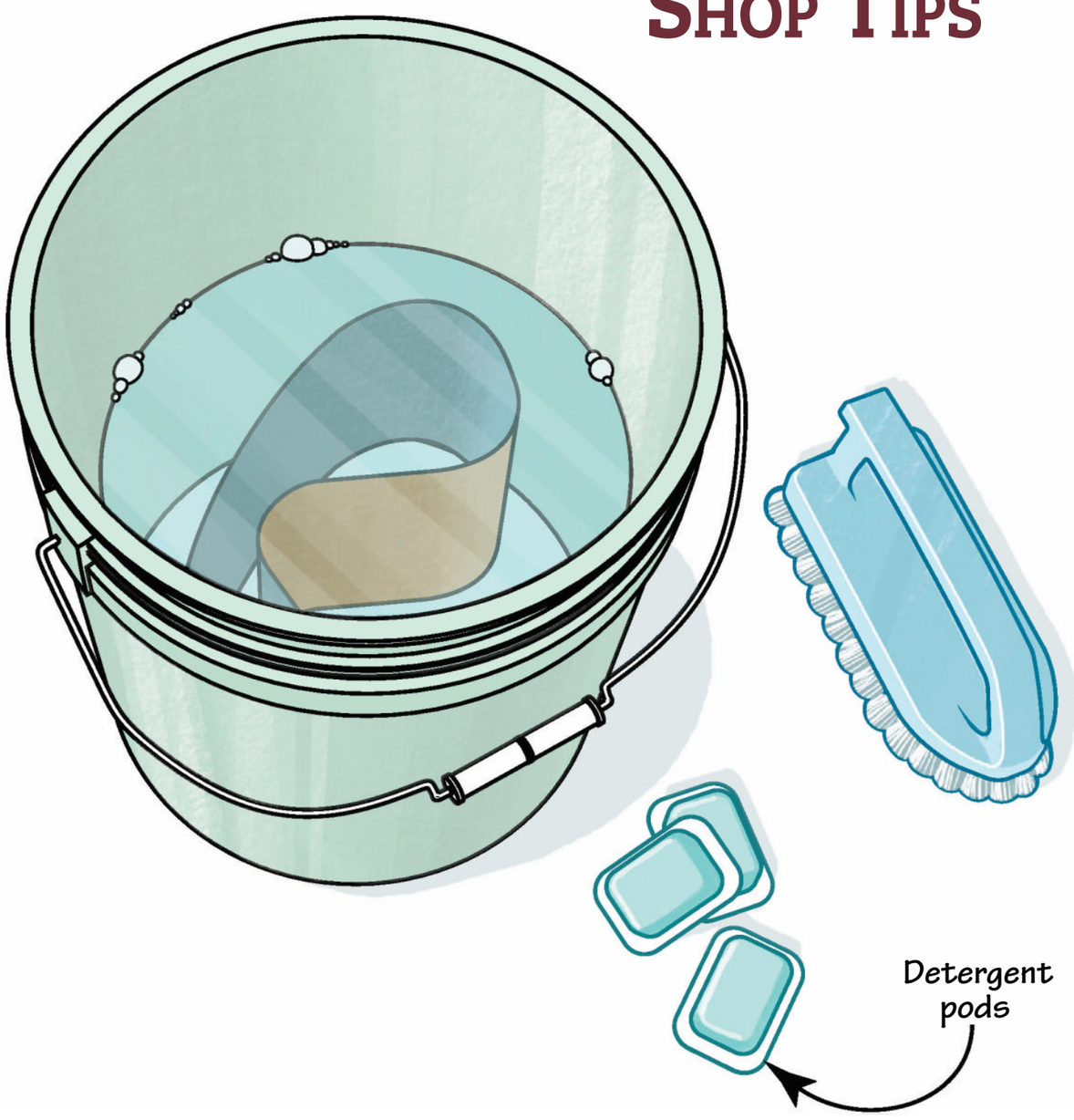
continued on page 18

Shop Tips



Dishwasher detergent chews sanding belt gum

While running a bunch of pine boards through my stationary belt sander, the sandpaper gummed up rather quickly. I tried a number of methods to clean the sandpaper without success. Then I realized that the sap and wood are simply organic matter—a perfect target for dishwasher detergent.

After dissolving a detergent pod in hot water, I submerged the filthy belt and let it sit for about 15 minutes. Using a stiff, nylon brush, the residue came off easily. After a final rinse in warm water, I hung the sanding belt to dry.

—Bob DiTucci, Wayne, N.J.



Penny-pinching spreader takes the cake

To minimize the headache of excess glue squeeze-out (which I find both annoying and wasteful), I use a plastic, disposable knife to lay down a perfect film of glue. The serrated edge creates a uniform thickness of glue, similar to a notched trowel for applying thinset tile adhesive. To control the thickness of the glue layer, simply tilt the knife. As an added bonus, dried glue easily flakes off the knife so I can reuse it often.

—Wiley Cotton, Waynesville, N.C.

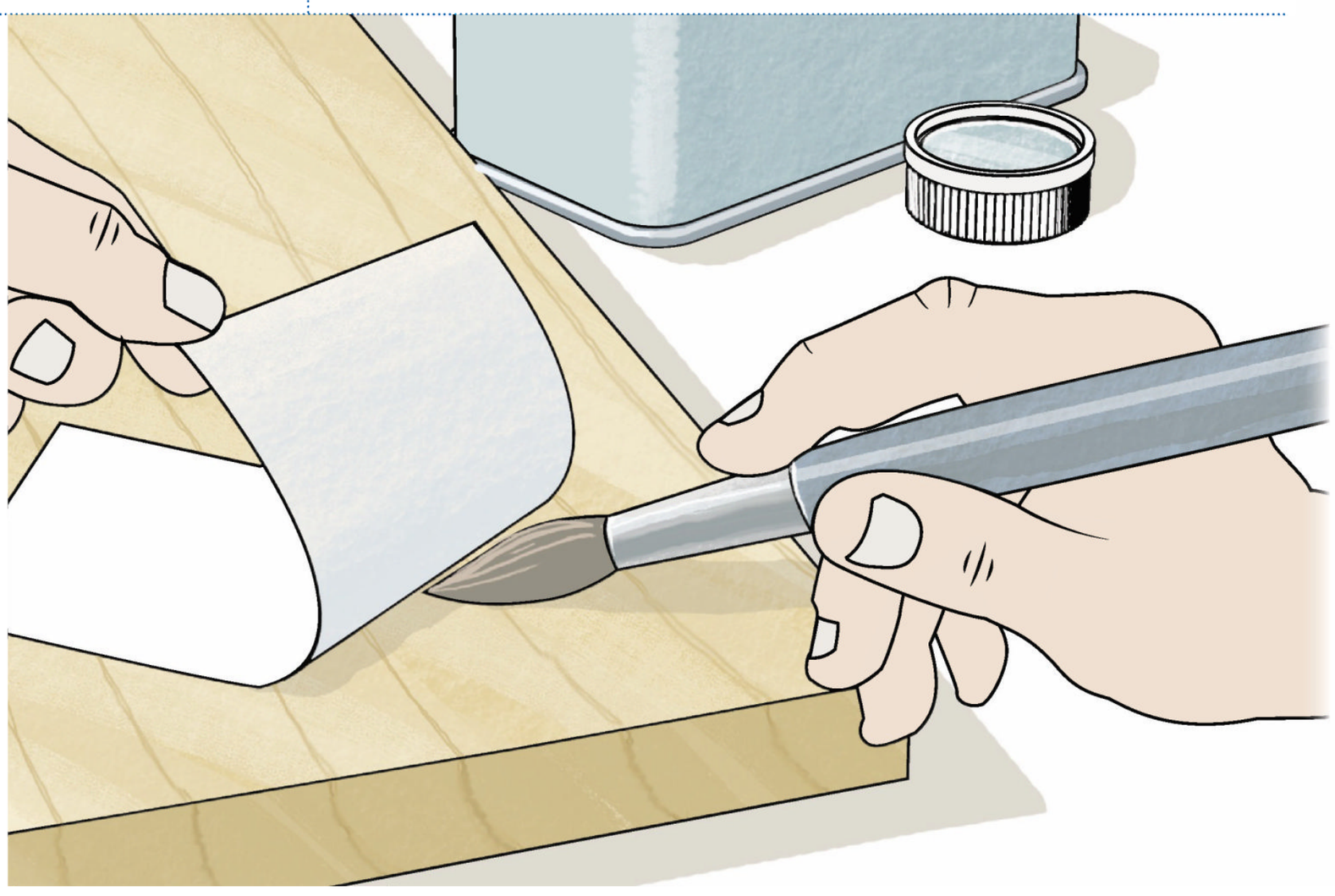
Stick it to stickers with a tried and true solution

Trying to remove gummed labels from products, especially wood, can be frustrating. Scraping them off with tools invariably damages the surface.

My solution is naphtha, usually labeled "VM&P Naphtha." (VM&P stands for Varnish Makers' & Painters'.) Traditionally used to thin oil-based finishes, naphtha works great for dissolving adhesive, quickly evaporates, and won't interfere with finishes or harm most plastics.

Pour a little naphtha in a small container (I use the lid of the can). Use a small brush to apply it at the edge of the label then start peeling the label back, applying more naphtha as you progress. Once the label peels off, use a paper towel to remove any residue.

—Ken Roberts, McMinnville, Tenn.



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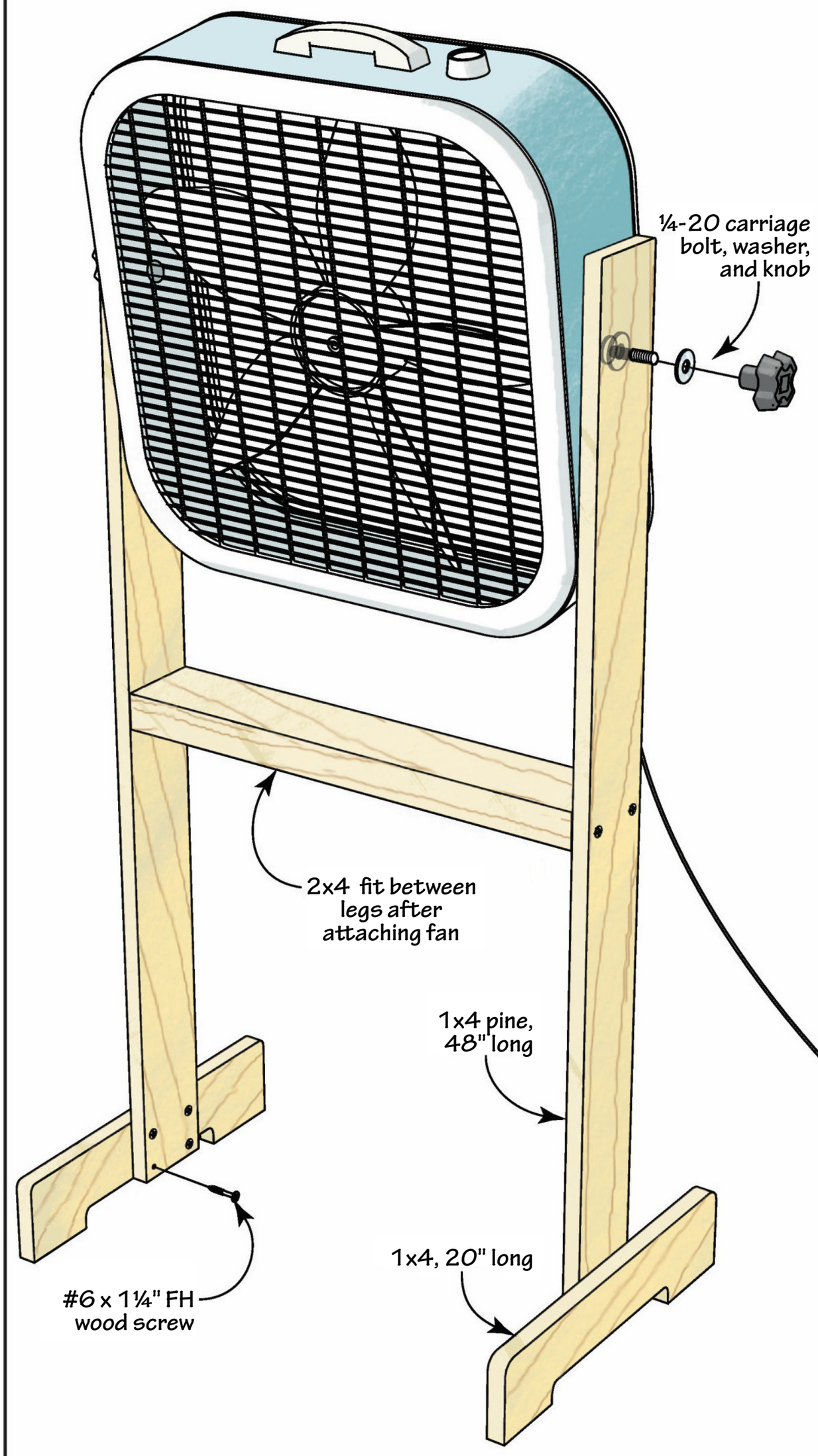
Shop Tips



Quick and easy, nice and breezy

A box fan keeps air moving in my shop on hot days, but only at knee height unless I set the fan on a bench or tool top where it's always in the way. So in under an hour, I made this stand that lifts the fan and allows me to tilt it up or down as needed. I drilled a ¼" hole centered on each side of the fan, inserted a carriage bolt from the inside, then added a washer between the fan and each leg.

—Craig Ruegsegger, WOOD® magazine



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One Cherry Rocker

Our simplest rocking chair ever

Boiling a rocking chair down to its essence, Design Editor John Olson came up with an easy-to-build piece that sits comfortably and looks perfect indoors or out. The cherry version shown here suits a family room or nursery. For outdoors, choose white oak, mahogany, or cedar—woods that tolerate dampness, heat, and cold.

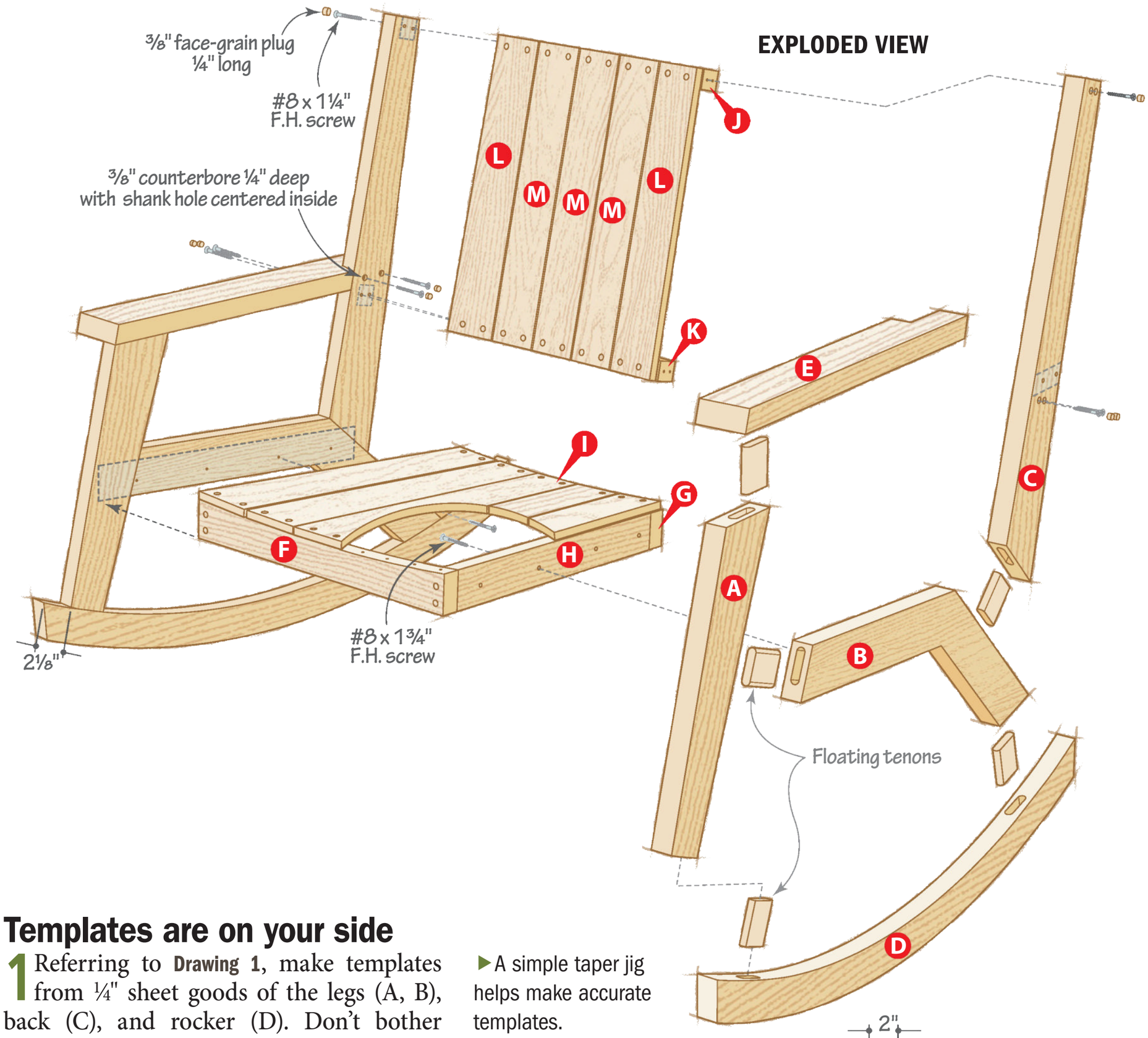
Templates make it easy to get all the angles and curves just right before you start cutting your project stock. Loose-tenon joinery, cut with your router and a simple jig, withstands the stresses a relaxing occupant places on a rocking chair. Ready to build your own? Then let's rock.

DIMENSIONS:
41¾" W × 24" D × 51¼" H

Approximate materials cost:
$200

1
Set of templates makes
2
identical sides



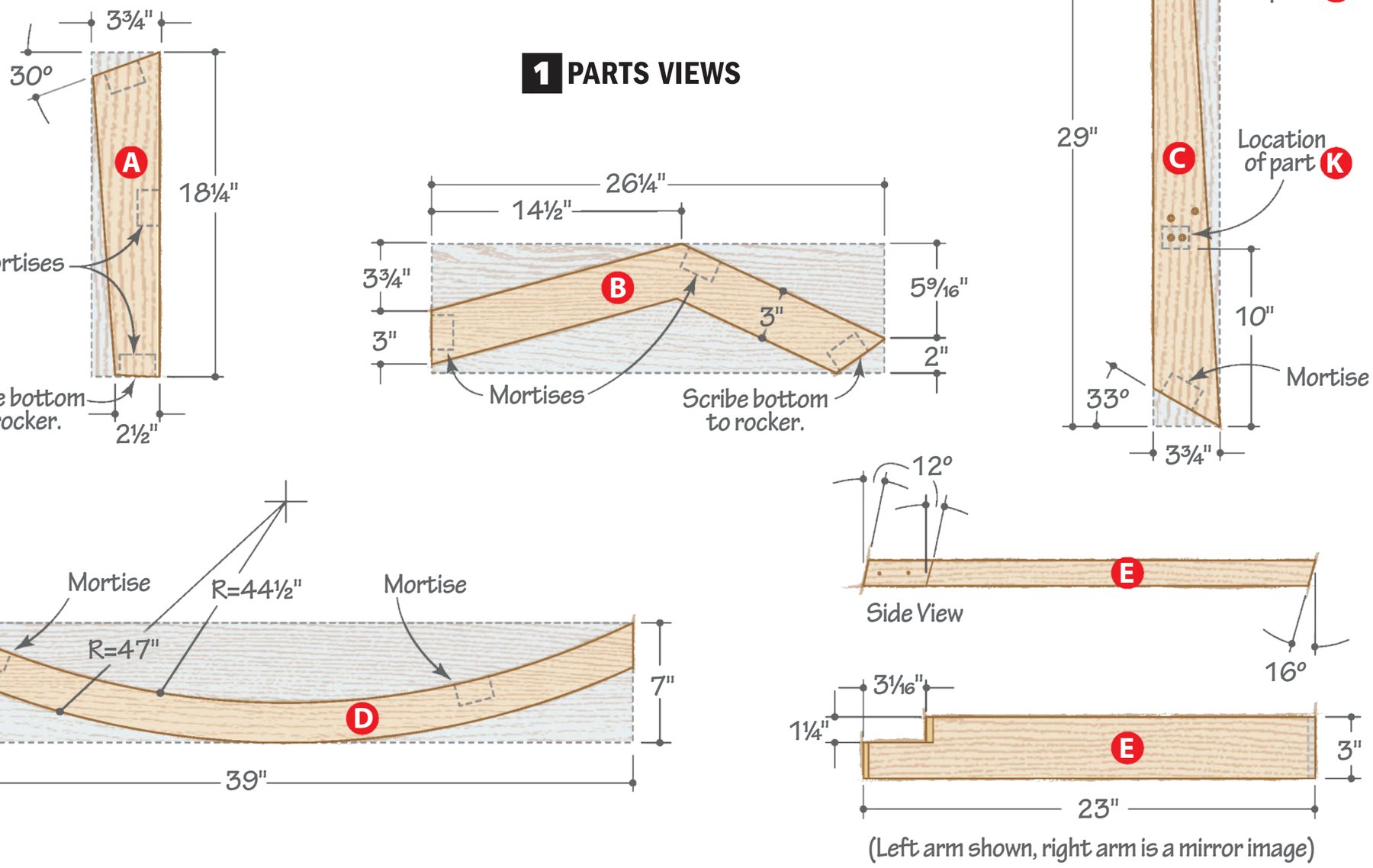


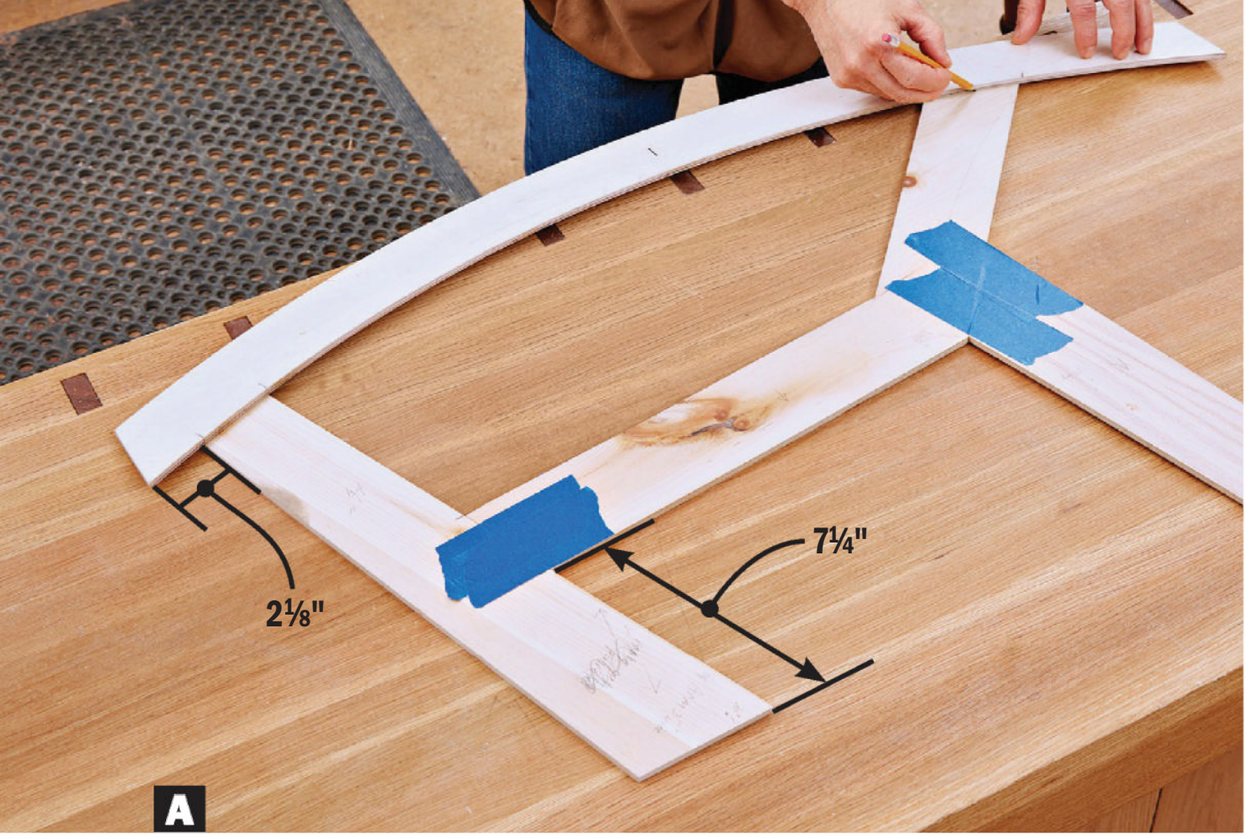
Templates are on your side

1 Referring to **Drawing 1**, make templates from ¼" sheet goods of the legs (A, B), back (C), and rocker (D). Don't bother marking mortise locations yet.

▶A simple taper jig helps make accurate templates.
woodmagazine.com/taper

1 PARTS VIEWS





Overlap the rocker template on the legs and scribe the curve onto the legs. Cut the leg templates along the lines, and sand the curves smooth.



Angle the back leg (B) template to best fit a board at least 7½" wide. This maximizes long grain in both portions of the leg.

2 Join the leg and back templates with tape [**Photo A**] and scribe the bottom of the leg templates.

3 Using the templates, lay out two of each part onto project stock [**Photo B**]. Cut the front legs (A) and backs (C) on the tablesaw. Bandsaw the back legs (B), rockers (D), and bottoms of the legs close to the lines, then plane, file, and sand to the lines.

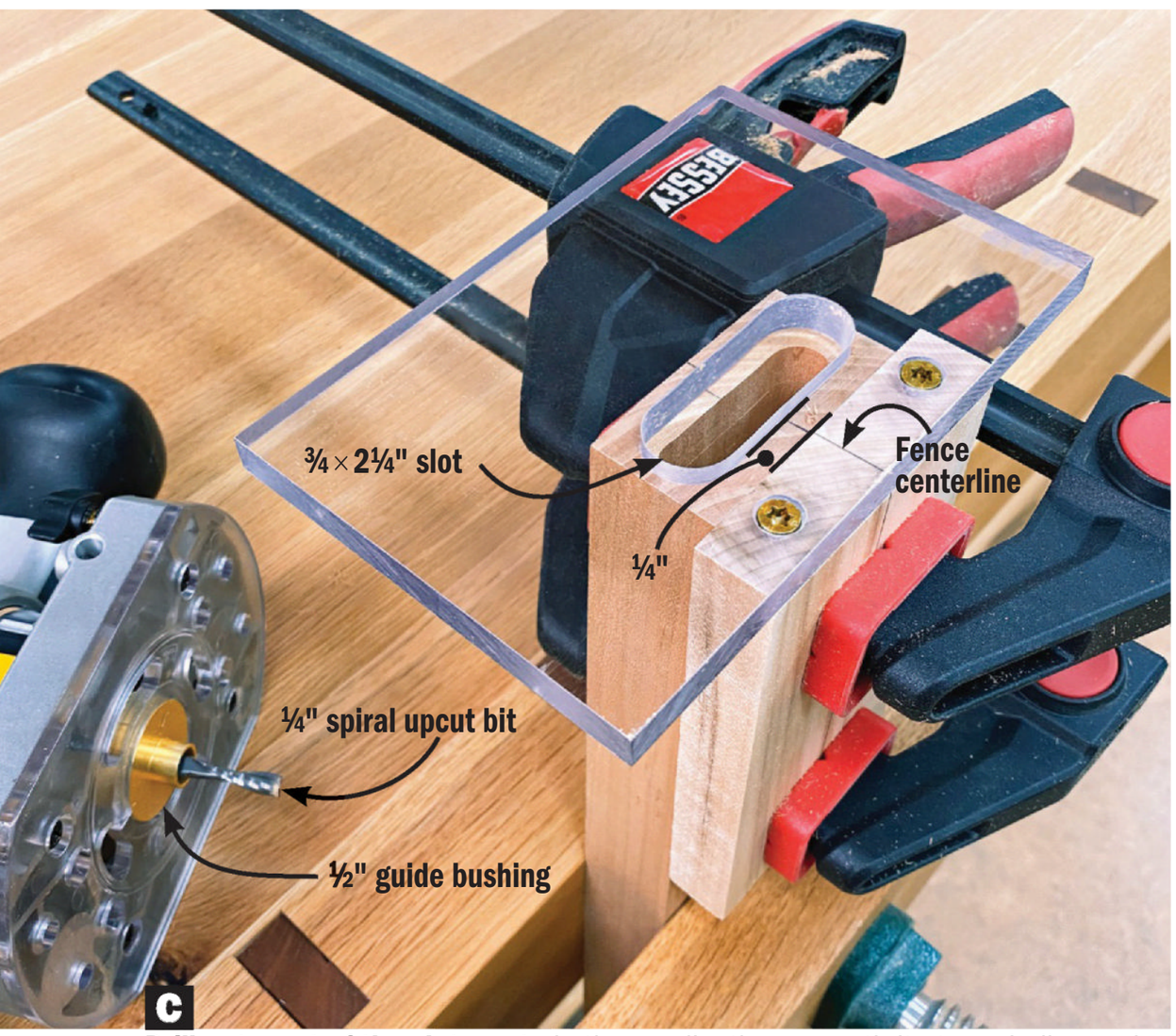
4 Make a mortise-routing jig from a piece of ⅜×4×6" acrylic and a ¾×3×6" scrap for the fence [**Photo C**]. Install a ¼" spiral upcut bit in your router and a ½" guide bushing in its subbase. Clamp the jig to scrap and, routing ¼" deeper with each pass, rout a 1 1/16"-deep test mortise. For the loose tenons, rout ¼" round-overs along the edges of a 24" length of ½" stock. Check the fit of this stock in the test mortise, then crosscut ten 2"-long tenons from the blank.

5 Dry-fit the two side assemblies and mark the mortise locations [**Photo D**]. Label all parts, taking care to identify location and orientations, then rout the mortises. Glue and clamp each side assembly, then finish-sand them to 220 grit.

6 Cut the arms (E) to size [**Drawing 1**]. Bevel-cut the ends, and the end of the notch, then complete the notch.

7 Dry-fit each arm to its side assembly, flush with the inside of the front leg [**Exploded View**]. Check the fit of the notch, and mark the centerlines of the mortises in each front leg and arm. Rout the mortises.

▶Get tips on clamping tricky glue-ups. woodmagazine.com/trickyclamp



Drill out most of the slot waste in the acrylic, then smooth it at a spindle sander. Mark a centerline from face to face on one end of the fence, and screw it to the base ¼" from the slot and centered on the slot's length.



Center the loose tenons on the joint lines where the mortises won't blow out the side of a piece. Mark each mortise centerline across both pieces.

▶ Make and install nearly invisible plugs. woodmagazine.com/perfectplugs

8 Glue the arms to the front legs. Then, drill counterbored pilot holes through the backs and drive screws into the arms [**Exploded View**]. Plug the counterbores, and sand the side assemblies smooth.

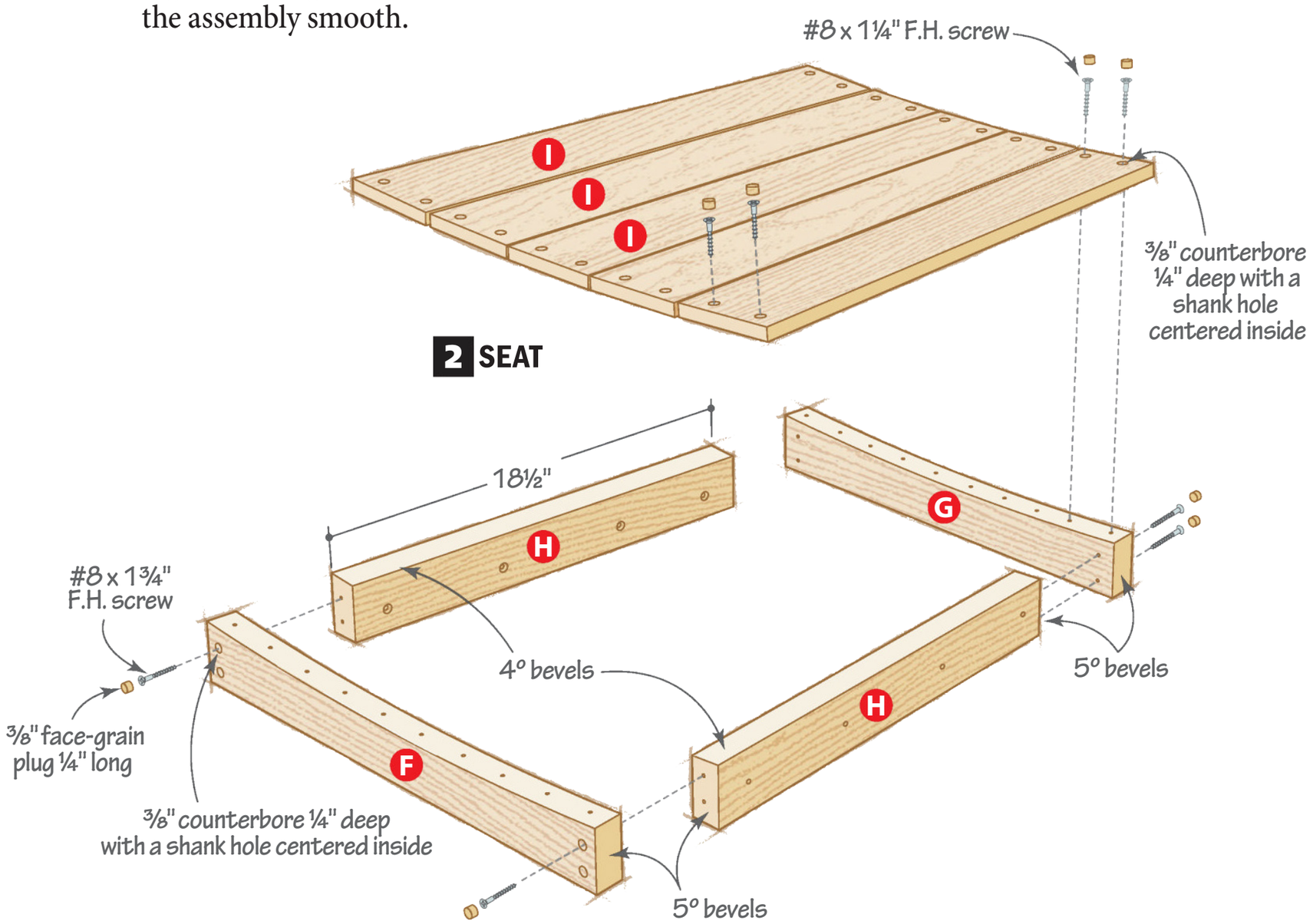
Have a seat

1 Cut the seat rails (F–H) to size and bevel the ends [**Drawings 2, 2a**]. Bandsaw the curves on the front and back rails (F, G) and sand them smooth.

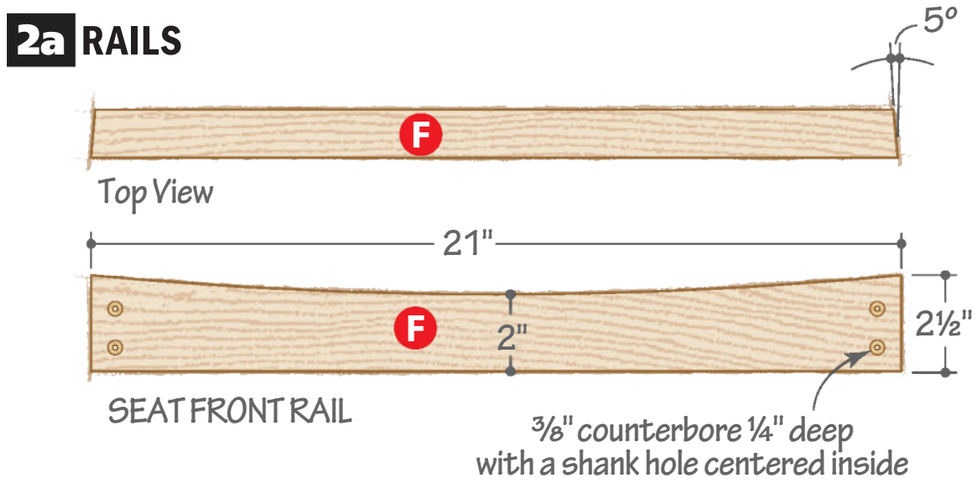
2 Drill counterbores in the front and back rails, then glue and screw the seat frame together. Plug the counterbores and sand the assembly smooth.

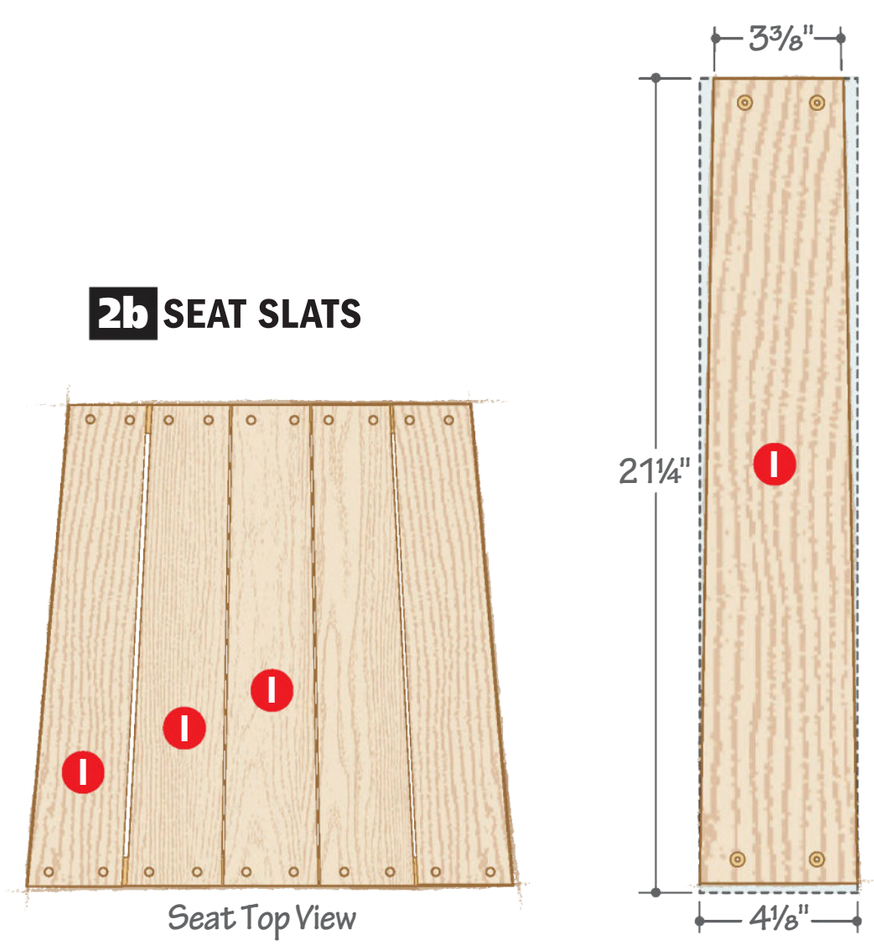
3 Cut the seat slats (I) 21¼" long and taper each edge [**Drawing 2b**]. Clamp the outside slats flush with the outside faces of the side rails (H) and centered front to back. Clamp the remaining slats between them, evenly spaced, and scribe all ends to the front and back of the frame. Label the slats for easy replacement, and cut them along the lines.

4 Glue and screw the seat frame between the side assemblies [**Exploded View**]. Drill counterbores in the seat slats and screw them in place (no glue). Plug the counterbores and sand the seat smooth.



2 SEAT





Back it up

1 Cut the back rails (J, K) to length. Place the upper rail on top of the backs (C) and scribe the angle for each end of the rail. After cutting these angles, use them as a template to angle the ends of the lower rail. Bandsaw the curves [**Drawing 3a**] and sand them smooth.

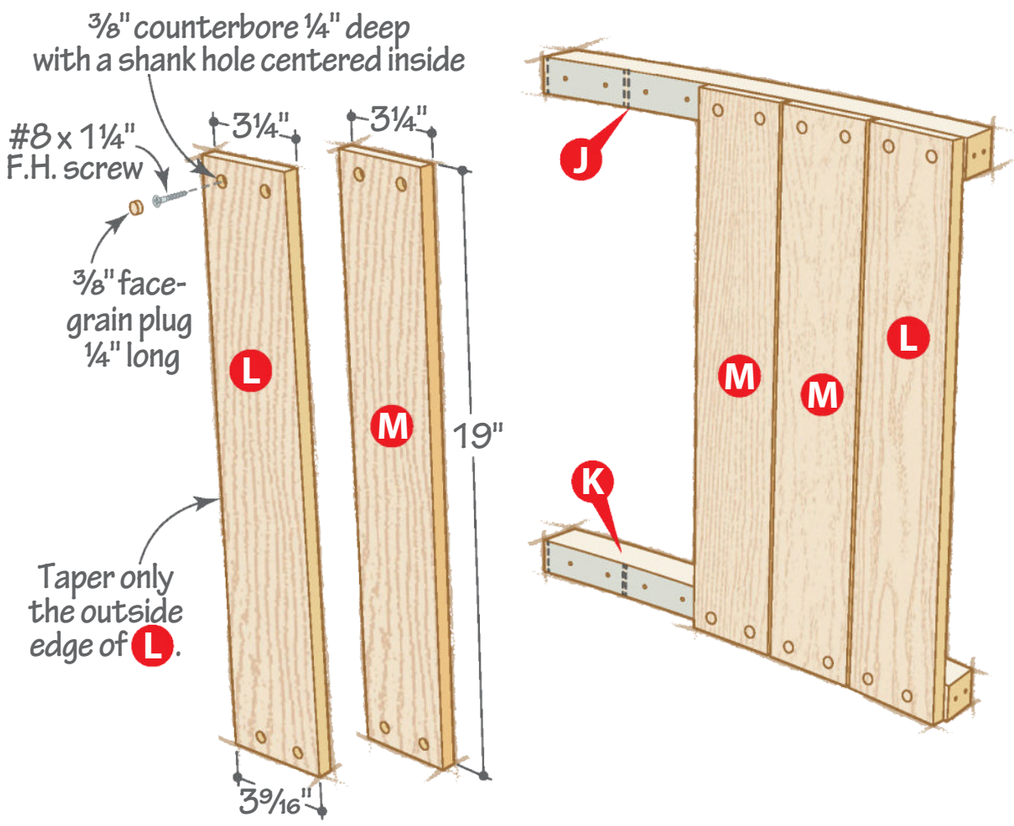
2 Glue and screw the rails between the backs (C), aligning the upper rail flush with the top of the backs, and the top face of the lower rail (K) flush with the bottom face of the arms [**Exploded View**].

3 Cut the back slats (L, M) to size, and taper the outside edge of each outside slat (L) [**Drawing 3**]. Drill counterbores, screw the slats in place, and plug the counterbores.

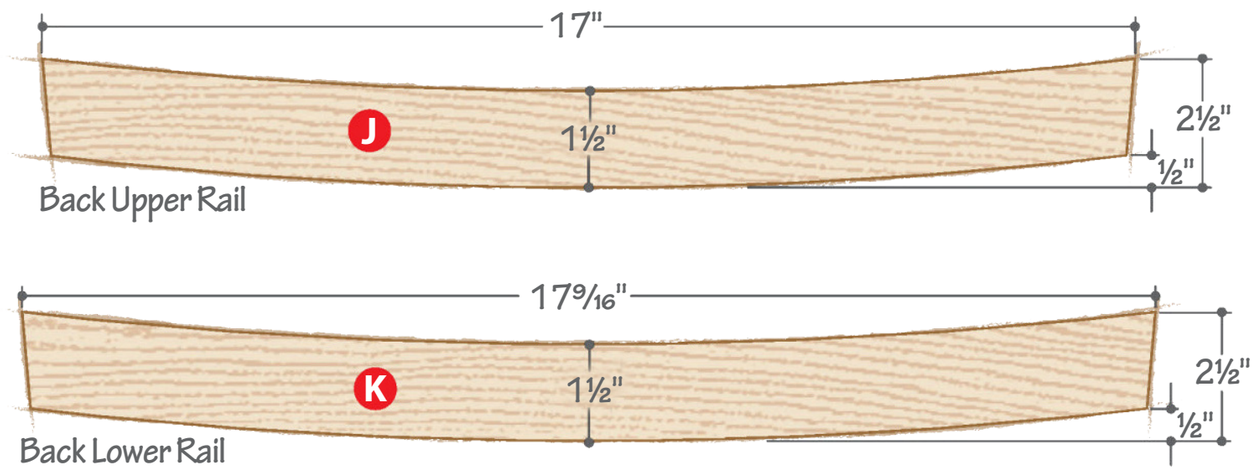
4 Finish-sand all surfaces, slightly rounding the ends of the seat and back slats, and the ends and edges of the arms. Apply a finish. (We sprayed on three coats of acrylic lacquer, buffing between coats with a 320-grit sanding sponge.) Find a favored spot for contemplation, park yourself in your new chair, and relax.

Produced by **Craig Ruegsegger** with **John Olson**
Project design: **John Olson**
Illustrations: **Roxanne LeMoine, Lorna Johnson**

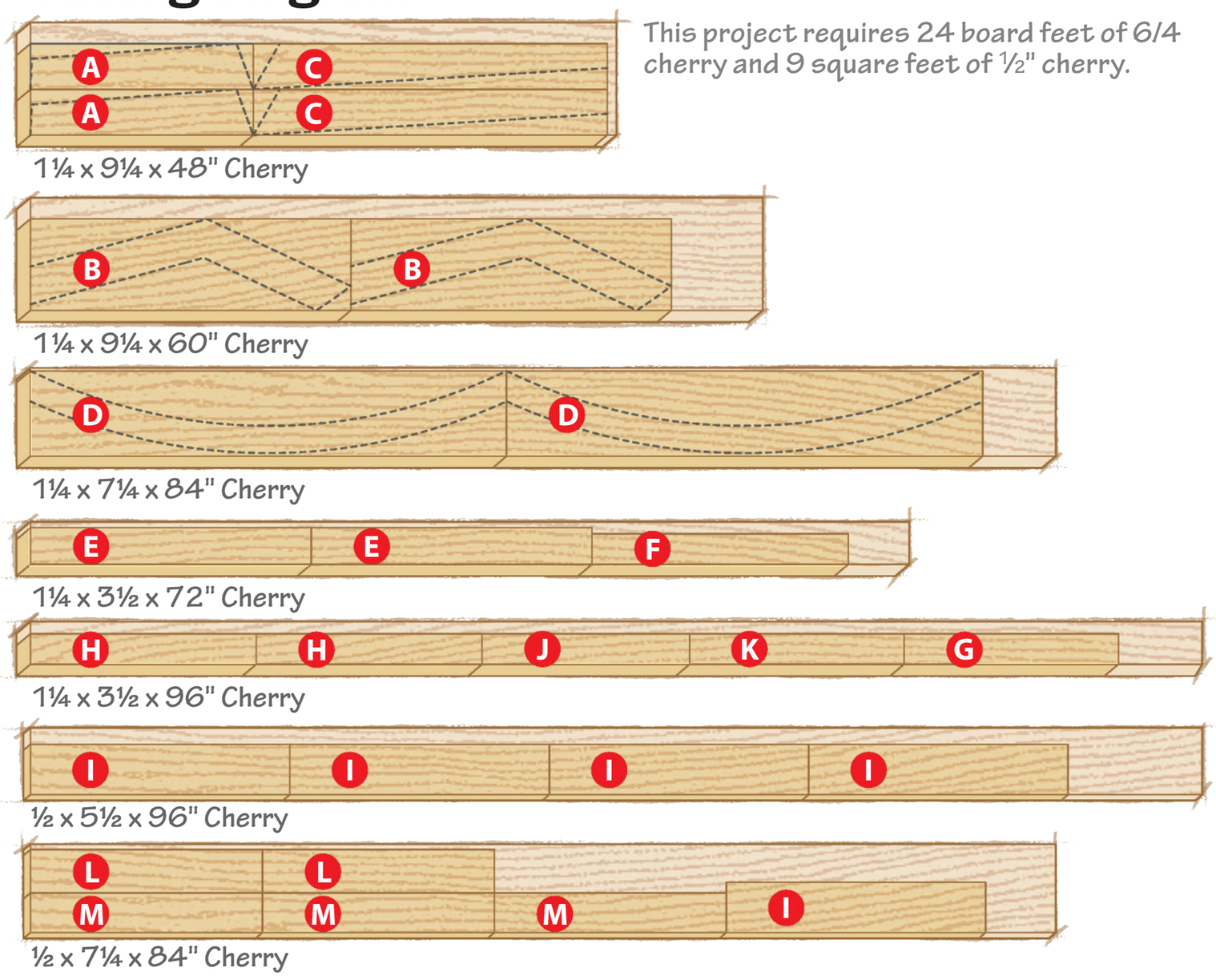
3 BACK



3a BACK RAILS (Top view)



Cutting Diagram



This project requires 24 board feet of 6/4 cherry and 9 square feet of ½" cherry.

Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
A	front legs	1¼"	3¾"	18¼"	C	2
B	back legs	1¼"	7⁹⁄₁₆"	26¼"	C	2
C	backs	1¼"	3¾"	29"	C	2
D	rockers	1¼"	7"	39"	C	2
E	arms	1¼"	3"	23"	C	1
F	front rail	1¼"	2½"	21"	C	1
G	back rail	1¼"	2½"	17⁹⁄₁₆"	C	1
H	side rails	1¼"	2½"	18½"	C	2
I*	seat slats	½"	4⅛"	21"	C	5
J	upper rail	1¼"	2½"	17"	C	1
K	lower rail	1¼"	2½"	17⁹⁄₁₆"	C	1
L	outer back slats	½"	3⁹⁄₁₆"	19"	C	2
M	inner back slats	½"	3¼"	19"	C	3

*Parts initially cut oversize. See the instructions.
Materials key: C-cherry.
Supplies: #8×1¼" flathead screws, #8×1¾" flathead screws.
Bits: ¼" spiral upcut bit, ⅜" plug cutter.

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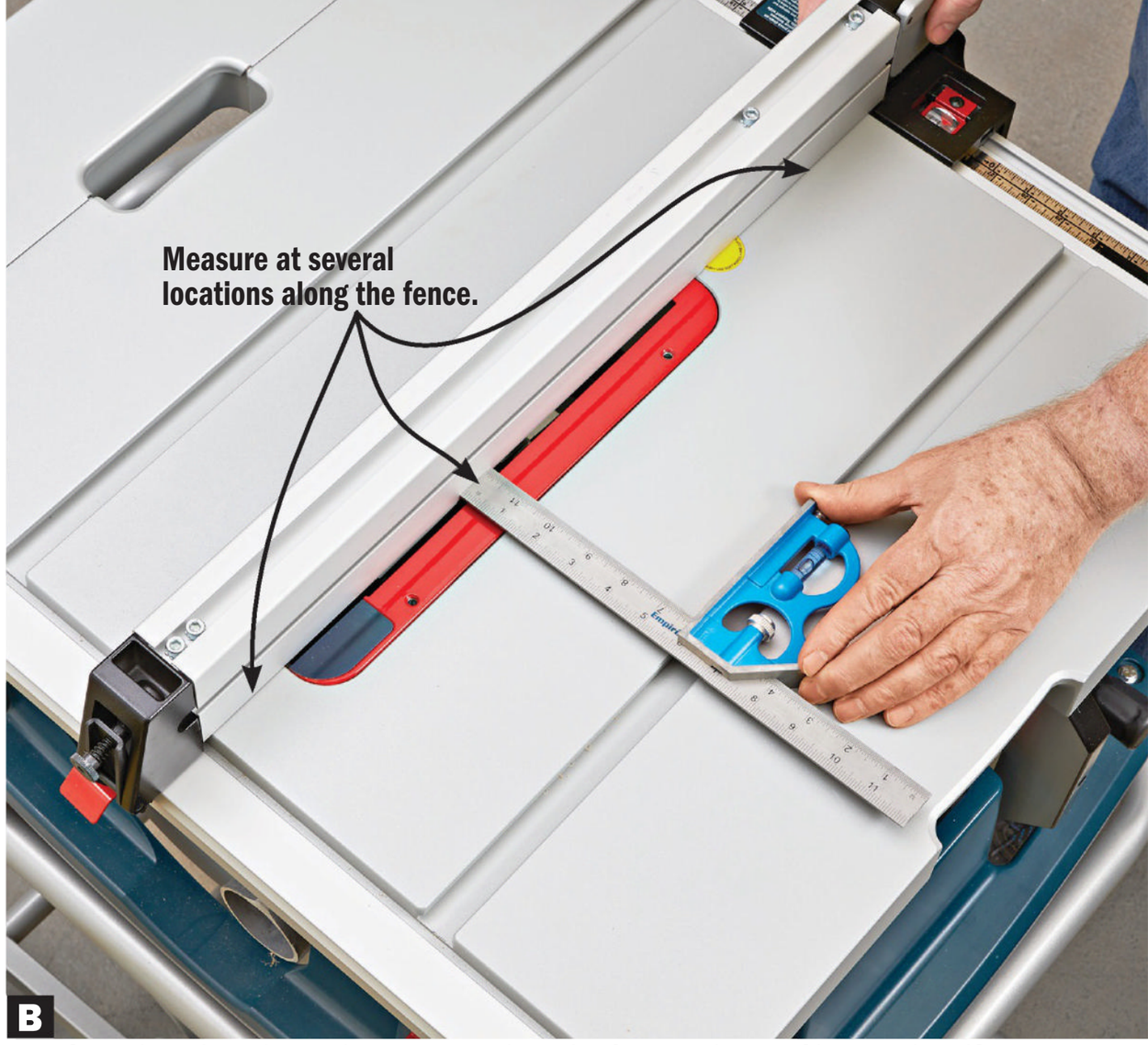


To check for parallelism, use a combination square (with the saw unplugged) to measure from the miter slot to the same tooth at the front and rear of its rotation. If you see a gap, adjust the blade/arbor assembly until the measurements are equal. Check your owner's manual for details on making the adjustment. Then repeat this process for aligning the rip fence.

A little tuning goes a long way

■ Any tablesaw must be set up accurately for safety and precision. That starts by aligning the blade and rip fence parallel to the miter-gauge slots [**Photos A, B**].

■ Benchtop/job-site saws lack the robust induction motors of stationary saws, so use thin-kerf blades to reduce strain on the motor. Full-kerf blades typically cut a ⅛"-wide kerf, so get one that measures 3⁄32" or thinner.

■ Help workpieces glide smoothly across your saw's top [**Photo C**] to reduce the chance of burning or hang-ups.

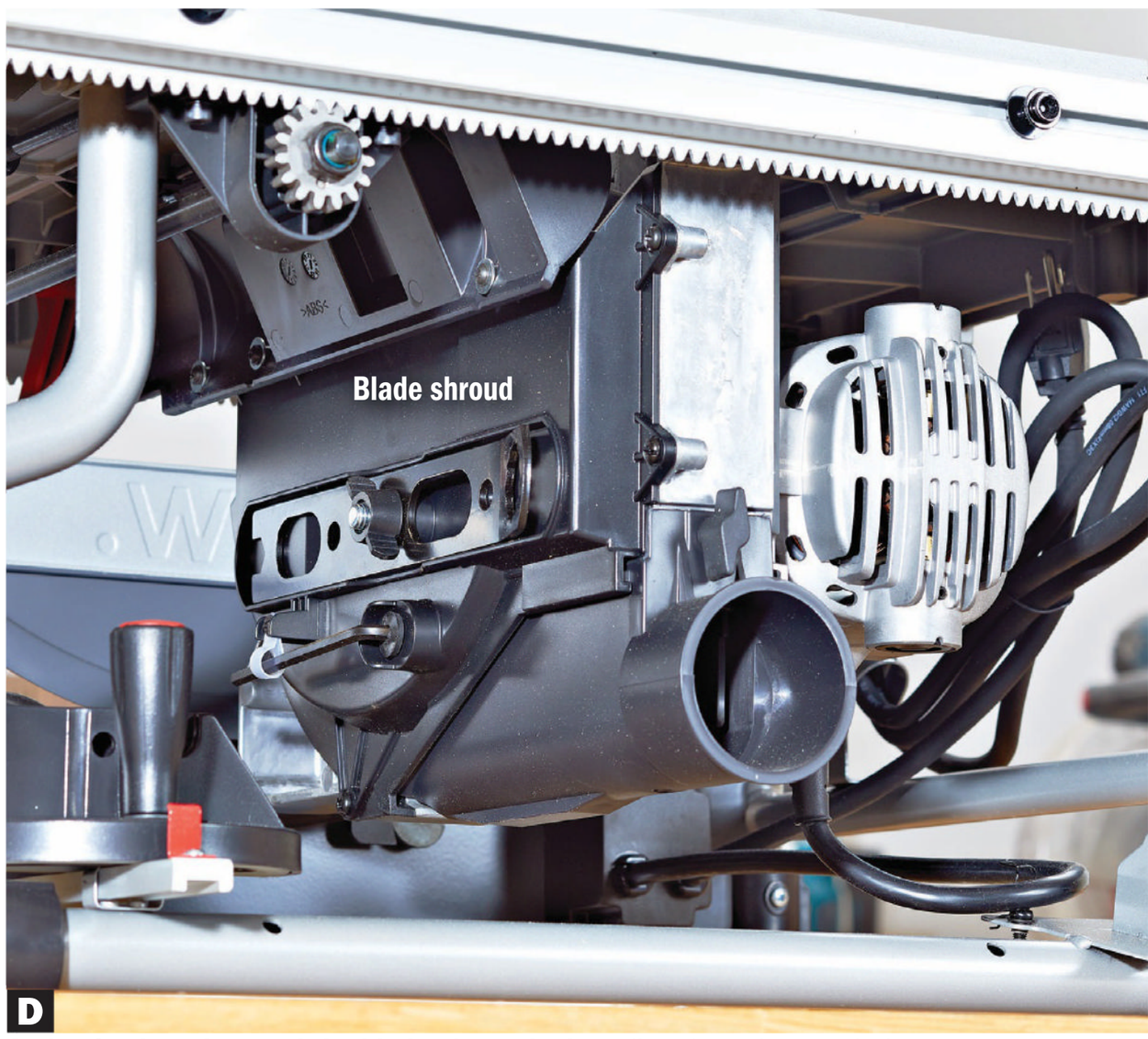
■ Keep your workspace (and lungs) cleaner by connecting your saw to a shop vacuum. Most tablesaws in this class come with a 2½"-diameter dust port [**Photo D**].

▶ Get Bostik GlideCote.
woodmagazine.com/essentials

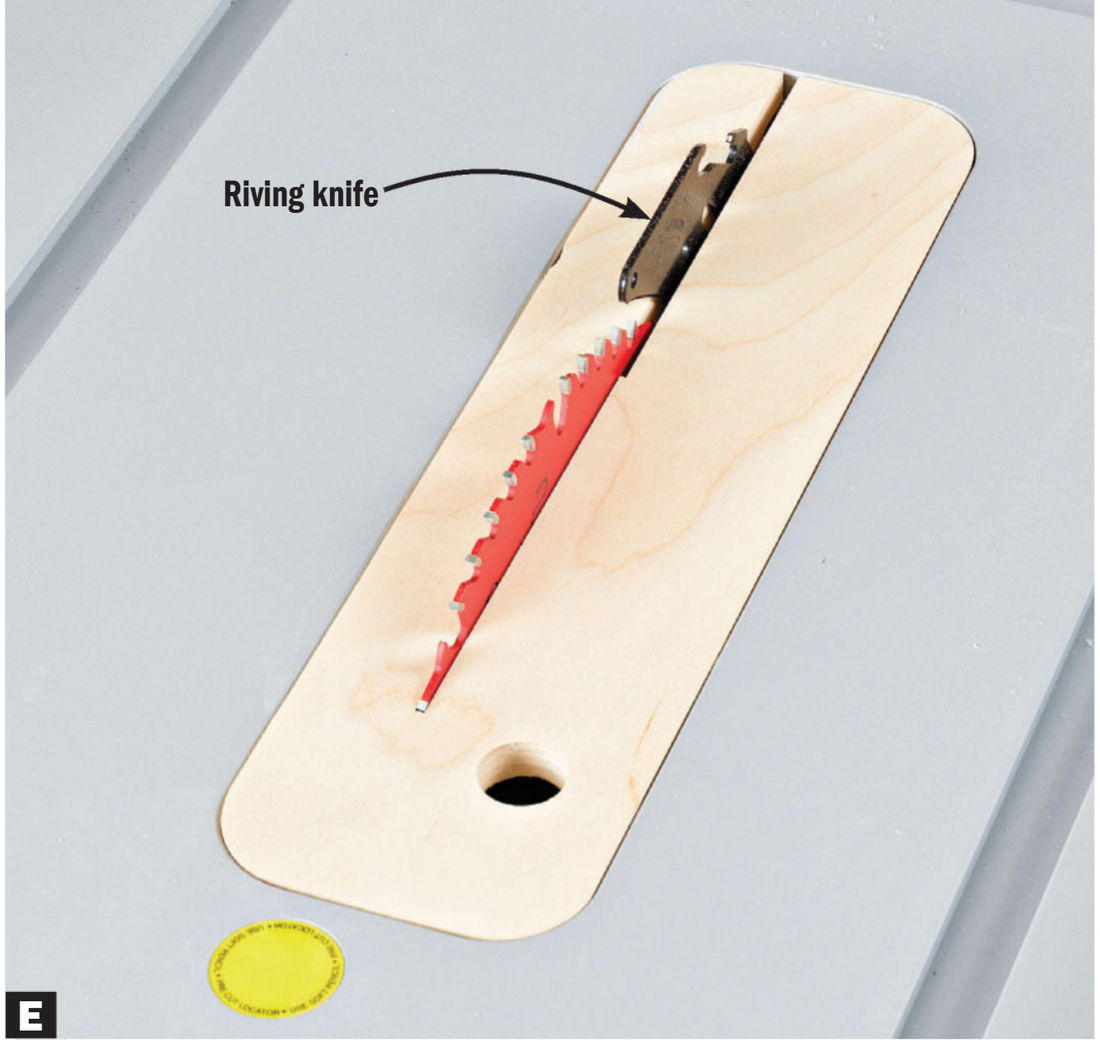
▶ Learn to make spot-on tablesaw cuts.
woodmagazine.com/tssetup



Coat your saw's top with paste wax (available at hardware stores and home centers) or a dry lubricant, such as Bostik GlideCote, to reduce friction. For a top with a rough texture, sand it with 150- and 220-grit abrasive to smooth it first.



A plastic shroud around the blade channels dust directly to the port below, where a shop vacuum can suck it out.



When you make a zero-clearance insert, cut a slot for the riving knife, and undercut the bottom face as needed so the top face sits flush with the tabletop. Lower the blade fully, and slide the fence over one edge of the insert to hold it down. Turn the power on, and raise the blade to cut through the insert.



Or, to create a temporary zero-clearance cover, set the fence to the desired width, slide a sheet of ¼" hardboard against it, and secure it to the saw's top with double-faced tape. Raise the spinning blade to cut the slot. (If your saw has a riving knife, cut a clearance slot for it before adhering the hardboard to the saw top.)

No clearance is a good thing

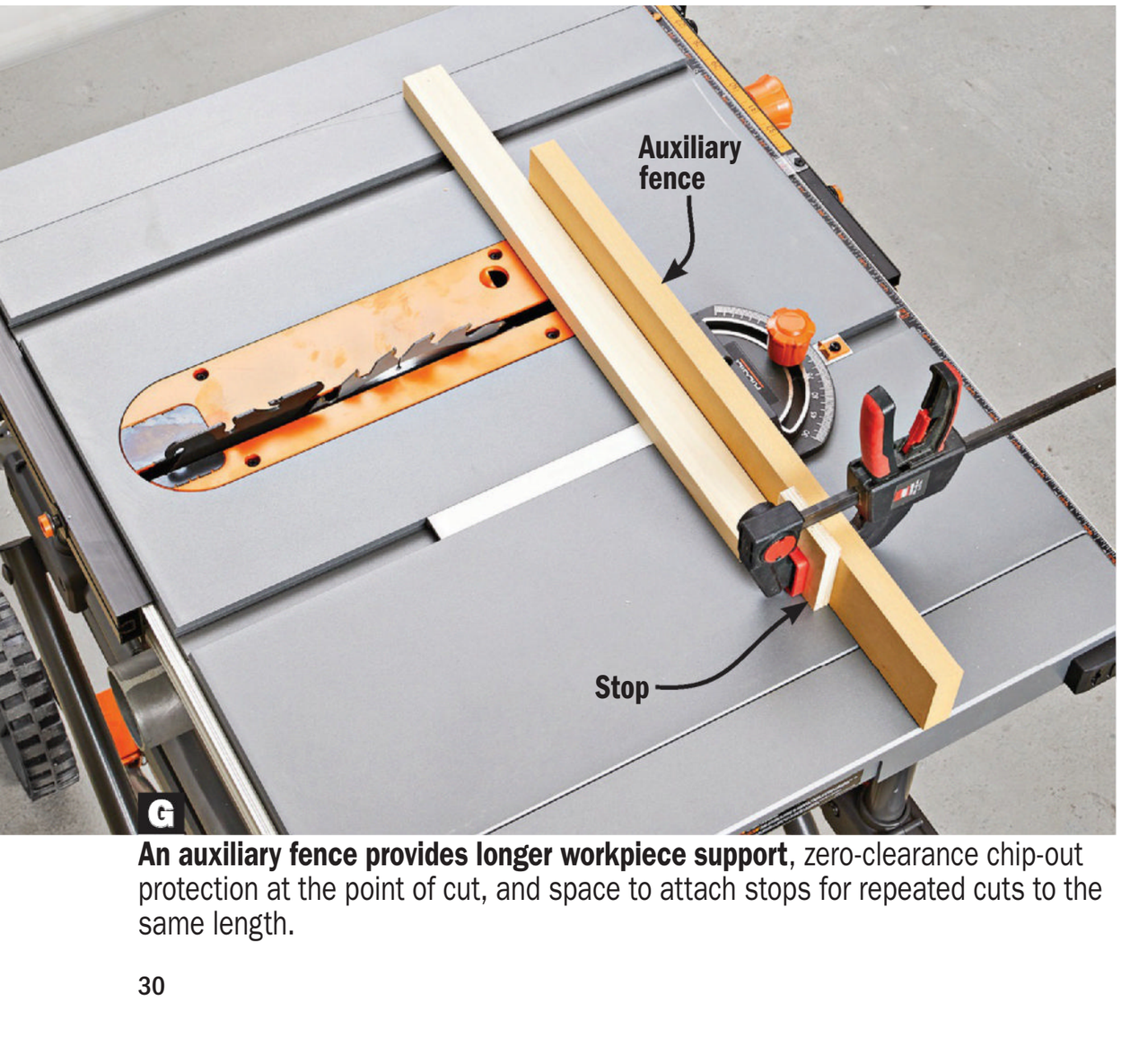
The wide slot in your saw's factory-supplied insert plate accommodates a full range of blade tilt angles, but doesn't support the wood around the blade, leading to tear-out. Adding a zero-clearance insert plate provides complete support for the workpiece. You can buy zero-clearance inserts for some saws, but making your own means you always have one on hand [**Photos E, F**].

▶ Learn to make custom zero-clearance insert plates. woodmagazine.com/zeroinsert

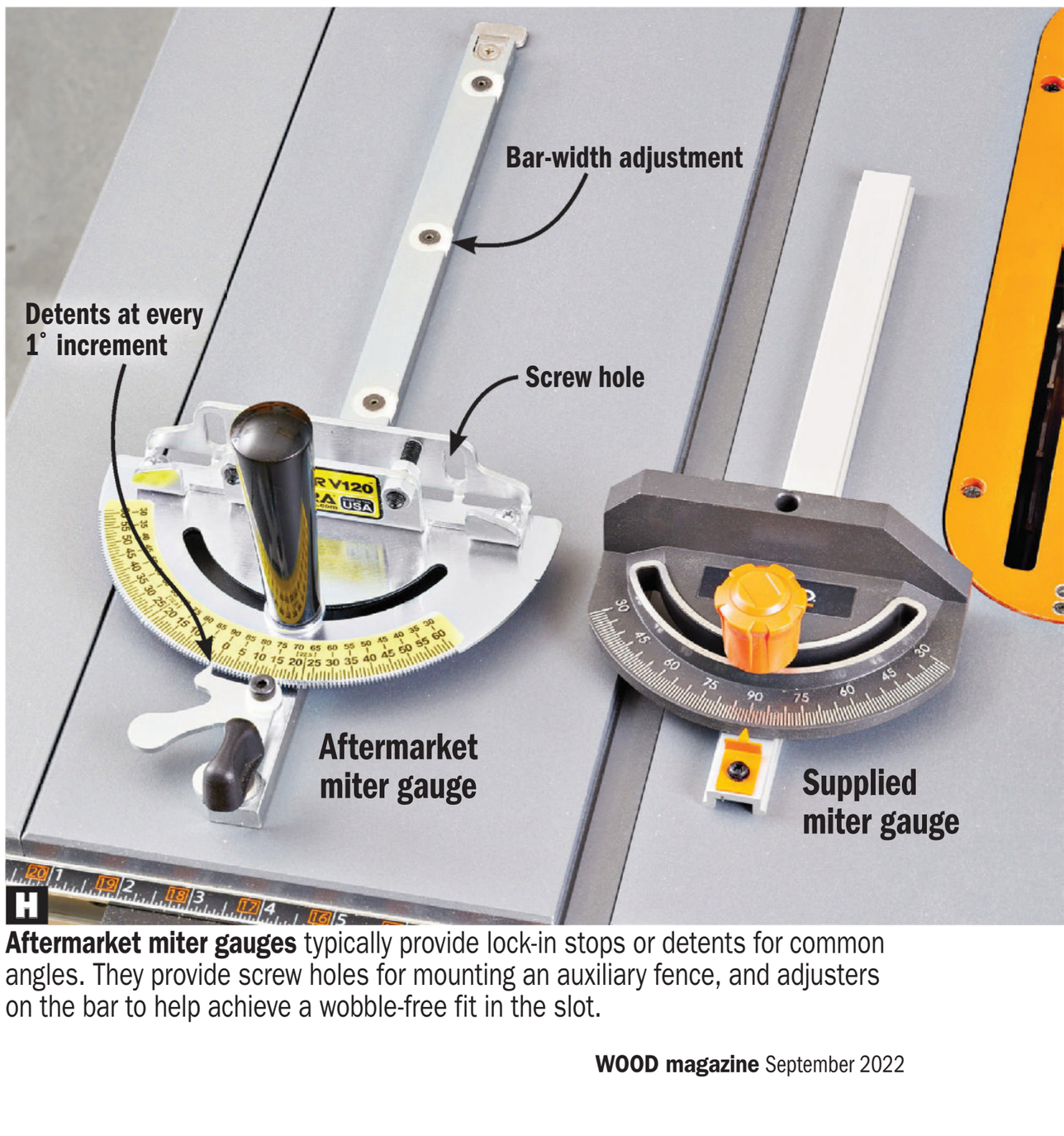
Accessorize your saw

Whether store-bought or shop-made, these products add more functionality.

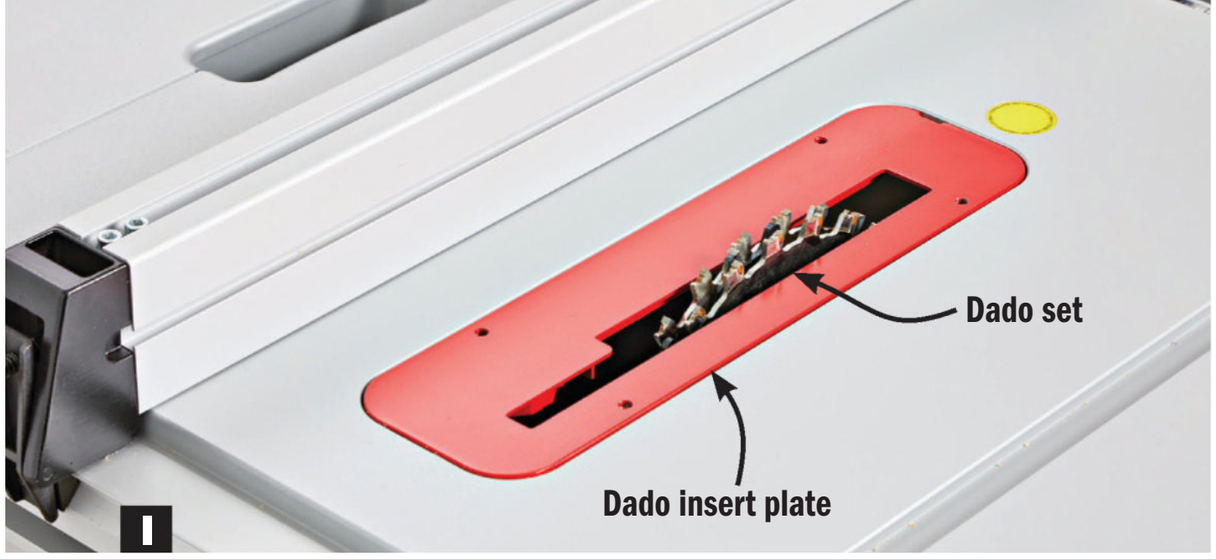
A tablesaw needs a dependable miter gauge for making accurate crosscuts and miters. If your saw's factory-supplied miter gauge works well, improve its support by adding an auxiliary fence [**Photo G**]. Very few of these gauges provide screw-mounting holes or slots, so drill your own holes, or attach the auxiliary fence with double-faced tape instead. But if your miter gauge comes up short, upgrade to an aftermarket model [**Photo H**].



An auxiliary fence provides longer workpiece support, zero-clearance chip-out protection at the point of cut, and space to attach stops for repeated cuts to the same length.



Aftermarket miter gauges typically provide lock-in stops or detents for common angles. They provide screw holes for mounting an auxiliary fence, and adjusters on the bar to help achieve a wobble-free fit in the slot.



I

A stacked-dado set requires more side-to-side clearance than the standard insert plate provides. Purchase a dado insert as an accessory or make your own.

▶Learn about the joints you can cut with a dado set. woodmagazine.com/4dadojoints

■ A stacked-dado set cuts rabbets, dadoes, and grooves quickly. Most saws in this class accommodate a dado stack up to ½" wide, so for wider channels you'll have to overlap multiple cuts. We recommend using a dado set 6" in diameter because it won't stress the motor as much as the additional mass of an 8" set. And with a dado set you'll also need a dado insert plate [**Photo I**]. Manufacturers typically offer them as an accessory, or you can make your own, gaining zero-clearance support in the process.

■ You certainly can use one of these tablesaws on your workbench or other tool stand with great results. But a collapsible stand, often sold with the saw or as an accessory, improves portability and storage [**Photo J**].

■ Long boards or sheet goods get unwieldy when cutting on a small tablesaw. Outfeed support, in the form of a store-bought or shop-made stand [**Opening photo**] or table, helps steady and balance these workpieces. As a bonus, use it with additional machines, such as the bandsaw, planer, drill press, or mitersaw.

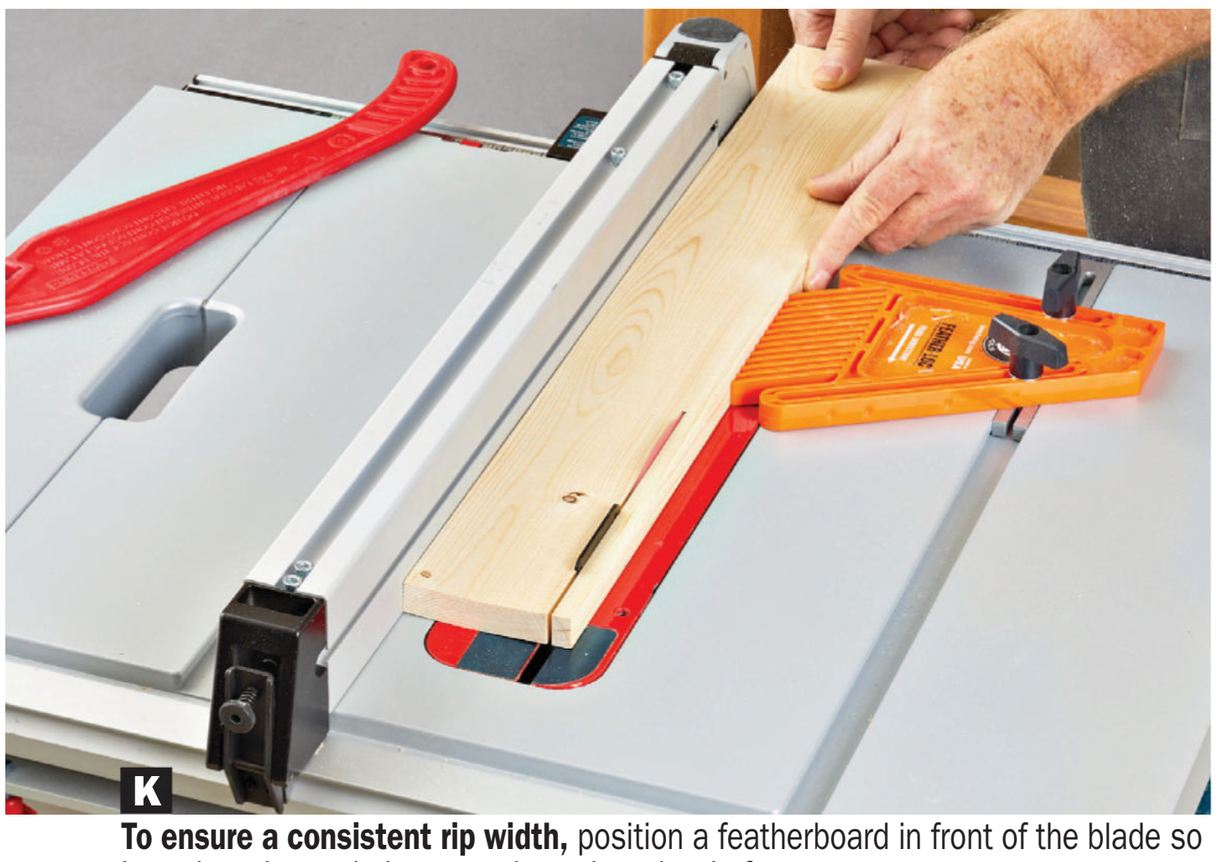
■ A featherboard or similar hold-down/hold-in presses a workpiece against the rip fence [**Photo K**] or tabletop (when mounted on the fence) to prevent the piece from shifting during a cut. Most come with anchors for mounting in the miter slot and rip-fence T-slot. Buy these in pairs; there will come times when you need a featherboard in the miter slot and on the fence.

■ The splitter/riving knife on your saw's blade-guard assembly not only helps protect you from injury, but also prevents kickback by preventing the workpiece from drifting into the rear of the blade, where it could be picked up and rocketed back at you. If you remove the guard and antikickback pawls, the riving knife moves up and down with the blade. If your saw did not come with a riving knife—all saws manufactured after 2012 do—add a fixed one to the throat insert with a simple kit [**Photo L**].



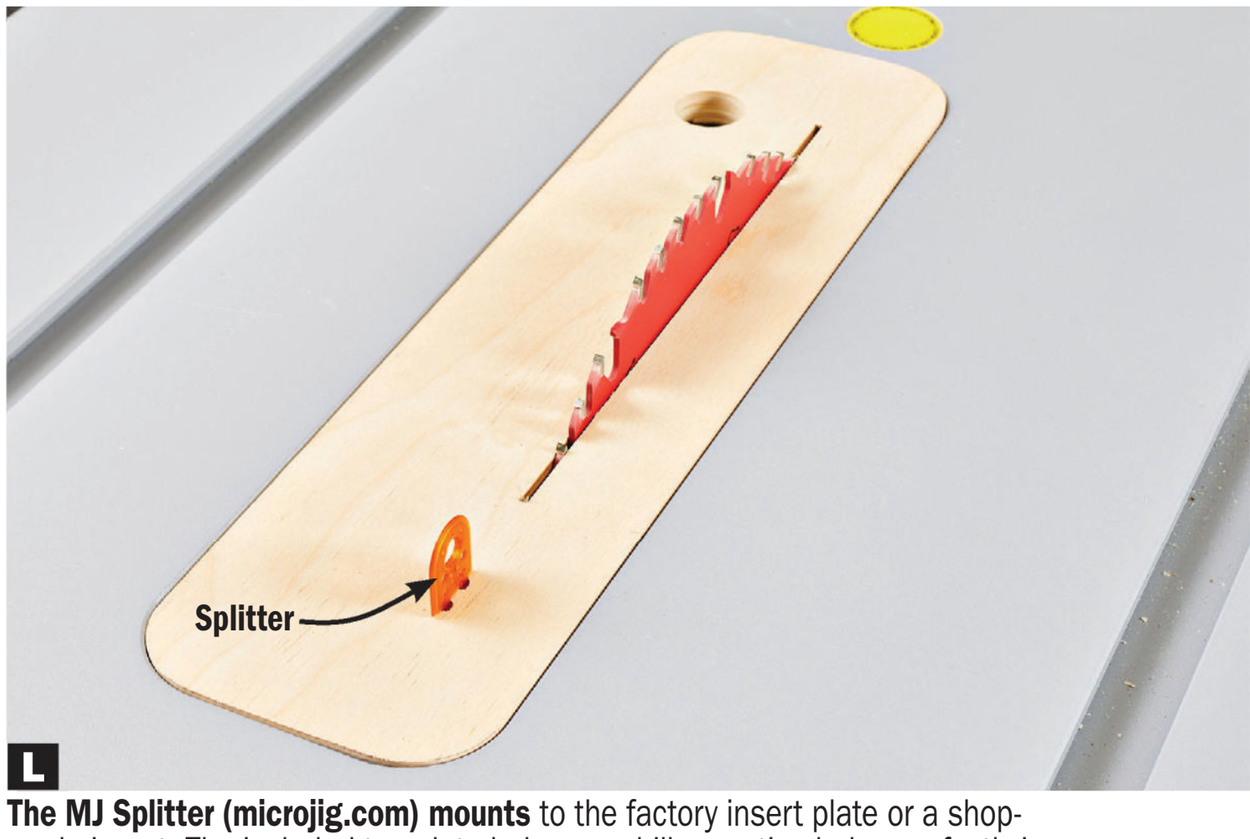
J

When you collapse a saw's stand, you gain the ability to wheel it around the shop. And it takes up less floor space when stored in its collapsed mode.



K

To ensure a consistent rip width, position a featherboard in front of the blade so it pushes the workpiece snugly against the rip fence.



L

The MJ Splitter (microjig.com) mounts to the factory insert plate or a shop-made insert. The included template helps you drill mounting holes perfectly in line with the blade. Although this splitter won't rise and fall with the blade, it still prevents kickback by keeping the kerf from closing on the blade.



This crosscut-sled system expands the tabletop and nearly doubles your saw's crosscut capacity, compared to using the miter gauge alone.



This scaled-down sled holds small workpieces so you can make crosscuts and keep your hands away from the blade. A movable stop lets you cut multiple pieces to equal length.

Jigs make jobs easier

Some tasks require more assistance than the rip fence or miter gauge can provide. For these jobs, a set of shop-made jigs gets the job done.

- Every woodworker should own a crosscutting sled, whether shop-made or purchased. With one you can crosscut workpieces wider than possible with a miter gauge [**Photo M**] or too small to handle safely [**Photo N**].
- And to cut perfect 45° miters, build a miter sled, such as the one shown in **Photo O**.
- Cutting long tapers on any tablesaw requires a jig to carry the workpiece. Rather than buying a pricey tapering sled, make this simple version [**Photo P**].

Produced by **Bob Hunter**



Dual miter-slot runners eliminate any wiggle as you cut a 45° miter. A stop that fits in either arm of the sled helps you cut pieces to identical length.



Fit the sled against the blade and lock the rip fence against the opposite edge. Then clamp the workpiece with the taper's entry and exit points aligned with the sled's edge and make the cut. Repeat for all tapers.

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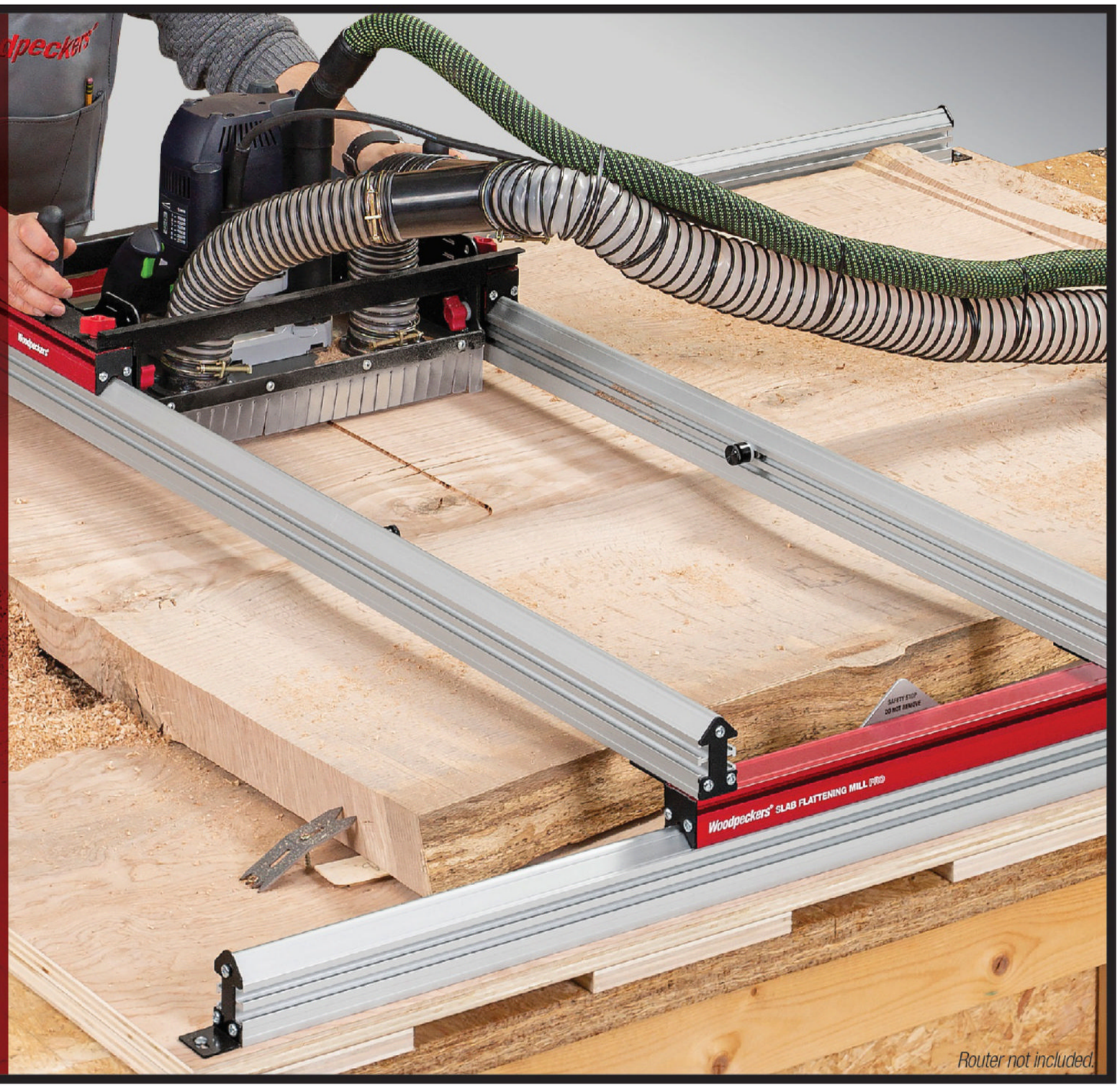

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Top-tier Tool Chest

Pamper your prized hand tools with this two-tone storage case.

DIMENSIONS:
21¼" W × 13½" D × 13⅛" H

Approximate materials cost:
$525
Lumber and hardware

144
Pins and slots to a rock-solid chest



Keeping hand tools close by yet safely stored won't be a challenge with this walnut and maple masterpiece. Five drawers provide storage options, and a tuck-away door locks to keep them secure, yet still provides quick and easy access.

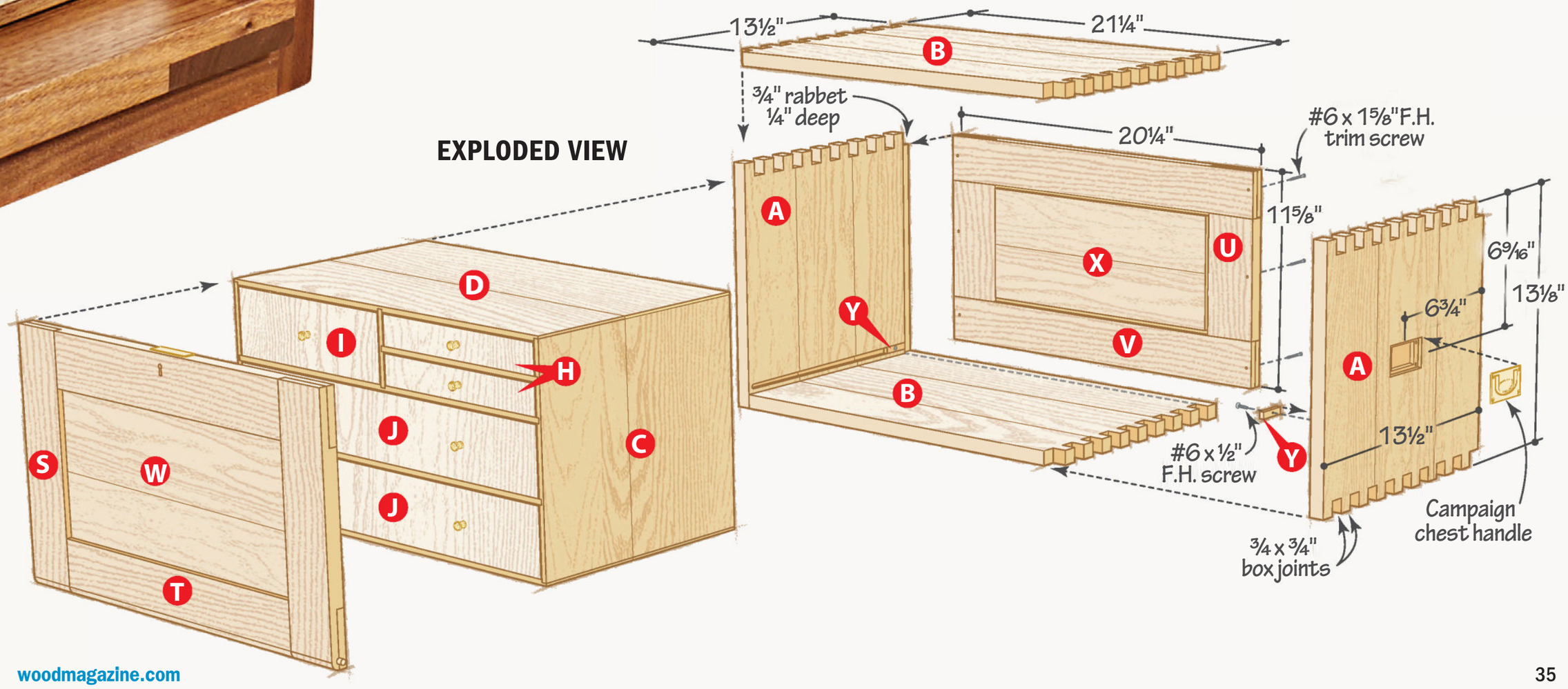
A box in a box

1 Glue up four walnut panels and then cut the chest sides (A) and top/bottom (B) to length and 14" wide [**Materials List**]. The extra width compensates for any variation when you cut the box joints to ensure full-size pins and slots at the back of the chest.

2 Make a box-joint jig to cut the joinery on the sides, top, and bottom (A, B) [**Simple jig for big box joints,** *next page*].

▶ Learn to cut better box joints.
woodmagazine.com/boxjoints

EXPLODED VIEW



Simple jig for big box joints

Beefy box joints require an equally beefy jig to cut them, and this jig fills the bill. The fixed fence attaches to your miter gauge, and an adjustable fence with a T-slot and microadjustment screw allows you to fine-tune the fit of the joints.

To build it, cut the two fences to size and rout a T-slot down the center of the adjustable fence [**Drawing**]. Drill a pair of holes in the fixed fence aligned with the center of the slot.

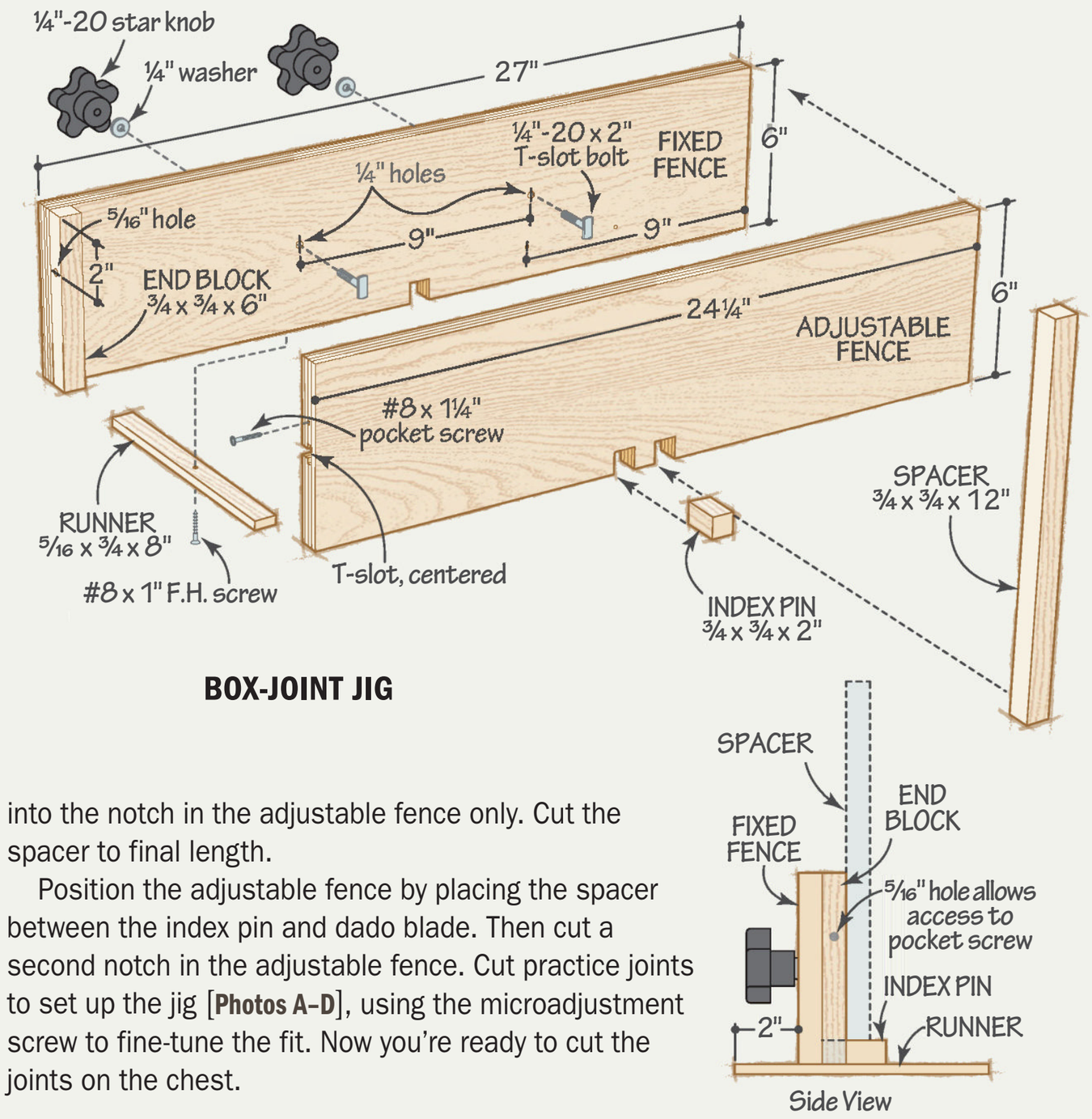
Size the end block and drill a 5⁄16" hole near the top to fit the shaft of a pocket-hole driver. Glue the end block to the fixed fence. Drill a pilot hole in the adjustable fence inline with the end-block hole and install a pocket screw.

Size a runner to match your tablesaw miter slot. Cut a ¾×25⁄32×16" strip for the index pin and spacer. You'll plane this strip to final width later.

Install a ¾" dado blade in your tablesaw. Attach the fixed fence to your miter gauge, centering the fence on the blade. Glue and screw the runner to the bottom of the fixed fence so it rides in the right miter slot.

Install the adjustable fence with T-slot bolts, washers, and knobs and lock it in place flush with the end of the fixed fence. Run the jig over the dado blade, cutting through both fences. Plane the strip for the index pin and spacer so it matches the notch cut in the fences. Crosscut the index pin from the strtip and glue the pin into the notch in the adjustable fence only. Cut the spacer to final length.

Position the adjustable fence by placing the spacer between the index pin and dado blade. Then cut a second notch in the adjustable fence. Cut practice joints to set up the jig [**Photos A–D**], using the microadjustment screw to fine-tune the fit. Now you're ready to cut the joints on the chest.



BOX-JOINT JIG





Cut a slot by placing the front edge of a scrap firmly against the index pin. (You'll cut the sides [A] this way later.)

Create the remaining slots by stepping the just-cut slot onto the index pin, working across the piece.

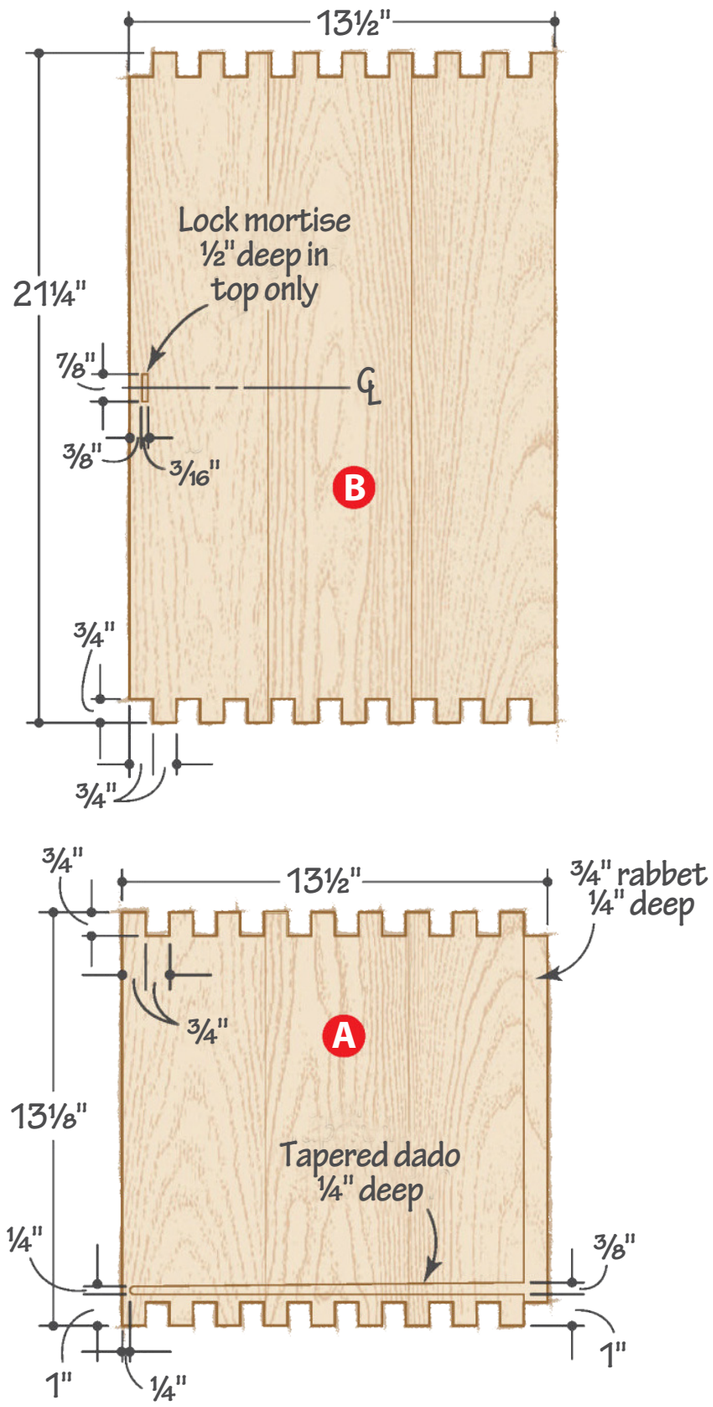


The mating panels (the top and bottom [B] on the chest) start with a slot. To locate the slot correctly, place the spacer between the index pin and workpiece. Notch the end of the panel.



Place the notch over the index pin to cut the next full slot. Step your way across the panel as before.

1 CHEST PARTS VIEWS





Rout a stopped dado along the bottom edge of the sides (A) with a ¼" spiral downcut bit. Reposition the straightedge to widen the dado to ⅜" at the rear.

3 After cutting the joints [**Drawing 1**], rip the back edge of the top, bottom, and sides to create full pins (top/bottom) and slots (sides) along the back edge.

4 Rout the tapered stopped dado on the inside face of each side [**Photo E, Drawing 1**].

5 Rabbet the back edge of the sides [**Drawing 1**], then mortise the sides for the handles [**Exploded View, Source**].

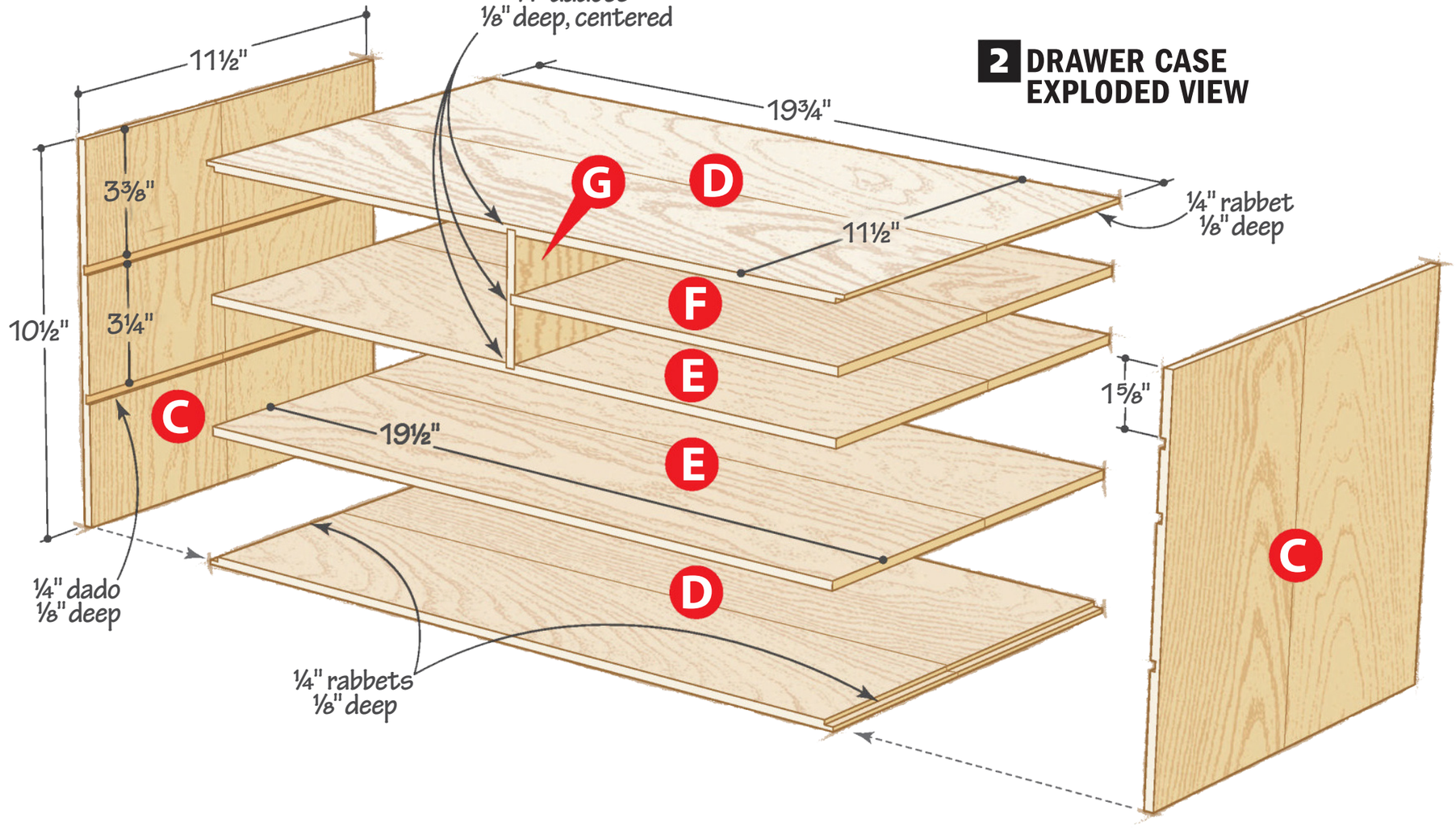
6 Move on to the drawer case, cutting to size the sides, top/bottom, shelves, and divider (C–G) [**Drawing 2**].

7 Dado the drawer-case sides (C), top (D), one long shelf (E), and divider (G) [**Drawing 2**], and rabbet the top and bottom (D). Glue the drawer case together.

8 Glue the chest sides (A) and top (B) to the drawer case with the back of the drawer case flush with the rabbet in the chest sides (A). Then glue the chest bottom (B) to the assembly.

Tip! *Measure the distance between the box-joint slots in the top (B) and cut the drawer-case top and bottom (D) to match.*

2 DRAWER CASE EXPLODED VIEW



▶ Get the details on cutting the drawer joints. (Adjust the dimensions to match the ⅝"-thick drawer fronts of this project.) woodmagazine.com/lockrabbet

Dealing with drawers

1 Cut the drawer fronts (H–J), backs (K–M), and sides (N, O) to size [**Drawing 3**].

2 Dado, rabbet, and groove the drawer parts (H–O) [**Drawings 3, 3a**].

3 Dry-assemble the drawers and check the fit in their openings in the drawer case.

4 Cut the drawer bottoms (P–R) to size [**Drawing 3**], then glue up the drawers. Set them aside for now.

Open and shut case

1 Cut to size the stiles and rails for the door and back (S–V) [**Drawings 4, 5**].

2 Rabbet the ends of the rails and stiles for the half-laps, then rout the stopped grooves along the inside edges, centered.

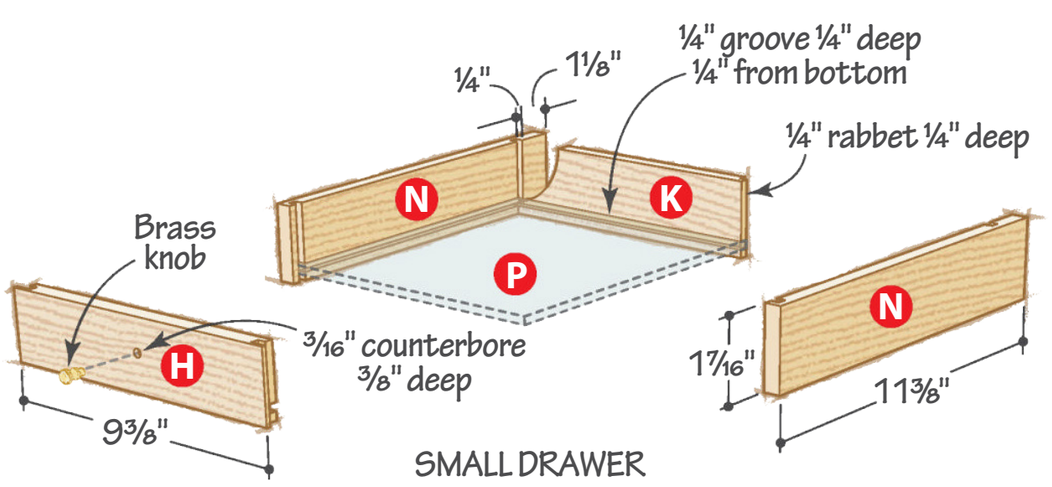
3 Glue up two walnut panels for the door panel (W) and back panel (X), then cut them to size [**Drawings 4, 5**]. Rabbet the inside faces to fit the grooves in the stiles and rails.

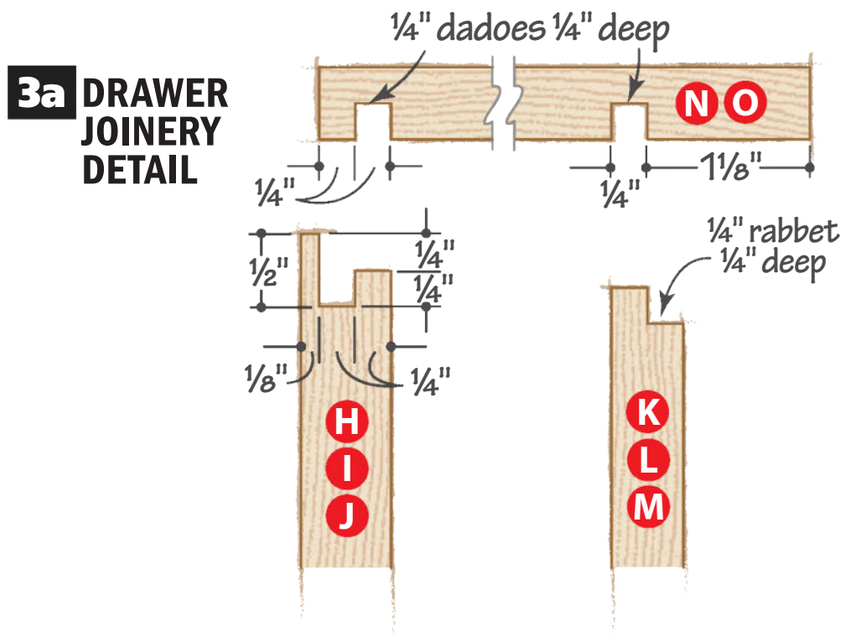
4 Glue up the door and back, allowing the panels to float in the frames.

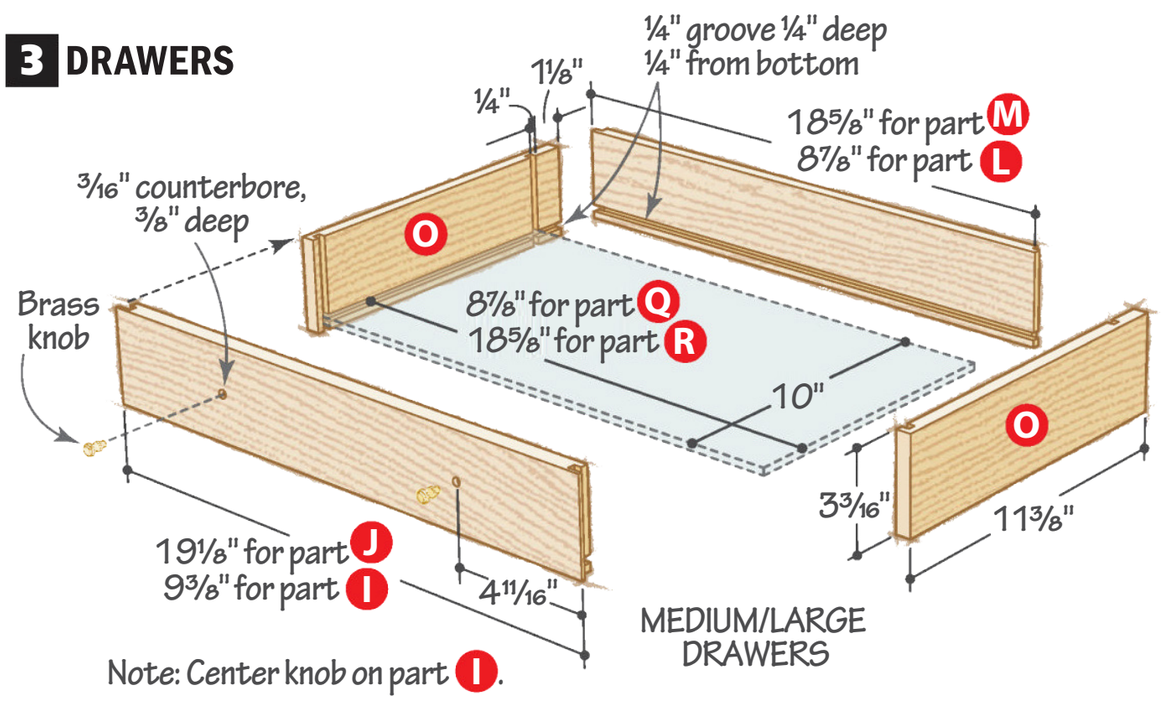
5 Round over the lower front edge of the door, then scribe around the till lock [**Source**] onto the top rail (T). Mortise the rail to accept the lock [**Drawing 4**]. Drill out and file the keyhole slot. Temporarily install the till lock.

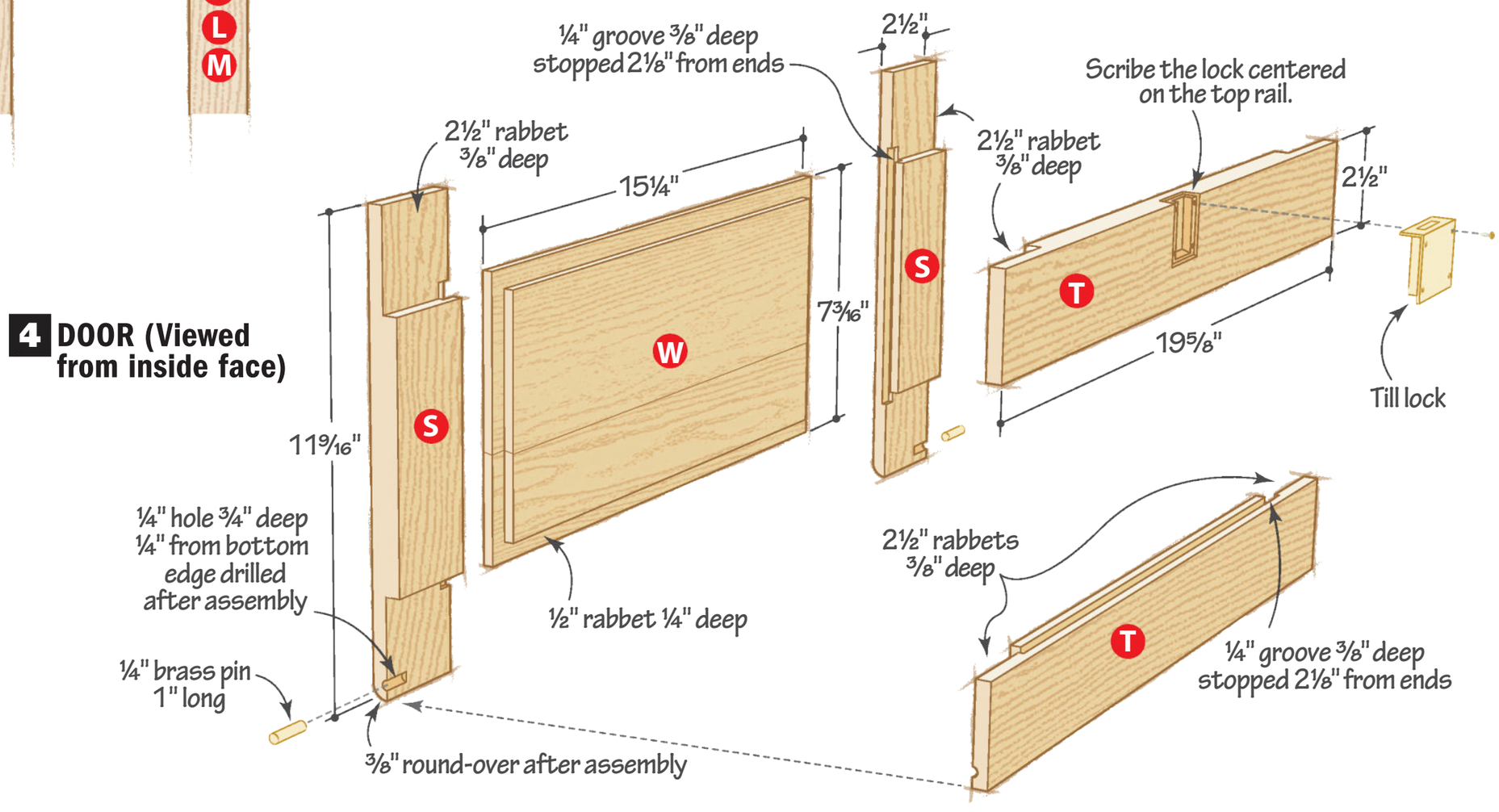
6 Drill a ¼" hole in the lower edge of each door side for a brass pivot pin [**Drawing 4**] and temporarily install the pivot pins.

7 Test-fit the door in the chest to locate the mortise in the chest top (B) for the till lock bolt, then mortise the bottom face [**Drawing 1**].









Putting a wrap on things

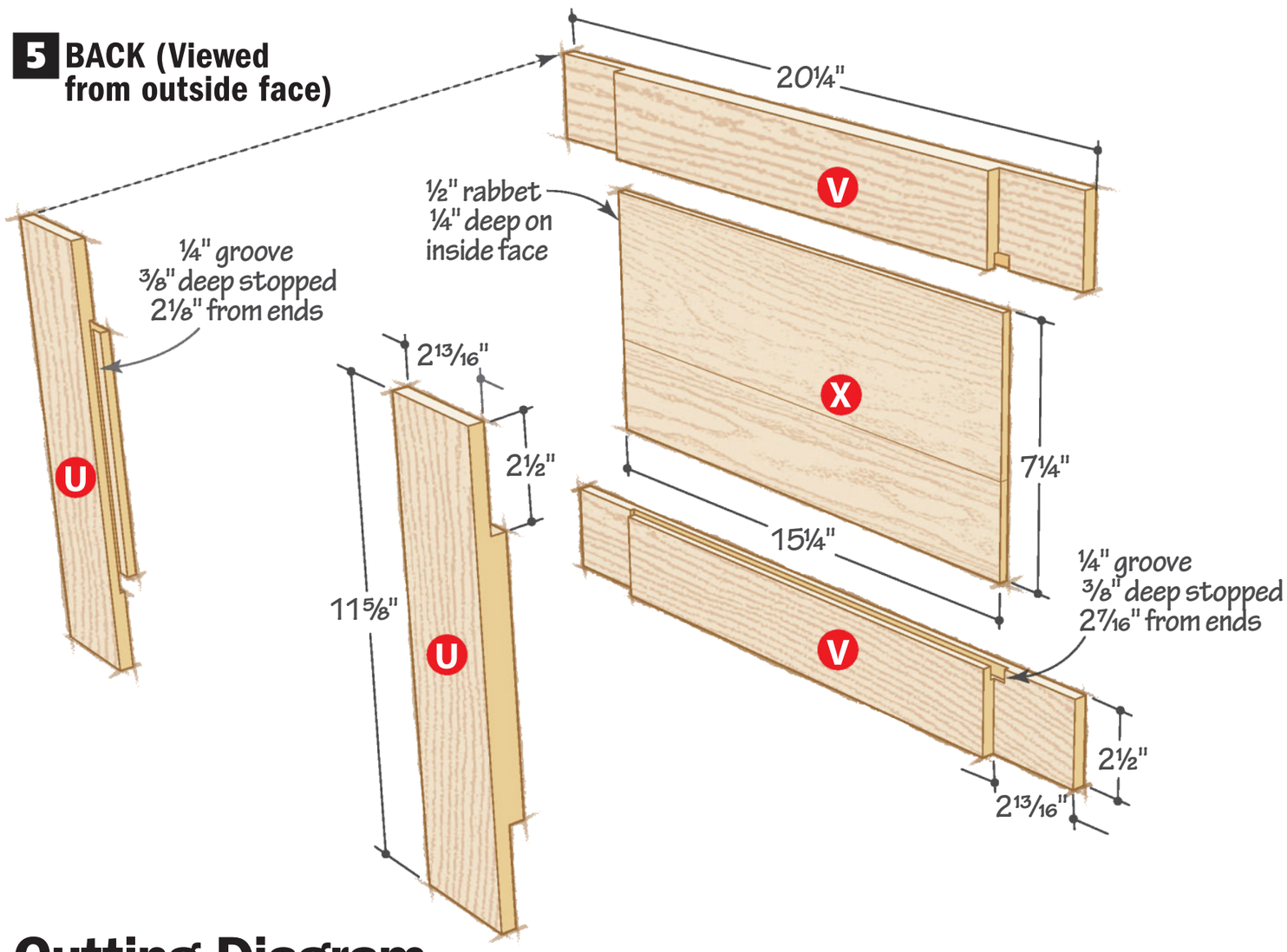
1 Remove all the hardware and finish-sand all assemblies. Apply a finish. (We sprayed on three coats of lacquer, rubbing out the finish with 600-grit sandpaper between coats.)

2 Screw the chest handles and till lock in place. Drill 3/16" counterbores in the drawer fronts, then epoxy the drawer knobs [**Source**] in place [**Drawing 3**].

3 Tap the brass pivot pins into the stiles of the door. Slide the door in place from the back of the case. Cut the door stops (Y) to size, sand them to match the dado in the case, then screw them in place [**Exploded View**].

4 Screw the back assembly to the case and start putting your prized hand tools into their new home!

5 BACK (Viewed from outside face)



Cutting Diagram

This project requires 11 square feet of ¼" walnut, 14 board feet of 4/4 walnut, 5 square feet of ½" maple, and 2 board feet of 4/4 curly maple.

Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
Chest/Case						
A*	chest sides	¾"	13½"	13⅛"	W	2
B*	chest top/bottom	¾"	13½"	21¼"	W	2
C	drawer case sides	¼"	11½"	10½"	W	2
D	drwr. case top/btm.	¼"	11½"	19¾"	W	2
E	long shelves	¼"	11½"	19½"	W	2
F	short shelf	¼"	11½"	9¾"	W	1
G	divider	¼"	11½"	3½"	W	1
Drawers						
H	small fronts	⅝"	1⁷⁄₁₆"	9⅜"	CM	2
I	medium front	⅝"	3³⁄₁₆"	9⅜"	CM	1
J	large fronts	⅝"	3³⁄₁₆"	19⅛"	CM	2
K	small backs	½"	1⁷⁄₁₆"	8⅞"	M	2
L	medium back	½"	3³⁄₁₆"	8⅞"	M	1
M	large backs	½"	3³⁄₁₆"	18⅝"	M	2
N	small sides	½"	1⁷⁄₁₆"	11⅜"	M	4
O	large/med. sides	½"	3³⁄₁₆"	11⅜"	M	6
P	small bottoms	¼"	8⅞"	10"	MP	2
Q	medium bottom	¼"	8⅞"	10"	MP	1
R	large bottoms	¼"	18⅝"	10"	MP	2
Door/Back						
S	door stiles	¾"	2½"	11⁹⁄₁₆"	W	2
T	door rails	¾"	2½"	19⅝"	W	2
U	back stiles	¾"	2¹³⁄₁₆"	11⅝"	W	2
V	back rails	¾"	2½"	20¼"	W	2
W	door panel	½"	7³⁄₁₆"	15¼"	W	1
X	back panel	½"	7¼"	15¼"	W	1
Y	door stops	¼"	⅜"	1½"	W	2

*Parts initially cut oversize. See the instructions.

Materials key: W-walnut, CM-curly maple, M-maple, MP-maple plywood.

Supplies: ¼×6" brass rod, #6×½" flathead screws, #6×1⅝" flathead trim screws, #8×1" flathead screw, #8×1¼" fine-thread pocket screw, ¼"-20×2" T-slot bolts (2), ¼"-20 star knobs (2), ¼" washers (2).

Blade and bits: Dado set; ¼" spiral downcut, ⅜" round-over, T-slot router bits.

Source: Campaign chest flush handles (1 pair) no. 00A1902, $58; Brusso small brass knobs (7) no. 01B1128, $4.40; 2" standard till lock no. 00P2620, $36; #4×⅝" brass flathead screws (pkg. 10) no. 92Z0404X, $1.85, #5×⅝" brass flathead screws (pkg. 10) no. 92Z0504X, $2.10, Lee Valley, 800-871-8158, leevalley.com.

Produced by **Bryan Nelson** with **John Olson** and **Brian Bergstrom**
Project design: **John Olson**
Illustrations: **Roxanne LeMoine, Lorna Johnson**

Cordless Jigsaws

Learn which of 12 battery-powered tools makes the cut.

Note: *These saws sell primarily as bare tools (without battery or charger), but some come in kits. So for easier cost comparison, we priced each as a bare tool in the chart on* page 46. *For testing purposes, we equipped each jigsaw with a compact battery pack (from 2 to 4 amp-hours) for better balance and control. A larger pack will net you longer runtime, but we don't see that as a great need when using a jigsaw.*

How we chose the field

To be included in our test group, each jigsaw had to meet the following criteria:

- powered by a single 18- or 20-volt rechargeable lithium-ion battery (included or optional);
- outfitted with a top-mounted handle (rather than a barrel grip).

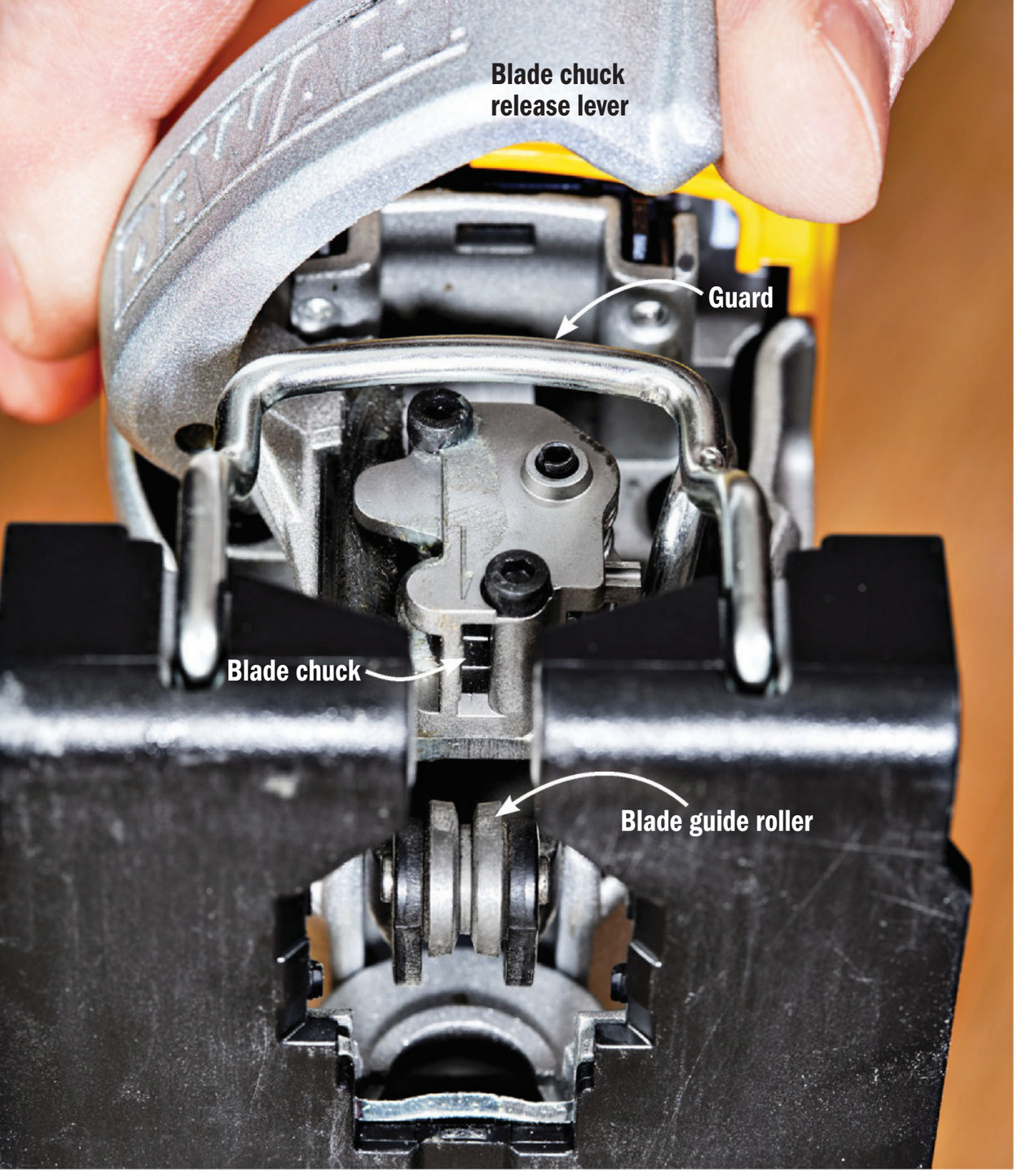
Although you'll rarely cut project parts to final size and shape with a jigsaw, one that cuts clean curves and field cuts, such as the cutouts in the Mackintosh project part shown on the *previous page*, minimizes sanding afterward. Of course, choosing the best blade for each cut carries a good amount of that responsibility, but differences among the saws also play a part.

Watch where you cut

In order to cut close to a layout line, you must be able to *see* that line. Most jigsaw blades cut on the upstroke, so they fling the sawdust forward—right onto your cutline. Fortunately, most manufacturers (except Makita, *below*, and Festool) equip their models with a cutline-clearing blower. Unfortunately, not all of them work well. Blowers on the DeWalt DCS334B, Milwaukee 2737-20, Porter-Cable PCC650B, and Worx WX542L.9 clear debris best; the Metabo HPT CJ18DAQ4 struggled to do this.



The Makita XVJ02Z lacks a dust blower, so cutting with it quickly covers the cutline in front of the blade, requiring you to clear it manually.



The widely set shoe-mounted guard on the DeWalt saw improves blade visibility. And its body-mounted chuck release lever makes blade changes easy.



Bosch's narrow blade guard partially blocks your view of the blade and interferes with its already difficult-to-operate chuck-mounted blade release.

But clearing dust solves only half of the problem: Parts of some saws—most often the required blade guards—impede the sightlines. On most models, the guard consists of one or two V- or U-shaped wires that sit directly in front of the blade. However, the wire guards on the DeWalt (*above*) and Craftsman CMCS650B provide better visibility. Dust builds up on the clear plastic shields of the Festool PSBC 420 EB-BASIC and Milwaukee, but the shields remove easily if needed.

Speed zone ahead

▶ Help your jigsaw perform better.
woodmagazine.com/jigsawtips

Achieving the best results when cutting with a jigsaw requires a balance of blade speed, power, and feed rate. Low blade speeds provide better control in tight turns and as you approach a corner or stopping point. Some of the tested saws (Festool, Makita, and Ryobi PBLJS01B) can't slow below 800 strokes per minute, making them uncomfortably fast and sometimes difficult to control in those situations. (See the chart on *page 46*.) We like DeWalt's controls best: This saw provides both a variable-speed dial (to set a maximum speed) and a fully variable trigger (letting you feather the speed within that range). Festool and the Ridgid R8832B provide similar controls, but neither works as well. The Makita (*right*) uses a dial but no variable trigger. All others have only a variable trigger. We found the trigger on the Bosch JSH180B the most responsive, making it easy to control despite not having a dial.

In our power tests, the Milwaukee, Festool, and Worx cut fastest (in that order), but none of the saws bogged down, and all had plenty of power to handle all your needs. You can cut faster by adding more "orbit" to the blade stroke. But aggressiveness usually comes at the cost of tear-out, so turn off the orbit to maximize cut quality.



You must activate the electronic power switch on the Makita saw before the trigger will engage the motor. It times out after 10 seconds of inactivity, which we found frustrating.



The V-shaped blade guide on the Festool saw is adjustable front-to-back and sits closer to the workpiece than on any other saw, helping to ensure 90° cuts.



Porter-Cable's grooved guide roller sits high above the workpiece, allowing the blade to deflect from 90° more than any other test saw.

More factors to consider

■ **Blade stroke.** Most of the saws provide 1" of stroke length. Depending on the thickness of your workpiece and the length of the blade used, you likely will never run into a problem. But in 1½" or thicker stock, some of the blade teeth will never clear the surface, so they'll be less likely to clear the sawdust from the cut, resulting in slower cuts.

The blade guide on each saw, *above*, helps keep the blade cutting straight up and down. The closer this guide sits to the workpiece, the better your chances for a true perpendicular cut.

■ **Blade changes.** If you change blades immediately after making a cut, you'll want to avoid touching the (likely) hot blade. That's why we appreciate the self-ejecting blade chucks on most of the saws. Several models required shaking the saw slightly while holding the chuck open, allowing the blade to drop out. But with the Ridgid, you must grip the blade and pull it out.

We like blade chucks that can be easily opened regardless of their location in the stroke. The Bosch and Festool chucks default to the top of their strokes, making blade changes difficult.

■ **Ergonomics.** Several factors contribute to an efficient and comfortable feel when using a jigsaw. A rubber-overmold handle provides a grippable surface for best control; all but the Festool have at least some overmold. A handle positioned lower on the saw body maintains a better center of balance. (We like Bosch best for this, with Porter-Cable, Ryobi, and Worx the tallest and likeliest to tip.) The trigger should be positioned where you can easily operate it with your index or middle finger without sacrificing your ability to guide the saw. All but the Festool cover this nicely.

■ **Tilting the shoe.** We rarely tilt the shoe to make beveled cuts, but it should be easy to do this when needed. Seven saws let you do this without a wrench. (See the chart on *page 47*.) The Festool shoe does not tilt, but you can replace it with an accessory shoe that does. We also appreciate the no-mar pads included on all saws except Metabo HPT, Porter-Cable, and Skil JS820202.

▶ Choose the right blade for each task. woodmagazine.com/jigsawblades

Here's How We See The Saws

Bosch JSH180B



boschtools.com

High Points

▲Its low handle with rubber overmold makes this saw easy to grip and guide.
▲Smoothest, easiest-to-use trigger
▲Demonstrated the least vibration of all test saws
▲An antisplinter insert helps to reduce tear-out.
▲A low blade guide helps this saw cut precisely.

Low Points

▼You need a hex wrench to tilt the shoe, and we found the wrench difficult to remove from its onboard storage location.
▼ We had to manually reposition the chuck low enough to change blades, and the wire blade guard interferes with the blade release.
▼The blade guard also inhibits the view of the blade.

More Points

▶You get a 1-year warranty for the saw and battery pack, but registering it online increases that to 3 years for the saw and 2 for the battery.

Craftsman CMCS650B



craftsman.com

High Points

▲Very good cut visibility with a dust blower and wide blade guard
▲Easy blade changes: Lift the U-shaped chuck handle and shake out the blade.
▲Tool-free shoe tilting with stops at 0° and 22½° and 45° left and right

Low Points

▼Battery packs require more effort to remove than with other saws.
▼This saw vibrates more than most.

More Points

▶Lacks a variable-speed dial, but the soft-touch trigger makes speed control easy

DeWalt DCS334B



dewalt.com

High Points

▲The best blade and cutline visibility thanks to a wide shoe-mounted blade guard, effective blower, and LED
▲Best speed control, with maximum-speed dial and soft-touch trigger
▲Easiest blade changes
▲Tool-free shoe tilting with stops at 0° and 45° left and right

More Points

▶It does not come with a storage bag or case, but is available in a kit with 5.0-Ah battery pack, charger, and plastic case for $350.
▶Despite including an antisplinter insert, tear-out still occurred.



Festool PSBC 420 EB-BASIC



festoolusa.com

High Points

▲One of the fastest-cutting saws in our test
▲Additional power switches on each side of the saw head allow you to use the saw in barrel-grip fashion, but only if your hand fits beneath the top handle.
▲This saw comes in a plastic storage case compatible with other Festool cases.
▲An antisplinter insert helps to reduce tear-out.
▲The included dust-collection attachment provides a 1⅜" hose port.

Low Points

▼The slick-plastic top handle lacks a rubber overmold, making it difficult to grip. And we found the trigger switch, located farther back than on any other saw, awkward to operate.
▼The shoe does not tilt; the accessory tilting shoe costs $129.
▼Despite a self-ejecting chuck, we found changing blades frustrating because the chuck tends to stop in its uppermost position, making it difficult to open. We had to fuss with the trigger to get the chuck in the low position.

More Points

▶Electronic controls let you change the maximum speed and the LED mode (on, off, strobe). Festool says the strobe effect improves blade-to-cutline visibility, but we didn't see much difference from cutting with the LED on constantly.
▶The low blade guide holds the blade true, but makes it challenging to see the point of cut.

Makita XVJ02Z

makitatools.com



High Points

▲Excellent blade changes

▲Very good ergonomics with comfortable handle and balance

▲An antisplinter insert helps to reduce tear-out.

Low Points

▼Without a blower, dust covers the cutline quickly.

▼The wire blade guard impedes sightlines to the cut.

More Points

▶The only saw with an electronic on switch (which annoyingly timed out after 10 seconds) that must be activated before you can use the trigger

▶Electronic speed controls let you set a slow-start speed or a maximum speed, but it's confusing. With no variable-speed trigger, you have to depend on the maximum-speed dial to determine strokes per minute.

▶The shoe requires a hex wrench to tilt, but it's located within easy reach on the shoe.

Metabo HPT CJ18DAQ4

metabo-hpt.com



High Points

▲Grippable overmold on the handle with a soft-touch variable-speed trigger

▲Its low blade guide keeps the blade cutting at a crisp 90°.

▲Easy blade changes with a chuck release on the front of the tool and self-ejecting chuck

▲An antisplinter insert helps to reduce tear-out.

Low Points

▼The blade sits so far back under the saw body that you have to strain to see where it's cutting, and the wire blade guard further impedes the view. The weak blower allowed dust to build up on cutlines.

▼Its slow blade speed results in longer cutting times.

▼Lacks a no-mar pad for the shoe

More Points

▶Metabo HPT's low-amp-hour battery packs lack a charge indicator, but the saw has a two-bar indicator on it to read the battery level.

▶The shoe requires a hex wrench to tilt, but it's located within easy reach on the shoe.

Milwaukee 2737-20

milwaukeetool.com



High Points

▲Cuts fastest among the tested saws

▲Its soft-touch variable-speed trigger lets you easily control blade speed, and the nice rubber-wrapped handle grips easily.

▲Tool-free shoe tilting with stops at 0° and 15°, 30°, and 45° left and right

▲The included dust-collection attachment provides a 1⅜" hose port. There's a switch to turn off the cutline blower when using this.

▲The saw comes with a 5-year warranty; the battery pack gets 3 years.

▲An antisplinter insert helps to reduce tear-out.

Low Points

▼The wire blade guard impedes visibility, and the plastic shield around the front often gets covered in dust.

More Points

▶The body-mounted chuck release makes for quick blade changes with a self-ejecting chuck, but the lever is smaller and slicker than most.

▶At 5 pounds (without battery pack), it's the heaviest saw in the test.

Porter-Cable PCC650B

portercable.com



High Points

▲Grippable overmold on the handle with a soft-touch variable-speed trigger

Low Points

▼It tends to drift to the left during cuts, so you need to be vigilant.

▼No battery-charge-level indicator on the battery pack or saw

▼No LED to illuminate the cutting area

▼Lacks a no-mar pad for the shoe

▼Its slow blade speed made this the slowest-cutting saw in our tests.

More Points

▶The shoe requires a hex wrench to tilt, but it's located within easy reach on the saw body.

See The Saws *(cont.)*

Ridgid R8832B

ridgidpowertools.com



High Points

▲Tool-free shoe tilting with stops at 0° and 45° left and right

▲The included dust-collection attachment provides a 1¼" hose port. There's a switch to turn off the blower when using this.

Low Points

▼To remove a blade, you must pull it from the chuck after opening the jaws—a risk with a hot blade.

▼The blade sits so far back under the saw body that you have to strain to see where it's cutting, and the wire blade guard impedes the view.

More Points

▶The rubber-wrapped handle grips easily, and the soft-touch variable-speed trigger lets you easily control blade speed. But the maximum-speed dial—which includes a soft-start setting—sits on top of the handle, where we frequently bumped it, unintentionally changing speeds midcut.

▶Comes with a 3-year warranty for saw and battery pack, but online registration of both nets you a lifetime service agreement.

Ryobi PBLJS01B

ryobitools.com



High Points

▲A self-ejecting chuck and body-mounted release lever make blade changes easy.

▲Tool-free shoe tilting with stops at 0° and 45° left and right

Low Points

▼With no variable-speed trigger, you have to depend on the maximum-speed dial to determine strokes per minute, and it won't run at less than 800 spm.

▼Cut visibility suffers due to a weak blower, an LED that illuminates the dust cloud, and a blade set farther back under the saw body, compared to other saws.

▼This saw's tall profile and high vibration (tied for worst) make it uncomfortable and unwieldy to use.

Cut cord-free with no sacrifices

MODEL	PERFORMANCE RATINGS (1)							BRUSHLESS MOTOR? (YES, NO)	SPEED RANGE, STROKES PER MINUTE
	PRIMARY		SECONDARY						
	VISIBILITY OF CUTLINE DURING USE	EASE OF CONTROLLING BLADE SPEED	POWER/CUTTING SPEED	ABSENCE OF VIBRATION	COMFORT OF HANDLE/POWER SWITCH	EASE OF CHANGING BLADES	EASE OF TILTING SHOE (2)		
BOSCH JSH180B	B	A	B	A	A	B–	C	N	0–2,700
CRAFTSMAN CMCS650B	A–	B	B	C–	B	B	B+	Y	0–3,200
DEWALT DCS334B	A	A	B+	B	A–	A	B+	Y	0–3,200
FESTOOL PSBC 420 EB-BASIC	B	C–	A	C	C–	C–	N/A	Y	1,000–3,800
MAKITA XVJ02Z	C	C	B+	C	B+	A	C	Y	800–3,500
METABO HPT CJ18DAQ4	C	B–	C	C+	B	A–	C–	N	0–2,500
MILWAUKEE 2737-20	B	B+	A	C	B	B+	A	Y	0–3,500
PORTER-CABLE PCC650B	B	B–	C	C+	B	B	C	N	0–2,500
RIDGID R8832B	C+	B+	B	C	B+	C–	B	Y	0–3,500
RYOBI PBLJS01B	C–	C	B+	C–	C	A–	B	Y	800–3,400
SKIL JS820202	B	B	B	B–	B	C+	A	Y	0–3,000
WORX WX542L.9	B	B	A–	C–	C	C	B–	Y	0–3,500

Skil JS820202

skil.com



High Points

▲An easy-to-feather trigger makes it easy to cut at the speed you want.

▲A nice rubber-grip handle and low vibration make this saw easy and comfortable to use.

▲Tool-free shoe tilting with stops at 0° and 15°, 30°, and 45° left and right

Low Points

▼Without a no-mar pad, the shoe's sharp edges and corners caught on wood surfaces.

▼The slide-up chuck makes changing blades clumsy, and no self-ejection presents a risk with a hot blade.

More Points

▶A switch lets you turn off the dust blower, but because this saw doesn't offer an optional dust-collection attachment, we don't know why you'd ever turn the blower off.

▶This saw does not sell as a bare tool.

LENGTH OF BLADE STROKE, INCHES	NUMBER OF ORBITAL SETTINGS (INCLUDING OFF)	VOLTAGE	DUST BLOWER? (YES, NO)	LED HEADLIGHT? (YES, NO)	TOOL-FREE SHOE TILTING? (YES, NO) (2)	ACCESSORIES (3)		WEIGHT, LBS-OZ (WITHOUT BATTERY PACK)	COUNTRY OF ASSEMBLY (4)	WARRANTY, YEARS (5)		JIGSAW (PRICED AS A BARE TOOL UNLESS NOTED) (6)
						STANDARD	OPTIONAL			JIGSAW	BATTERY	
1	4	18	Y	Y	N	N, Z		4-2	H	1*	1*	$150
1	4	20	Y	Y	Y	N		4-4	M	3	3	$130
1	4	20	Y	Y	Y	N, Z		4-11	M	3	3	$200
1 1/16	4	18	N	Y	N/A	C, D, N, Z	S	4-2	G	3	3	$359
1	4	18	N	Y	N	N, Z	D	4-7	U	3	3	$290
1 1/32	4	18	Y	Y	N	Z	N	4-4	C	5	2	$99
1	4	18	Y	Y	Y	D, N, Z		5-0	V	5	3	$200
¾	3	20	Y	N	N			4-4	C	3	3	$70
1	4	18	Y	Y	Y	D, N		4-8	C	3**	3**	$150
1	4	18	Y	Y	Y	N		4-0	C	3	3	$130
1	4	20	Y	Y	Y			4-11	C	3†	2	$170*
1	4	20	Y	Y	Y	B, D, N		4-5	C	3	1	$130

1. A Excellent
   B Good
   C Fair
   D Poor
   N/A Not applicable

2. (N/A) Shoe does not tilt

3. (B) Storage bag
   (C) Storage case
   (D) Dust-collection attachment
   (N) No-mar shoe pad
   (S) Tilting shoe kit
   (Z) Zero-clearance insert

4. (C) China
   (G) Germany
   (H) Hungary
   (M) Mexico
   (U) United Kingdom
   (V) Vietnam

5. (*) 3 years for saw, 2 for battery pack upon registration
   (**) Lifetime service agreement upon registration
   (†) 5 years if registered within 30 days of purchase

6. Prices current at time of article production and do not include shipping, where applicable.
   (*) Sold only as a kit with one 2.0-Ah battery pack and charger.

Worx WX542L.9

worx.com

High Points

▲This saw displayed excellent power, ranking third-fastest in our tests.

▲Tool-free shoe tilting with stops at 0° and 45° left and right

▲The included dust-collection attachment provides a 1½" hose port, but because there's no switch to turn off the effective blower, it works against the vac.

Low Points

▼This saw tied for the most vibration.

More Points

▶You get a 3-year saw warranty, but only 1 for battery packs.



2022 WOOD Magazine TOP VALUE Cordless Jigsaws

No curveball here: Get this saw and you'll have a ball

Three saws rose to the top of this 12-tool field after testing: Bosch JSH180B, DeWalt DCS334B, and Milwaukee 2737-20. They all performed well, but we like the DeWalt best, giving it Top Tool honors. This saw does everything well and comes with a 3-year warranty for both the saw and battery packs.

The Worx WX542L.9, selling for $130, earns our Top Value award.

Produced by **Bob Hunter** with **Michael Springer**

Solar Kiln

Go from freshly milled to project-ready using only passive heating.

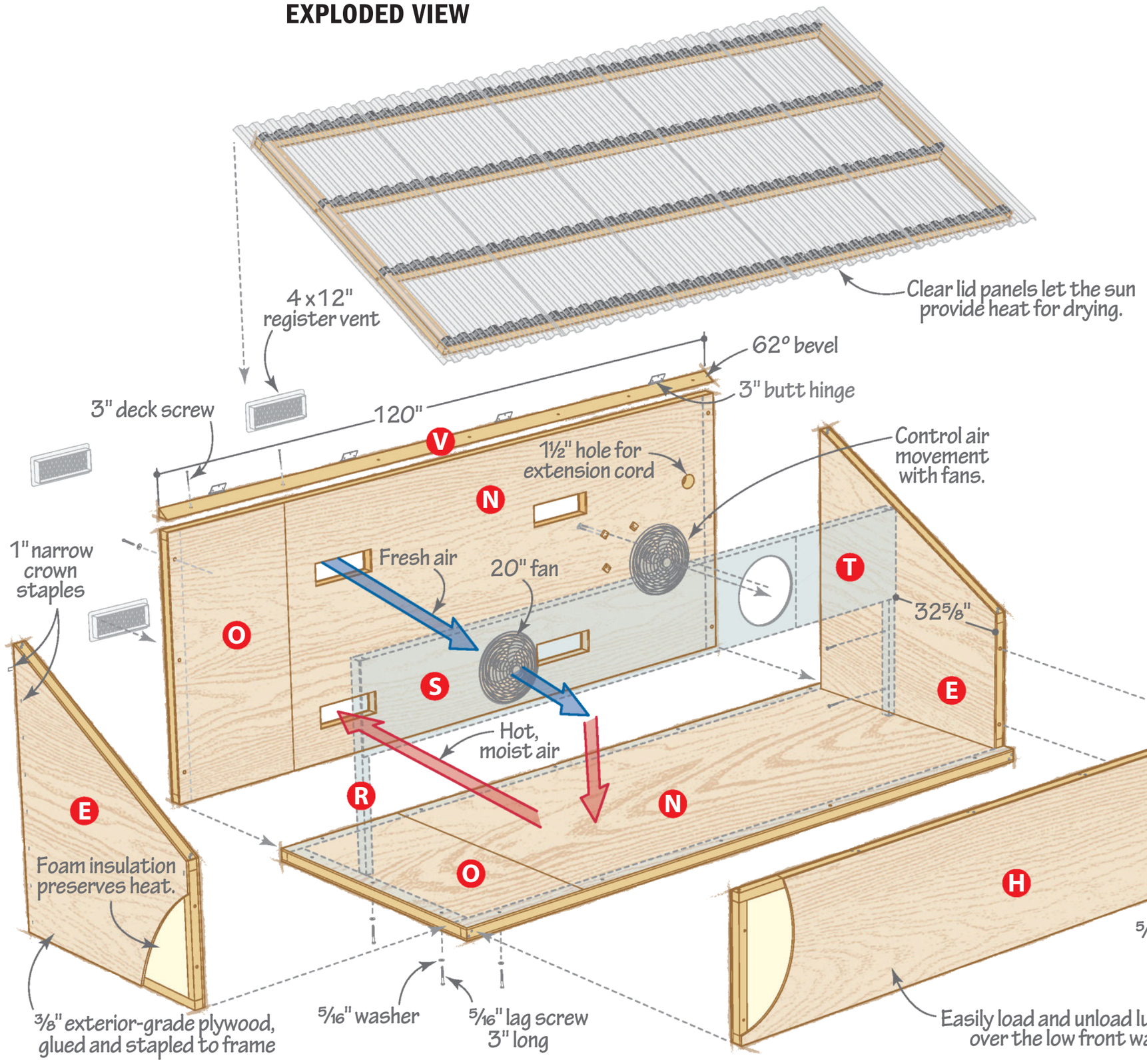
DIMENSIONS:
126" W × 53½" D × 50" H

Approximate materials cost:
$900

Holds about
350
board feet



EXPLODED VIEW



Air-drying slowly and steadily reduces the moisture content of fresh-cut lumber—to a point. For indoor furniture projects you really need kiln-dried stock, ideally with a moisture content of 9 percent or less. And this solar kiln does just that, without the heating bill. After you move your dried lumber to the shop, back out some lag screws to separate the kiln's panels and stack them out of the way until you need them again.

The length of time required to dry your lumber will vary depending on the time of year and the climate. During the short and colder days of fall and winter here in Iowa at 41°N latitude, we dried about 350 board feet of red oak from 25 percent moisture content to 11 percent in about 18 weeks. See **You can't rush nature** on *page 52* for details.



Build an insulated shell

1 Cut to size the end-wall top and bottom plates (A, B) and studs (C, D), and bevel-cut the ends where shown [**Materials List, Drawing 1**]. Screw together the end-wall frames.

2 From 1½" rigid foam insulation, cut a piece to fit inside each end-wall frame. Trim to size the end-wall panels (E), then glue and staple the panels to both faces of the end-wall frames [**Exploded View**].

3 In the same manner, assemble and insulate the front wall (F, G) [**Drawing 2**]. Cut to size the front-wall panels (H, I) and glue and staple them to the frame [**Exploded View**].

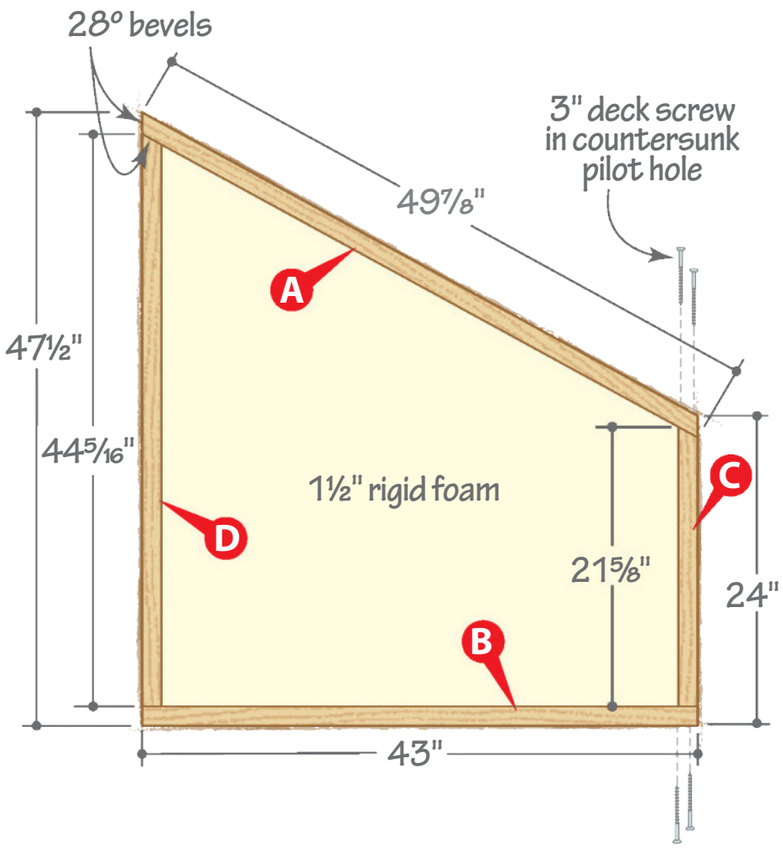
4 Frame and insulate the identically sized floor (J, K) and back wall (J–M) of the kiln [**Drawing 3**]. Preassemble the back-wall vent openings (L/L/M/M) before screwing them between the back-wall studs.

5 Glue and staple the panels (N, O) to the floor and back wall [**Exploded View**], then use a flush-trim router bit to rout the vent openings in the back-wall panels.

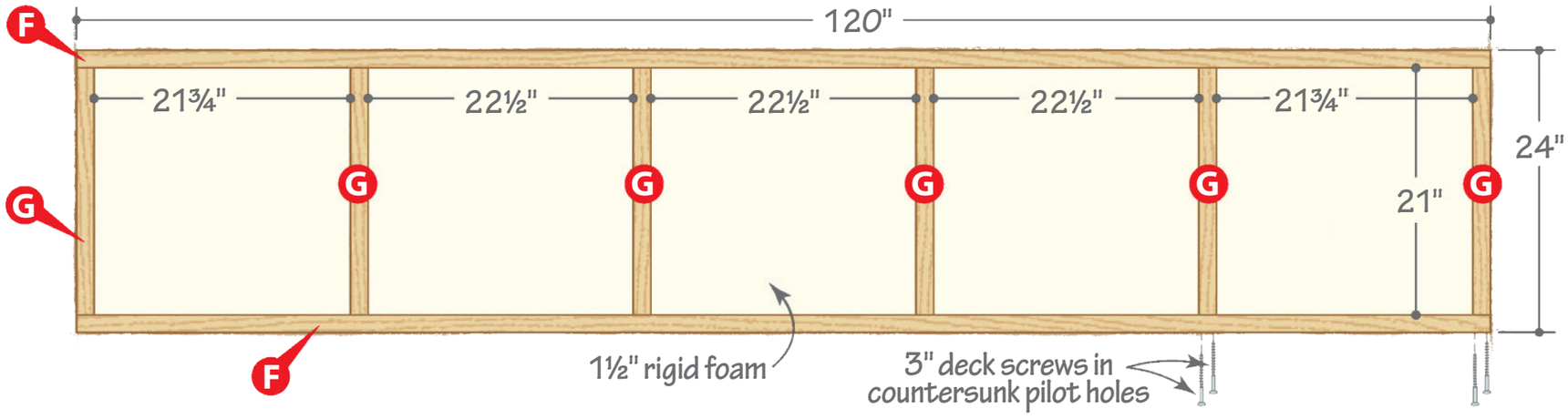
6 Cut to size the fan-wall framing (P–R) and panels (S, T). Assemble the frame [**Drawing 4**], then glue and staple the panels to

Note: *Apply a bead of construction adhesive to the face of the framing and staple the panels about every 6".*

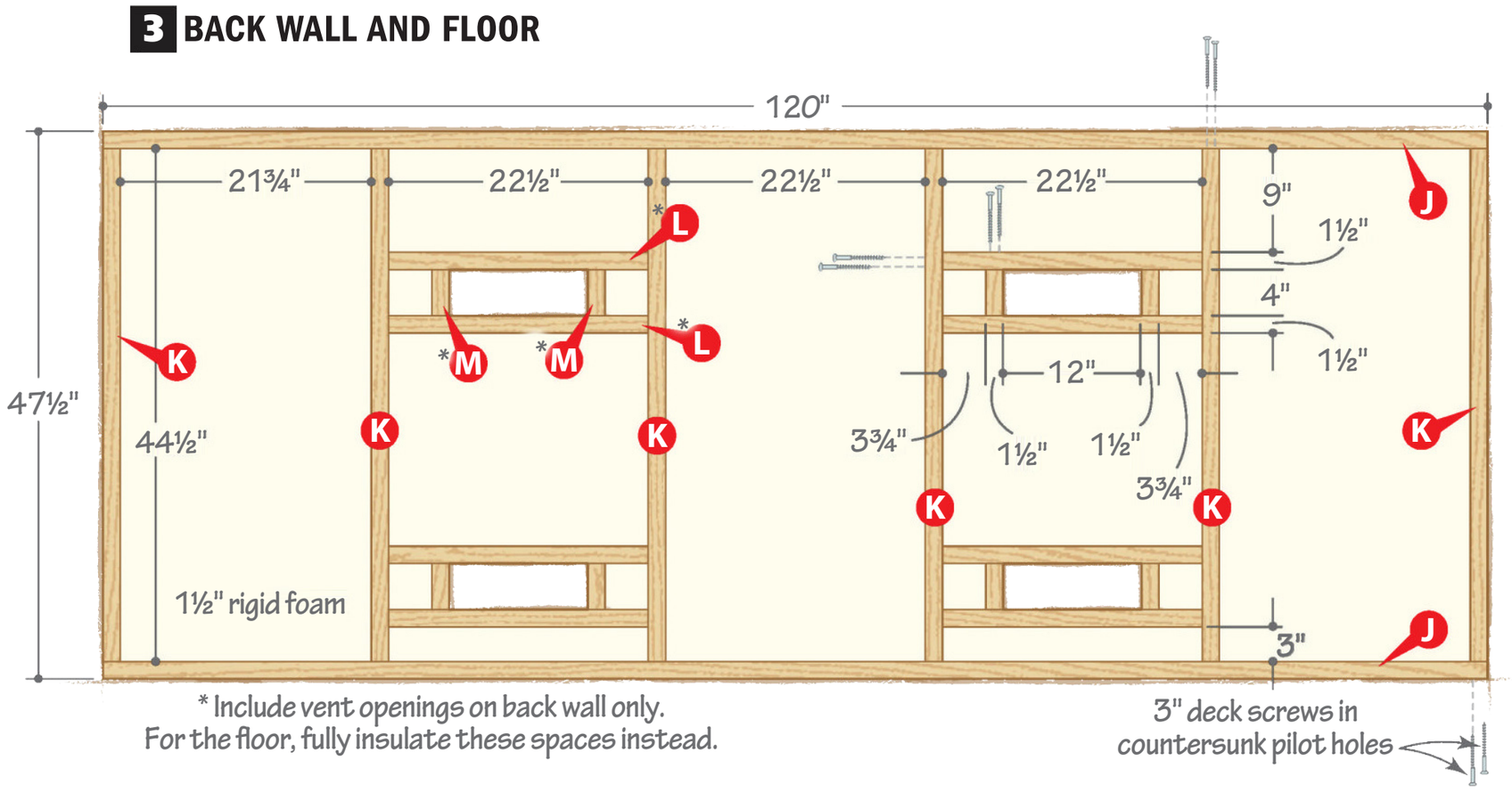
1 END WALL



2 FRONT WALL



3 BACK WALL AND FLOOR

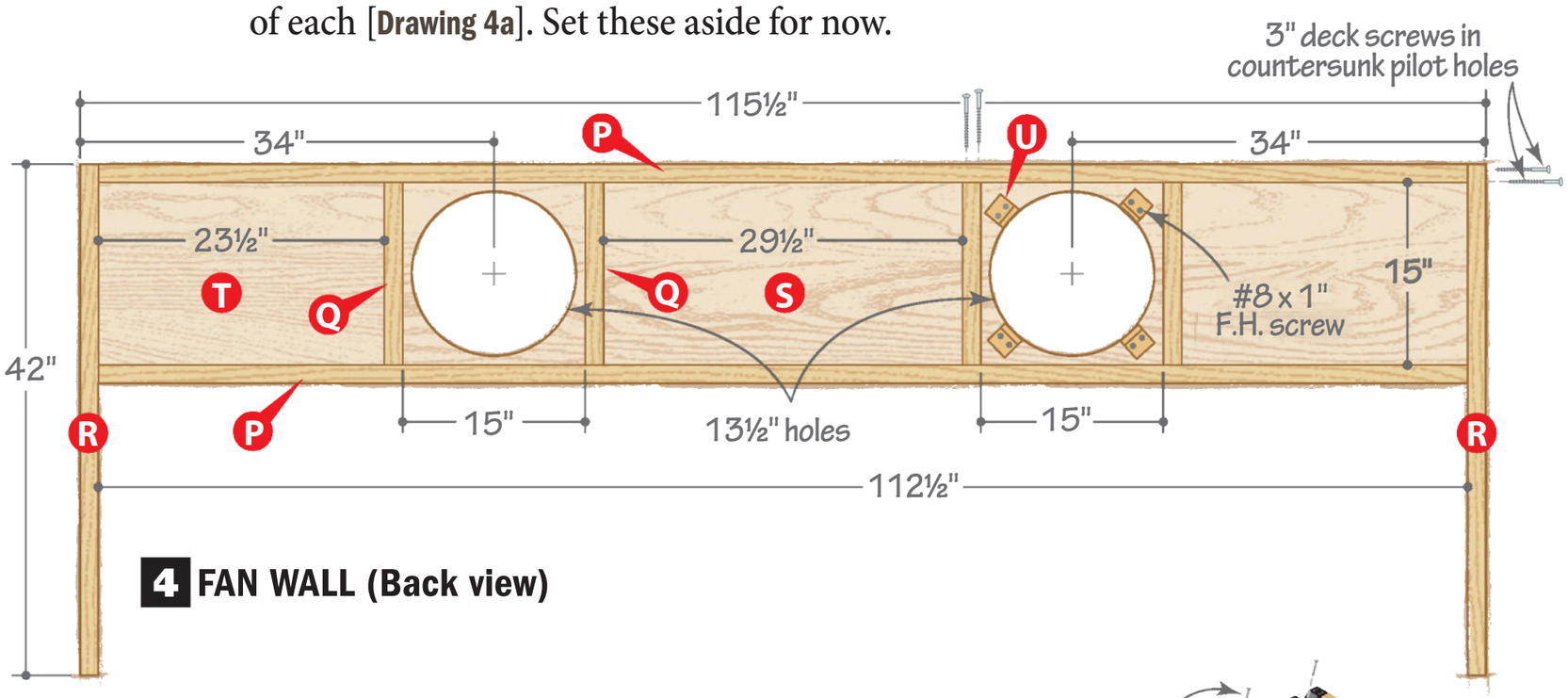


Note: *Our fans came with stands that we removed before use.*

the front of the wall. Cut the holes for the fans [**Sources**].

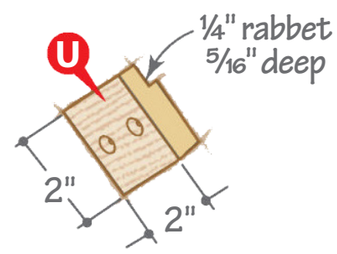
7 For mounting the fans to the wall, cut to size the fan cleats (U) and rabbet one end of each [**Drawing 4a**]. Set these aside for now.

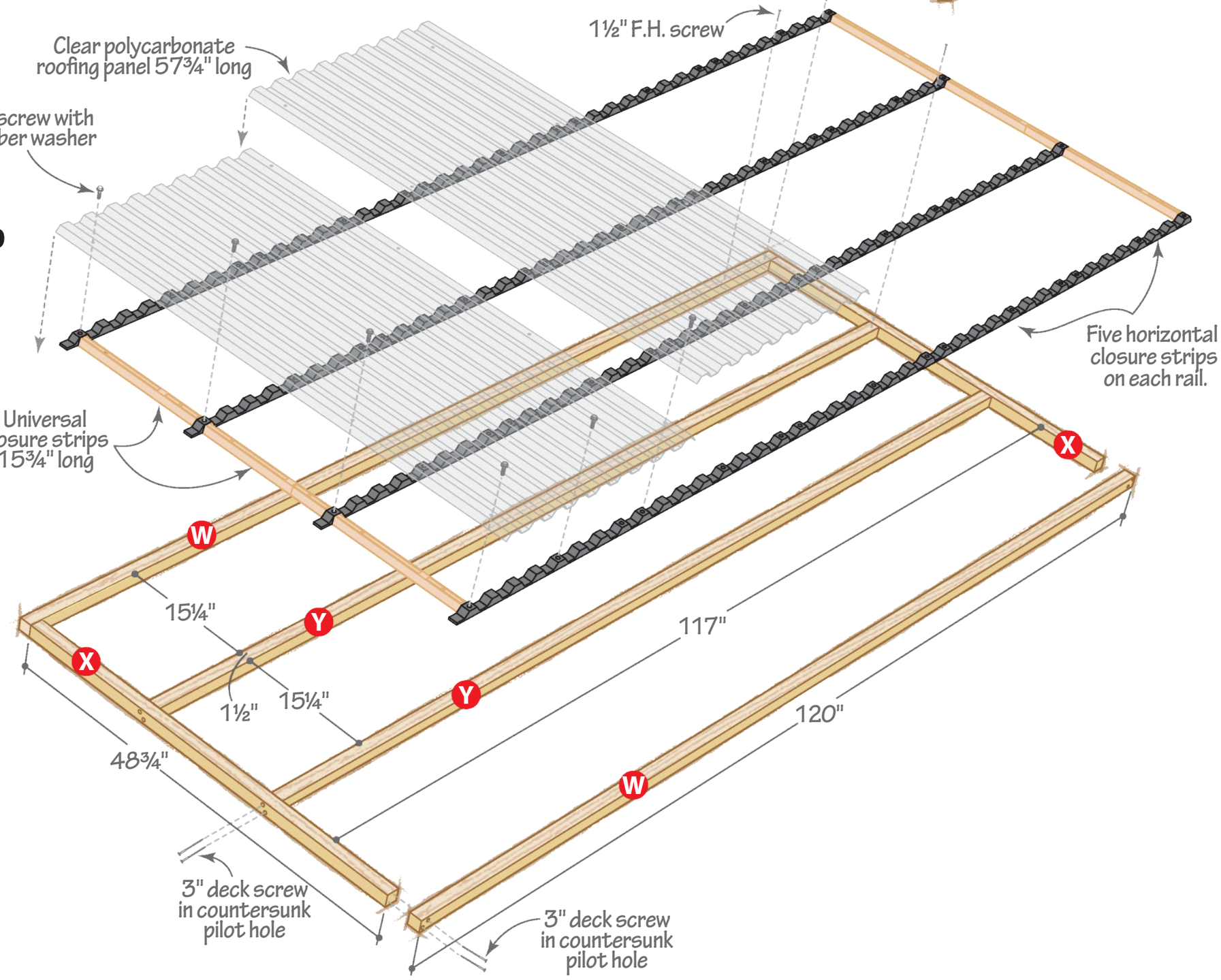
▶Rout perfect circle cutouts.
woodmagazine.com/routertrammel



4 FAN WALL (Back view)

4a FAN CLEAT DETAIL





5 LID EXPLODED VIEW

For the lid, it's clear

1 Cut to size the hinge block (V), then bevel-rip its top face [**Exploded View**]. Glue and screw the hinge block to the top of the back wall.

2 Cut to length the lid framing (W–Y) and assemble the frame [**Drawing 5**].

3 To help capture solar heat, prime and paint black the interior faces of each assembly, including all sides of the fan wall and the fan cleats (U). Give the exterior faces two coats of an exterior paint of your choice.

4 Screw the roof closure strips [**Sources**] to the top of the lid frame [**Drawing 5**]. Cut the polycarbonate roof panels 6" longer than the width of the lid frame, then position the panels on the frame with a 3" overhang on the sides, top, and bottom. Drill ¼" pilot holes through the roof panels, then screw the panels to the lid frame with rubber-washer screws [**Sources**].

Tip! *Stack several panels together and cut them with a laminate-cutting blade in your circular saw.*

Assembly heats up

1 Drill 7⁄32" pilot holes and lag-screw the back wall to the ends, then add the front wall [**Exploded View**]. Flip the assembly onto its back and attach the floor.

2 Hook the rabbeted ends of the cleats (U) over the fan housing and mount the fans in the fan wall [**Drawing 4**], blowing air toward the front of the kiln. Drill a hole in the back wall to route an extension cord for the fans [**Exploded View**].

3 Attach the lid's back rail (W) to the hinge block (V) using four 3" butt hinges [**Exploded View**]. Screw the vents [**Sources**] to the back wall.

4 Situate the kiln in a sunny location, facing south, and on top of beams to keep it off the ground. Then begin filling the kiln and planning the projects you'll create with this and future loads.



You can't rush nature

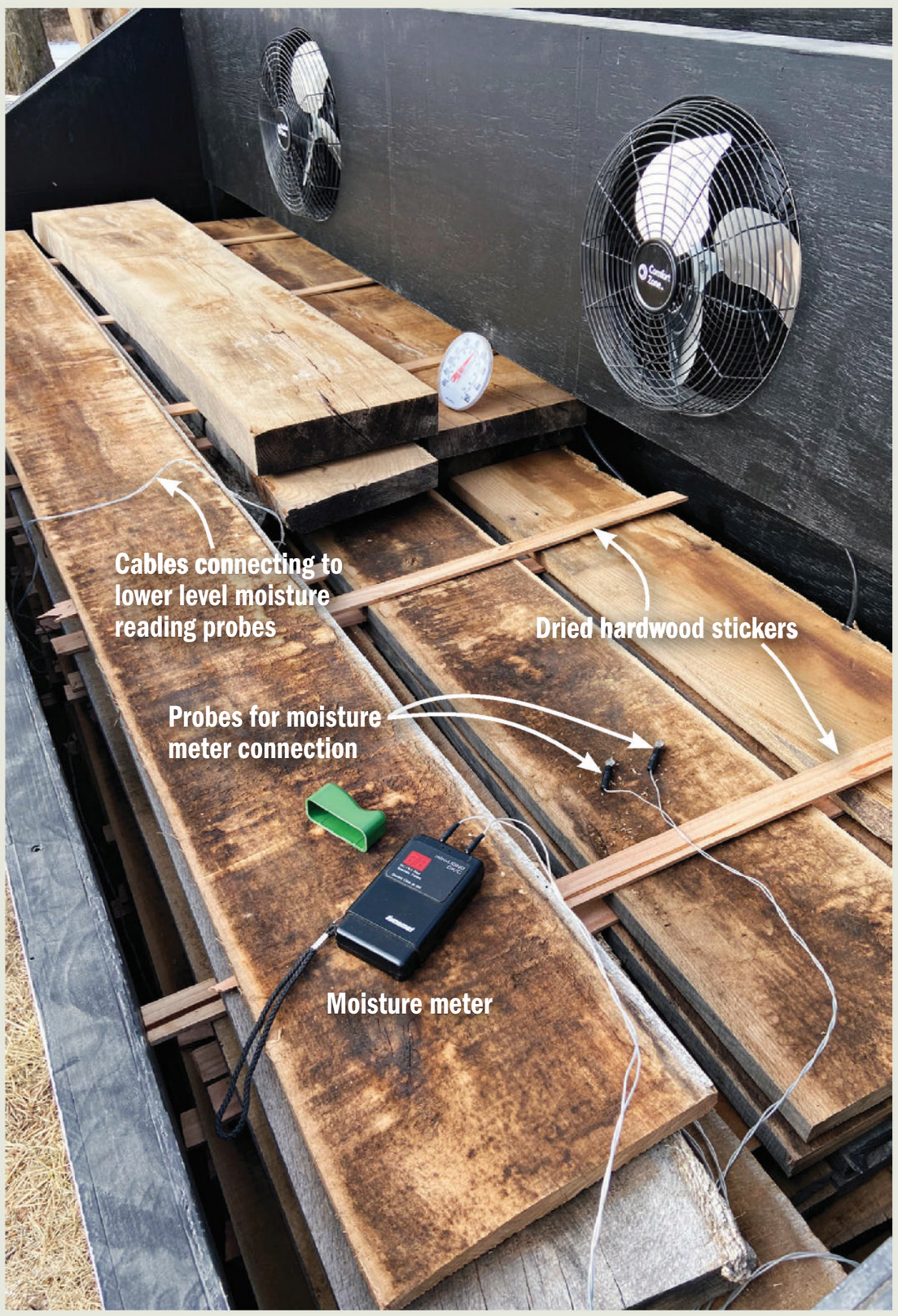
▶Learn more about drying lumber. woodmagazine.com/drywood

Relying on the sun for heat inherently requires a somewhat release of control—Mother Nature will do what she likes. However, you still exercise some control over the drying and need to monitor the process to make sure it progresses at a pace that dries the wood quickly, without splitting or case hardening.

That process begins as soon as the slabs come off the mill. To promote even drying, coat the ends of each board with an end-grain sealer or latex paint as soon as possible. This prevents moisture from escaping more quickly through the porous ends, reducing checks. Before you fill the kiln, place stickers on the floor over the joists for even weight transfer. Then load the kiln, using more stickers between layers, and maintaining a gap of at least 3" from the walls of the kiln for good air circulation. While loading our kiln, we located sets of moisture-meter pins on the lower, middle, and top layers of the stack, allowing us to monitor the moisture content throughout the pile by simply plugging the pin leads into our moisture meter.

At the start of the drying process we checked the moisture content weekly and adjusted the fan speed accordingly. We found that running the fans on low during the day and turning them off at night worked well during the fall and winter months when we tested the kiln.

▶We used a LIgnomat mini-Ligno DX/C moisture meter with three 6'-long cables and three pairs of probes. To purchase this setup, point your smartphone camera at the QR code, or visit woodmagazine.com/kilnpackage.



Materials List

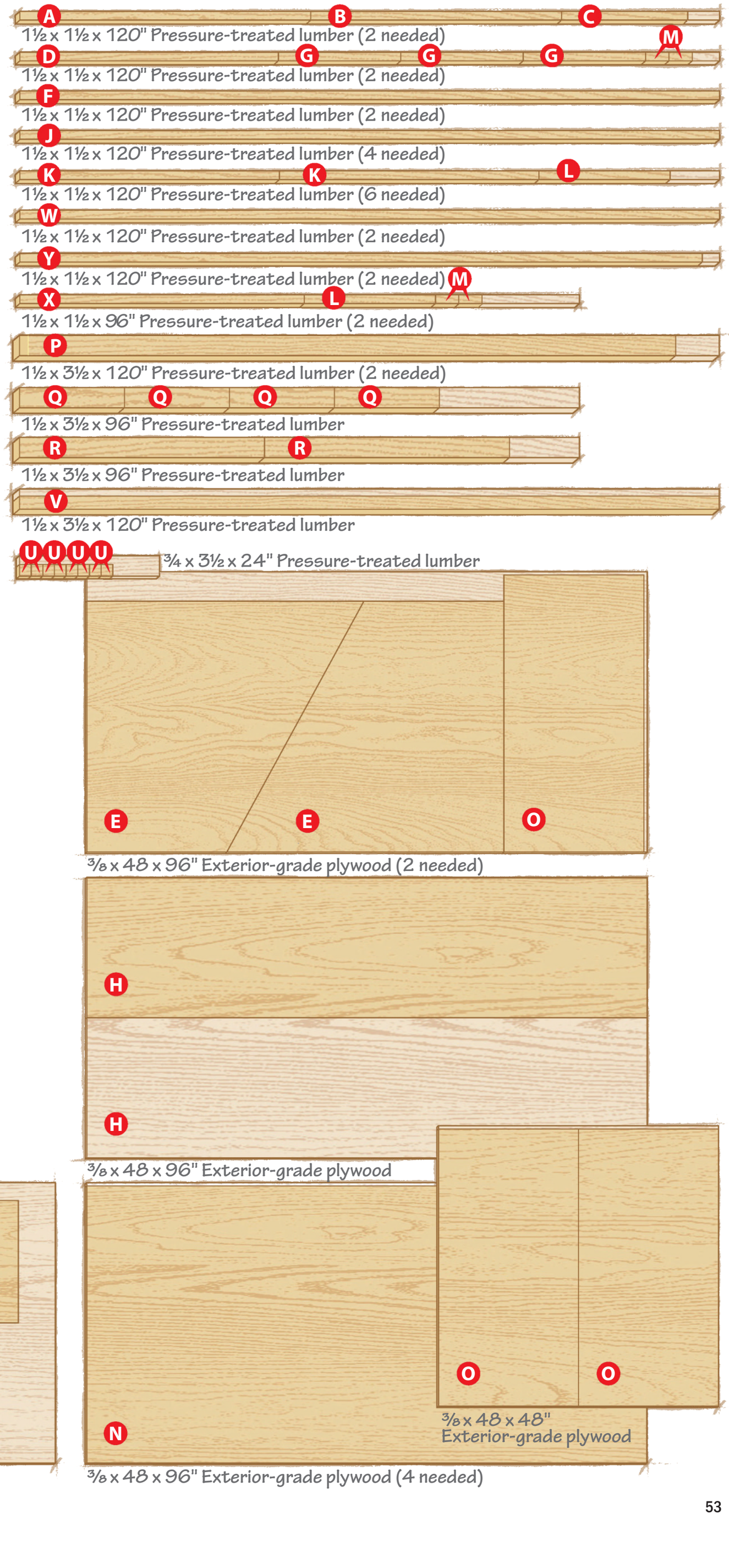
Part		FINISHED SIZE T	W	L	Matl.	Qty.
End walls						
A	top plates	1½"	1½"	49⅞"	PT	2
B	bottom plates	1½"	1½"	43"	PT	2
C	front studs	1½"	1½"	21⅝"	PT	2
D	back studs	1½"	1½"	44⅝16"	PT	2
E	panels	⅜"	43"	47½"	Ply	4
Front wall						
F	plates	1½"	1½"	120"	PT	2
G	studs	1½"	1½"	21"	PT	6
H	long panels	⅜"	24"	96"	Ply	2
I	short panels	⅜"	24"	24"	Ply	2
Back wall and floor						
J	back wall plates/floor rim board	1½"	1½"	120"	PT	4
K	back wall studs/floor joists	1½"	1½"	44½"	PT	12
L	vent horizontals	1½"	1½"	22½"	PT	8
M	vent verticals	1½"	1½"	4"	PT	8
N	long panels	⅜"	47½"	96"	Ply	4
O	short panels	⅜"	47½"	24"	Ply	4
Fan wall						
P	plates	1½"	3½"	112½"	PT	2
Q	studs	1½"	3½"	15"	PT	4
R	supports	1½"	3½"	42"	PT	2
S	long panel	⅜"	21"	89¾"	Ply	1
T	short panel	⅜"	21"	25¾"	Ply	1
U	fan cleats	¾"	2"	2"	PT	8
Lid						
V	hinge block	1½"	2¼"	120"	PT	1
W	front/back rails	1½"	1½"	120"	PT	2
X	side rails	1½"	1½"	48¾"	PT	2
Y	rafters	1½"	1½"	117"	PT	2

Materials key: PT–pressure-treated lumber, Ply–exterior-grade plywood.
Supplies: 1½" rigid foam insulation (5 sheets), 3" butt hinges (4), 1" narrow crown staples, construction adhesive, 5⁄16×3" lag screws, 5⁄16" washers, #8×1" flathead screws, #8×1½" flathead screws, 3" deck screws.
Blade and bit: Laminate-cutting circular-saw blade, flush-trim router bit.
Sources: Suntuf 26"×6' clear polycarbonate roof panels (5) no. 155030, $23.49; Suntuf 24" horizontal plastic closure strips (4) no. 92770 [pack of 6], $7.98; Suntuf 24" universal plastic closure strips no. 92772 [pack of 6], $6.98; Woodtite 2" rubber-washer screws (2) no. 92523 [pack of 50], $6.97; Everbilt 14×6" steel wall registers (4) no. 318867, $16, Home Depot, homedepot.com. Comfort Zone 20" high-velocity fans (2) no. 81928, $70, Fleet Farm, fleetfarm.com.

Produced by **Zach Brown** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Roxanne LeMoine, Lorna Johnson**

Cutting Diagram

This project requires 20 10' 2x2 treated, 2 8' 2x2 treated, 3 10' 2x4 treated, 2 8' 2x4 treated, 1 2' 1x4 treated, and 8½ sheets of ⅜"x4x8' exterior-grade plywood.



Your Next Hand Planes

Level up your hand plane game with these options.

When you start out using hand planes, you'll get plenty of advice on which ones to purchase first.* Once you get past the low-hanging fruit, though, the choices for which planes to acquire next become more dependent on what kind of work you intend to do and your overall commitment to hand tools in general. Keep that in mind as you consider these candidates put forward by the *WOOD®* magazine staff.

*Spoiler alert: A low-angle block plane, shoulder plane, and medium bench plane (a no. 4 or no. 5) top our list of must-have planes. Find out why.
woodmagazine.com/3planes

▶Learn how to tune a hand plane.
woodmagazine.com/tuneplane



Create a perfect glue joint by clamping two boards bottom face to bottom face and jointing both edges at once. Even if you don't plane perfectly square, the complementary angles that result keep the panel flat.



Use a jointer plane to flatten the top of a workbench, taking diagonal passes to level the high spots, followed by light passes in the direction of the grain.

Jointer plane

You can't go wrong purchasing a jointer plane as your first "next" plane. As you might guess from the name, jointer planes excel at jointing the edges of boards in preparation for gluing [**Photo A**]. Their 22–24" sole length spans low spots, planing away the peaks of a board until you flatten the edge or surface.

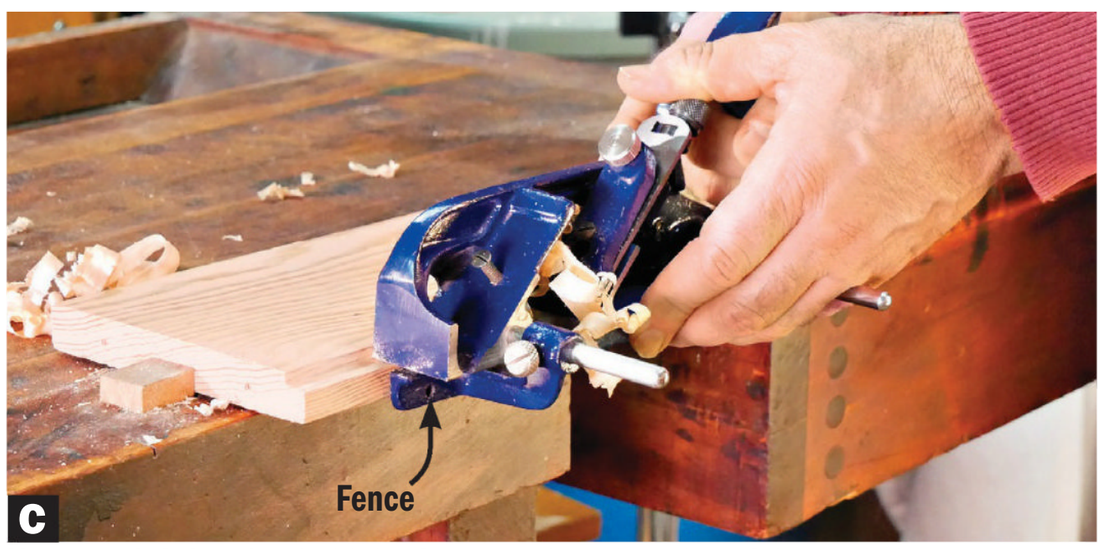
But it's not all about the length. Once the plane starts moving, the extra mass provides momentum that powers it through cuts easily. This makes a jointer plane ideal for flattening wide boards or glued-up panels [**Photo B**].

We recommend a no. 7 as a practical, all-around jointer plane. It hits the sweet spot in terms of size vs. convenience. The no. 8 measures a couple of inches longer and ¼" wider, but unless you possess forearms like Popeye, the extra weight will tire you out sooner during long planing sessions. Plus, the 2⅝" blade of a no. 8 may be too wide to fit in some honing guides.

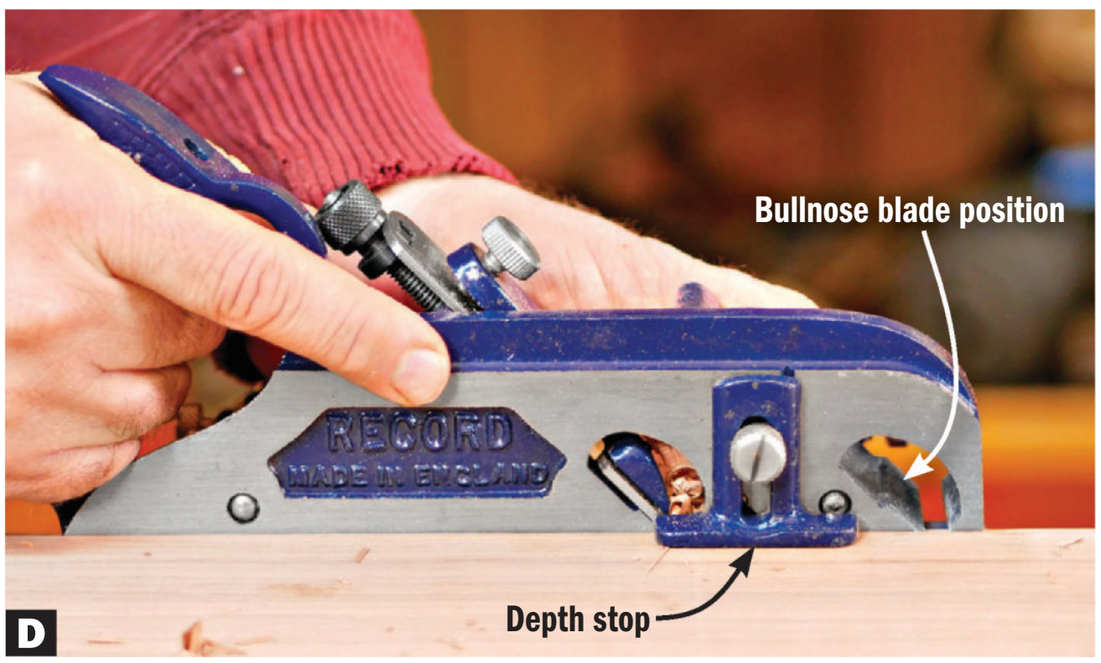
Duplex rabbet plane

A rabbet plane cuts one of the most basic of all woodworking joints. You'll find several different types, but all rabbet planes have one thing in common: The blade extends flush with (or a "hare" beyond) the sides of the plane body. This allows the plane to cut cleanly into the corner of a rabbet.

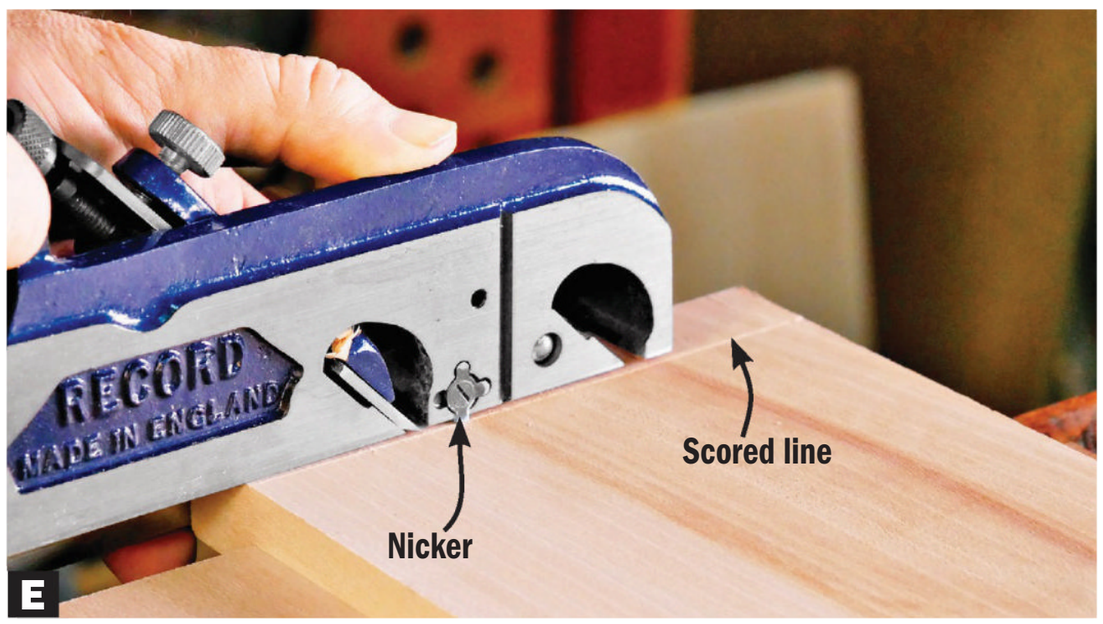
Some rabbet planes function like shoulder planes, simply trimming and refining the fit of an existing rabbet or shoulder. For cutting rabbets from scratch, choose a duplex rabbet plane with an adjustable fence that fixes the width of the rabbet, as well as a stop to control the depth [**Photos C, D**]. Also look for one with a nicker, or spur, to score the wood fibers when cutting rabbets on the end of a board, reducing chip-out [**Photo E**]. The "duplex" in the name refers to the fact that it offers two blade positions: a standard rear position and a bullnose position for working the front of the plane into a corner.



Use your left hand to hold the fence against the edge of the workpiece as you cut a rabbet.



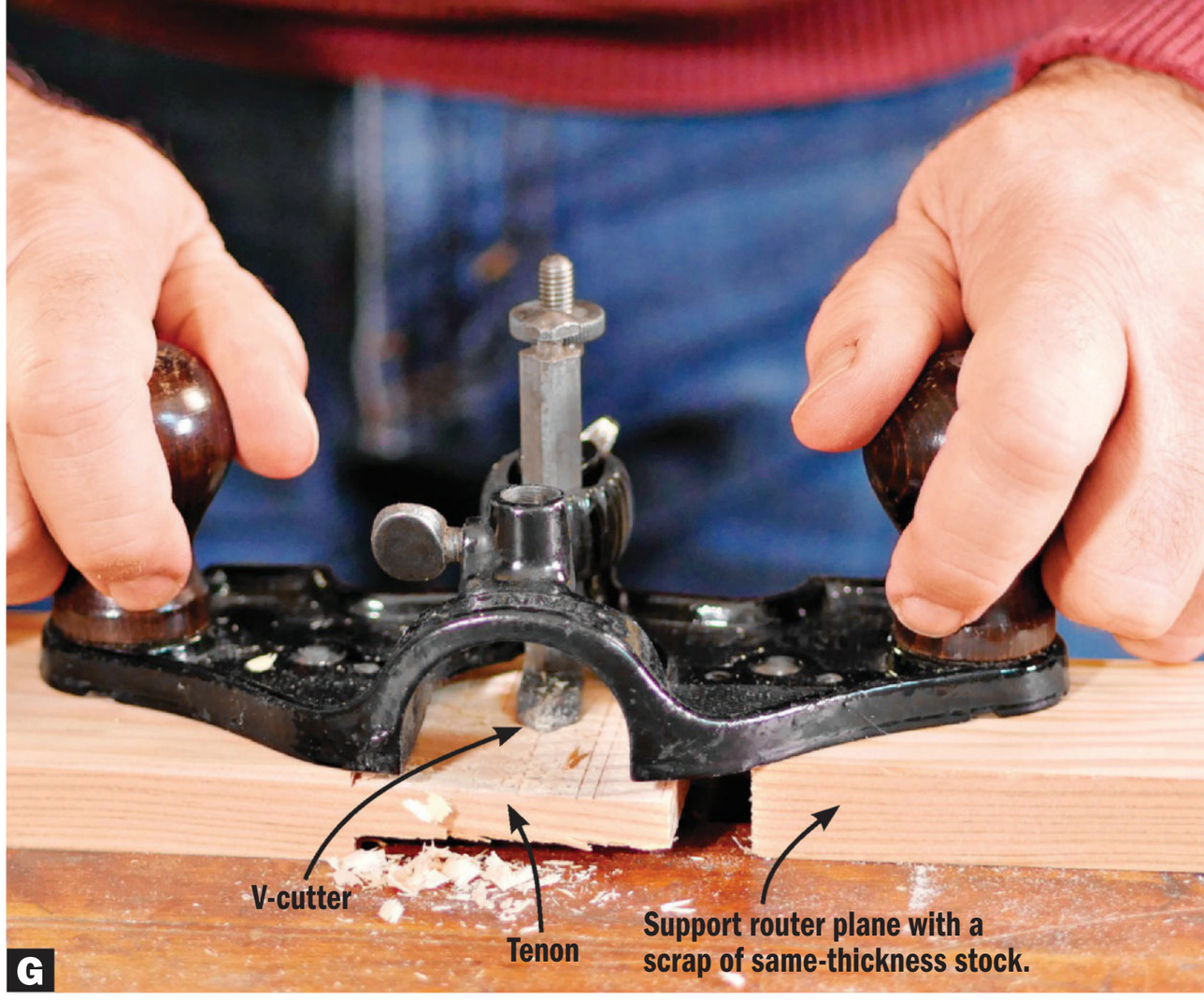
Plane the rabbet until the depth stop contacts the board.



Rotate the nicker to expose its cutting edge, then pull the plane backward once or twice to lightly score the grain before cutting a rabbet on the end of a board.



Use a router plane to square up the radiused end left behind by a dado blade or router bit.



A router plane quickly trims the faces of a tenon and ensures they are parallel with the workpiece.

Router plane

Like the motorized version that shares its name, a router plane cuts grooves and recesses. For making just one or two grooves, a router plane often performs faster (and quieter) than a router. And unlike a router bit, the square cutter of a router plane can reach all the way into the corners of a square notch or recess, making stopped dadoes and grooves an easy task [**Photo F**].

On a router plane, a narrow (¼" or ½") cutter projects through a small throat opening in the body of the plane. Grip a knob on each side of the cutter to guide it through the cut, then use the adjuster to lower the cutter after each pass to deepen the dado or groove. The control offered by the adjuster makes this plane ideal for exacting tasks, such as inlay work or cleaning out a hinge mortise.

Like the edge guide on a power router, some router planes have a fence to guide the tool when routing a groove parallel with the edge of a board. Some router planes also come with a V-cutter for smoothing the bottom of a groove or recess. Use this cutter to clean up ridges left behind by a dado blade or to fine-tune the thickness of tenons [**Photo G**].

Scraper plane

A well-tuned card scraper creates wispy shavings, leaving behind a glass-smooth surface that doesn't require sanding. The friction created also burns the heck out of your thumbs in the process. But mount a scraper in a plane body and you have an easier-to-control tool you can use without discomfort. Scraper planes deliver excellent results on highly figured wood or boards with difficult grain.

A basic scraper plane, known as a cabinet scraper, looks similar to a spokeshave and holds the blade at a fixed angle [**Opening photo**]. Tightening a knob or thumbscrew bows the scraper blade for a heavier cut, the same way you would with your thumbs. After rolling a hook on the edge of the blade and installing it in the body of the plane, scrape the surfaces of your project as the final step before applying a finish.

One of our favorite scraper planes is the no. 112 [**Photo H**]. It features a pair of nuts and a threaded rod that allow you to vary the pitch of the blade for the most effective cutting angle. Handles similar to a smoothing plane make it comfortable to use for long stretches. And the large sole offers support as you smooth wide surfaces.

▶Watch a video on how to set up and adjust a scraper plane. woodmagazine.com/scraperplane



A well-tuned scraper plane creates shavings, not sawdust.



A steeper cutting angle of 50° allows this plane to better cut figured wood or difficult grain without tear-out.



Make a plane with a standard-angle frog (foreground) do double duty and better handle figured grain by swapping in a high-angle frog (background).

High-angle plane

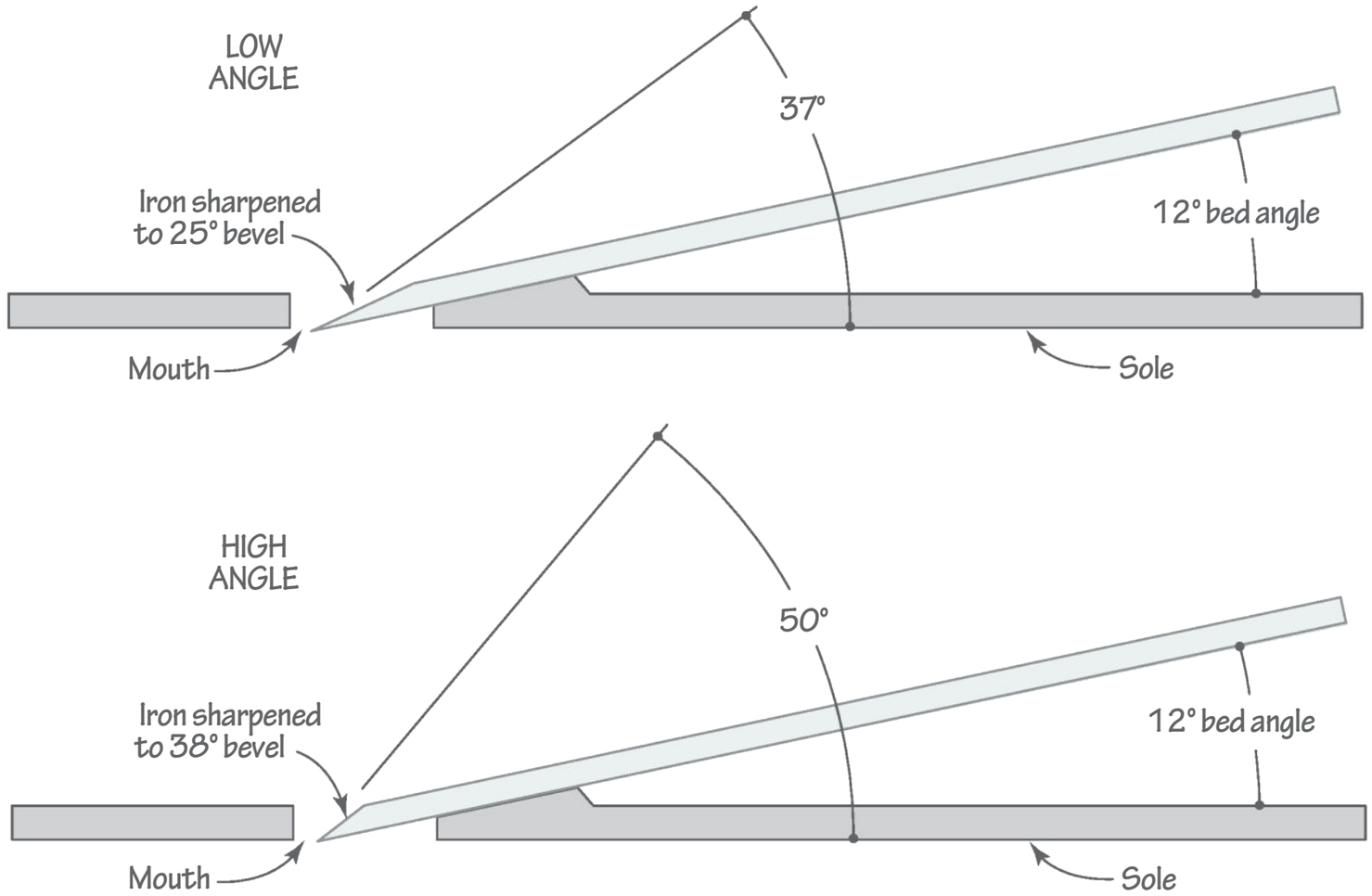
Most bevel-down bench planes have a bed angle of around 45° because it provides a happy medium between quality of cut and ease of use. Lower angles tend to tear out the wood grain, and higher angles require greater effort to push through the wood.

But for figured or difficult grain, a blade angle of 50° or 55° shears the surface of the wood without pulling out the grain [**Photo I**]. Unless you work with a lot of highly figured wood, though, it's hard to justify the expense of both high-angle and standard-angle bench planes. Lie-Nielsen and Veritas each offer a high-angle frog you can simply swap out for the standard frog in their bench planes [**Photo J**].

A low-angle, bevel-up plane achieves results similar to a high-angle plane [**Drawing**]. This sounds counterintuitive, but on a bevel-up plane, you can alter the cutting angle by changing the bevel angle on the plane iron. Instead of grinding a new angle on your blade, purchase a second blade with a higher angle to use when you encounter a board with temperamental grain.

Produced by **Vince Ancona**
Illustration: **Lorna Johnson**

BEVEL-UP COMPARISON



Arts & Crafts

Plant Stand

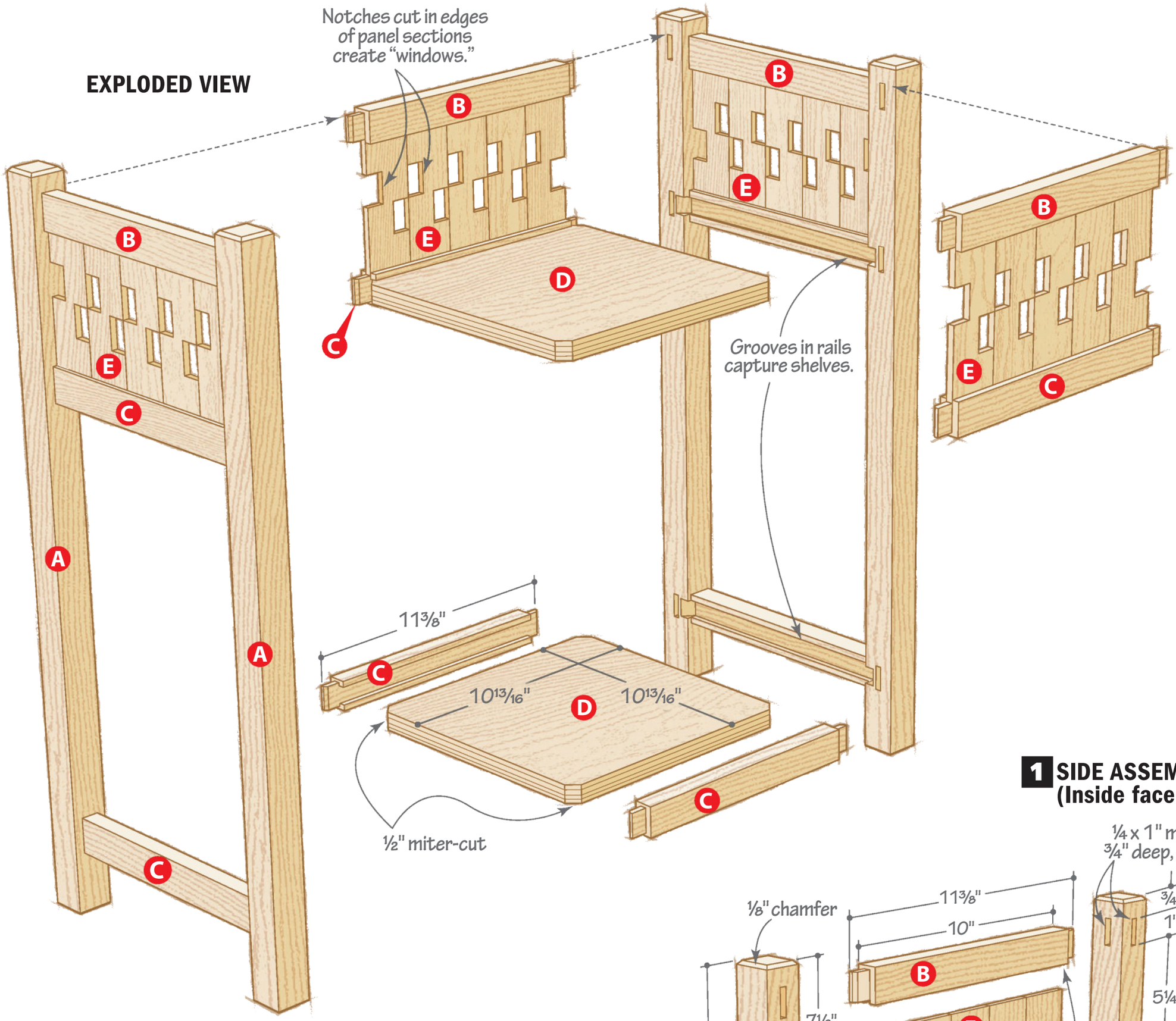
Shine a light on your woodworking skills—and a favored plant.

This plant stand ticks many of the boxes of the Arts & Crafts style, from the quartersawn white oak used in its construction to the mortise-and-tenon joinery and orderly rows of openings in the side panels. Don't let those rectangular windows intimidate you: Make them quickly and easily at the tablesaw.

DIMENSIONS:
12¾" W × 12¾" D × 28" H

Approximate materials cost:
$120

40
side panel "windows"



Build a garden tower

▶ Learn how to make mortise-and-tenon joints. woodmagazine.com/mandt3ways

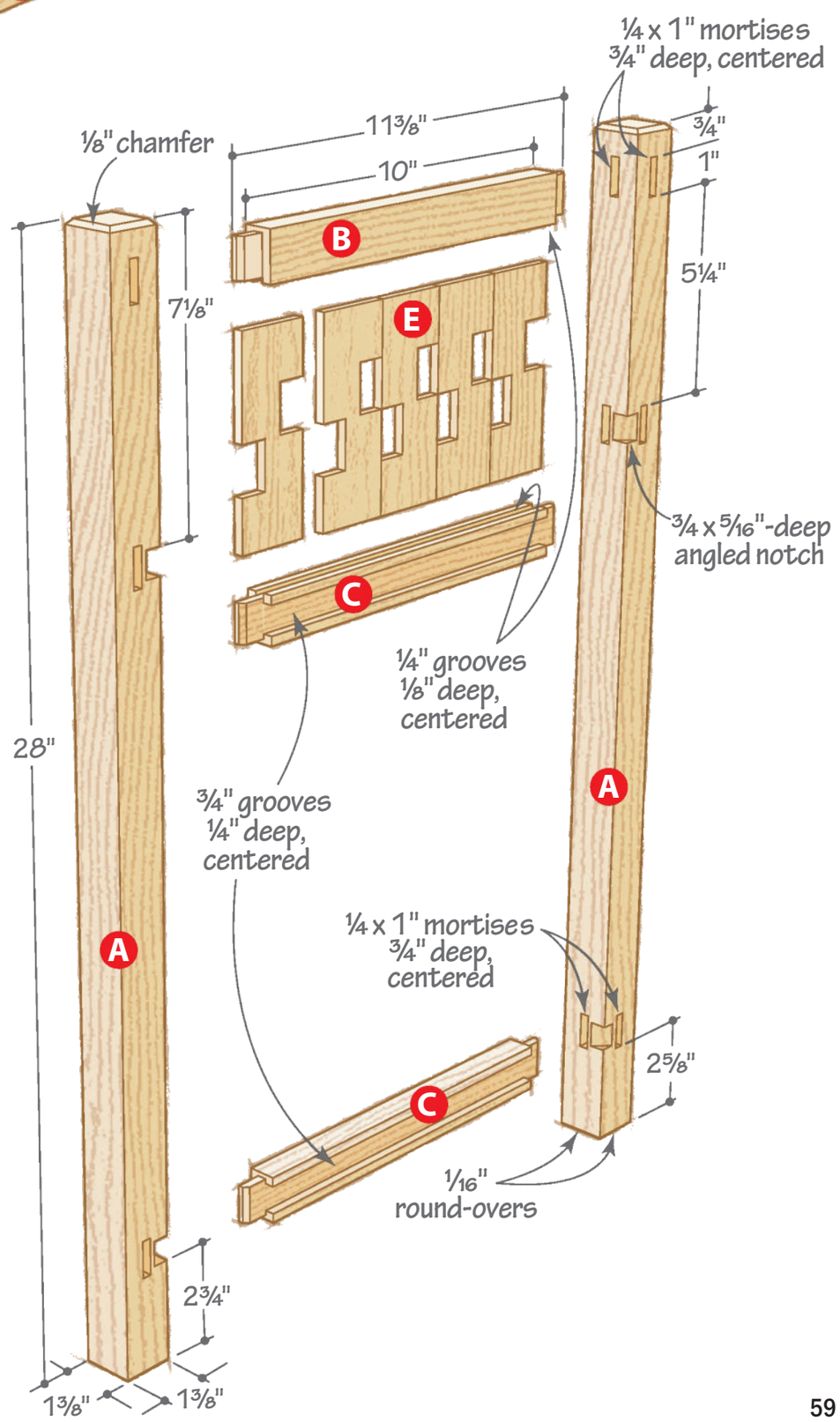
1 From 8/4 stock, cut and plane the legs (A) to size [**Materials List, Drawing 1**]. Lay out and cut the mortises [**Drawing 1**].

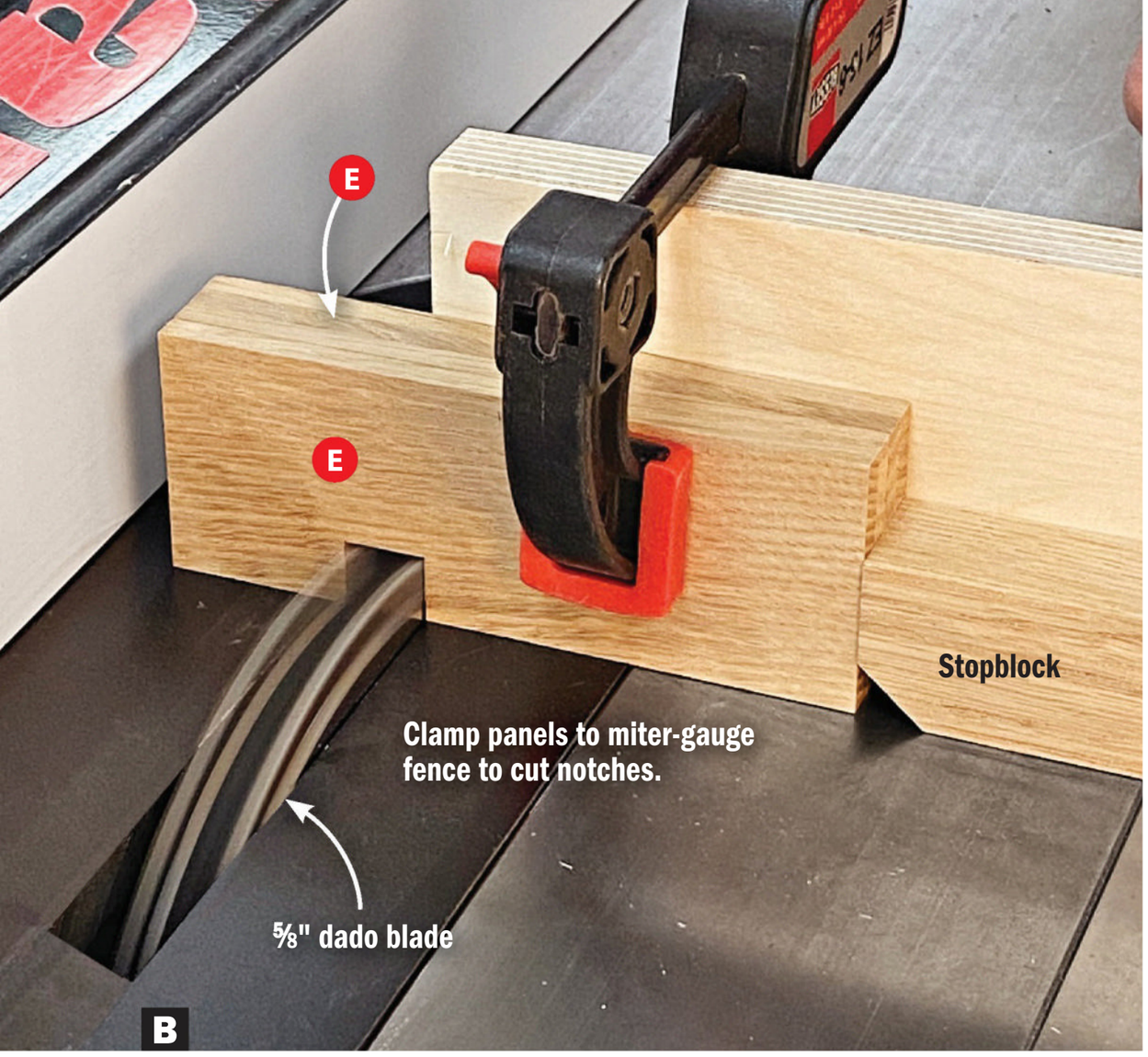
2 From 4/4 stock, cut the top rails (B) and shelf rails (C) to size [**Drawing 1**].



Intersecting 45° ripcuts in a scrap block create a cradle for notching the legs (A). The rip fence locates the notches.

1 SIDE ASSEMBLY (Inside face shown)





Clamp a stopblock to your miter-gauge fence and using a dado blade, notch four panels (E) at once.



Shift the panels to the right to complete the notch, using the rip fence as a stop.

3 Cut tenons on the ends of the rails [**Drawing 2**]. Sand a 45° chamfer on the ends of all the tenons so they fit in the leg mortises without interference.

4 Using a dado blade sized to match the thickness of the plywood you will use for the shelves (D), cut 45° notches on the legs (A) [**Drawing 1, Photo A**]. Then use the same dado blade to cut a shallow groove on the inside face of each shelf rail (C) [**Drawing 2**].

5 Chamfer the top ends of the legs (A) and round over the bottom ends. Finish-sand the legs.

6 Cut a centered groove on the lower edge of each top rail (B) and the upper edge of each upper shelf rail (C) [**Drawing 2**]. Finish-sand all the rails.

Wall in the garden

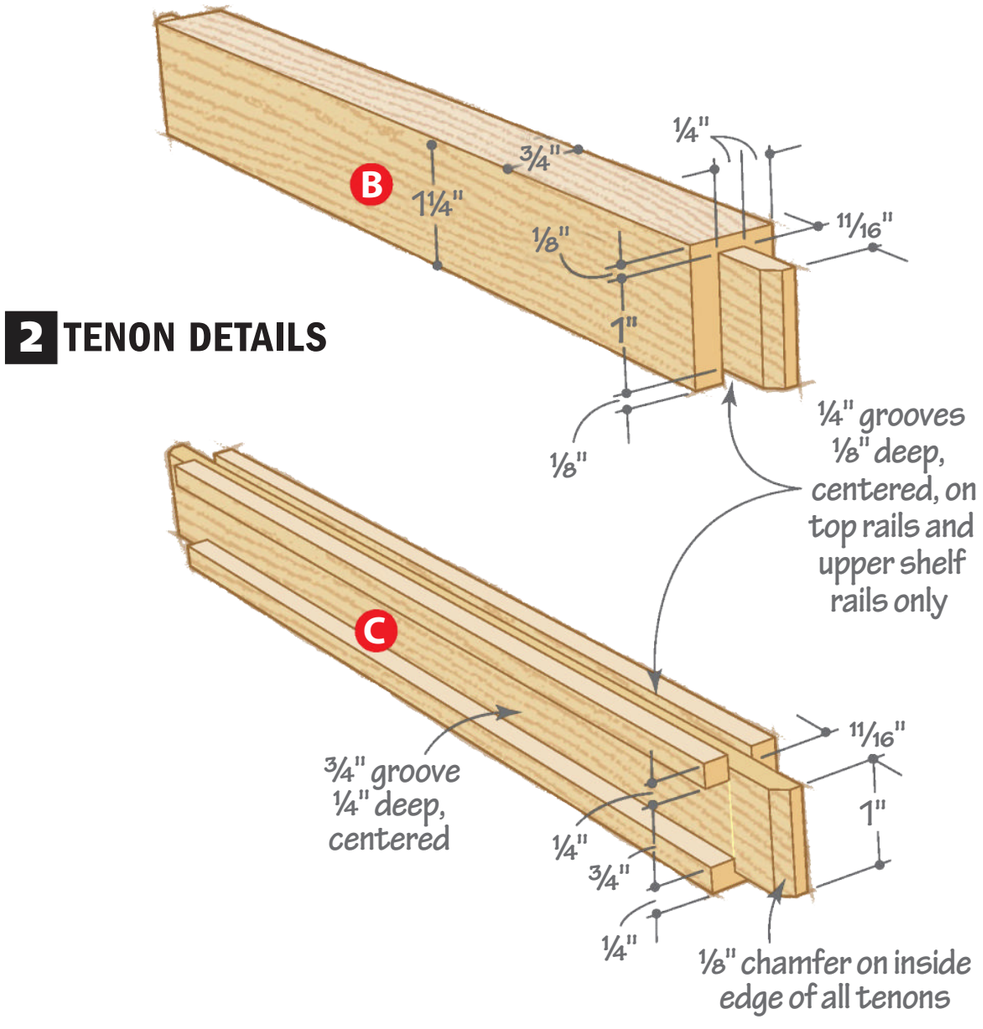
1 From ¾" plywood, cut the shelves (D) to size [**Exploded View**]. Miter-cut the corners and finish-sand the shelves.

2 From ¼" stock, cut 20 panels (E) to size [**Drawing 3**].

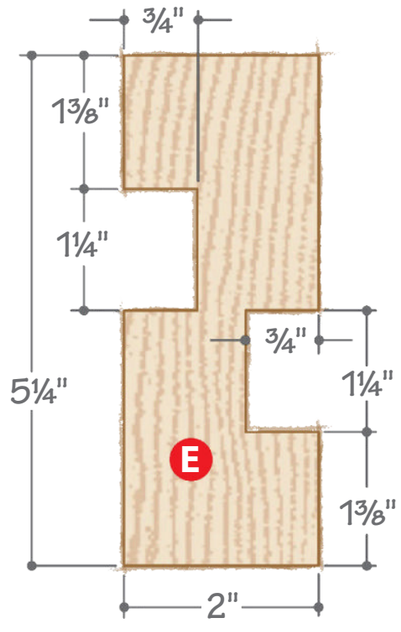
3 Notch both edges of each panel [**Photos B–D, Drawing 3**].

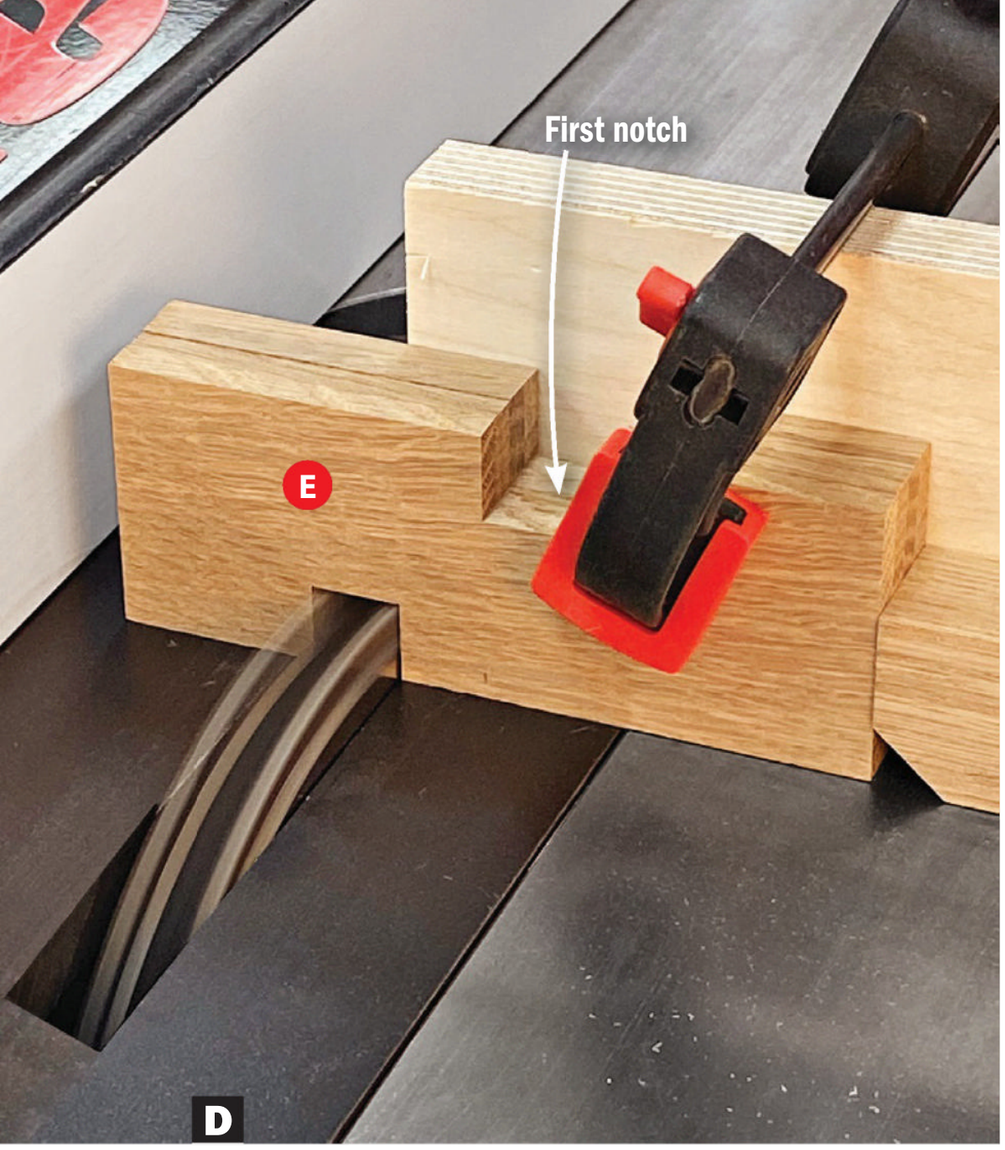
Tip! *Save time by notching several panels at once. We did four at a time, using a clamp to hold them securely.*

2 TENON DETAILS



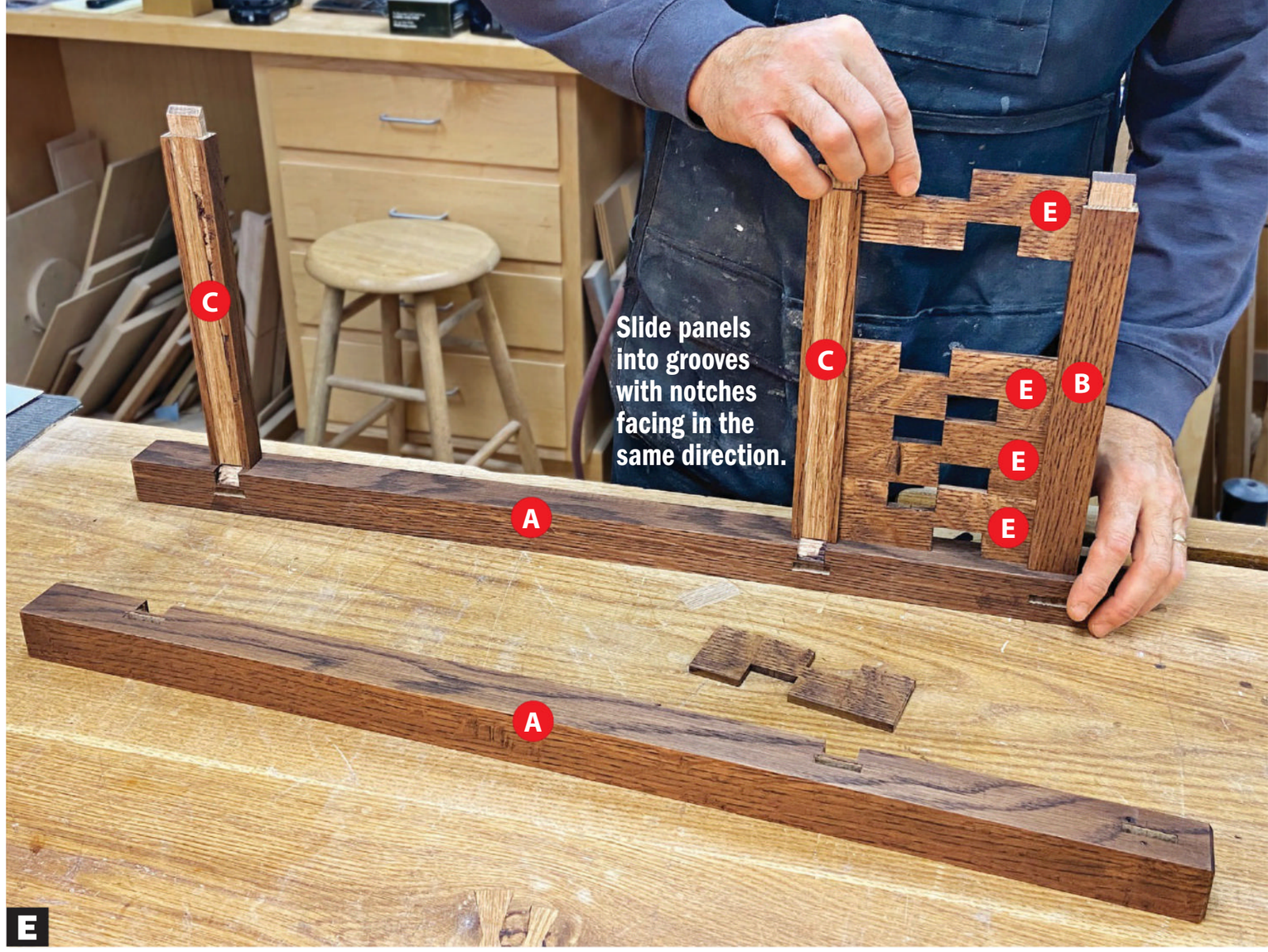
3 PANEL





D

Rotate the panels end-for-end to cut an identical notch on the opposite edge.



E

Glue the rails (B, C) into one of the legs (A), then slide the panels (E) into place without glue before adding the second leg to complete the side assembly.

Make your garden grow

1 Finish-sand the panels. Dry-fit the entire stand and make any needed adjustments.

2 When satisfied with the fit, disassemble and stain all the parts (we used Varathane Gunstock), keeping the stain out of the mortises and off of the tenons.

3 Glue and clamp two side assemblies [**Photo E**] and allow to dry. Insert the shelves and panels without glue, then glue the remaining rails between the two side assemblies.

4 With the glue dry, apply your choice of finish. We applied three coats of General Finishes satin Enduro-Var.

5 After allowing the finish to dry, place your plant stand in a sunny spot and add your favorite houseplant.

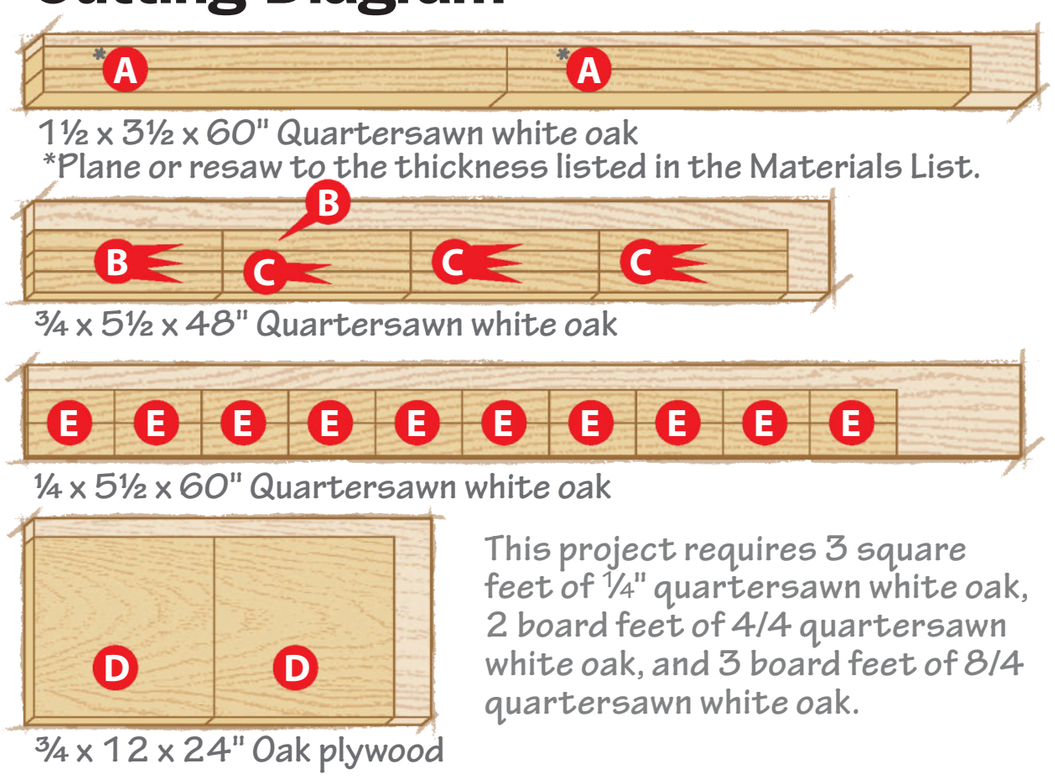
Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
A	legs	1⅜"	1⅜"	28"	QSWO	4
B	top rails	¾"	1¼"	11⅜"	QSWO	4
C	shelf rails	¾"	1¼"	11⅜"	QSWO	8
D	shelves	¾"	10 13⁄16"	10 13⁄16"	OP	2
E	panels	¼"	2"	5¼"	QSWO	20

Materials key: QSWO–quartersawn white oak, OP–oak plywood.
Blade and bits: Dado set, 1⁄16" round-over bit, 45° chamfer bit.

Produced by **Vince Ancona** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Roxanne LeMoine, Lorna Johnson**

Cutting Diagram



This project requires 3 square feet of ¼" quartersawn white oak, 2 board feet of 4/4 quartersawn white oak, and 3 board feet of 8/4 quartersawn white oak.



▶ Not sure what kind of plant to place on your stand? Try these suggestions: woodmagazine.com/plants

32 Uses for Masking Tapes

Keep this shop staple close at hand for dozens of tasks.

While you lust after the latest flashy tool or accessory, make sure you maintain your stock of a mundane, low-cost item that delivers more bang for the buck than you might expect. Masking and painter's tapes, those sticky stalwarts hanging on a hook or dumped in a drawer, offer protection, finesse, security, and more. They may not turn heads when you open your tool cabinet, but they stick with you, delivering when it counts—at least 32 ways we came up with.

The masked painter

So what's the difference between masking tape and painter's tape? Regular crepe-colored masking tape costs less and has a stronger adhesive that can lift delicate wood fibers and leave a residue after removing the tape, especially if left it in place longer than a few hours.

Painter's tape—blue, purple, green, and yellow—has less adhesive tack. It removes cleanly from fully dried paint and finish, and can stay in place for 14 days (even longer with some varieties) without concern. The different colors distinguish between brands and how well the edges seal to prevent seeping behind the tape. Those subtle distinctions won't make much difference for most of the applications listed here.

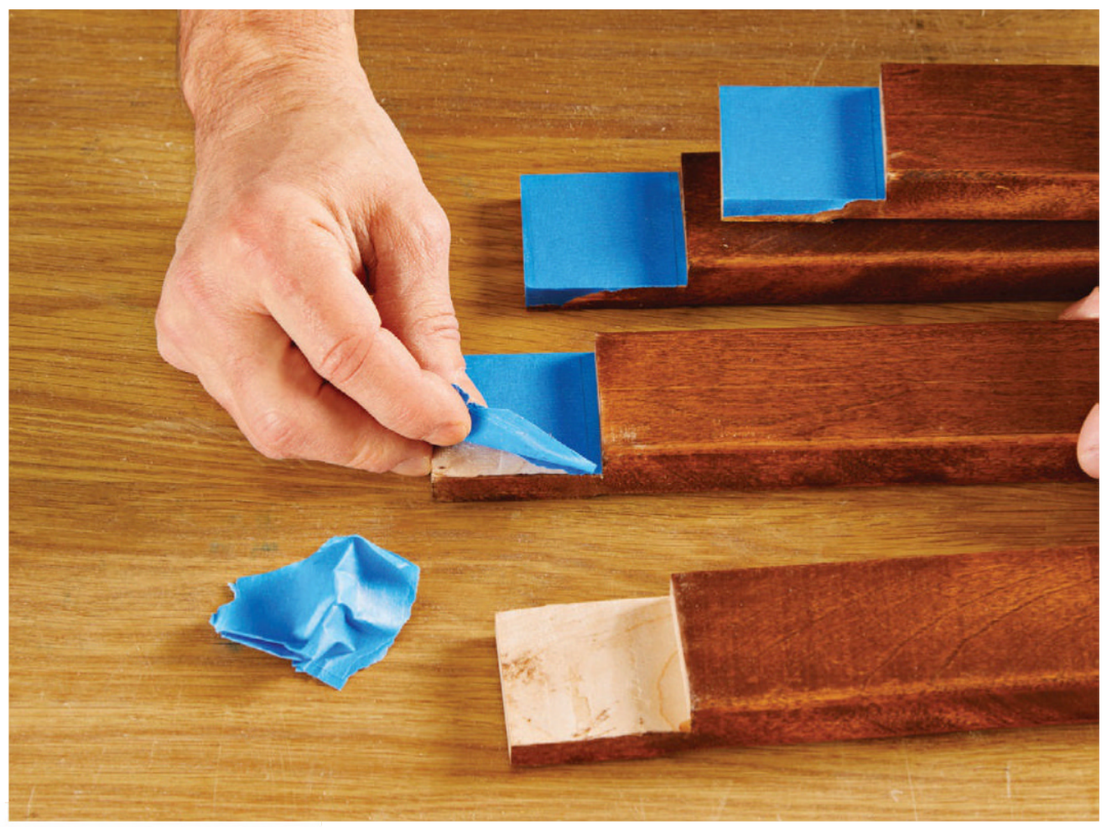
MASKING

The obvious use, with some less-than-obvious applications.



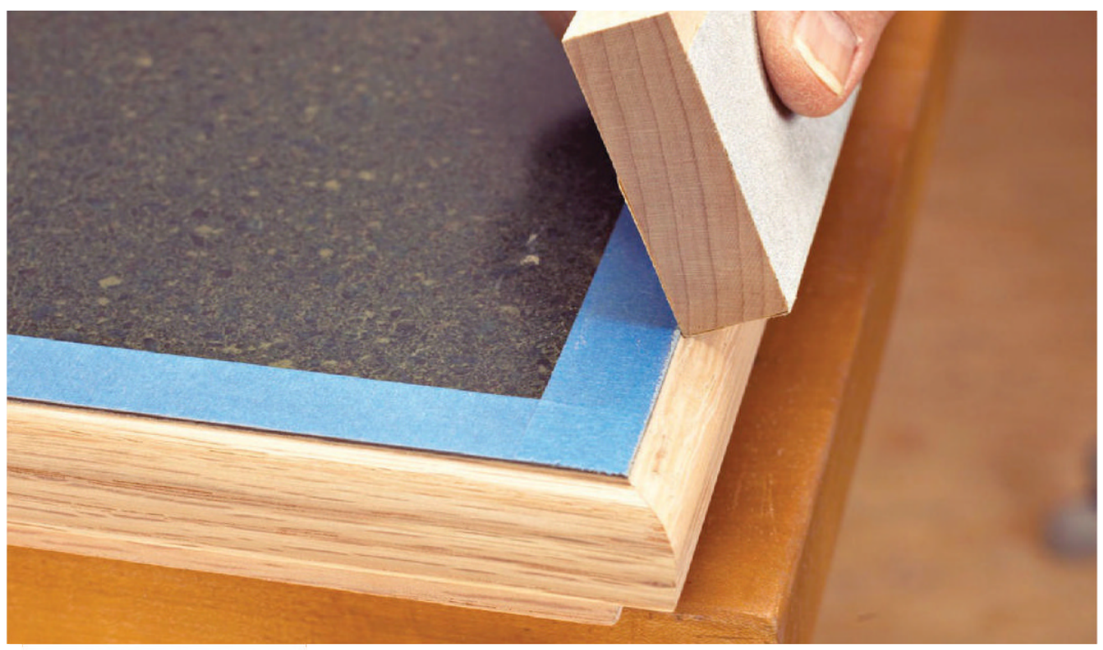
1

Protect surfaces from glue squeeze-out. Masking inside corners of this cabinet before assembly makes removing squeeze-out as easy as peeling off the tape. Use the same idea when assembling a box, or around a bowtie mortise when patching cracks in a slab.



2

Maintain clean glue surfaces. Some projects benefit from applying stain and topcoat before assembly. Covering these half-laps, for example, keeps bare wood ready for glue.



3

Create a sanding shield. If you need to sand bare wood next to veneer, plastic laminate, or finished surfaces, protect the adjacent edges. Trim the tape flush with a razor knife before sanding.



4

Confine filler. Before applying filler, cover the area around the repair with tape. Fill the divot, then peel away the tape for a minimized patch. Use a similar strategy before driving and countersinking a finish nail or brad: Drive the nail through a strip of tape, fill the countersink, and remove the tape for a near-invisible patch.



5

Remove patterns quickly and cleanly. Cover the workpiece with tape before spraying on adhesive and applying the pattern. After machining, peel it all off together.



6

Improve layout-line visibility, and distinguish "keep" from waste. When making a handcut dovetail joint, for example, apply tape over the end of the board, lay out the pins, score the lines with a knife, and remove the tape from the waste areas.

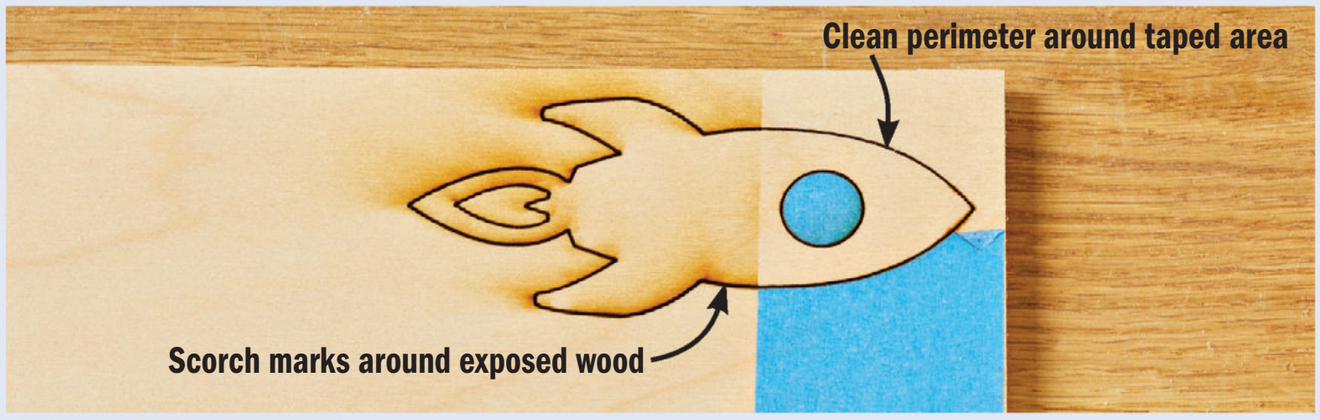


7 **Protect fragile edges.** Wrap masking tape over freshly machined edges to prevent splinters and cuts. Additional layers protect crisp edges from dings and light bumps.

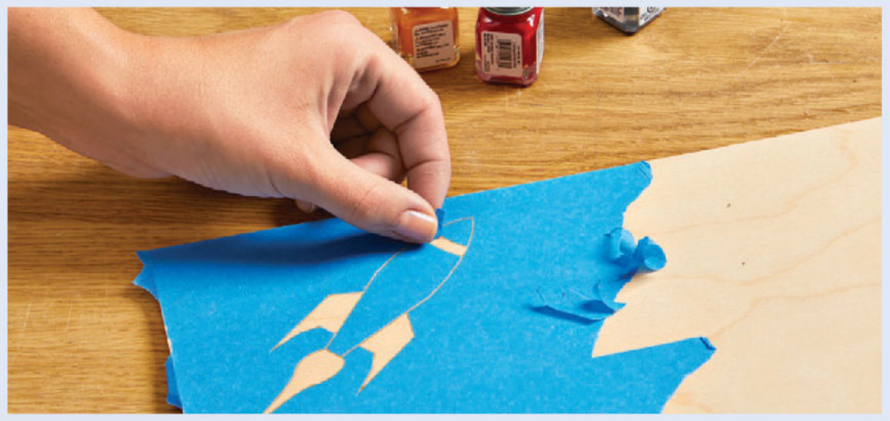


8 **Keep clamps and glue-ups clean.** Apply tape to the top of clamp bars or pipes to catch glue drips, and prevent stains on the wood caused by wet glue reacting with iron in the pipes and tannins in the wood.

HOT TIPS FOR LASERS



9 **Prevent scorch marks when cutting parts with a laser.** Mask the workpiece before the cut to leave faces that don't need sanding or cleaning to remove burns.



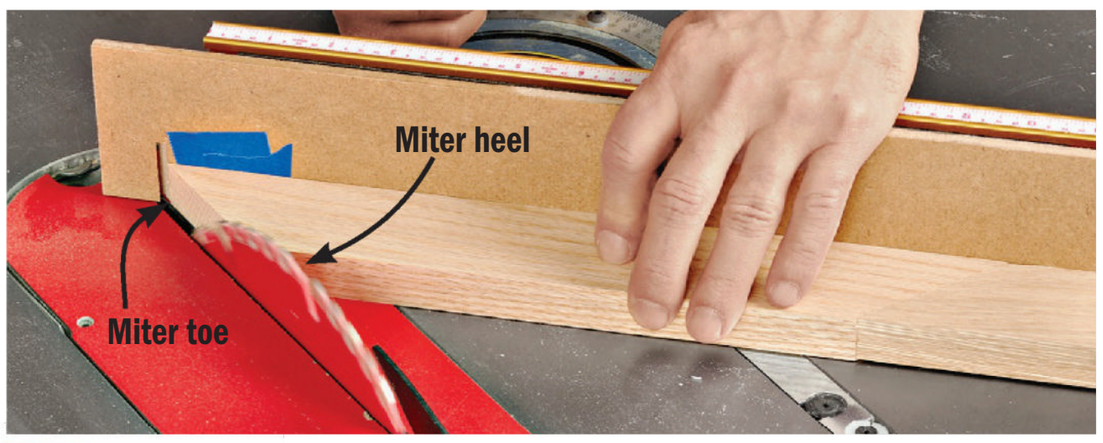
10 **Create a stencil.** Mask a clear-coated workpiece and score the tape, but not the wood, with the laser. Peel off the tape in areas you want to paint.

SHIMMING

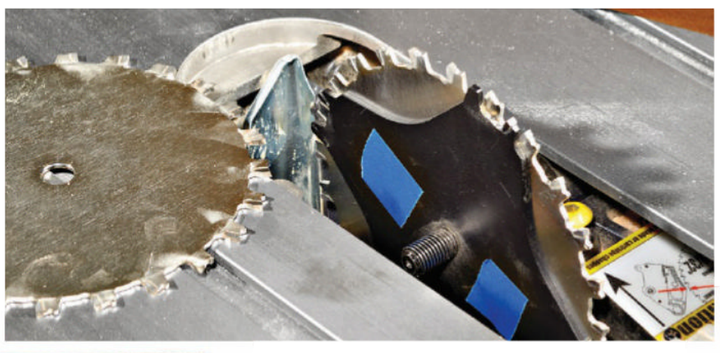
For adjusting things just a smidge, get the skinny on the shim(my).



11 **Provide room to slide.** A fence-straddling jig must slide smoothly without play. Get a perfect fit by placing a strip of tape on the fence face before assembling the jig over it. Remove the tape before using the jig.



12 **Tweak a miter angle a tiny amount.** Place one or more layers of tape on the miter-gauge auxiliary fence behind the workpiece—as shown to trim material from the toe, or at the opposite end to shave the heel.



13 **Adjust your dado blade.** Use tape as an easy-to-apply-and-remove shim in a stacked dado blade.



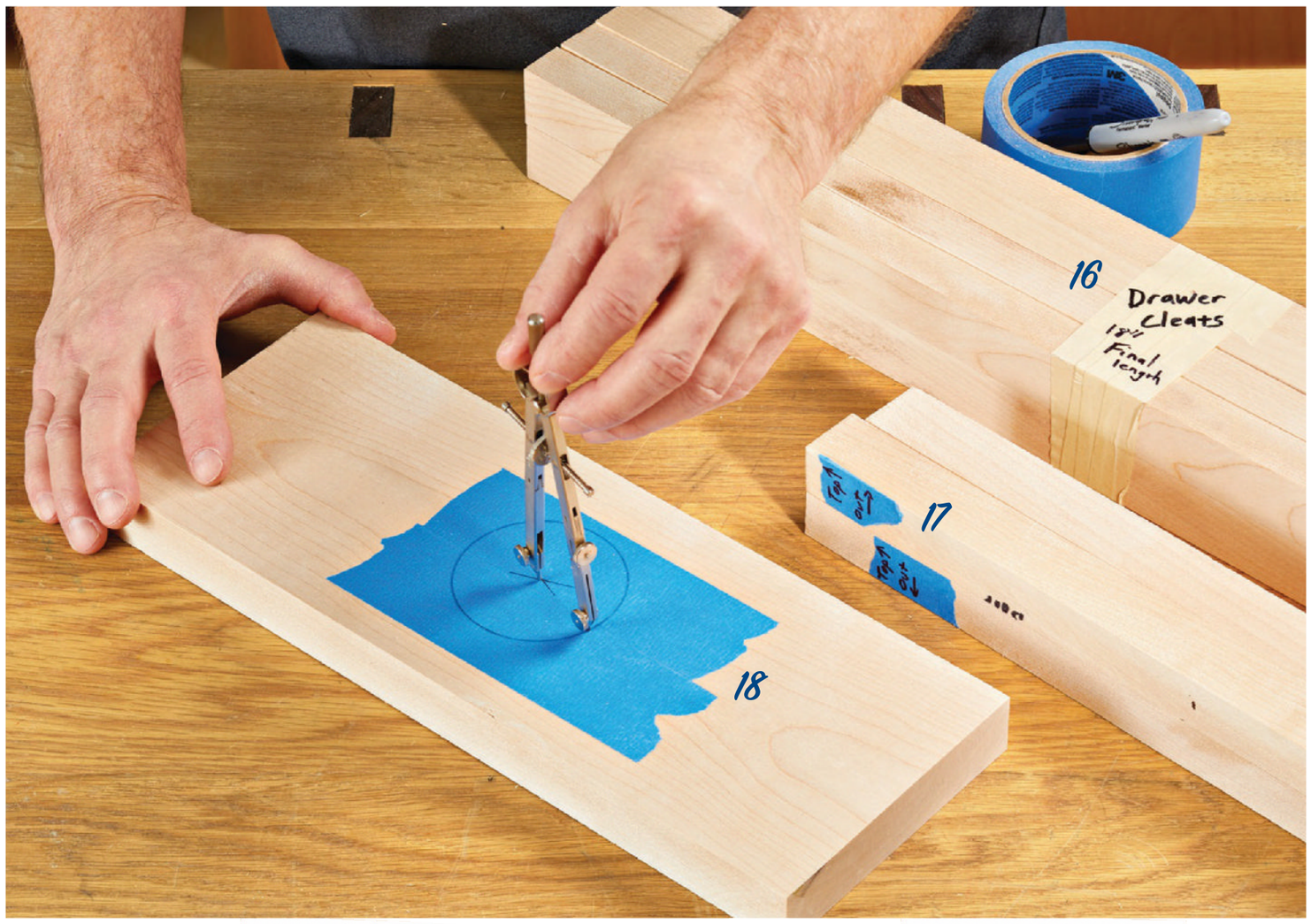
14 **Rout burn-free profiles.** Mask your router-table fence before routing burn-prone woods, such as cherry or maple. Remove the tape for a clean last pass.



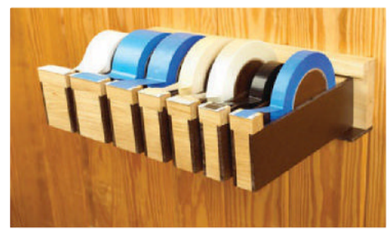
15 **Shave j-u-s-t a whisker off a board's width.** Apply one or more layers of tape to the rip fence as needed to nudge the workpiece closer to the blade. Use the same strategy to expand a dado or rabbet by a hair.

LABELING and MARKING

How to know what's what and where it goes.



▶Got more tape tips? Send them to woodmail@woodmagazine.com.



▶Organize tape rolls with this tape dispenser. woodmagazine.com/tapedispenser

16 **Label parts cut to rough size.** Write final dimensions, additional milling steps, or other notes on the tape.

17 **Identify part orientation.** Label workpieces with arrows pointing to critical surfaces, such as the top, outside face, or mating parts of joints.

18 **Create a temporary marking surface.** Mark cutlines or joinery locations on tape rather than on a finished or prepped surface.



19 **Find your tools on a job site.** Before taking tools on-site, write your initials on a piece of tape. Put the tape in an out-of-the-way location on the tool so it doesn't rub off during use. At the end of the day, it's easy for anyone to see which items belong to you.

20 **Identify unmarked accessories.** Label items that lack branding, such as edge guides and collet wrenches, so you can quickly identify them in a drawer with similar tools of other brands.

21 **Give your tape measure a memory.** Was that opening 7⅝" or 5⅞"? Place a piece of masking tape on your tape measure and write down dimensions as soon as you determine them. When the tape fills up, peel it off and replace it.



22 **Establish limits.** Mark start and stop positions for plunge or stopped cuts by applying a strip of tape to your router-table fence or tablesaw rip fence or table.

MISCELLANEOUS USES

We had to stick these somewhere.

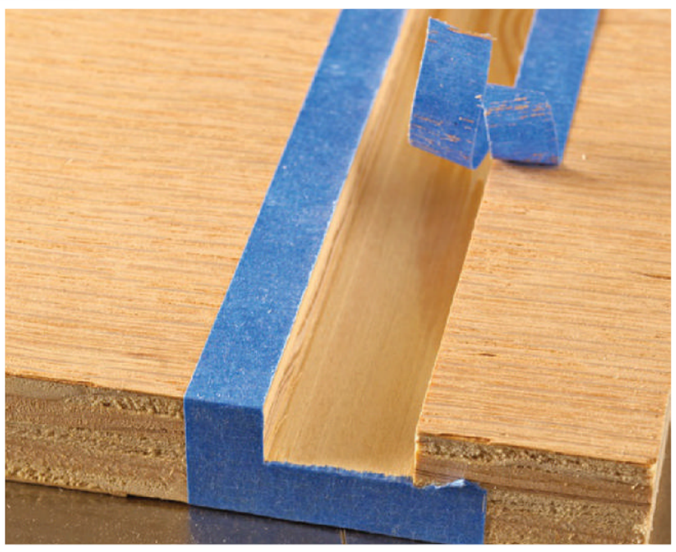


23 **Get the gang together.** Hold together multiple parts for organization, marking, and machining.

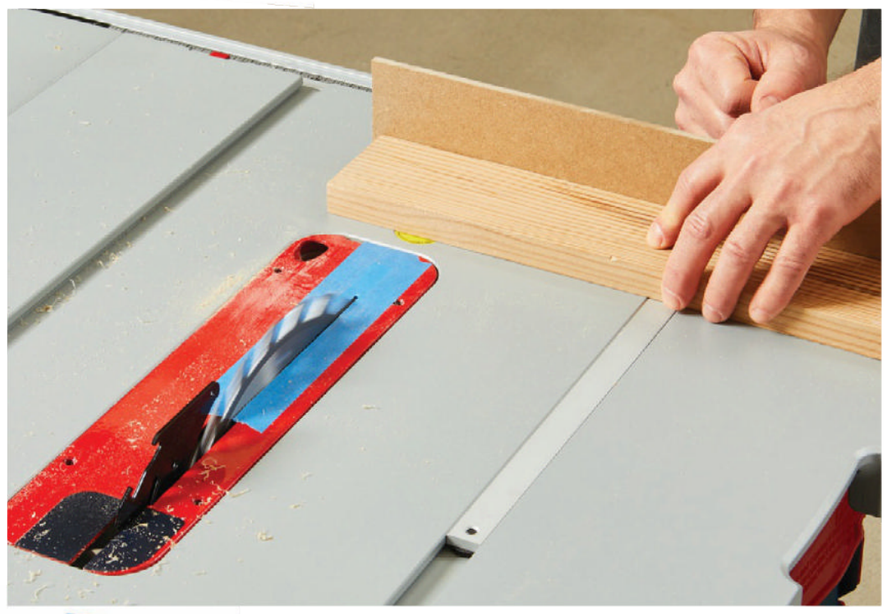


24 **Protect a surface from a router-bit bearing.** A strip of tape shields delicate veneers or burn-prone woods from the friction of a bit with no bearing, or one that may not turn freely.

25 **Make tight veneer joints.** Blue painter's tape works for closing the joint between veneer sheets [**Opening photo**, *page 62*]. This works best on regular veneer; paper-backed veneer may show impressions of the tape after the panel is pressed.



26 **Prevent tear-out.** Support fibers where a bit or cutter exits a workpiece. Use care when removing the tape, pulling it toward the cut to avoid lifting off the fibers you were protecting.



27 **Make an instant insert.** For a few quick cuts, apply tape around a tablesaw or bandsaw blade to add zero-clearance support.



28 **Drill holes to a precise depth.** Wrap a tape "flag" around a drill bit to indicate how deep you should drill.



29 **Clamp small or awkward parts.** Wrap tape around a mitered assembly to draw each joint closed. This works for securing inlays and edging during glue-ups, too.



30 **Capture small parts.** Place small screws or other hardware on the sticky side to prevent them from rolling away or getting lost.



31 **Add a temporary pull.** Before fitting inset drawers or doors, add a tape tab to grab for pulling the door or drawer open until you install the pull.



32 **Fix a too-loose hose connection.** Wrap an undersized dust hose to better fit a dust-collection port.

Produced by **Craig Ruegsegger**

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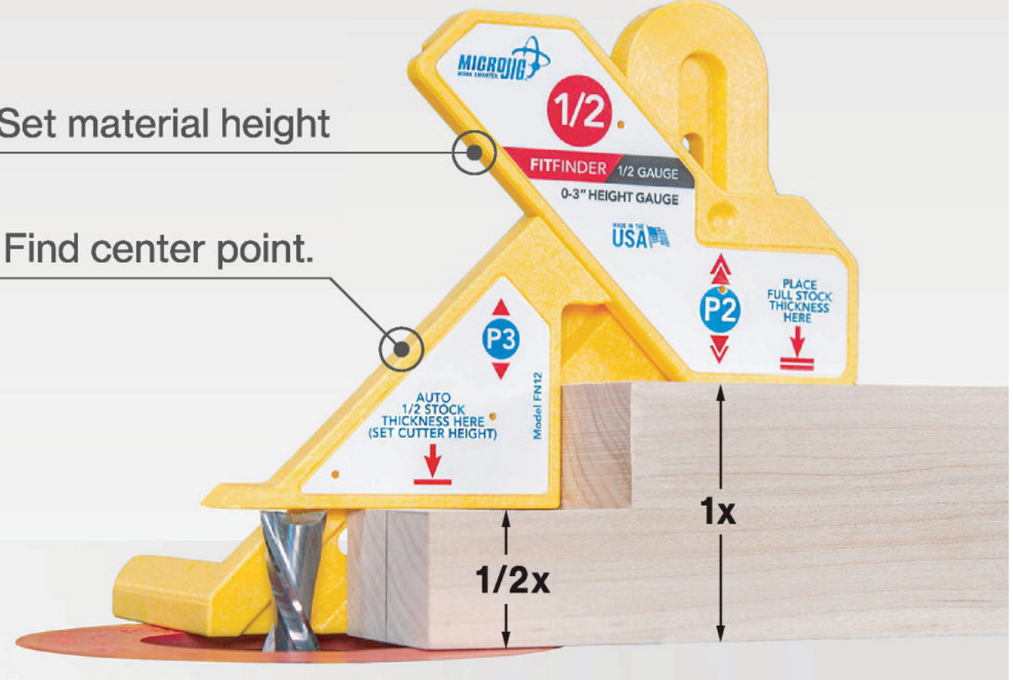
1. Set material height
2. Find center point.



Learn more at:
microjig.com/FitFinderWD

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Small Space

Bike Hanger

Easy to build, even easier to use.

DIMENSIONS:
26" W × 14¾" D × 12¼" H

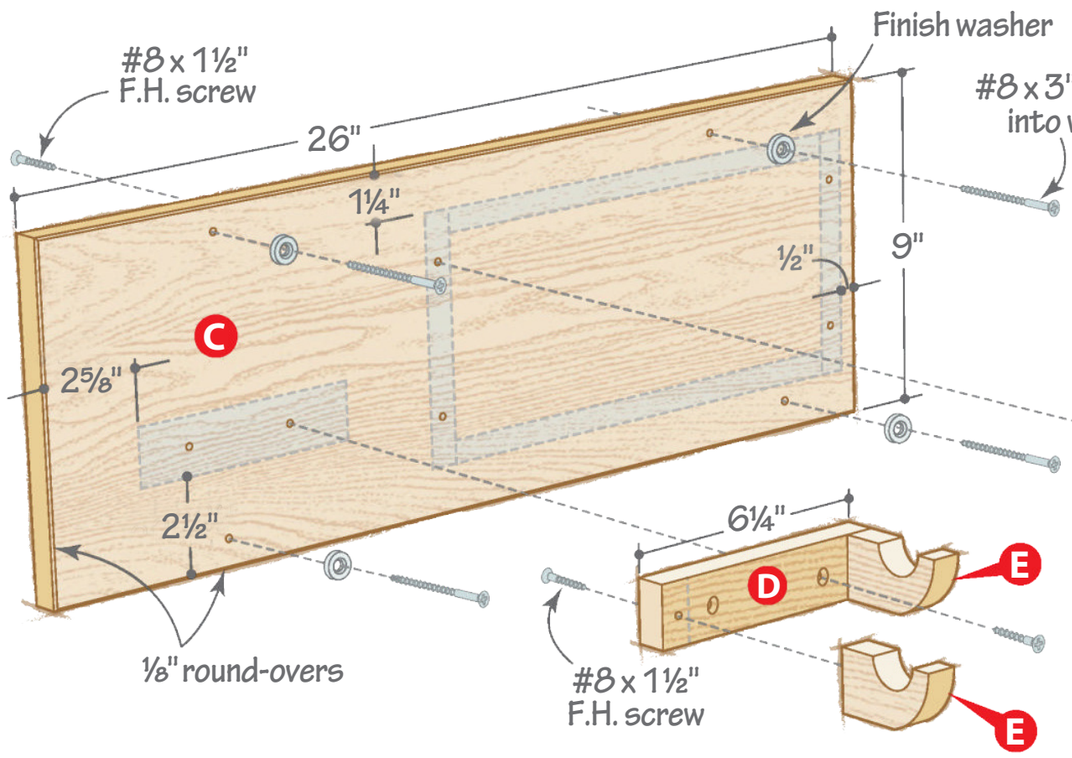
Approximate materials cost:

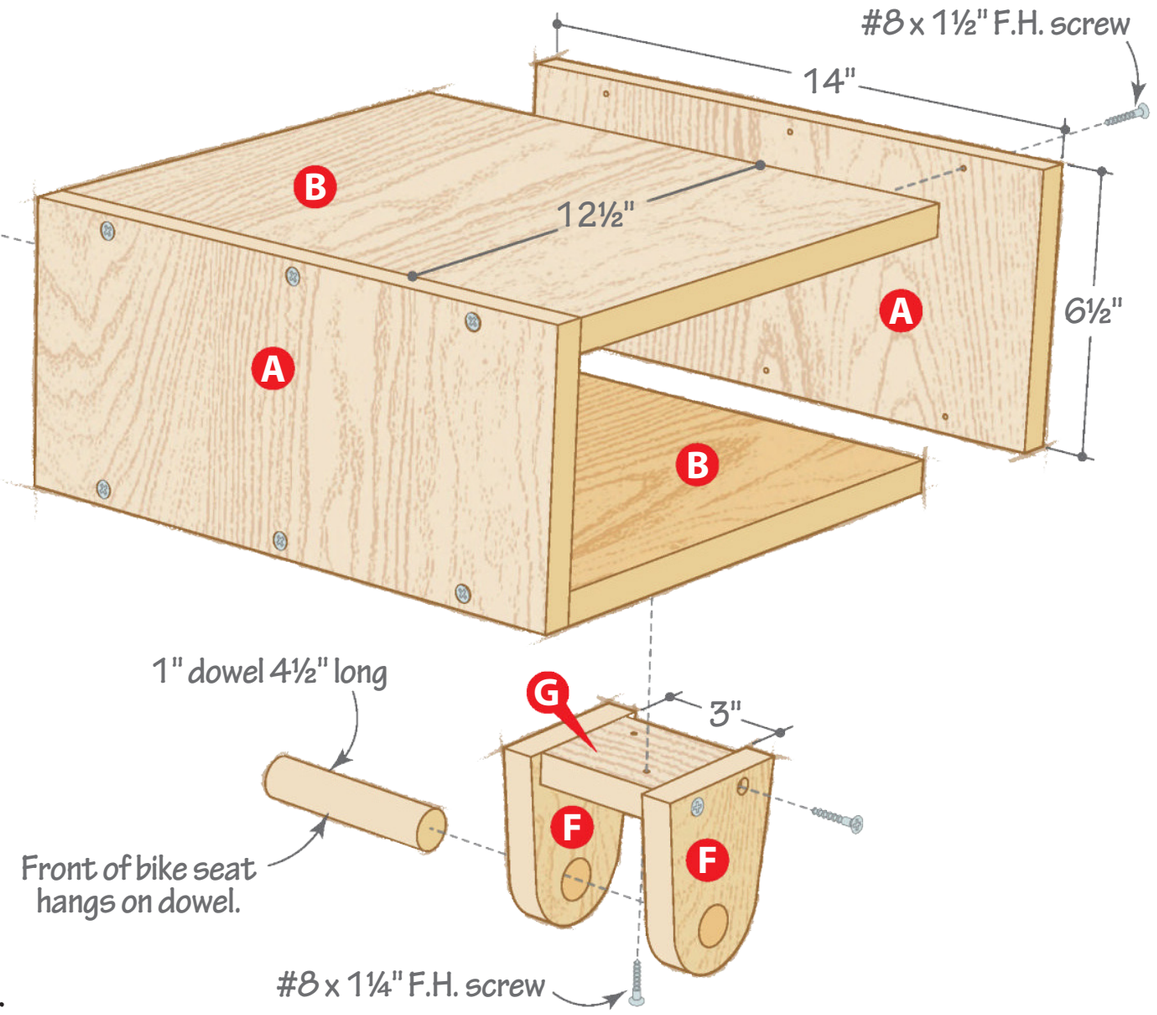
$60

Biking at a modest rate produces about

100

watts of power







Bicycle parking can be a challenge for the apartment dweller, or anyone without access to secure storage. This clever hanger turns any wall space into an apartment-sized bike garage, with spots for a tire pump, cycling accessories, and tools. Built entirely from ¾" plywood (and a bit of 1" dowel), you can knock out this project in a day and still have time for a ride.

Build the storage box

1 Cut to size the sides (A) and top and bottom (B) [**Exploded View, Materials List**], and glue and screw together the box.

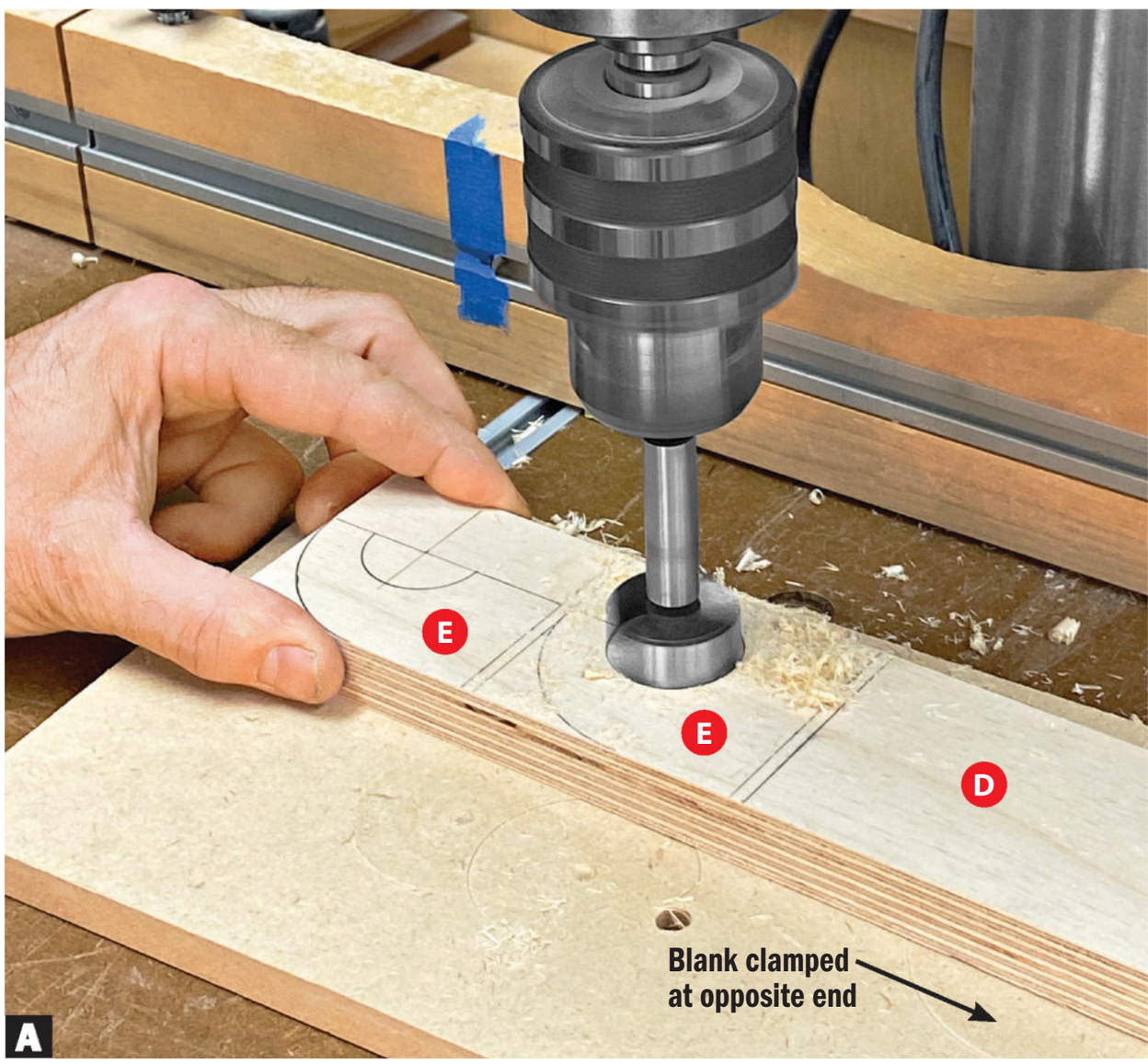
2 Cut to size the back (C) and round over the front edge [**Exploded View**].

3 Finish-sand the back and box assembly, then glue and screw the back to the box.

Add a couple custom hangers

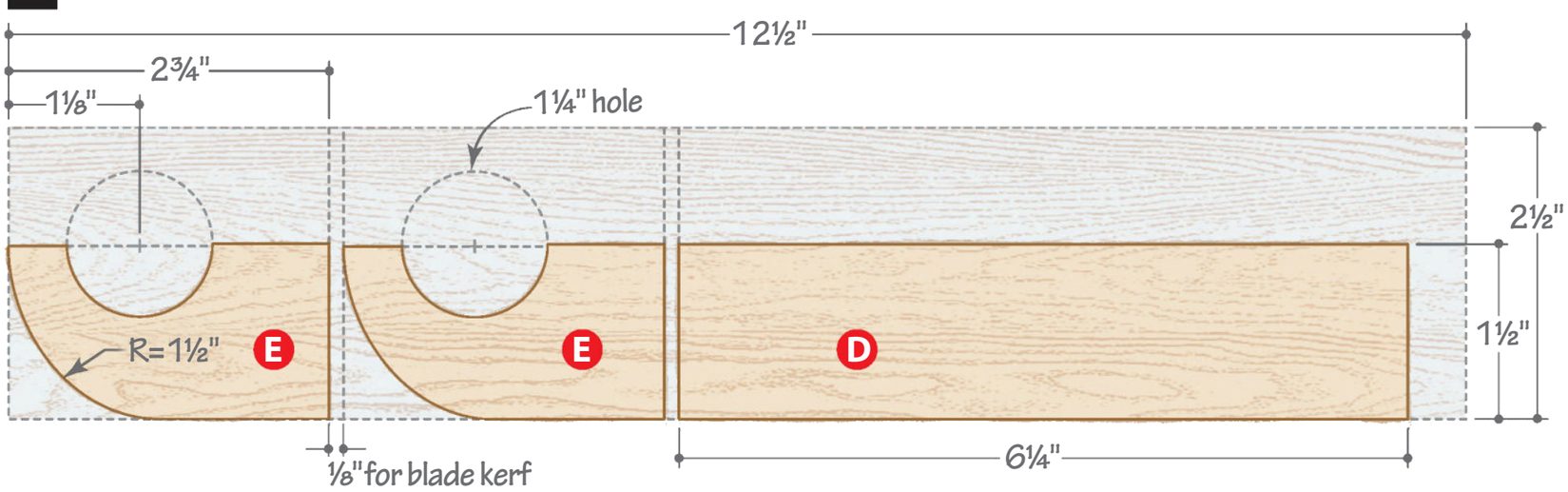
1 Cut a 2½×12½" blank for the pump hanger back and brackets (D, E), and lay out the parts on the blank [**Drawing 1**].

2 Drill the holes in the blank [**Photo A**]. Rip-cut the blank to 1½" wide, then crosscut each part to length [**Drawing 1**].



Install a 1¼" Forstner bit in your drill press and drill the holes at slow speed.

1 PUMP HANGER BACK AND BRACKETS



3 Bandsaw and sand the arcs on the front edges of the brackets (E). Glue and screw the pump hanger back (D) to the brackets, then glue and screw this assembly to the back (C) [**Exploded View**].

4 Cut two 3¾×4¾" blanks for the bike hanger brackets (F) [**Drawing 2**] and stick them together with double-faced tape.

5 Lay out the bracket shape [**Drawing 2**], then drill the hole through the blanks. Cut and sand the brackets (F) to shape, separate them, and finish-sand.

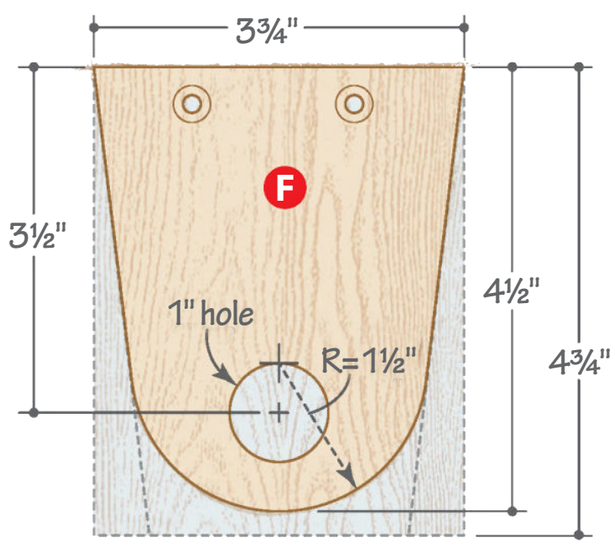
6 Cut to size the bike hanger top (G) and glue and screw it between the brackets (F) [**Exploded View**]. Cut a 1" dowel 4½" long and glue it in the bracket's holes. Glue and screw the bike hanger assembly to the bottom of the box, ½" from the front edge and centered on its length.

7 Finish any remaining sanding, then apply a finish. We sprayed on two coats of lacquer.

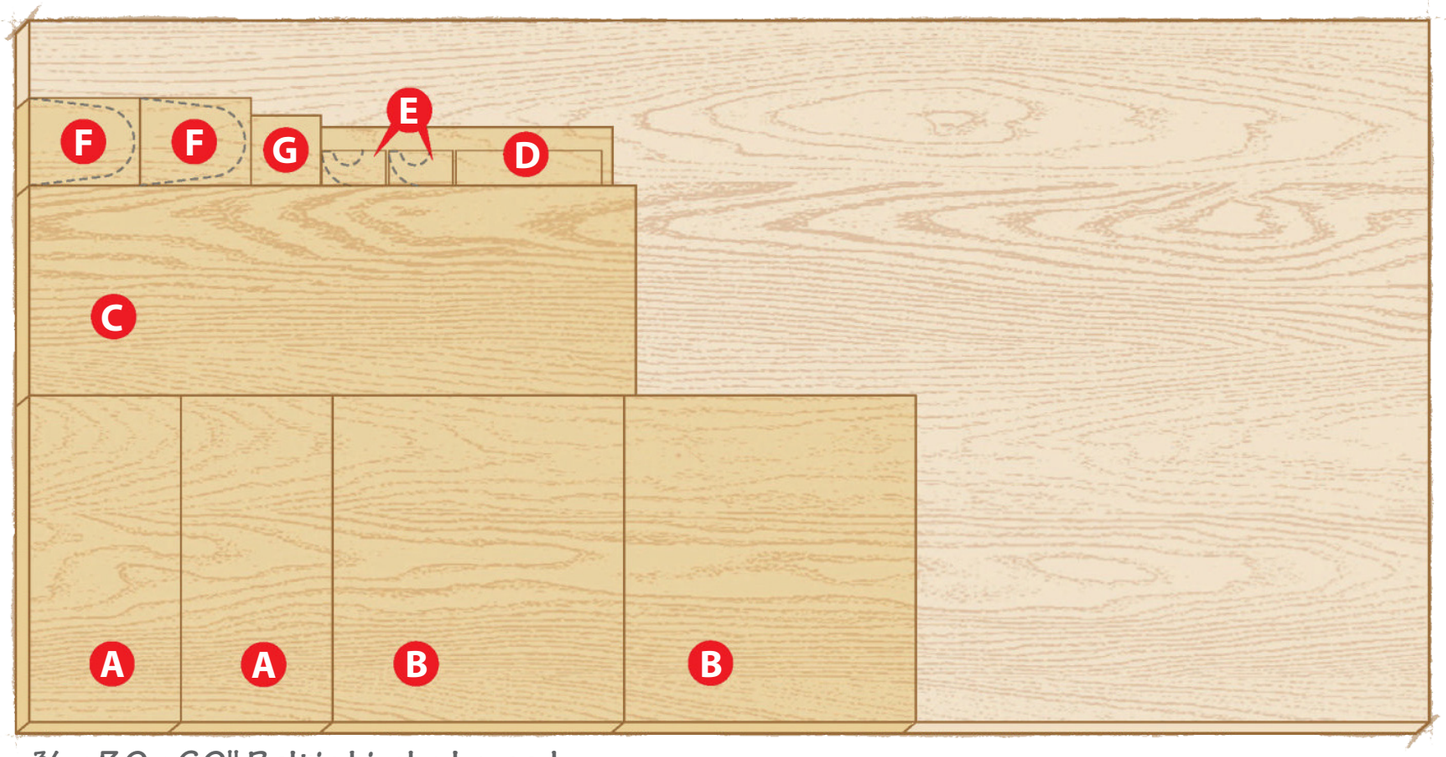
8 Mount the hanger to the wall, aligning the screws with studs [**Exploded View**]. Hang up your bike, pump, and favorite cycling accessories.

Produced by **Zach Brown** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Roxanne LeMoine, Lorna Johnson**

2 BIKE HANGER BRACKETS



Cutting Diagram



¾ x 30 x 60" Baltic birch plywood

Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
A	sides	¾"	14"	6½"	BP	2
B	top and bottom	¾"	14"	12½"	BP	2
C	back	¾"	9"	26"	BP	1
D*	pump hanger back	¾"	1½"	6¼"	BP	1
E*	pump hanger brackets	¾"	1½"	2¾"	BP	2
F*	bike hanger brackets	¾"	3¾"	4½"	BP	2
G	bike hanger top	¾"	3"	3"	BP	1

*Parts initially cut oversize. See the instructions.
Materials key: BP–Baltic birch plywood.
Supplies: #8×3" flathead screws, #8×1½" flathead screws, #8×1¼" flathead screws, finish washers, 1" dowel.
Bits: ⅛" round-over router bit, 1" and 1¼" Forstner bits.



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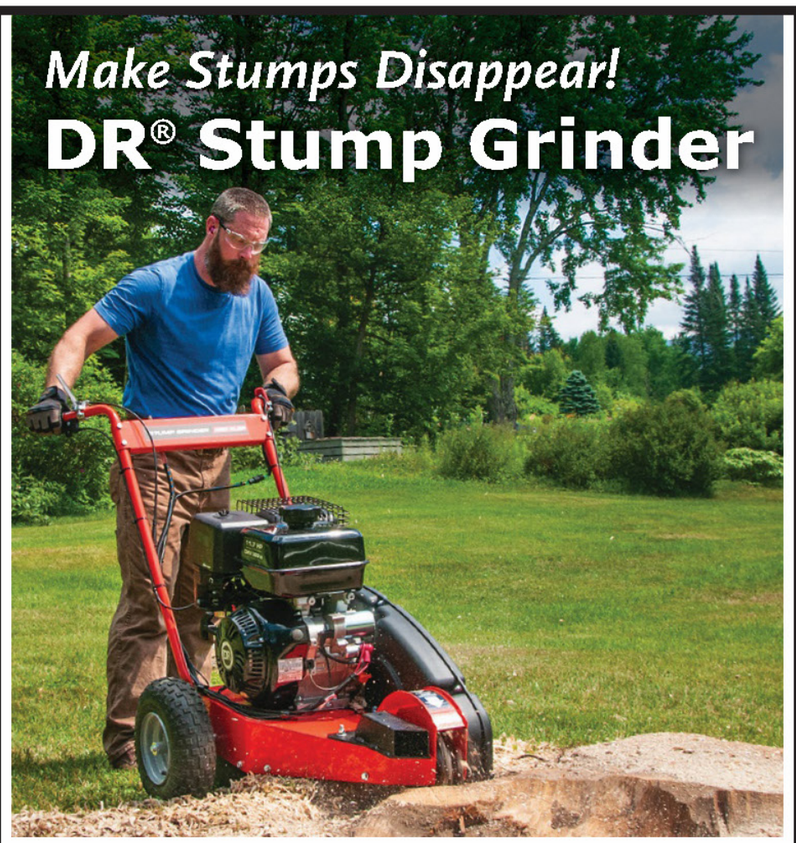

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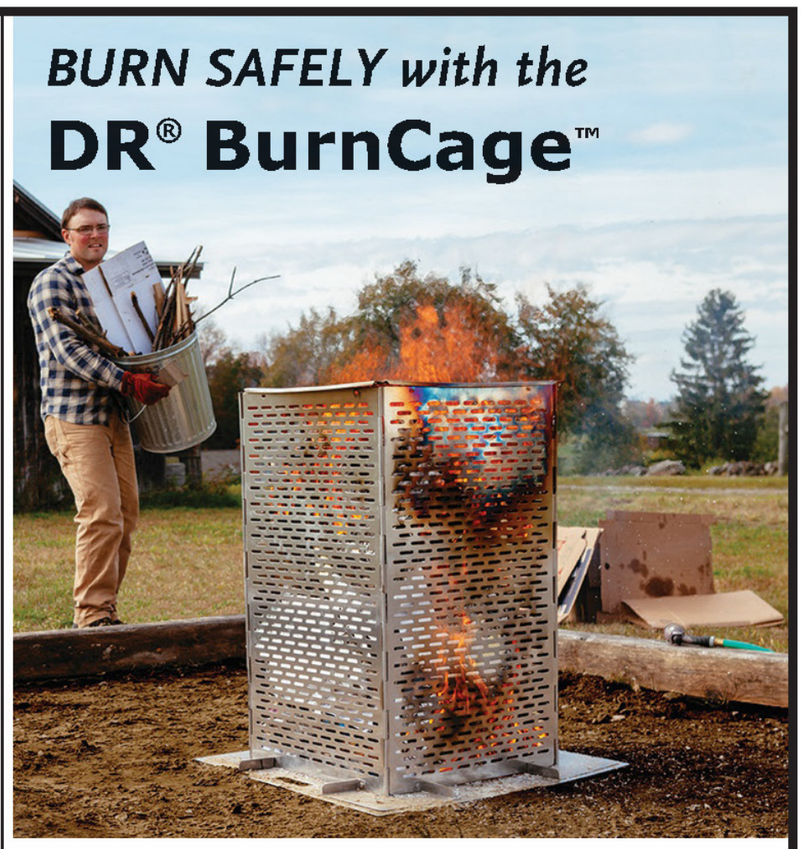

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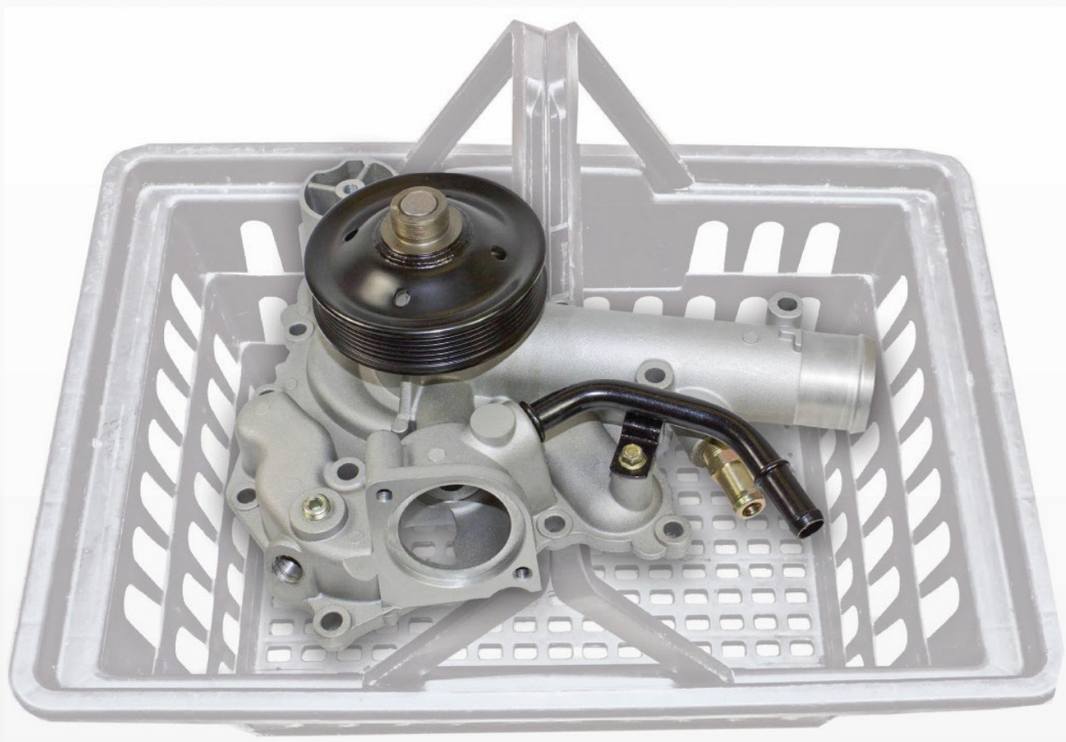

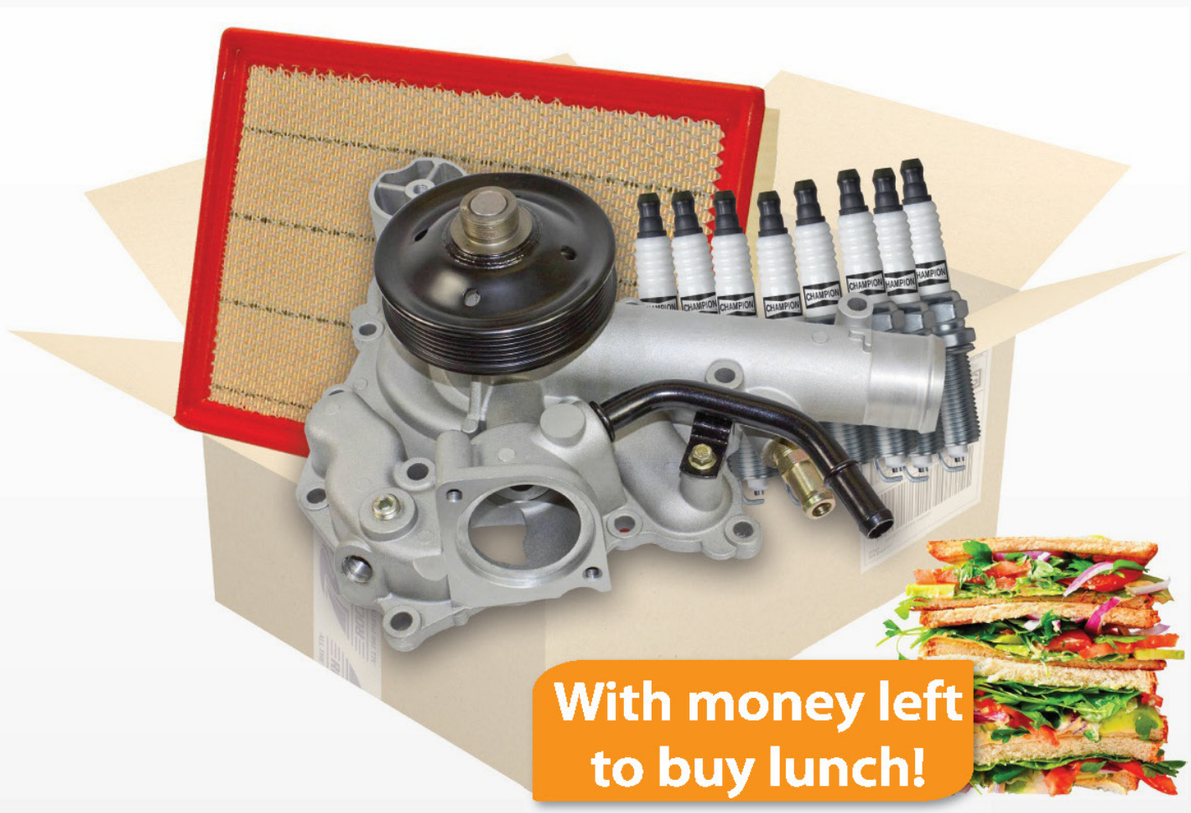

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Bob's Router Roundup

As *WOOD*® magazine's Tools Editor, I've used more routers (literally all of them) than anyone else on staff, and own more than I should admit. In fact, if I can do a job with a router—handheld or in a table—rather than a tablesaw, I'm doing it. Here are my four favorites.

—Bob Hunter

Best for Big Jobs

Bosch 2.3-hp combo kit

no. MRC23EVSK, $290

My go-to handheld router, this kit comes with fixed and plunge bases, as well as ¼" and ½" collets. Bosch engineers designed it with the power switch in the right handle of each base, so I never have to let go of the tool to turn it on or off. Along with loads of power and electronic feedback to maintain rpms, the MRC23EVSK also sports LEDs to brighten around the bit, the best plunge-lock system in the industry, and two wrenches to change bits. And it might not seem like much, but it's a joy to use a router that simply hums while making deep cuts; I appreciate the quality that went into this tool's design.

877-267-2499, boschtools.com

Tops in the Table

Milwaukee 3¼-hp fixed base router

no. 5625-20, $370

(in JessEm Mast-R-Lift II router lift)

no. 02120, $420

Although you can get by without one, it's been nearly two decades since I used a router table without a dedicated router lift, and this is my preferred setup. Although Milwaukee sells this router only with a fixed base—and it works well in that configuration—it's a workhorse in a lift. I've never been able to bog it down, even using wide panel-raising and tall crown-molding bits, thanks to feedback circuitry that maintains rpms. It's just one less thing to worry about. The router comes with only a ½" collet, so if you plan to use ¼"-shank bits as well, you'll need to buy that collet separately.

800-729-3878, milwaukeetool.com
800-436-6799, jessem.com





Best for Finesse

DeWalt 1¼-hp combo kit

no. DWP611PK, $200

For some tasks, such as edge profiles or mortises, finesse matters more than muscle. That's when I reach for this router. Its lighter weight and LEDs make it super easy to rout within layout lines when I plunge-rout bow-tie mortises for inlays, for example. The DW611PK accepts only ¼"-shank bits, but that's fine because smaller bits equal more precision. The fixed base's elongated D-shaped subbase provides more contact with the workpiece surface to avoid tipping, and the plunge subbase accepts standard two-piece guide bushings.

800-433-9258, dewalt.com



Perfect for Profiles

Bosch 1-hp trim router

no. PR20EVS, $100

When it comes to small edge treatments and flush-trimming, I grab this dandy. (I actually own three of them, two of which always have ⅛" and ¼" round-over bits installed and ready to go.) Its microadjuster makes it easy to fine-tune bit height, and the base grips easily, even with my large hands. I wish it had an LED, but I know this router so well I can trust it by feel when routing.

877-267-2499, boschtools.com

continued on page 74

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Gear up for greater torque

20" drill press, no. PM2820EVS, $2,800

Powermatic's newest drill press uses gears (rather than belts) to transfer power from the motor to the spindle, resulting in higher torque than Powermatic's 18" belt-driven machine. I tested its torque by drilling with multispur bits and holesaws of increasing sizes, and the PM2820EVS steadily powered through each one, resisting only when I got to a 3⅛" bit. But even then, by slowing my feed rate, it powered through.

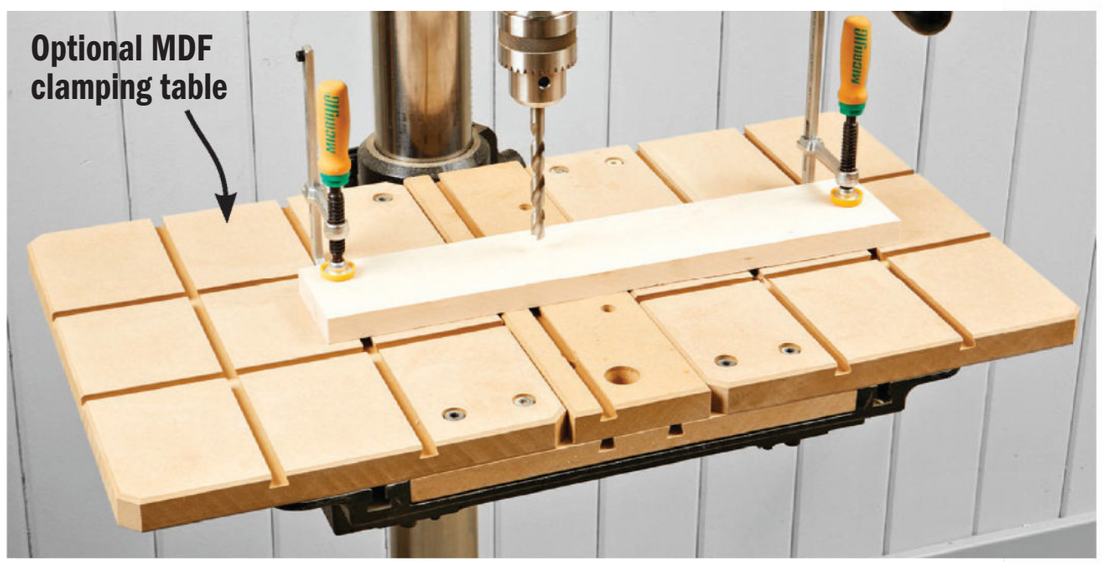
The PM2820EVS provides two speed ranges (150–870 and 600–3,650 rpm) with electronic variable speed in 10-rpm steps through each range. The digital readout responded slowly when making changes, but did not create a problem. With a ⅝" chuck and 6" of quill stroke, this machine's capacities should be more than enough for almost every woodworking task.

I like the 15⅜×20" cast-iron table because its flat flanges around the sides and front accept clamps easily. Two front-to-back T-slots provide the ability to clamp on top of the table, but I wish they were closer to the chuck than 7¼". The reason for that spacing: The 13"-wide center panel can be removed and replaced with two optional inserts (MDF clamping [no. 1792824, $300], *below*, and metal downdraft [no. 1792825, $180]). The fence worked decently, but the lock on the cam-style stop could not maintain the correct tension from one use to another.

—Tested by Jan Svec

Powermatic
800-274-6848, powermatic.com







Get a grip on bearing bits

MLCS no. 196-0900, $25; Infinity no. RBV-001, $35

If you've ever tried to remove the bearing from a router bit, you know the struggle to hold it safely and securely. I've tried holding them in my bench vise, with locking pliers (and rubber strips to prevent the teeth from scarring the shanks), and even when installed in a router. Those methods eventually work, but not well. These handy little bit vises take away all the fuss. With unidirectional needle bearings that lock when you reverse direction, you insert the bit in one side to tighten, and the other to loosen. Both models work perfectly; the Infinity also works with 8mm-shank bits.

—Tested by Bob Hunter, Tools Editor

MLCS Woodworking
800-533-9298,
mlcswoodworking.com

Infinity Cutting Tools
877-872-2487, infinitytools.com



continued on page 76

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P/Flux 1, 1½ hp, $2,900



P/Flux 2, 2 hp, $3,600



P/Flux 3, 3 hp, $3,800



X/Flux 5, 5 hp, $4,500

Laguna revamps its dust collectors

Seven models from $2,000 to $4,500

Adding new features to existing models, Laguna's dust-collection line keeps growing with several new models. The three C/Flux series portable cyclones sport a dual-paddle manual filter cleaner and a larger collection drum with a view window. The three P/Flux series portable cyclones incorporate an automatic filter cleaner that activates every 10 minutes, larger drums, and LED and audio signals to alert you when the drum is nearly full. And new to the lineup: The stationary X/Flux 5 provides a 5-hp motor with HEPA filter, automatic cleaning, and 39-gallon collection drum.

Laguna
800-234-1976, lagunatools.com

Bora adds big-boy router to its lineup

3¼-hp fixed-base router, no. PM-6250, $430

Bora's new fixed-base router features a soft-start motor with variable speed (10,000 to 22,000 rpm) and electronic feedback to maintain speed under load. It comes with ¼" and ½" collets and two polycarbonate subbases: one for standard two-piece guide bushings and another with a 2½"-diameter bit opening. You can also remove the 4¼"-diameter motor and install it in a router lift (adapters may be required).

Bora Portamate
248-588-0395, boratool.com



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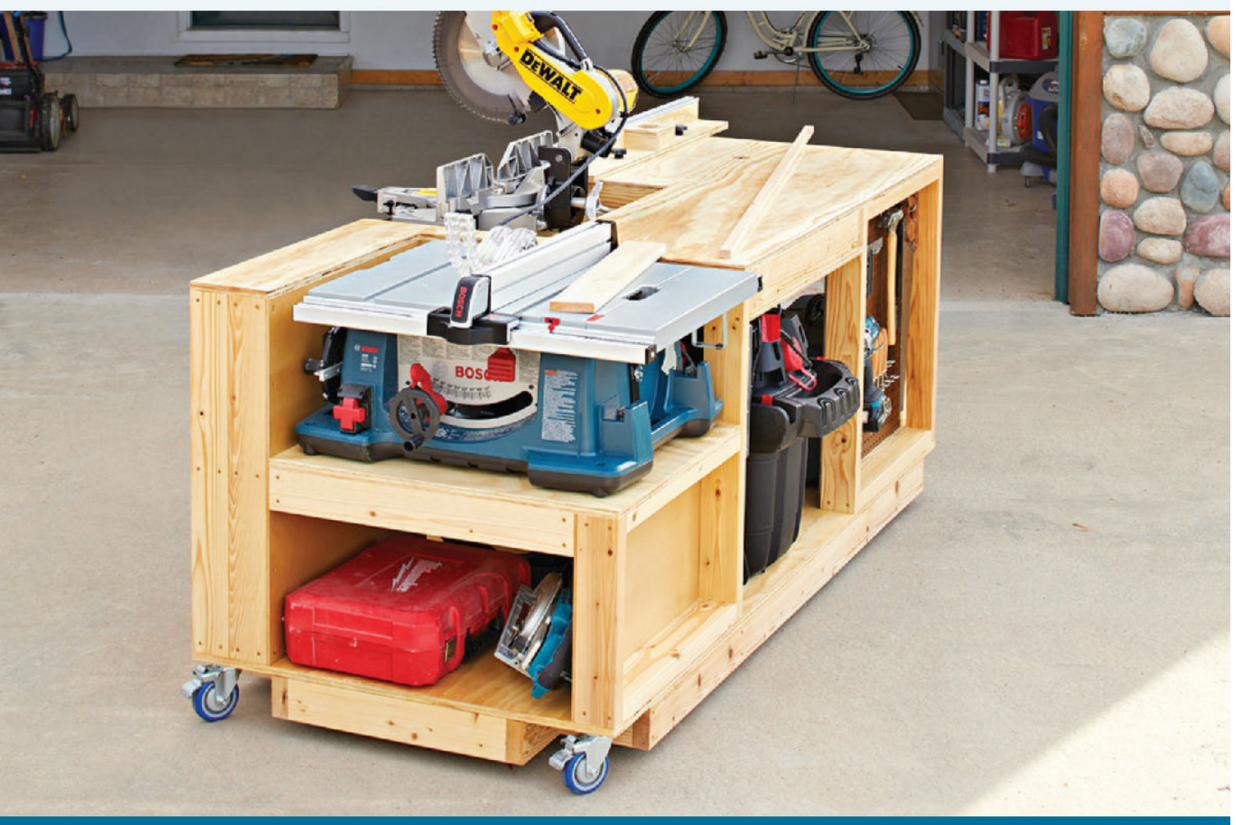

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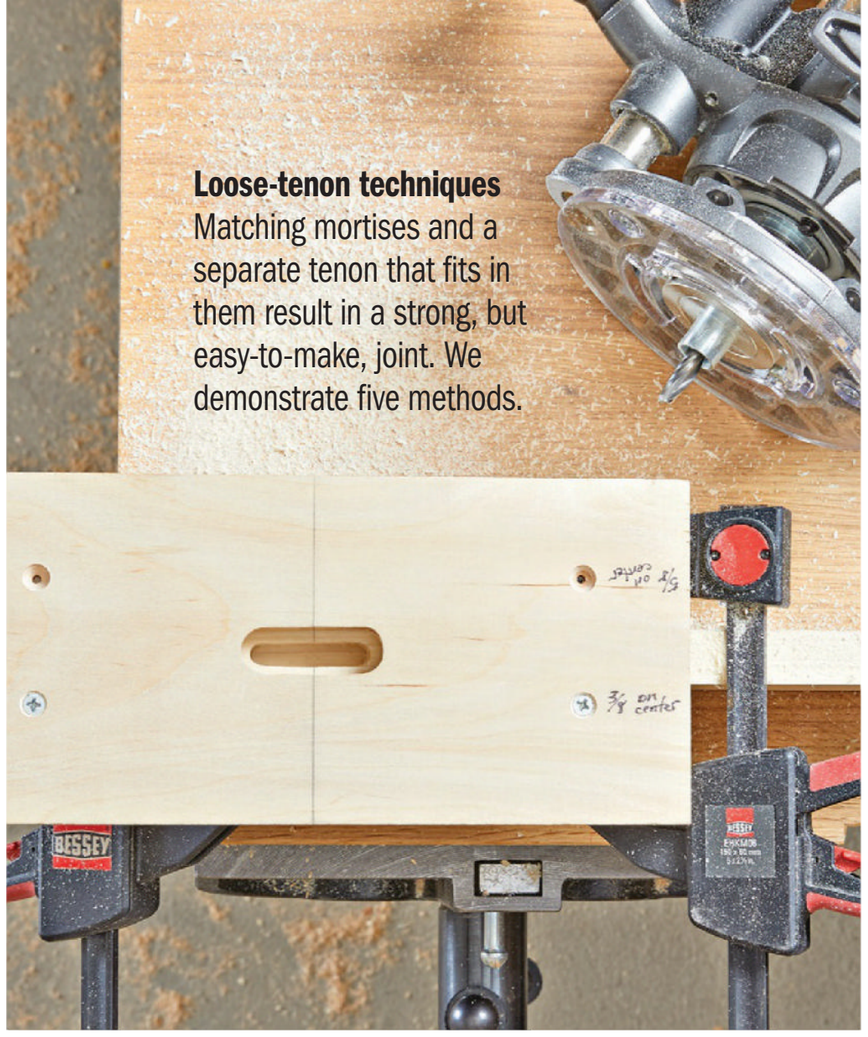
What's Ahead

A GLIMPSE INSIDE THE OCTOBER ISSUE (ON SALE AUGUST 19)

Here's the scoop
Learn to turn this handy, handsome helper. Our bonus video teaches you how to calibrate it when complete.



No-fail nailer tips
Nobody had pneumatic nailers until Norm showed us how handy one could be in a woodworking shop. Here's how to get the most from your nailer, bradder, and pinner.



Loose-tenon techniques
Matching mortises and a separate tenon that fits in them result in a strong, but easy-to-make, joint. We demonstrate five methods.



Basket-weave cutting board
This eye-popping pattern is mind-blowingly easy to create, and you'll love how the weave wraps around the edges!

Lighted display case
The glass shelves of this gorgeous unit ensure that every piece inside gets its share of the spotlight cast by wireless LEDs.

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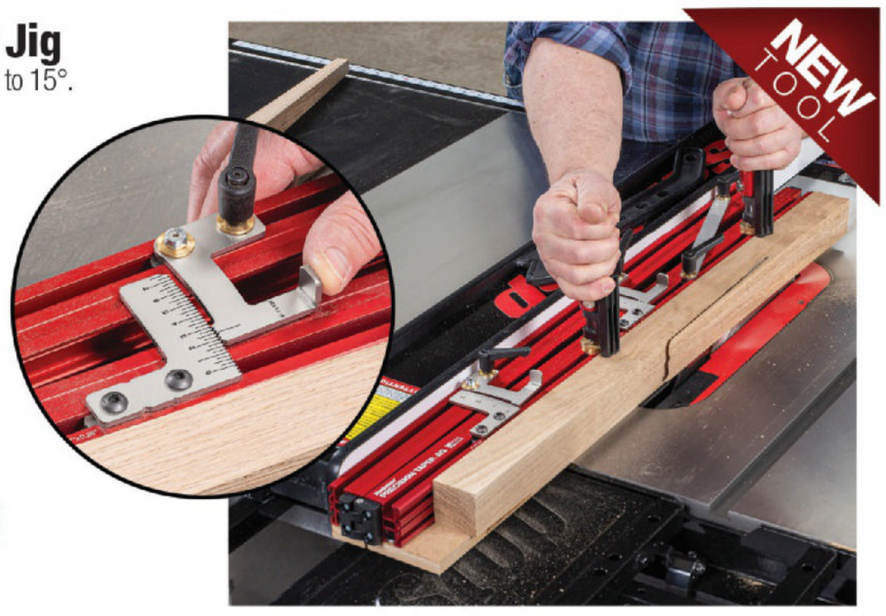

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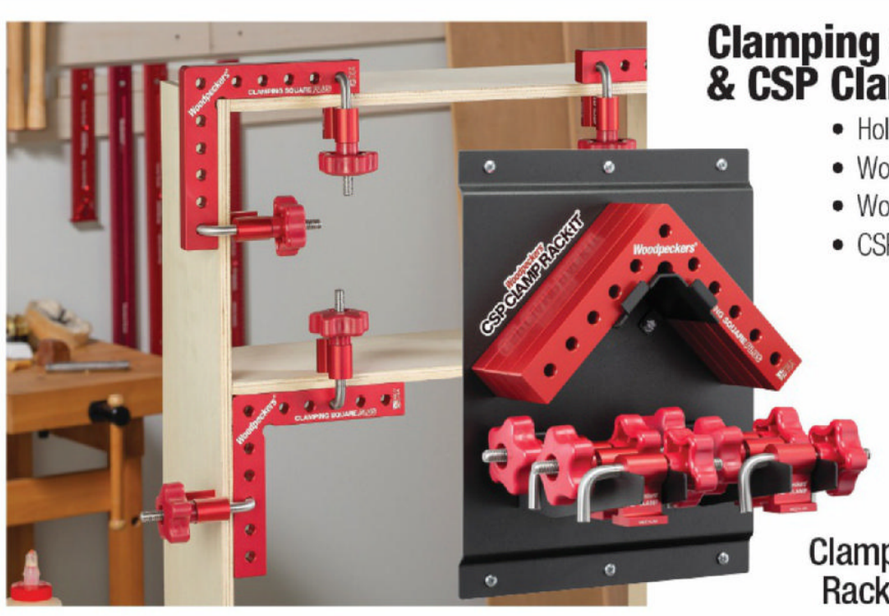

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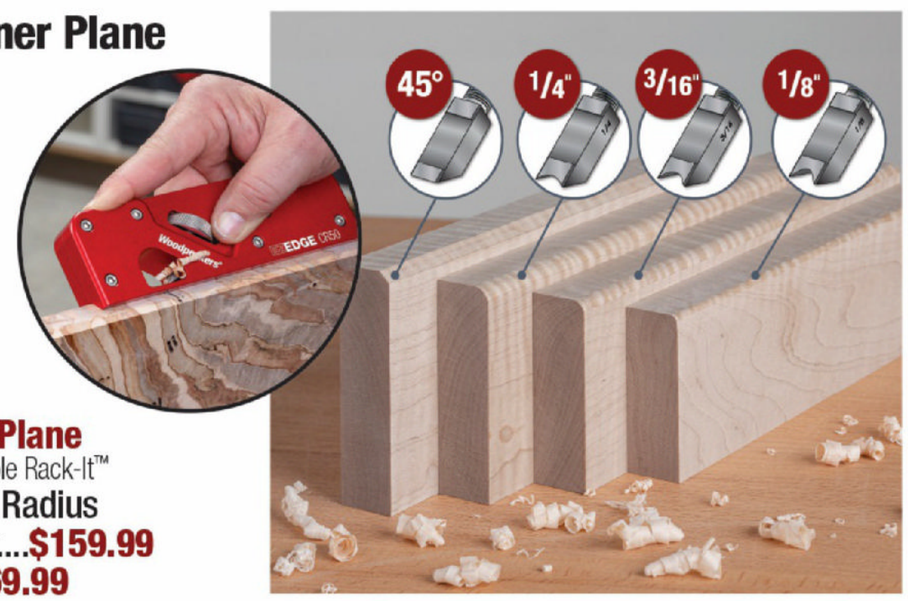

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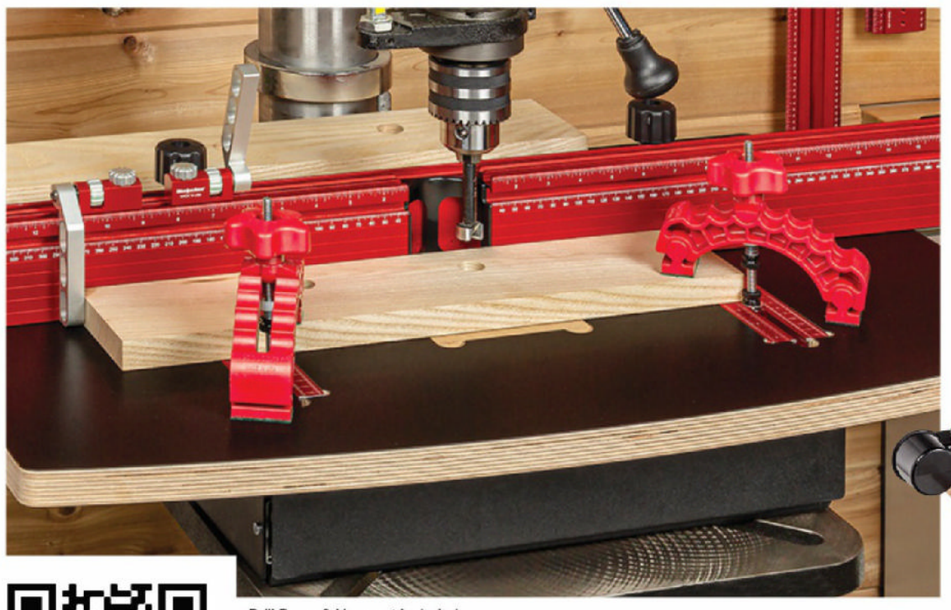
-or- 45° Chamfer....**$159.99**
Deluxe Set....**$569.99**



Drill Press & Hose not included.



DP·PRO Drill Press Table System

- Integrated dust collection.
- Micro-adjustable Flip Stops.
- 1" thick Baltic Birch with laminate both sides.
- Extension Wings for long material support.

DP·PRO Drill Press Table Master System
36" Table, 24" Fence.....**$499.99**
36" Table, 36" Fence.....**$519.99**
48" Table, 36" Fence.....**$549.99**
48" Table, 48" Fence.....**$569.99**

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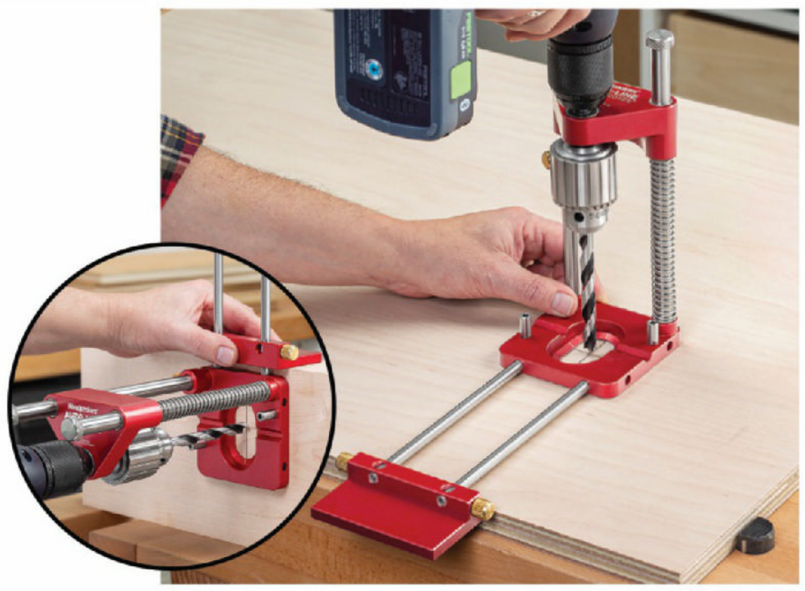
Woodpeck.com

MADE IN USA

AUTO-LINE DRILL GUIDE™

- Perpendicular holes anywhere.
- Fence fits on all 4 sides.
- Works with most drills.
- 1" inside frame.
- 2" capacity outboard.
- Deluxe Kit includes extensions.



Drill not included.

Auto-Line Drill Guide
Drill Guide....**$269.99**
Deluxe Kit....**$369.99**

Exact-90 Miter Gauge

- Square cuts every time.
- Miter bar self-adjusts 3/4" slots.
- Micro-adjust flip stop & 45" extension.
- 24" cross-cut capacity on most saws.
- Miter Bar available separately.

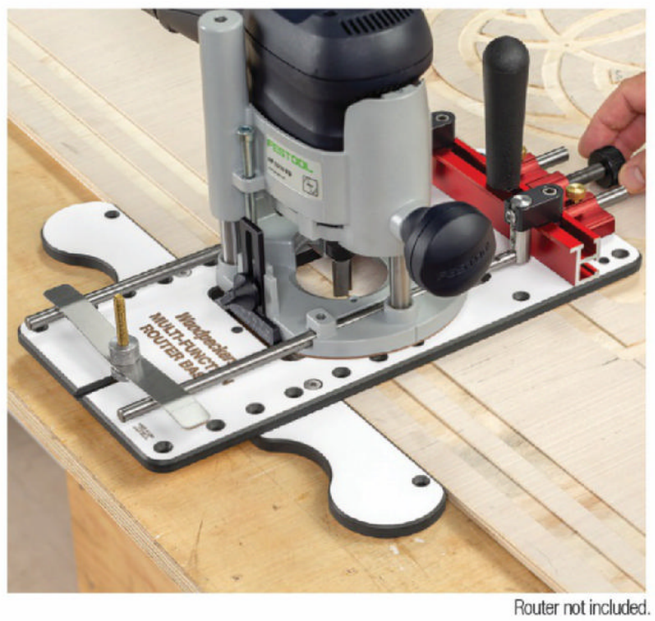


Table Saw not included.

Exact-90
Miter Gauge....**$329.99**
25.5" Miter Bar....**$69.99**

Multi-Function Router Base

- Dial in exact cutting location.
- Cut parallel to any edge
- Trammel point for perfect arcs.
- Extra support for edge routing.
- Works with most routers.



Router not included.

Multi-Function Router Base
Includes 1 Pair Extension Rods
w/ 5/16" Guide Rods....**$239.99**
w/ 3/8" Guide Rods....**$239.99**
w/ 10mm & 1/4" Guide Rods....**$239.99**

DUAX Angle Drilling Table

- Auxiliary table mounts to your drill press.
- Adjusts to any angle from 0° to 90°.
- Teeth engage for repeatable angles.
- Optional Clamping Kit adds workholding ability.
- Designed to fit most drill presses 12" & larger.
- Ideal for chair and stool projects.



Duax Angle Drilling Table
Duax....**$299.99**
Deluxe Kit....**$339.99**

Available for Powermatic/ Biesemeyer & SawStop

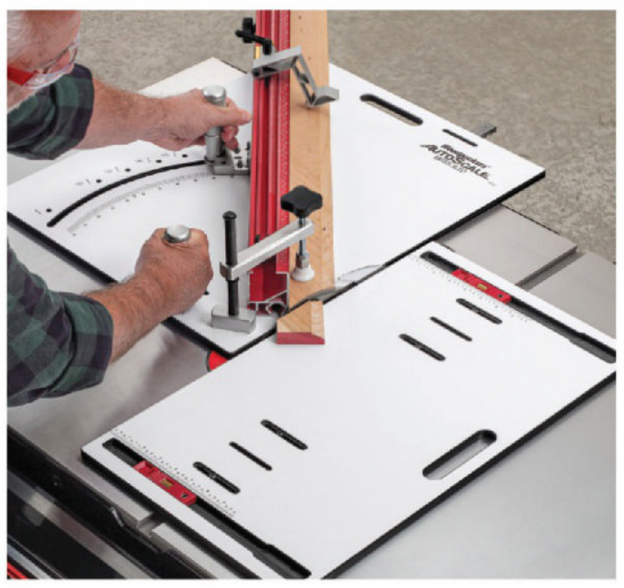


Table Saw not included.

RIP-FLIP Fence Stop System™

- Relocates rip fence perfectly.
- Flips out of the way when not needed.
- Couple 2 stops for perfect fitting dadoes.
- Extra stops & dado couplers available.

RIP-FLIP Fence Stop System
*Fits SawStop**
36" Capacity....**$209.99**
52" Capacity.....**$219.99**
*Powermatic/Biesemeyer**
30" Capacity....**$219.99**
50" Capacity....**$229.99**



AUTOSCALE™ Miter Sled

NEW TOOL

- Scale accurate at any angle.
- Miter bar fits any 3/8" x 3/4" slot.
- Flip stop with micro-adjust.
- Stop extends to 50".
- Stops for 3-. 4-, 5-, 6-, 8- and 12-sided miters.

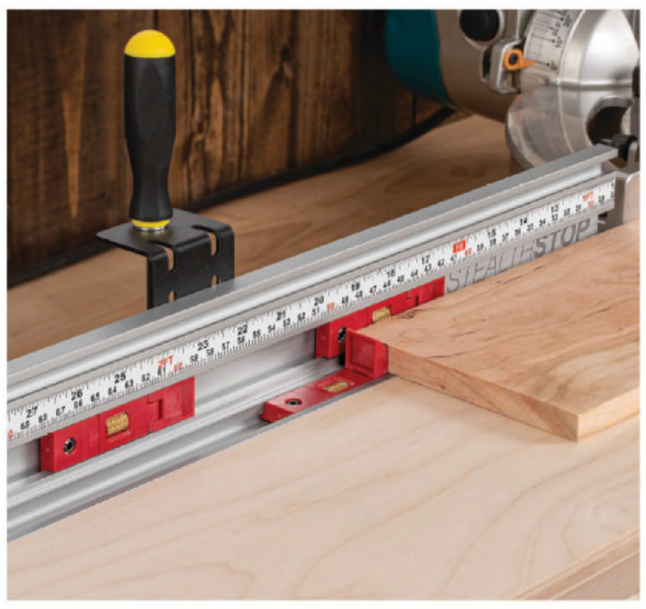
AutoScale Miter Sled
Deluxe....**$1089.99**
Left-*or*-Right Miter Sled....**$529.99**
Drop Zone....**$129.99**

StealthStop™ Miter Saw & Fence Stop System

- Stops retract completely within track.
- Micro-adjust provides precise control.
- Installs flat or as a vertical fence.
- Include track, stops, brackets & rule.



StealthStop
Left -or- Right
4' Fence....**$129.99**
4' Combination....**$199.99**



MORTISE MATCH™

NEW TOOL

- Indexed alignment for narrow stock.
- Improved performance on miters.
- Centers on stock from 1/2" to 2-3/8".
- Minimizes fatigue on production runs.
- Works with both DF-500 & DF-700XL.
- Attaches in seconds with just 2 bolts.



Festool Domino & bench dogs not included.

MortiseMatch....$699.99

*Visit **Woodpeck.com** for hundreds of other American Made Tools!*

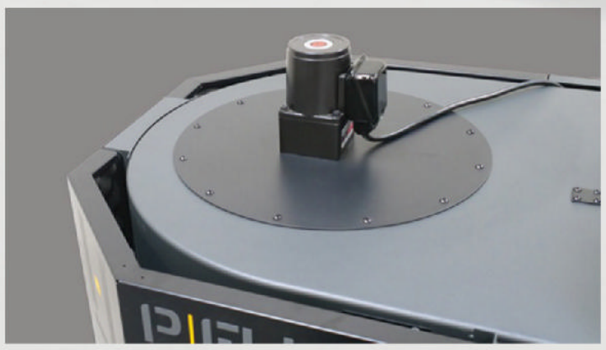
NOTE: The SawStop, Powermatic & Biesemeyer brand names are the registered trademark of the respective company and is not associated with Woodpeckers, LLC.

THE NEW

P|FLUX:I



LAGUNA



Auto Clean Motor



Redesigned Control Panel

LagunaTools.com

- Auto clean now standard on entire P|flux series
- Runs every 10 min & when shutting down: 10 seconds left, 10 seconds right
- In addition, can be activated manually via control panel or by remote any time