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- Dovetail saw guides
- Japanese table lamp
- Guide to plywood
- Faces of the craft
- Straw marquetry



Teak end table, p. 26



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- Motor: 5 HP
- Tablesaw type: Cabinet
- Blade size: 10 in.
- Maximum cutting height @ 90deg: 3 in.
- Maximum cutting height @ 45deg: 2 1/8 in.
- Maximum ripping capacity - right: 60 in.
- Table type: Precision-Ground Cast Iron
- Overall table size: 74 in. x 27 in.
- Shipping weight: 558 lbs.



WARNING! †¹
G1023RLX5 ONLY \$2750⁰⁰



12" 7 1/2 HP 3-PHASE TABLE SAW

- Motor: 7 1/2 HP, 220V/440V* (prewired for 220V), 3-phase, 19.5A/10A
- Rip capacity: 36"
- Max. depth of cut @ 90°: 4"
- Max. depth of cut @ 45°: 2 3/4"
- Table size with extensions: 30 3/4" x 48 1/4"
- Distance from front of table to center of blade: 17 1/4"
- Floor-to-table height: 35 3/4"
- Arbor diameter: 1"
- Arbor speed: 3600 RPM
- Max. width of dado: 3/4"
- Dust port size: 4"
- Footprint: 22 1/2" L x 24" W
- Overall dimensions: 75" W x 44" D x 42 1/2" H
- Approx. shipping weight: 756 lbs.

**EXTREME
SERIES**



WARNING! †¹
G0697X ONLY \$3810⁰⁰



10" 5 HP SLIDING TABLE SAW

- Motor: 5 HP, 230V, single-phase, 19A
- Rip capacity: 33"
- Crosscut capacity: 63"
- Blade tilt: 0-45°
- Max. depth of cut @ 90°: 3 3/4"
- Max. depth of cut @ 45°: 2 1/4"
- Main table size with extensions: 14 3/8" x 27"
- Sliding table size: 12 1/4" x 63"
- Floor-to-table height: 33 3/8"
- Main blade size: 10"
- Main blade arbor: 5/8"
- Main blade speed: 4000 RPM
- Max. width of dado: 13/16"
- Dust port sizes: 2 1/2", 4"
- Footprint: 25 1/2" L x 28" W
- Overall dimensions: 76" W x 125" D x 46" H
- Approx. shipping weight: 688 lbs.

**MADE ISO 9001
IN AN FACTORY**



WARNING! †¹
G0623X ONLY \$4940⁰⁰



17" 2 HP BANDSAW WITH CAST-IRON TRUNNION & FOOT BRAKE MICRO-SWITCH

- Motor: 2 HP
- Max cutting width: 16-1/4 in.
- Max cutting height: 12 in.
- Table size: 17-1/4 in. x 23-5/8 in.
- Wheel type: Computer-Balanced Cast Iron
- Blade size: 131-1/2 in.
- Quick blade change: Yes
- Overall height: 73 in.
- Shipping weight: 460 lbs.



**EXTREME
SERIES**

**MADE ISO 9001
IN AN FACTORY**



WARNING! †¹
G0513X2BF ONLY \$2215⁰⁰



19" 3 HP BANDSAW

- Motor: 3 HP, 220V, single-phase, 12A
- Maximum cutting width left of blade: 18 1/4"
- Maximum cutting height (resaw capacity): 12"
- Table size: 26 3/4" x 19" x 1 1/2" thick
- Table tilt: 5° left, 45° right
- Floor to table height: 37 1/2"
- Blade size: 141" - 143" (1/8" - 1 1/4" wide)
- Blade speeds: 1700, 3500 FPM
- Footprint: 17 3/4" x 29 1/2"
- Overall dimensions: 36" W x 32" D x 76" H
- Approximate shipping weight: 460 lbs.



**EXTREME
SERIES**

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IN AN FACTORY**



WARNING! †¹
G0514X ONLY \$2265⁰⁰



9" X 138-1/2" INDUSTRIAL OSCILLATING EDGE SANDER

- Motor: 3 HP, 220V, single-phase, 15A
- Sanding belt oscillates 1/4"
- 8" vertical table height adjustment
- Table tilt: 0-45°
- Table size: 11 3/4" x 47 3/4"
- Platen size: 47 1/2" x 9 1/2"
- Footprint: 42" x 24 1/2"
- Sanding belt size: 9" x 138 1/2"
- Belt speed: 4120 FPM
- Table height: 33" to 41"
- End table size: 18" x 13"
- End table travel: 8"
- Approx. shipping weight: 73 lbs.



WARNING! †¹
G9984 ONLY \$4895⁰⁰



17" FLOOR DRILL PRESS

- Motor: 1 1/2 HP
- Power Requirement: 120V or 240V, Single-Phase, 60 Hz
- Swing: 17 in.
- Type: Floor
- Range of Spindle Speeds: 180-3240 RPM
- Drilling Capacity: 1 in. in Steel
- Drill Chuck Type: JT3 Key Chuck
- Quill Diameter: 2.85 in.
- Shipping weight: 260 lbs.



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WARNING! †¹
G7947 ONLY \$895⁰⁰



15" DRILL PRESS WITH AUTO DOWNFEED

- Motor: 2 HP
- Power Requirement: 220V, Single-Phase, 60 Hz
- Swing: 15 in.
- Type: Floor
- Range of Spindle Speeds: 140-2436 RPM
- Drilling Capacity: 1-1/8 in.
- Drill Chuck Type: B16
- Quill Diameter: 75 in.
- Shipping weight: 772 lbs.



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WARNING! †¹
G0823 ONLY \$3040⁰⁰



SHOP FOX 37" 10 HP DRUM SANDER

- Sanding drum motor: 10 HP, 240V, single-phase, 44A
- Conveyor motor: 1/3 HP, 2.7A
- Maximum board width: 36-1/2"
- Maximum board thickness: 4"
- Minimum board length: 9"
- Minimum board thickness: 1/16"
- Feed rate: Variable, 6-18 FPM
- Sanding belt size: 6" x 138"
- Drum diameters: 6"
- Dust ports: (4) 4"
- Footprint: 32" W x 45" L
- Overall dimensions: 62" W x 53" D W x 49" H
- Approximate shipping weight: 1379 lbs.

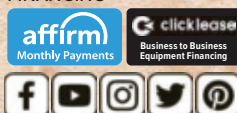


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FACES OF
THE CRAFT **74**

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For members

VIDEO

Secrets from Chris's shop

Contributing editor Chris Gochmour (p. 26) shows off an array of modifications he's made to his tools to get the most out of his shop time.



VIDEO

The last straw

Custom furniture maker Gerard Williams (p. 50) demonstrates the subtleties of applying straw marquetry to his pieces.



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VIDEO WORKSHOP

Hanging Wall Cabinet with Michael Pekovich

FWW editor and creative director Michael Pekovich builds a small cabinet that packs in a lot of techniques. It has dovetailed case construction, through-mortise-and-tenon joinery, a dovetailed drawer, a frame-and-panel door, and a decorative kumiko panel. In this series, while demonstrating how to build the cabinet, he teaches woodworking techniques that can be applied to building any piece of furniture.



Online extras

Free content at finewoodworking.com/295



A closer look at eco-friendly sheet goods

Many sheet goods—especially MDF—can have alarming amounts of chemicals in them. Assistant digital editor KT Kaminski looks at some friendlier options.



Using a dovetail guide

Furniture maker Mike Farrington (p. 58) shows his process for cutting dovetails with a saw guide.

The history of Andon lamps

Deputy Editor Jonathan Binzen writes about these Japanese lights (p. 42), which date back centuries.

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contributors

In 2014, Suzanne Walton opened the doors to Rowan Woodwork ("Guide to Sheet Goods") in Kingston, N.Y. Lead builder Owen Madden joined the team in 2020, drawn to Rowan's core principle that each home is filled with unique possibilities of expression and functionality. Suzanne (driver's seat in photo) studied furniture restoration and conservation at Manchester College of Arts and Technology in England. Owen (white hat in photo) grew up in Schenectady, N.Y. He started in historic restoration, then moved to modern building and design. Both of them seem to have woodworking in their blood. Suzanne's grandfather was a joiner in England. Owen's great-grandfather was a wooden boat builder.



Craig Vandall Stevens ("Build an Andon Lamp" and Handwork), runs the Philadelphia Furniture Workshop. He was introduced to kumiko in the early 1990s by a classmate at The Krenov School. A decade later, at a conference in central Japan, a prominent shoji maker and teacher gave him some vintage manuals on shoji and kumiko. With the help of his wife, Mami, (whom he met on that same trip) Craig has been puzzling out various aspects of traditional kumiko ever since.



Austin Heitzman (Designer's Notebook) grew up in an American expat family in Jakarta, Indonesia, where he was exposed to both bonsai and woodworking. In his first job after graduate school, at the Philadelphia Museum of Art, he was inspired to dive into woodworking. After filling his house with furniture, he moved to Portland, Ore. There he found himself at the epicenter of the U.S. bonsai movement, and crafted a niche building finely designed bonsai stands.

Gerard Williams ("Straw Marquetry") was born and raised in Los Angeles. Craving a deeper connection to nature, he moved to Vermont and learned cabinetmaking. From there, he apprenticed for years with a French *ébéniste* in New York, learning about the history and craft of Europe's most extraordinary designers and artisans. Subsequently, he opened his own studio, creating pieces that have been shown alongside top studio furniture makers like Wendell Castle and Brazil's Campana brothers.



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Spotlight

Strength vs. appearance

In most of the plans where I see edges rabbeted to fit into dados, the piece is installed with the rabbet underneath. I grant that this avoids any risk of a gap appearing if the rabbet doesn't seat fully either during construction or due to wood movement later, and if this is the bottom of a box it lets you make the bottom flush with the bottom of the sides while being stronger than simply setting the bottom into a rabbet on the sides.

But it seems to me that this orientation does not produce the strongest joint. Forces from above could theoretically split the fibers leading into the tongue away from the rest of the board.

If we invert this arrangement and rabbet the top of the board, weight on the board presses the tongue inward rather than pulling it outward. Now you would have to break the fibers leading into the tongue to make the joint fail, not just split the piece along its grain ... and it should be able to bear significantly more weight as a result.

I know, wood is surprisingly strong stuff, so the cosmetic concerns may be more important in fine furniture. But if you're building something that will be heavily loaded such as workshop cabinets, "upside down" might be the way to go. Am I wrong? Am I just overthinking this? I presume folks like the UW Forest Products Lab have already run this experiment and could tell us.

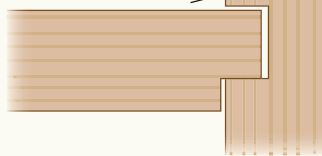
—JOSEPH KESSELMAN, Arlington, Mass.

Like many things in woodworking, the answer is that it depends. You are correct that when you face the rabbet up, the joint is stronger, for exactly the reasons you outline. On the other hand, any potential chipping or gaps are more obvious, from the perspective of a viewer, who is, in effect, looking down into a vertical joint. With the rabbet facing down, the joint is less conspicuous and easy to pull off without visible gaps. That's because you are looking down on a horizontal joint. However, as you point out, the joint is also a bit weaker that way. The best woodworkers will consider all of these factors when choosing which way to orient the rabbet.

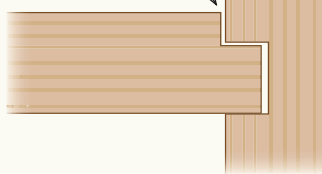
—ASA CHRISTIANA, Workshop Tips editor

RABBET UP OR DOWN?

A rabbet on the bottom creates a horizontal joint at the top which is less noticeable, but weakens the shelf.



A rabbet on the top creates a more noticeable gap, but results in a stronger joint.



Finishing recipe pays off

About 10 years ago, I built a pine bookshelf/cabinet and followed the instructions of author Tom Wisshack in applying his "Best Finish for Pine" (FWW #193, Oct. 2007). On completion, I vowed "never again." The multiple steps—mixing, diluting, layering, sanding, waiting between layers—seemed an unnecessarily laborious, tedious, and complicated process. Well, a decade later, I sit here next to that furniture piece that I've come to love, and I appreciate Mr. Wisshack's invaluable guidance. I've just come up from my shop, where I spent the afternoon starting work on that tedious, multiple-step finish on a bookshelf for my granddaughter. And I'm certain the results will be well worth the effort. As a 40-some-year subscriber, I have to express my thanks to you and your countless fine craftsmen and craftswomen authors for your instruction, inspiration, and excellence. You've contributed immeasurably to my lifelong enjoyment and love of this timeless craft.

—RICK BOWEN, Plantsville, Conn.

Correction

There was a mistake in the dimensions of the post mortises in "Pedestal Dining Table," by David Lamb, FWW #294. On the bottom of p. 30, the mortise for the posts in braces should be 1½ in. dia., not 2 in. (The dimension is correct on the post drawing to the left.)

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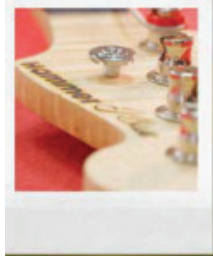
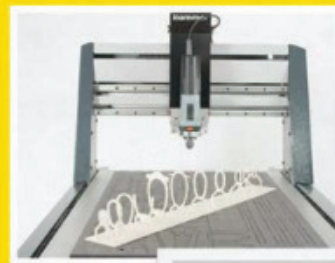


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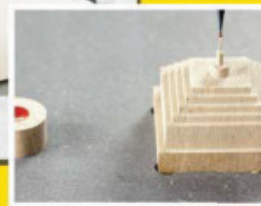
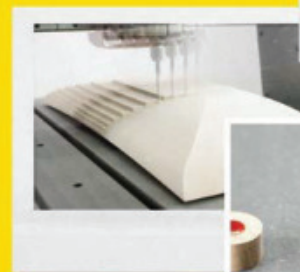
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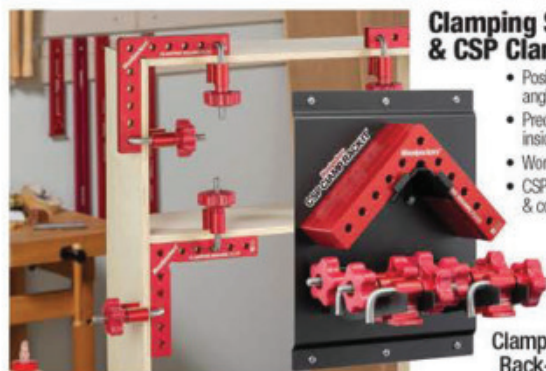
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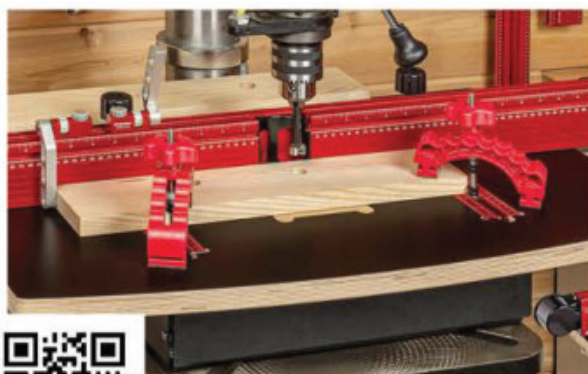
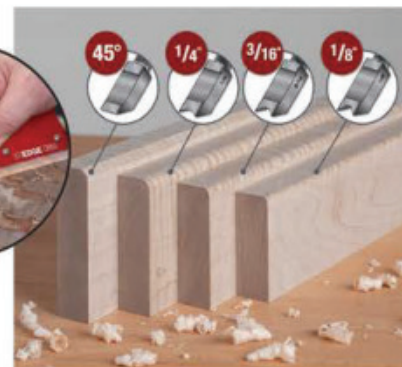
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36" Table, 36" Fence.....\$419.99

48" Table, 36" Fence.....\$449.99

48" Table, 48" Fence.....\$469.99



Drill Press & Hose not included.

AUTO-LINE DRILL GUIDE™

- Drill perfectly perpendicular holes anywhere.
- Fence fits on all 4 sides & works 4 different ways.
- Works with most 1/2" & smaller drills.
- 1" capacity inside frame & 2" capacity outboard.
- Optional extensions & stops available.

Auto-Line Drill Guide
Drill Guide....\$259.99
Deluxe Kit....\$369.99



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- Micrometer adjustment positions cutter perfectly.
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- Works with most routers that have guide rod holes.

Multi-Function Router Base
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w/ 3/8" Guide Rods....\$239.99
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Router not included.

Multi-Router the Joinery Machine

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Table Saw not included.



Exact-90 Miter Gauge

- Perfectly square cuts every time.
- Patent pending miter bar self-adjusts to most 3/4" miter slots.
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25.5" Miter Bar....\$69.99**

Table Saw not included.

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- Applies lateral and vertical pressure simultaneously.
- Works with material from 5/8" to 4".
- New design with nearly double the vertical pressure.
- More attachment points.

ClampZILLA 4-Way Panel Clamp
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StealthStop
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NEW
TOOL

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workshop tips

Collapsible cutting frame makes it easy to break down large parts

The genesis of this tip was my desire for a safe, inexpensive surface for breaking down sheet goods and long boards. Moving big pieces over my cabinet saw is more difficult than cutting them with a track saw or circular saw. This folding frame provides the sacrificial surface I was looking for, and also turns out to be a great place for drilling, routing, cutting with a jigsaw, etc.

Made from a few lengths of solid wood or plywood, joined with common hinges, the frame folds out to sit securely on sawhorses, placing its top surface at an ergonomic height for all sorts of handheld power tools.

At 72 in. by 30 in., fully extended, it's large enough to support a full sheet of plywood or MDF, and the ends can be folded in to collapse the frame for smaller workpieces (or collapse it completely for storage). Whether the frame is partly collapsed or fully extended, optional 2x2s drop into notches along the top to support cutoffs. Folded flat, it hangs on a wall in my shop and is very easy to transport.

Sized to match the height of your tablesaw, this cutting frame could double as a foldaway outfeed table in a small shop.

—ROBERT KIRKENDALL, West Linn, Ore.

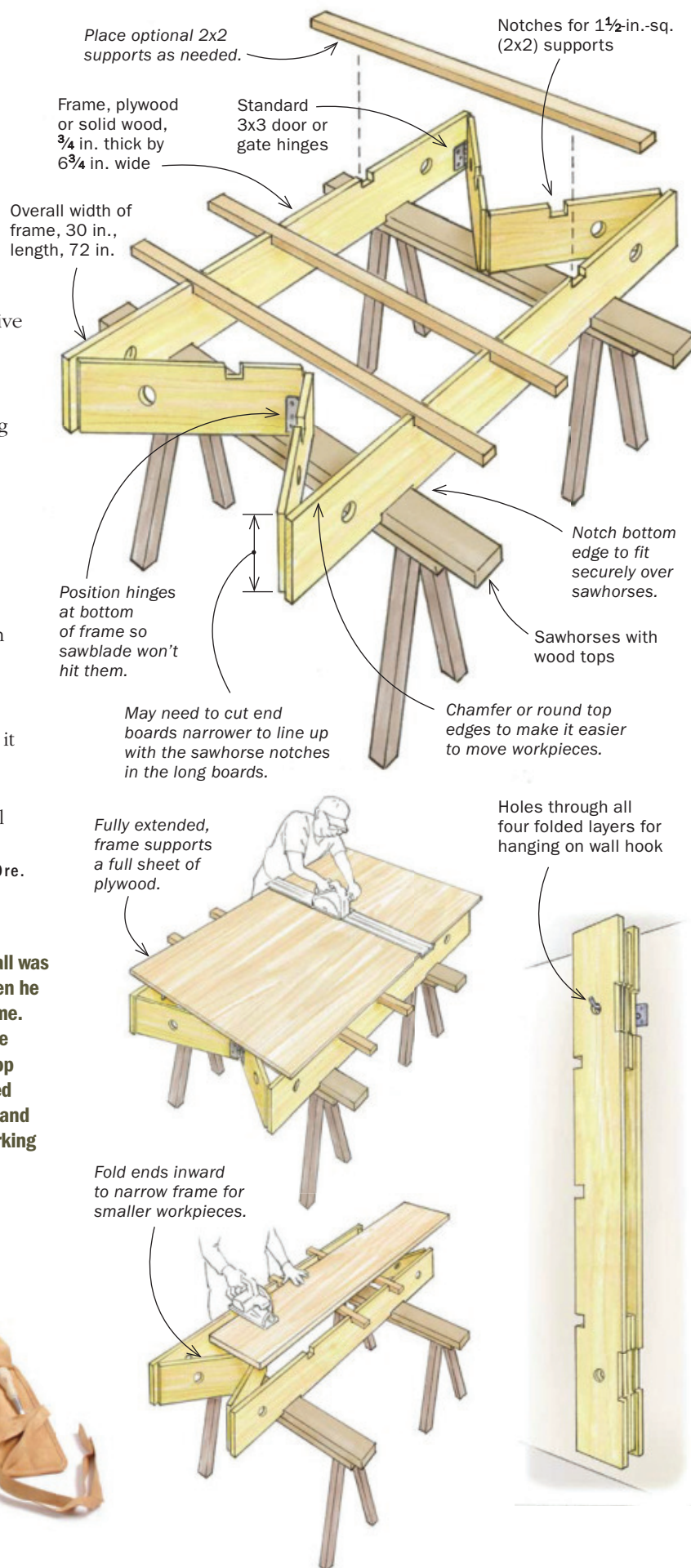
Best Tip



An architect by profession, Bob Kirkendall was drawn to woodworking 40 years ago, when he decided to add a second story to his home. He did everything from the framing to the cabinetry and finish work, setting up shop in his two-car garage, where he continued to produce cabinetry, millwork, lighting, and furniture for his home. His next woodworking goal is to acquire a heavy-duty lathe.

A Reward for the Best Tip

Send your original tips to fwtips@taunton.com. We pay \$100 for a published tip with illustration; \$50 for one without. The prize for this issue's best tip was a four-piece set of Irwin Quick-Grip clamps and an eight-piece Marples Bench Chisel set with Leather Tool Roll.

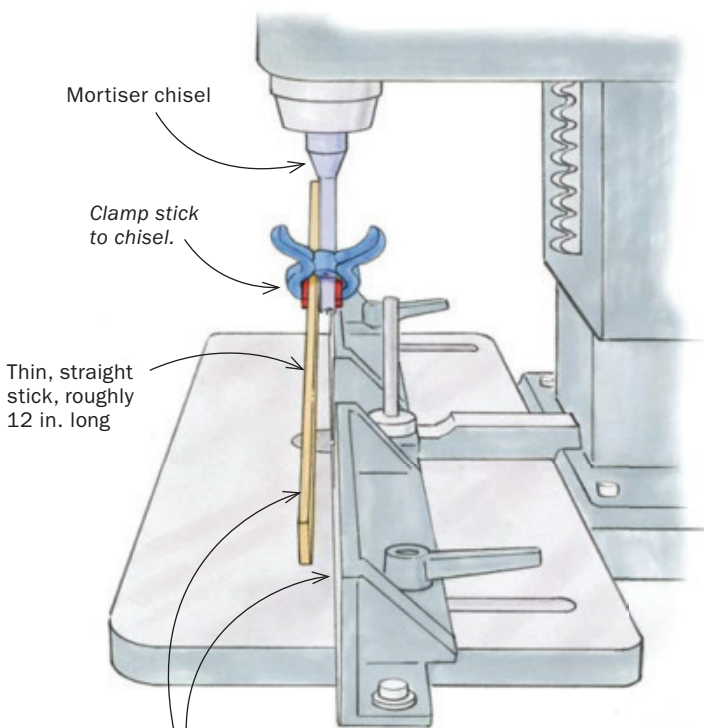


Fine-tune your mortiser with a small stick

To produce smooth-walled mortises with your hollow-chisel mortiser, it's crucial that the face of the chisel be precisely parallel to the machine's fence, so each square recess the chisel chops is perfectly in line with its neighbor. You can try aligning things with a square held to the side wall of the chisel, but the chisel is small, making it a challenging reference surface.

Instead, I clamp a straight piece of wood, about 12 in. long, to the front or back face of the chisel, and sight down the stick to see if it's parallel to the fence. The steel ruler from your 12-in. combination square also works. The long stick magnifies any inaccuracy, making it easy to see if the chisel is parallel to the fence. You can also measure from the fence to each end of the stick to be really sure. Think of it as a winding stick for the mortising machine.

—MARK MOORE, Annandale, Minn.



Stick makes it easy to see if chisel is aligned properly with fence.

Quick Tip

Use UV light to spot errant glue

Some glues are specifically designed to show up in ultraviolet (UV) light. But I've found that Titebond and many other common wood glues also glow in UV light. Dim the lights and shine a UV flashlight at your work. Squeeze-out and glue smudges will glow gently, making it easy to spot and remove them before you apply finish.

—DAN DICKERSON, Chino Hills, Calif.



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FDMC Magazine - Dec. 2020

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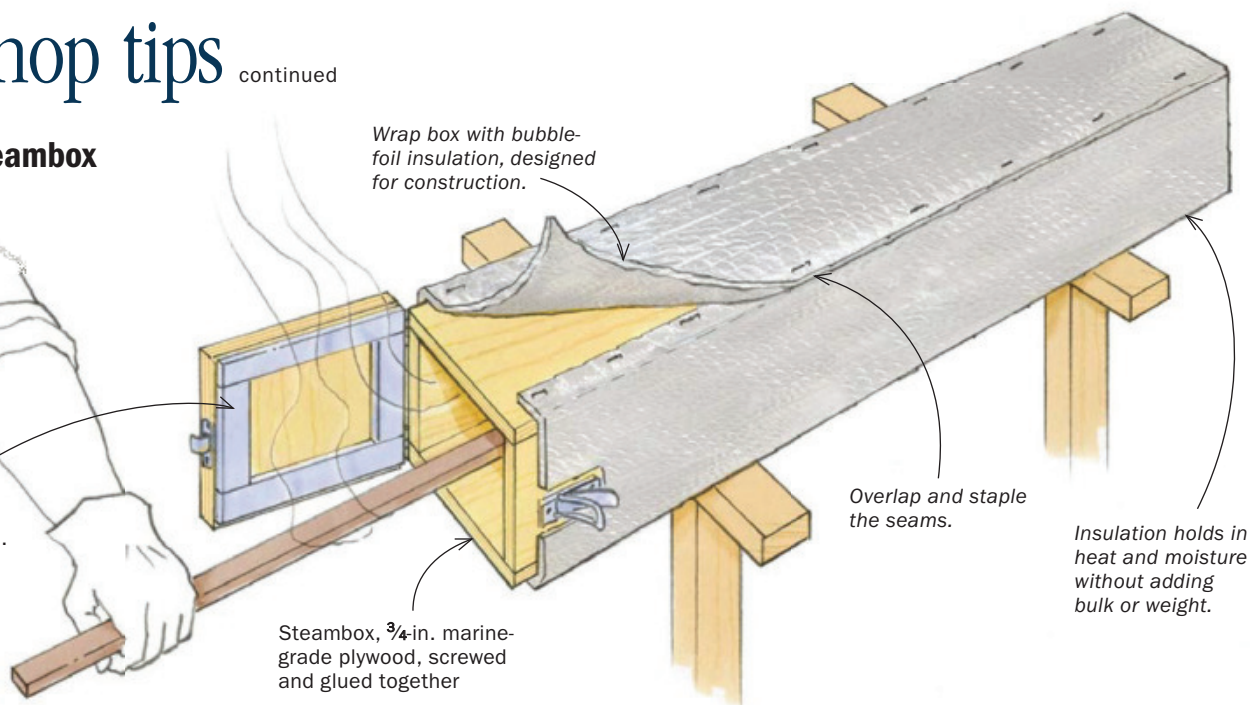
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Insulated steambox works better

Door is lined with self-adhesive, $\frac{1}{4}$ -in. by $\frac{3}{4}$ -in. foam weatherstripping.



If you are interested in steam-bending wood, you'll find lots of designs for steamboxes. Mine is pretty standard, but I add modern insulation around the outside to help hold in the heat and moisture. This also makes it easy to steam multiple pieces at once.

For the box itself, I use $\frac{3}{4}$ -in. marine-grade plywood, built to withstand water

exposure. For the end panel and door, I add a $\frac{3}{4}$ -in. by $\frac{1}{4}$ -in. self-adhesive foam weatherstripping.

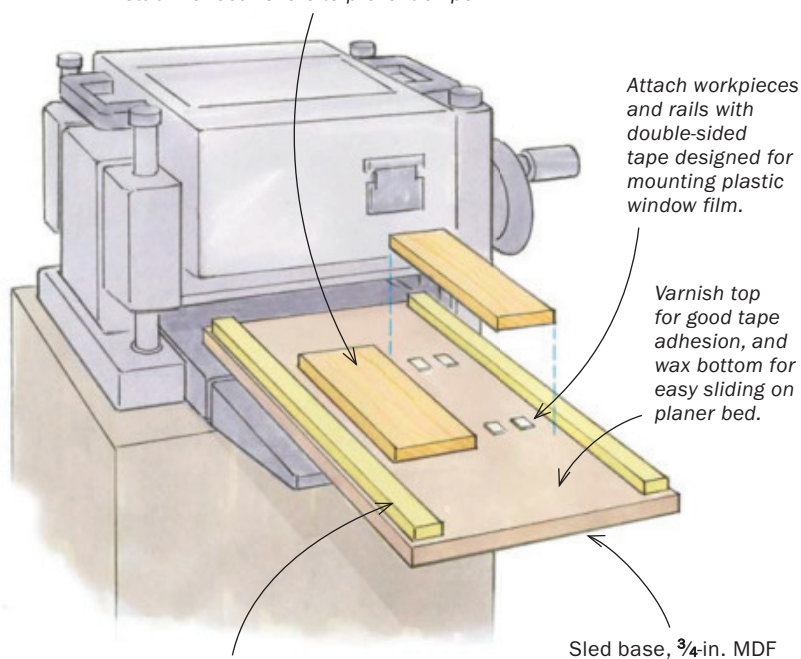
After the box is built, I wrap it with an insulating bubble wrap that has foil on both sides and is normally used in construction. It's about $\frac{1}{4}$ in. thick and comes in affordable 2-ft.-wide rolls. It cuts easily with scissors, wraps easily

around the box without tearing, and is designed to hold staples. That's how I attach it, simply overlapping the seams.

Designed as a moisture barrier, it is impermeable to water, and it adds a significant thermal break. I leave the door open after use, to allow the box to dry out and avoid mildew.

—MICHAEL RICCO, Kalamazoo, Mich.

Tape keeps parts in place, and rails stabilize feed rollers to prevent snipe.



Use rails that are a bit thicker than your workpieces, and at least 3 in longer at each end.

Simple planer sled for short or thin pieces

This simple sled will let you run thin or short pieces through a benchtop planer without the cutterhead chewing them up or sniping their ends. It's made of a piece of MDF—used because it is very flat—and two strips of wood.

Start by taping down the pieces you are planing, using double-sided window-sealing tape. I use 3M 2145C Scotch Indoor Window Film Mounting Tape, which is very thin, holds tenaciously, and is easy to release. It only takes a few squares of tape to hold down the parts for planing. I recommend applying varnish to the top of the sled for better tape adhesion, and waxing the bottom for lower friction. Cut two side rails from any scrapwood, making them a little thicker than your workpieces, and tape them to the MDF. The rails should extend past both ends of your workpieces by a few inches at least, so they will stabilize the feed rollers and prevent snipe. To release the parts I insert a thin metal spatula under them.

With this sled I've successfully planed very short pieces and very thin ones—some as thin as $\frac{1}{16}$ in.

—RUSS BAINBRIDGE, Saskatoon, Sask., Canada

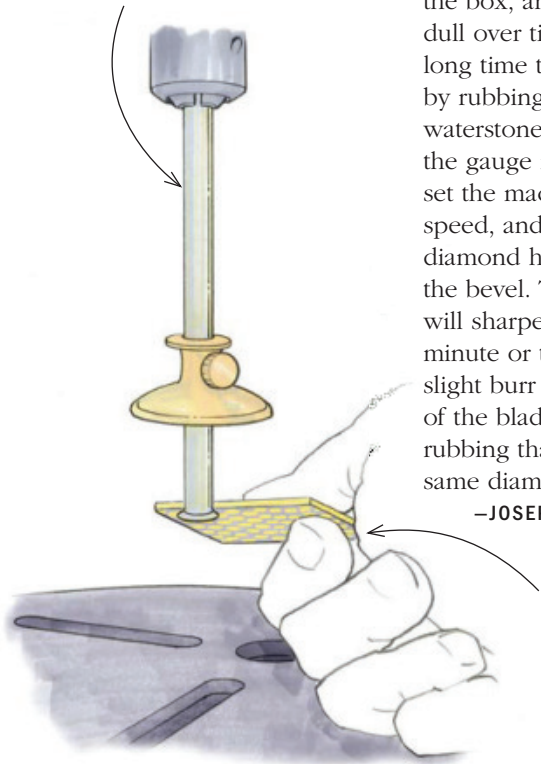
Quick way to sharpen a wheel-type marking gauge

Chuck shaft of marking gauge in drill-press chuck, and set machine at slow speed.

Some wheel-type marking gauges are not sharp out of the box, and even the best dull over time. It takes a long time to sharpen them by rubbing the flat side on waterstones. Instead, I chuck the gauge in my drill press, set the machine to a slow speed, and hold a small diamond honing plate against the bevel. The diamond hone will sharpen the bevel in a minute or two. If you get a slight burr on the flat side of the blade, remove it by rubbing that side against the same diamond plate.

—JOSEPH HARTUP, Ridgefield, Wash.

Hold a small diamond stone against the bevel of the tool to sharpen it quickly and easily.

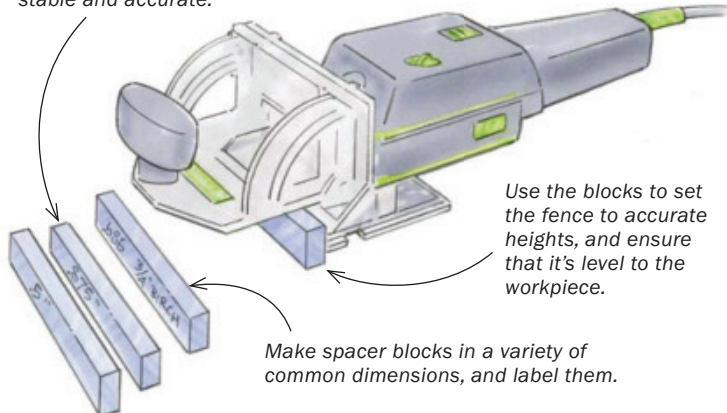


Use spacer blocks to set Domino and biscuit joiners accurately

To make sure the fences on my biscuit joiner and Domino end up parallel to the base, at precise heights, I use a set of simple spacer blocks that I made with common woodworking tools from acrylic plastic. Some of my blocks are designed to center biscuits and Dominoes in common wood thicknesses. For the Domino joiner, which has a metric scale for fence height, the blocks also convert the tool to standard measurements.

—DAN MARTIN, Galena, Ohio

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■ POWER TOOLS

Cordless track saw with kickback protection

ONCE YOU OWN IT, you can't imagine not having it. That's the kind of tool Festool's new TSC 55 KEB cordless track saw is.

The saw is nearly identical to the existing TSC 55 REB, with two main upgrades. The first is a thinner blade that cuts quicker and extends battery life up to 40%, according to Festool. The second is the headline-grabber: an anti-kickback device that replaces the riving knife. When you rush a plunge cut with any track saw, it can jerk backward and cut into the track. Each time I forced the KEB to kick back, the blade stopped instantly, with no damage to the track or the workpiece.

Going cordless means this track saw is a magic wand, letting you plunk down the track wherever you want, without a cord to snag and interrupt the cut. Fit doors. Break down sheets of plywood. Crosscut slabs up to 2 $\frac{1}{8}$ in. thick. The Festool track stays put without clamping, even when balanced on a short workpiece. Expect furniture-quality cuts thanks to the blade, the saw's snug, smooth sliding action, and the track's zero-clearance edge. With a vacuum attached, dust collection is at least 95% efficient; and it's very good with just the onboard bag.

With its two 18-volt batteries plugged in (you can also run it with just one, making it lighter), the KEB's power and endurance are amazing. It cut 248 ft. of plywood on a single charge, and sliced through 1 $\frac{1}{2}$ -in.-thick white oak without hesitation.

The KEB is compatible with older Festool tracks and batteries. You can buy just the bare tool, the tool with the batteries, or the tool with the batteries and a 55-in. track.

—Asa Christiana is a woodworker and freelance writer in Portland, Ore.



Festool track saw
Model TSC 55 KEB
\$500–\$800



Safer than ever. When you plunge the blade, a tab drops down and contacts the wood. If the saw kicks back, the tab triggers an internal brake instantly, with no damage to you, the track, or the workpiece.



Tablesaw-quality cuts. Like all of Festool's TSC 55 track saws, the KEB delivers flawless cuts in any material, thanks to a zero-clearance track that stays put with no clamping.



Amazing power and endurance. With its thinner blade, the KEB cut almost the length of a football field of $\frac{3}{4}$ -in. plywood on a single charge.

■ MEASURING TOOLS

Premium dividers

DIVIDERS ARE HANDY for taking measurements from an existing pattern, transferring those measurements to the workpiece, and laying out joinery. The model from Red Rose Reproductions has become indispensable in my tool kit because of its ease of adjustment, quality, and adaptability.

The dividers are designed with a friction hinge, allowing you to adjust the legs with a simple squeeze. In most situations this is a great advantage, as the more commonly found spring-adjustment type of dividers are slower and more cumbersome to adjust (though I do find their fine adjustments a little easier). The friction setting on my Red Rose dividers was perfect out of the box—neither too tight nor too loose. But if I ever need to adjust it, it's simple to do with a flathead screwdriver. The dividers arrived with extremely sharp tips. They're available in two sizes, 5 in. and 7 in. I have the smaller ones and have found them sufficient for most furniture components.

My favorite feature of these dividers is that they can be transformed into a compass by replacing one of the legs with an optional compass attachment (\$22), letting you hold a pencil in one leg to draw, rather than scribe, an arc. I purchased my dividers enthusiastically once the compass attachment became available, and haven't had a moment's regret.

—Mark R. Maleski is a woodworker in the Washington, D.C., metro area.



Switch a leg for a pencil. This optional accessory lets you turn a scribing tool into a drawing one.



Dividers by Red Rose Reproductions
\$120–\$130

■ SAFETY

Prescription safety glasses

YOU KNOW WHAT A SHOP ATMOSPHERE is like, with sawdust, chips, finishing chemicals, and maybe some steel wool shavings—not eye friendly. Protection is necessary, but because of my near-sightedness, I always muddled through with cumbersome over-the-glasses eye protection. Now, though, I wear safety glasses with prescription lenses from Zenni Optical, an online retailer of prescription eyeglasses and sunglasses. These glasses meet the safety standards set by OSHA and the American National Standards Institute.

Zenni does not do your eye exam, so you must already have your prescription. The website is simple to navigate, and customer service is easy to reach, knowledgeable, and helpful. My glasses arrived in about two weeks. As is to be expected, the price will vary depending on your prescription. My prescription cost \$70 on top of the base glasses.

There are a lot of different styles to choose from,

and you have options for anti-glare and anti-scratch coatings. The particular frame I chose (749618) comes in a few different colors, including black, clear, red, and yellow. The glasses are lightweight and comfortable for long periods in the shop. The weight will vary, though, based on your prescription. The rubber coating on the arms ensures that they stay put, and the frames wrap around to the sides, which provides protection for the entire eye.

—Anissa Kapsales is FWW's senior editor.



Prescription safety glasses by Zenni
\$30–\$40 before prescription

■ NEW TO MARKET

Tools to look out for



CNC on wheels

Springa's Goliath CNC is a portable, self-driving CNC router that uses positioning sensors (at left) to help direct the cuts. Three wheels allow the CNC to move freely without interference from dadoes, grooves, or profiles already cut. It comes with integrated dust collection.



DC on the floor

Rockler's Dust Right Floor Sweep is a dust-collection port that reaches to the floor, allowing you to sweep dust right into your dust collector. It comes with a blast gate that you can open and close with your foot. The port fits 4-in. hoses.



18-in. drill press

Delta's new 18-900L drill press has a $\frac{3}{4}$ -hp motor and 6 in. of quill stroke. The table measures 20 in. by 14 in., tilts forward as well as side to side, and has T-slots. There are also a red laser crosshair and a flexible LED lamp.

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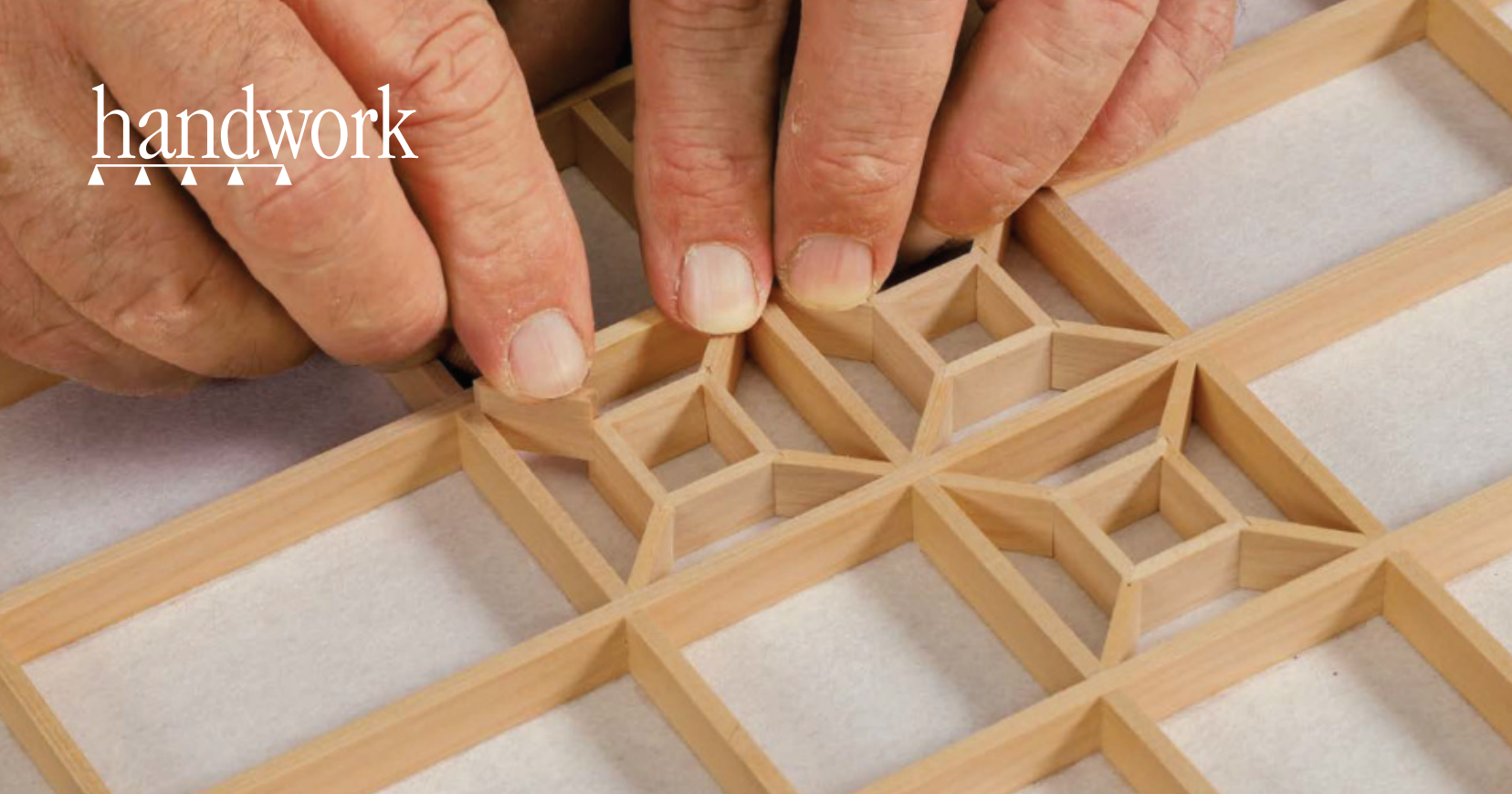
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Create a kumiko cloverleaf

BY CRAIG VANDALL STEVENS

The decorative kumiko pattern I chose for the lamp in this issue (“Build an Andon Lamp,” pp. 42–49) is called *yotsuba kaku-tsugi*, which means cloverleaf square-joint. I like its simplicity and the way it reads well as an individual unit but also as a cluster of four.

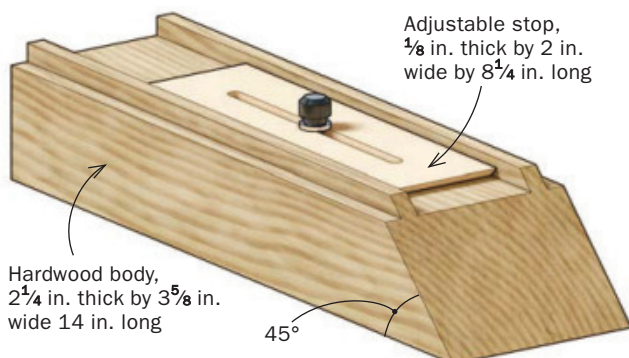
To keep decorative kumiko from appearing too heavy, I mill the strips slightly thinner than those in the kumiko grid. For this lamp, with its grid of $\frac{1}{8}$ -in.-thick strips, I made the cloverleaf

from strips $\frac{3}{32}$ in. thick. It’s important to note that having the openings in your grid perfectly square and equal in size makes the patternwork much simpler. Otherwise, you’ll find yourself custom-fitting scores of tiny parts—not fun.

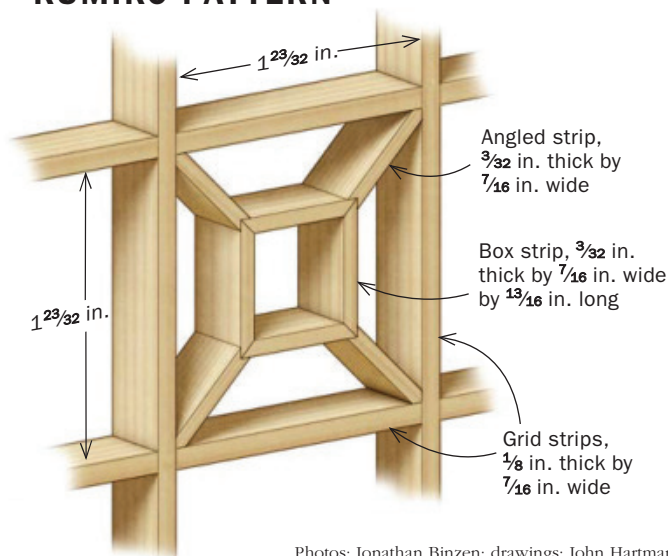
I make the central squares of the cloverleaf first. After cutting strips slightly overlong, I miter one end using a handplane and a miter-jig. Then I reset the jig’s stop and cut miters on the other end of the strips. I glue up the squares on my bench, using rubber bands to clamp them.

KUMIKO MITER JIG

When mitering kumiko strips, Stevens cuts them to rough length, then trims them cleanly to finished length using a handplane and a miter jig. The jig can handle four strips at a time.



KUMIKO PATTERN



START WITH THE SQUARES



Make the first miters. With a handplane and a miter jig, Stevens cuts miters on four strips at once.



Saw to rough length. The strips are then stacked in a miter box, with their miters against a stop, and cut to rough length.



Back into the miter jig. After resetting the jig's stop, Stevens presses the mitered end of the strips against it.



Miter number 2. A few strokes of the plane create a second miter, finishing all four pieces.

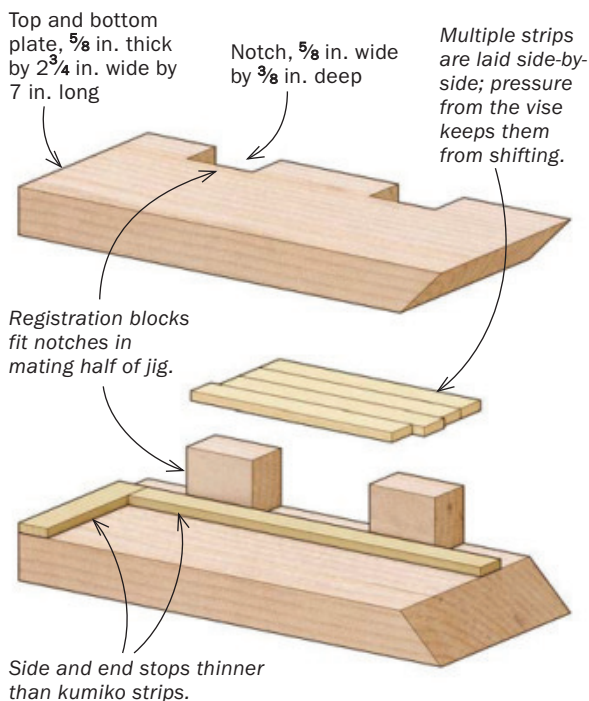


A little dab of glue. Working on a flat surface and applying a smear of white glue, Stevens presses the squares together.



Elasticity. A doubled-up rubber band provides clamping pressure as the square cures.

BIRD'S-MOUTH JOINT JIG



Next, I make the diagonal strips, which have a double miter on one end and an inverted miter, or bird's mouth, on the other. I first cut a batch of 2-in.-long pieces--enough to yield two diagonal strips.

To cut the bird's-mouth miters, I use a shopmade jig and a wide chisel that is easy to hold flat on the jaws of the jig. I use a slicing motion, drawing the chisel from side to side and cutting with the chisel's trailing corner. I make scoring cuts from one side, then move the chisel to the opposite mitered jaw to complete the bird's mouth.

I cut the bird's mouth on both ends of the 2-in. strips, then cut them in two. At the miter paring jig, I place the bird's-mouth joints against the stop and plane a miter on the other end. Without moving the stop, I flip the workpieces and miter the other face. The second miter automatically cuts right to the center of the strip, creating an arrowpoint.

I put a tiny amount of glue on the miters and assemble the cloverleaf on a flat surface. Although I did the glue-up after applying the washi paper here, I typically glue up first and then add the paper. □

Craig Vandall Stevens makes furniture in Philadelphia.

DOING THE DIAGONALS



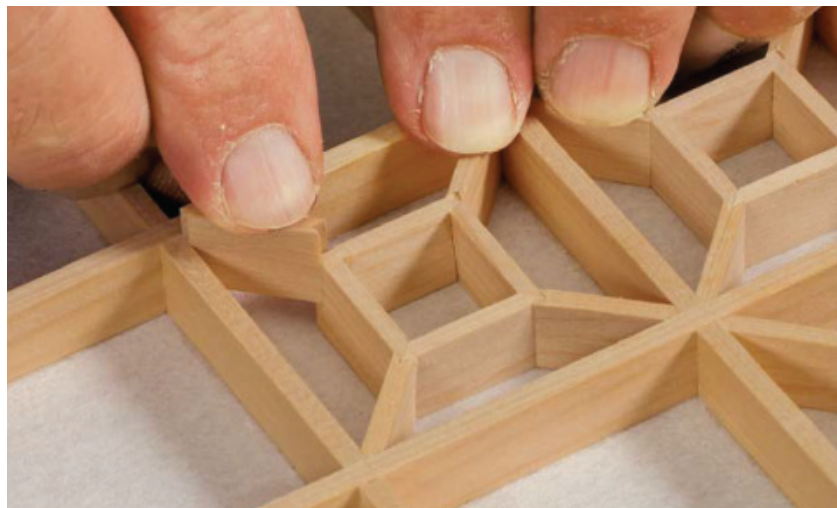
Two-part bird's-mouth miter jig. The jig Stevens made to cut bird's-mouth miters accepts four strips. He makes the strips long enough to yield two finished diagonal pieces. To use the jig he clamps it upright in a vise.



Cutting the bird's-mouth miters. Placing a wide chisel on one of the jig's angled jaws and using a side-to-side slicing action, Stevens scores one side of the workpieces. Then, moving his chisel to the other jaw, he completes the cut.



Make the double miter. Back at the miter paring jig, Stevens puts the bird's-mouth joints against the stop and planes a miter. Then he flips the pieces over and planes again, creating a perfectly centered arrowpoint miter.



Completing the cloverleaf. Having applied a small amount of glue with a toothpick to the miters on both ends, Stevens presses the diagonals into place.

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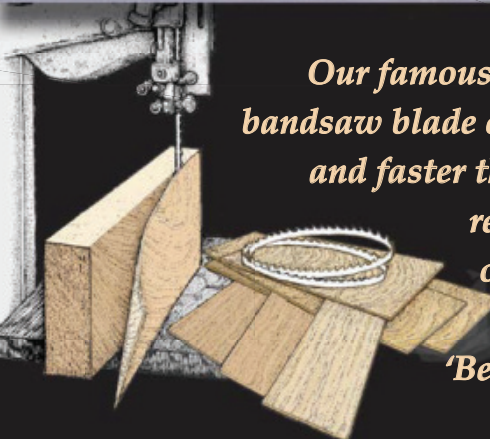
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down the best blade I've ever used." — @bashorelutherie*

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Contemporary End Table

The overall form of this table is based primarily on a vintage Danish Modern piece that a student of mine found in an online auction. But there was a second important influence on the design: On a trip to Switzerland a while back, I became intrigued with the construction of a traditional chair with battens dovetailed into the underside of its solid-wood seat and splayed legs that pierce both the batten and the seat. After seeing those chairs, I built a bench using the idea, and when I designed this table, I decided to employ some of that Alpine chair engineering again. I brought the leg tenons right through the tabletop and used sliding

dovetailed battens to hold the top flat; the battens also help stabilize the legs and provide the runners for the side-hung drawer.

Because I wanted to make the whole table in solid wood, I gave it a split top whose two halves meet in an unglued tongue-and-groove joint. By allowing the halves of the top to expand and contract independently, I avoided a cross-grain problem with the battens. The split top also solved another problem. I wasn't keen on how visually prominent the dovetailed battens were on the Swiss chairs; making a split top meant I could use sliding dovetails that were stopped at both ends. At assembly, the two halves of the top slide onto the battens until they meet at the middle.



Splayed legs and a split top
bring style and stability

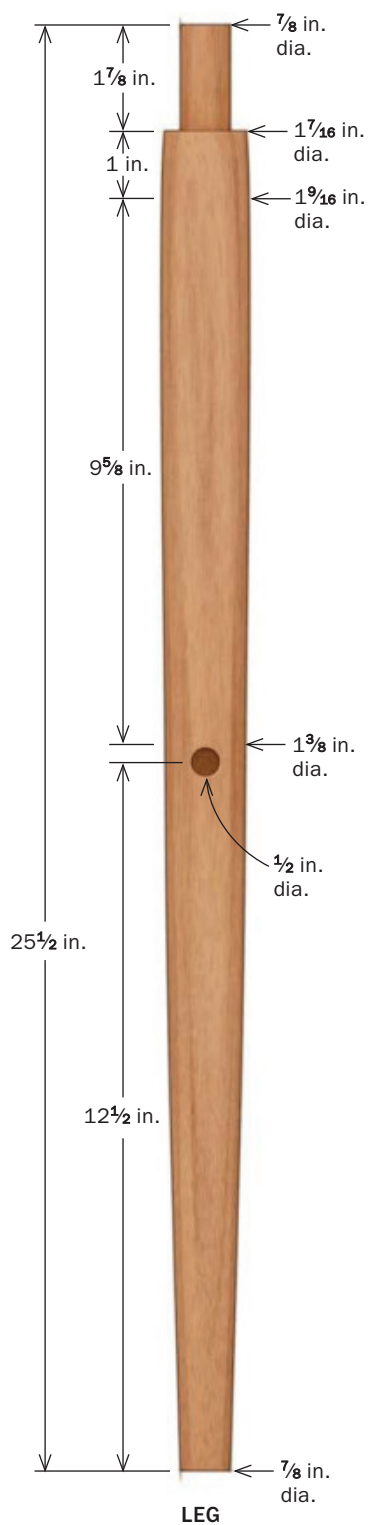
BY CHRIS GOCHNOUR

Make the legs

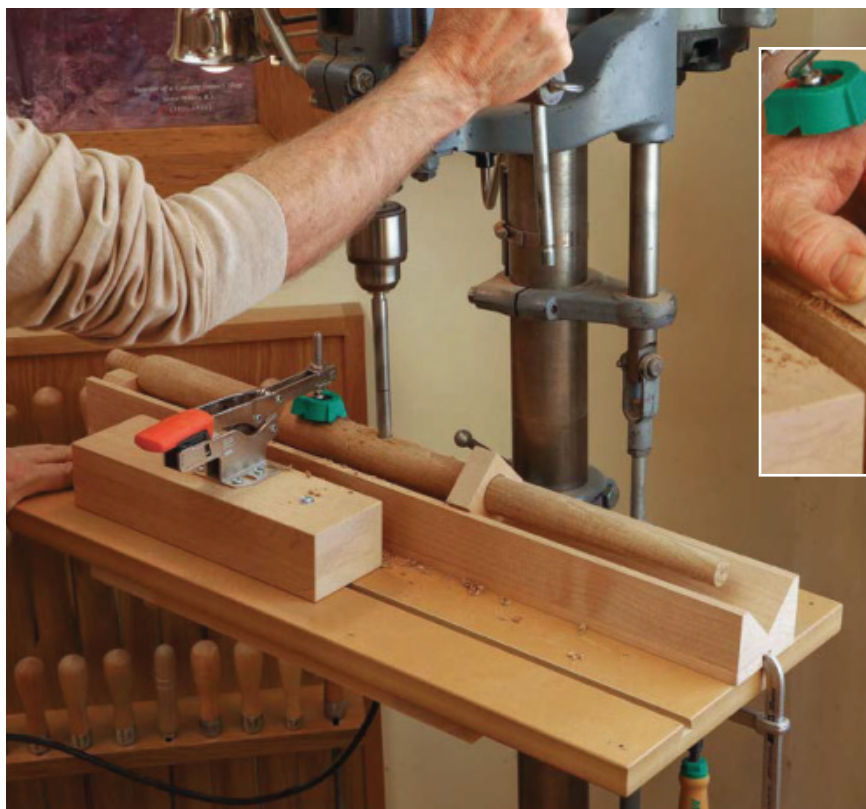
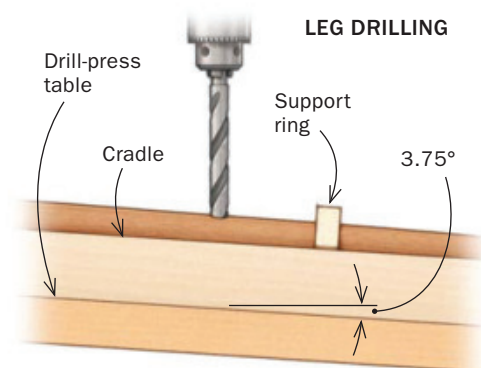
First turn the tenon. After making depth cuts with a parting tool at key points along the leg, Gochnour turns the tenon with a bedan, using a wrench for sizing.



Smooth the taper. Gochnour turns the leg to a taper with a heavy spindle gouge, then follows up with light sanding.



Set the table. To cut mortises in the legs for the stretchers, Gochnour angles the drill-press table to 3.75°.



Drilling cradle. Gochnour uses a V-shaped fixture to cradle the leg for drilling. The square support ring that he threads onto the leg is also useful for setting the drill bit to the centerpoint of the jig.

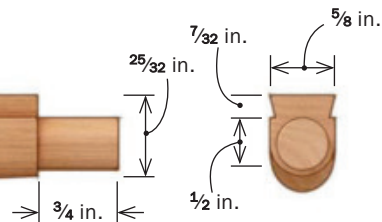
End table

The table's two-part top, with its unglued center joint, can move with the seasons despite being pierced by the leg tenons. Sliding dovetails connect the battens to the top and the stretchers to the shelf.

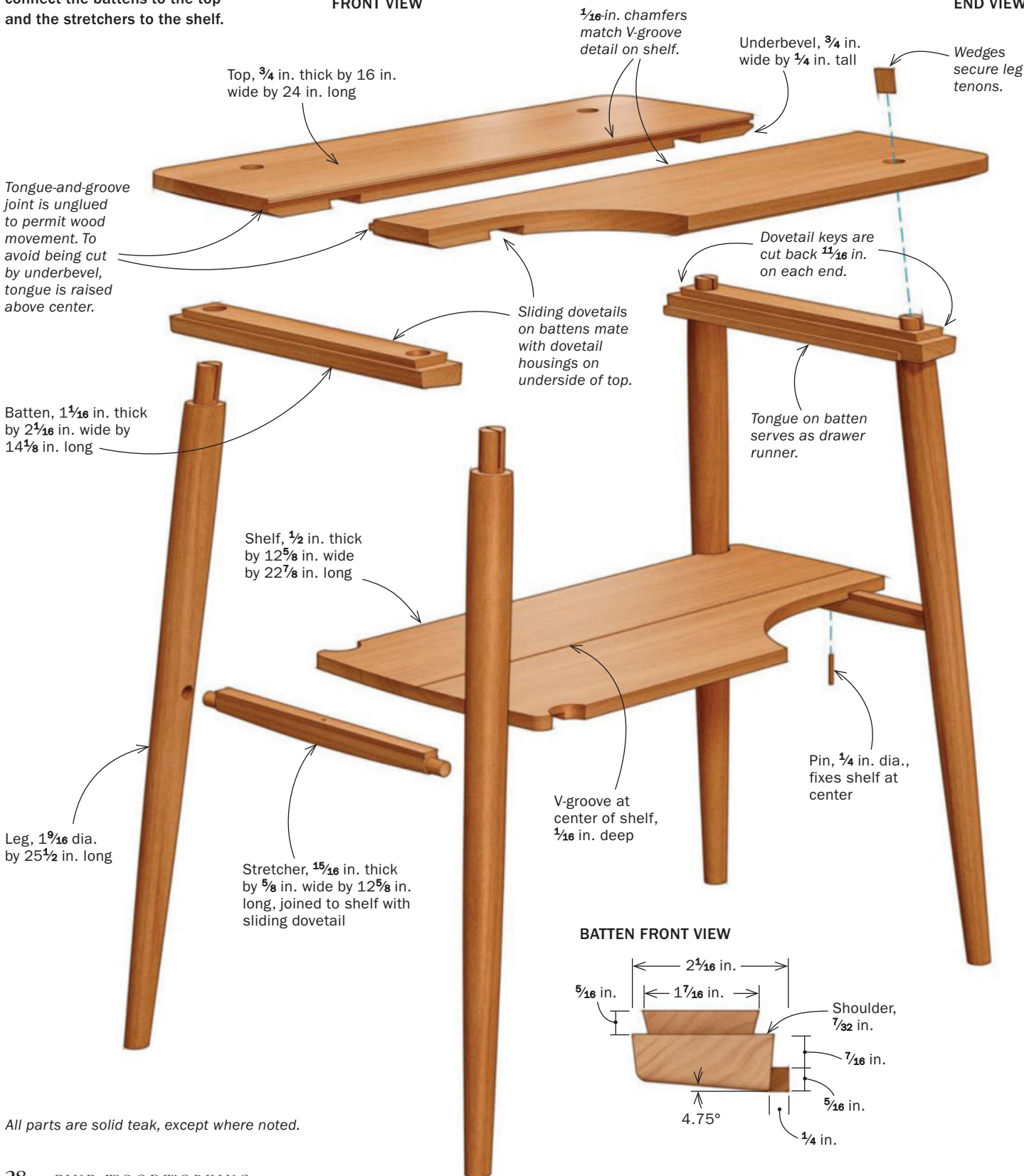
STRETCHER

$\frac{15}{16}$ in.

FRONT VIEW

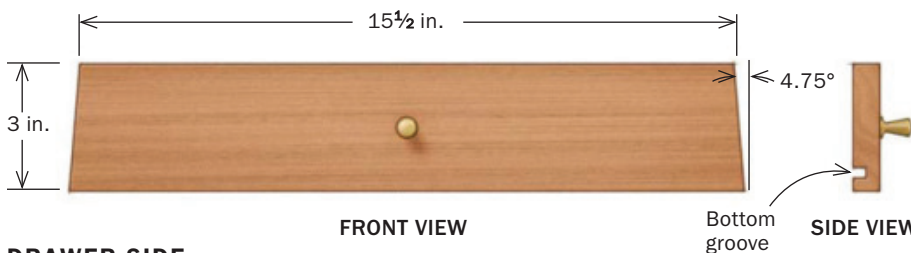


END VIEW

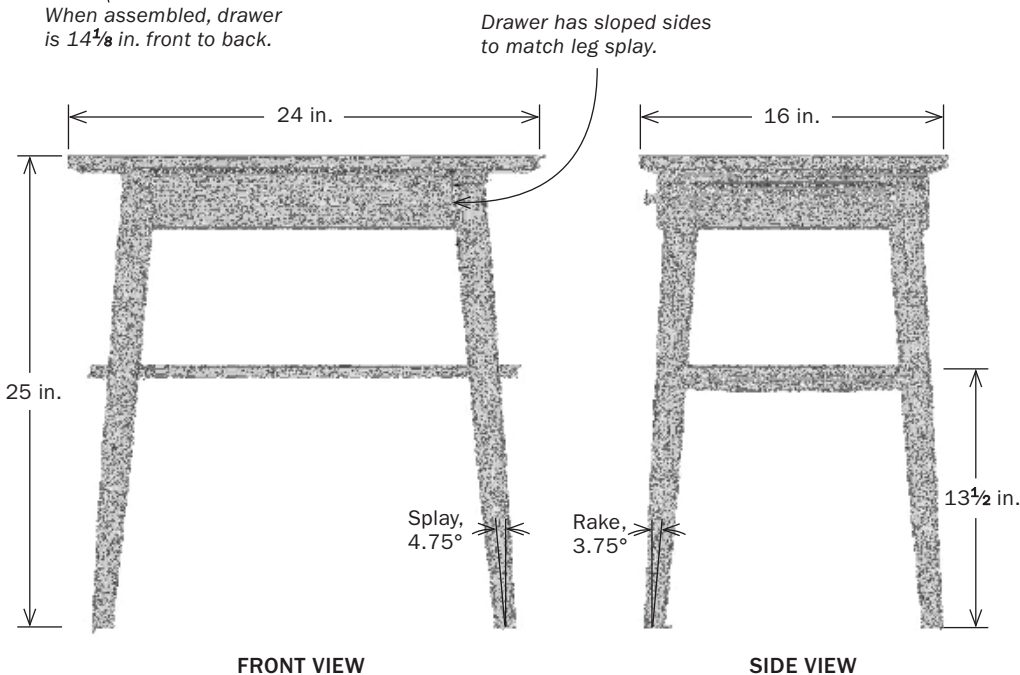


All parts are solid teak, except where noted.

DRAWER FRONT



DRAWER SIDE



It's a simple-looking table, but with sliding dovetails joining the shelf as well as the top, a drawer with its sides angled to echo the splay of the legs, and other unusual details, it packs some entertaining challenges.

Which wood?

I've built this table in various woods and found that walnut suits it very well. For this one, though, I chose teak, a handsome wood that is appropriate to the Danish Modern period. I hesitated before deciding to use it, because teak can be a bit tricky. The issue is not workability. Apart from its tendency to dull tools rapidly, it's very workable wood. The difficulty is with the color, which is beautiful ... eventually. When you buy your boards, they'll have a wonderful reddish-brown glow about them. But the minute you cut into them you get a very odd mix of colors: some oranges, some greens, some blacks. It can be disheartening when you realize that the beautiful color is just on the surface.

Rest assured that ultimately your piece in teak will have that uniformly beautiful color, but you may have to live with a little bit of patchy, irregular color for a few weeks. I've learned that putting the completed piece in the sun will expedite the color shift.

Legs on the lathe, then the drill press

The legs are tapered cylinders with a tenon at the top. From the tenon's shoulder down to the shelf, the taper is very slight—just 3/16 in. or so. But below the shelf the taper is more pronounced and more visible. After cutting the tenons with a bedan, I turn the tapers with a heavy spindle gouge.

Once off the lathe, the legs are drilled to receive the stretcher tenons. The legs will have a rake of 3.75°, so I set the drill-press table at that same angle. A V-jig holds the leg during the drilling. To orient the leg in the jig, I put a U-shaped collar at one end to cradle the tenon; and I made a square block with a hole in it that I slide up onto the leg. Together, they keep the leg still and centered and parallel to the table.

The split top

I start the top by milling up the two halves, then cutting a tongue on one and a groove on the other. I fit the halves together, turn them bottom side up, and screw an MDF router template to them. I'll use the template to cut the sliding dovetail housings,

A split tabletop

Tongue-and-groove links the top. The halves of the split top meet in a tongue-and-groove joint that is left unglued, permitting them to move independently. Gochnour cuts both the tongue and the groove on the router table.



Tied with a template. To rout sliding dovetail housings in the underside of the top, Gochnour assembles the two halves and screws an MDF template to them. After routing the housings, he leaves the template in place and uses it with a flush-trimming bit to shape the top's perimeter.

Two bits for the dovetail. After routing out most of the waste using a guide bushing and a straight bit, Gochnour switches to a dovetail bit to finish the housing.



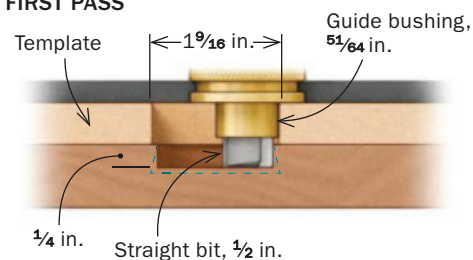
and also to flush-trim the perimeter shape of the top.

It's vital that the housings are perfectly parallel. If they're not, at assembly the battens will be askew, and it could be impossible to get the halves together. To guarantee parallel housings, I make my template by cutting up a piece of $\frac{1}{2}$ -in. MDF to create two parallel "windows" that will guide the router. When I glue the MDF back together, I leave the windows in place, unglued, as spacers; after assembly, I knock them out.

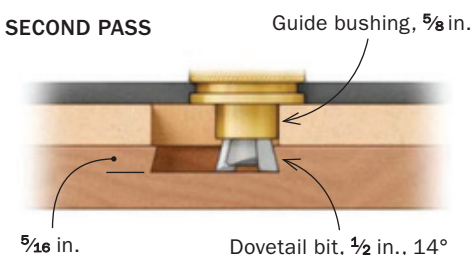
After routing the housings, I use a bandsaw to cut the perimeter of the top to within $\frac{1}{16}$ in. or so of the template. Then, at the router table, I trim the top flush to the template with a spiral bit. To avoid chipout, I use a bit with both top and bottom bearings. For half of the routing I use the bottom bearing and make the cut with the template facing down; for the other half I engage the top bearing and make the cut with the template facing up.

The top is complete now, except for the undercut bevel, which I'll shape on the router table using a panel-raising bit with a guide bearing. It's best to do the routing with the halves of the top held together, so I mill two pieces of scrapwood just smaller than the dovetail housings in length, width, and thickness, and screw them in place to keep the halves from shifting as I rout.

FIRST PASS



SECOND PASS



Online Extra

To download a pdf of the template used to cut these sliding dovetail housings, go to FineWoodworking.com/295.

Shaping the batten. The batten keeps the top flat and the legs stable, but it also provides the runner for the side-hung drawer. Here Gochmour makes a second cut to define the runner.



Batten gets a dovetail key. Gochmour first cuts the inside shoulder of the dovetail $\frac{7}{32}$ in. wide, then, as shown here, he cuts the outside shoulder to fit the housing in the tabletop.

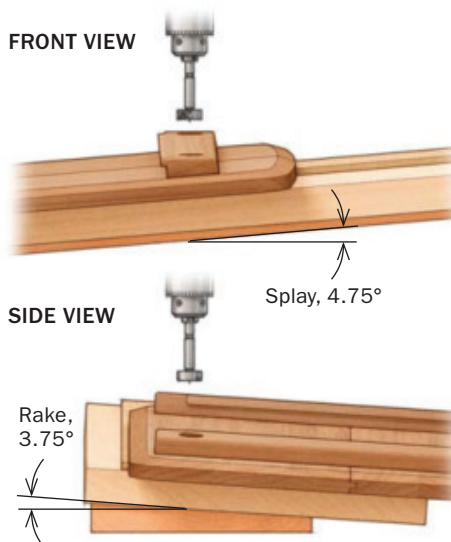


Half at a time. Applying glue only to the last several inches of the dovetail housing, Gochmour slides the batten in place. He'll check its distance from the outside edge of the top with a combination square. Then he'll place a clamp over the glued area until the glue cures.

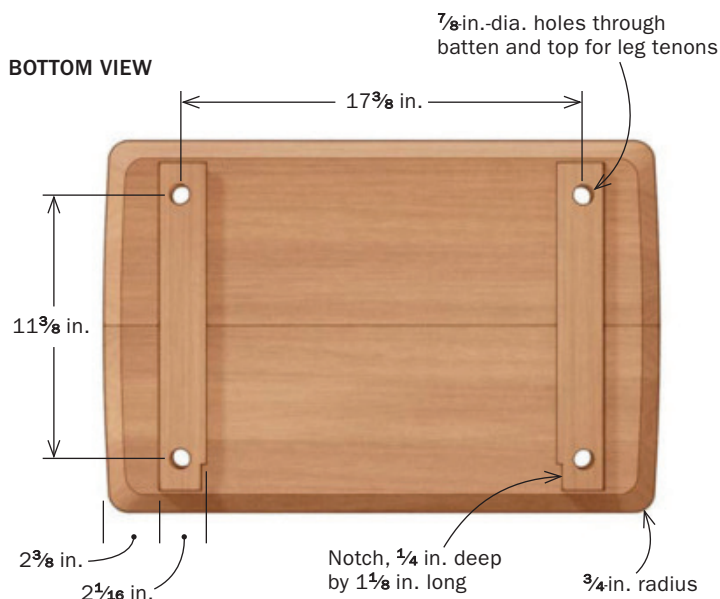


Second assembly. When the first glue-up is dry, glue the second half and slide it onto the battens. Be sure the tongue and groove engage cleanly, and use spacers to set the gap between the halves.

DRILLING AT A DOUBLE ANGLE



When drilling leg holes through the top and batten, Gochmour must account for the rake and splay of the legs. He sets the drill-press table to 4.75° (the splay angle) and supports his drilling jig on a subbase tapered at 3.75° (the rake angle). He backs up the cut and uses Wave Cutter Forstner bits from Freud for clean through-drilling.



Stretchers and shelf

STRETCHERS

Tenons on the drill press. After cutting their shoulders with a miter gauge on the tablesaw, Gochmour finishes the round tenons on the drill press with a tenon cutter.

Sliders on the stretchers, too. The stretchers are joined to the shelf with sliding dovetails, and Gochmour cuts the tails on his router table.



Dynamic battens

From an engineering point of view, the battens are the heart of the table. In addition to the sliding dovetail key cut into their top face, they have a bottom face that's angled at 4.75° to match the splay of the legs. They also get a tongue cut along their lower inside edge that serves as the drawer runner.

I start making them at the tablesaw. First I cut the angled bottom face. Then, with two ripcuts, I create the tongue. I go to the router table at that point and make the dovetail key, cutting along both sides of the batten's top face with a 14° dovetail bit. I aim for a slightly tight fit in the housing. To achieve a perfect final fit, I use a sanding block where needed. The sanding block, made from ½-in. MDF, has self-adhesive 150-grit paper on one face, and its bottom edge is cut to a

SHELF

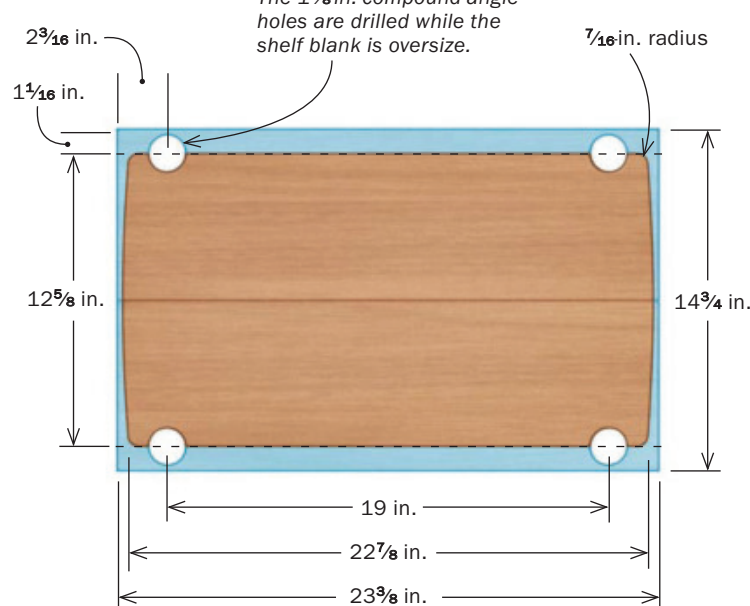


Piercing the shelf. Like the top, the shelf gets drilled with compound-angled through-holes for the legs. Gochmour tilts the drill-press table 4.75° and again rests his drilling jig on a 3.75° wedge-shaped sub base. But he drills the shelf with its top face up.



Rip through the leg holes. The shelf is left oversize in width until the leg holes have been bored. Then it gets its edges ripped off, leaving half-circles to cup the legs.

SHELF TOP VIEW



SOCKETS



Dummy stretchers. To facilitate layout, Gochnour makes an extra pair of stretchers from scrapwood. They're identical to the real stretchers, but with no dovetail. He inserts them in the legs, clamps the shelf in place, and marks their location with a knife.

14° angle. This way, it gently abrades the angled wall of the housing. With all that done, I return to the tablesaw and use a miter gauge and dado blade to cut back the tongue, which will also serve as the drawer stop, and the ends of the dovetail.

Now I'm ready to glue the battens to the top and then drill for the leg tenons. To do the drilling, which is at a compound angle that accounts for both the splay and rake of the legs, I set the drill-press table at the splay angle (4.75°) and clamp the workpiece to an auxiliary table that has a tapered sub-base whose angle (3.75°) is the same as the table's rake. To get a perfectly clean exit hole while drilling with the top face down, I lay a piece of ¼-in. MDF beneath the workpiece and use Wave Cutter Forstner bits from Freud.

Shelf and stretchers

I use the same compound-angle drilling setup to cut four holes in the shelf, drilling from the top face this time. At this point the shelf is still oversize in width, and once the holes are cut, I rip it to final width, bisecting the holes to create the half-moon cutouts that wrap the legs.



Sliding socket. With a router template aligned to the knife marks on the shelf, Gochnour cuts the through sliding dovetail housing for the stretcher. The template slot is 5/8 in. wide, and the bushing is 5/8 in. dia. The dovetail bit, ½ in dia. and 14°, is set to cut ¼ in. deep.



Shaped up and ready to slide. Once its dovetail has been cut and fitted, the stretcher is sawn to a crown along its underside and then shaped to a round profile with a spokeshave.



Just pin it. The stretcher's sliding dovetail gets no glue. It is just fixed at the center with a pin that's glued and tapped into place.

Table assembly



Kerfing the shoulders. At dry assembly, Gochnour uses a flush-cut saw and a loose collar to cut the angled shoulders of the leg tenons. The $\frac{1}{4}$ -in.-thick MDF collar has a through-hole for the tenon and a $\frac{1}{8}$ -in.-deep counterbore for the full leg.



Finish the trim job. Chisel work around the tenon completes the task, ensuring the shoulder will meet the batten squarely and without gaps.



Cantilevered glue-up. Gochnour finds it most convenient to start the assembly with the shelf clamped to a low bench or to a board cantilevered from his workbench. He glues the legs to the stretchers, then adds the top.

The stretcher is secured to the shelf with a sliding dovetail. It doesn't need glue and is just pinned at the center. That way the shelf can move freely, yet it stays centered. To help locate the dovetail housings precisely on the shelf, I mill and tenon two extra stretchers in scrapwood while making the real pair. Once the dummy stretchers are tenoned, I rip $\frac{1}{4}$ in. from their top edge (removing material that would become the dovetail key on the real stretchers). Then I dry-fit the tabletop, legs, and the dummy stretchers and place the shelf on the stretchers. Using spacers, I center the legs in their cutouts, and then clamp the shelf in place. Then I invert the table



Clampless assembly. After pressing the top onto the leg tenons (with the help of a rubber mallet if need be), Gochnour moves the table to the floor and drives wedges into kerfs in the leg tenons. After the glue cures, he'll trim the tenons flush with a handsaw and chisel or scraper.

Drawer with canted sides

The drawer has sloped sides to match the splay of the legs. It's built like an ordinary dovetailed drawer, with a few wrinkles. The ends and edges of some parts are angled, as are some grooves. Because the drawer back is visible, Gochmour cut half-blind dovetails there as well as in front.



Bevel the edges. The top and bottom edges of the drawer sides are ripped at 4.75° off 90°.



Angle the ends. On the drawer front and back, the ends are crosscut at 4.75° with a miter gauge at the tablesaw.



Sides get two grooves. After cutting angled through-grooves for the bottom at the tablesaw, Gochmour routs a stopped groove for the drawer runner. The workpiece rides on a tapered auxiliary table to give the groove a 4.75° angle.



Handwork completes the runner groove. After assembling the drawer, Gochmour gingerly cuts a series of sawkerfs to open the back end of the runner groove. Then he'll square up the stopped end of the groove with a chisel.

and make knife marks on both sides of each dummy stretcher. After disassembling the table, I use those knife marks to register my router template. Once clamped in place, the template guides the router as I cut the through-dovetail housings, and the locations are perfect.

Three-stage assembly

Assembly happens pretty quickly, and usually no clamps are required. First I pin the stretchers to the shelf. Then I glue the legs



to the stretchers and finally the legs to the top. Putting the top into place can usually be done by hand or with a few taps of a rubber mallet. And if need be, I use a clamp from the stretcher to the top.

At this point I take the table off the bench and put it on its feet so I can add the wedges. As I drive the wedges, I double

check that the shoulders of the leg tenons are tight to the underside of the batten. After an hour or so I cut the tenons flush with the top and follow up with a chisel or scraper if needed. □

Contributing editor Chris Gochmour builds furniture in Salt Lake City.



Guide to Sheet Goods

An inside look at what a high-end cabinet shop uses every day

BY SUZANNE WALTON
AND OWEN MADDEN

Where MDF excels. These large doors and drawers showcase MDF's strengths. It offers a flat, void-free, stable surface to hold the sequenced walnut veneers.



Rowan Woodwork is a small team of design-and-build nerds nestled in the former New York State capital of Kingston. Much of what we do is cabinetry, such as kitchens, bathrooms and vanities, wardrobes, offices, and libraries. We specialize in modern European cabinets, which have opened our scope to many different types of plywood and other sheet goods.

The choices on the market are endless and constantly evolving and changing. But the ones we present here are our current go-to sheet goods for cabinetry work. With these 11 products we can pull off any look—from Shaker-inspired to sleek, minimalist, and modern—and any finish, from painted to natural to oiled and waxed. Every project is different, and availability isn't always consistent; knowing each product's strengths and weaknesses allows us to have options and tailor the materials to the specific project, with the goal being a gorgeous end result that will stand the test of time and use.

Suzanne Walton is the owner of Rowan Woodwork in Kingston, N.Y., where Owen Madden is lead builder.

MDF: FLAT, SMOOTH, AND STABLE



Because it's an engineered material, MDF doesn't have grain patterns, which gives it a smooth finish ideal for paint or veneer, and a consistent, stable thickness. An MDF core panel with a pre-applied veneer is the absolute best product for cabinet doors and drawers. Completely void-free, it makes for a very flat surface, and the fibrous core won't move while it's being cut or after installation.

NAMES

MDF, MDF Core (veneered)

USES

Best for cabinet doors/drawers. Painted surfaces. Non-structural veneered surfaces.

PRICE*

MDF \$65 for a ¾-in. by 4-ft. by 8-ft. sheet

MDF Core (veneered)
\$100-\$150 (depending on species of veneer) for a ¾-in. by 4-ft. by 8-ft. sheet

AVAILABILITY

Most specialty plywood dealers and some home centers.

SIZES

Sheets come in widths of 4 ft. and 5 ft. with lengths up to 10 ft., and thickness ranging from ¼ in. to 1 in.

COLORS

Available in a variety of veneers.

PROS:

Flat and very stable, easily veneered with any material, low cost.

CONS:

Less structural than veneer core, susceptible to moisture. Formaldehyde-based products are known to be harmful. Heavy.

MEDEX: A BETTER MDF



Think of Medex as MDF's hippie younger brother. This product has all the great qualities of basic MDF and a few more. Made with recycled wood and no added formaldehyde resin, it is very environmentally friendly. With a list a mile long of its environmental achievements, it also manages to be more water-resistant than other fiberboards.

NAMES

Medex, Medex MDF, SDF (sustainable design fiberboard)

USES

Best for painted cabinet faces, trim, or panels. It can be veneered with any material and makes a great, stable substrate.

PRICE*

\$90 for a ¾-in. by 4-ft. by 8-ft. sheet

AVAILABILITY

Widely available at specialty plywood dealers.

SIZES

Sheets come 4 ft. and 5 ft. wide, with lengths up to 18 ft. and thickness ranging from ¼ in. to 1¼ in.

COLORS

Natural (brown), black, and gray

PROS

Consistent thickness, not much movement based on moisture, paints very well, no core so no need to edge-band if painting.

CONS

Less structural than veneer core, easily damaged, creates lots of very fine dust.

*Pricing on sheet goods can vary widely by distributor and can change daily.



Out-of-the-box MDF use. The client specifically wanted an MDF core with a linear rift white oak veneer for an ultra-modern look. Typically, Rowan's designers prefer not to make the structural portions of millwork out of MDF, but the design incorporated lots of vertical support and small spans, so the MDF worked fine. It provided a flat, stable surface and gave the client the look they wanted.



Perfect for paint. In this Shaker-style kitchen, Rowan used solid poplar for the rails and stiles and Medex for the panels. It is not only a more environmentally friendly material than MDF, but it also finishes better.

VENEER CORE PLYWOOD



Veneer-core plywood is an extremely useful material because it is easily available, very sturdy, structural, and extremely stable if made well. When clients want wood faces for casework, opt for the strength and screw-holding power of plywood for the boxes. You also can use 1-in. veneer core for shelves as it is stronger than MDF, which tends to sag.

NAMES

Veneer core (unfinished),
Veneer core plywood C2 MPBY
(Columbia forest products)

USES

Unfinished veneer core plywood excels in situations where structural integrity is necessary and aesthetics such as wood species and finish need to be tailored to the job.

PRICE*

\$80 for a ¾-in. by 4-ft. by 8-ft. sheet

AVAILABILITY

Most specialty plywood dealers and some home centers.

SIZES

Sheets come in 4 ft. widths and lengths up to 10 ft., with thickness from ½ in. to 1 in.

COLORS

Various options based on veneer, distributor, and manufacturer. Columbia Forest Products offers a large selection of hardwood face veneers, such as maple, alder, hickory, cherry, walnut, oak, and sapele to name a few.

PROS

Structural, choice of wood species for veneer, apply finish of choice, inexpensive.

CONS

Voids and telegraphing of imperfections in core, visible core requires edge-banding or a face frame.

PREFINISHED PLYWOOD



Prefinished maple plywood is the ultimate cabinetmaker's workhorse. With a tough satin finish already applied, it makes for quick construction of the basic casework. We use a Maple C2 grade traditional veneer core; it is a mid-grade face, but to alter our favorite Bob Van Dyke quote, "the plates won't mind," the clothes inside won't either. Some manufacturers, like Columbia

Forest, with PureBond, use a soy-based and non-formaldehyde formula glue and finish in their plywood. This makes their prefinished plywood environmentally friendly, which is always a plus.

NAME

Prefinished plywood

USES:

Best for cabinet interiors. It's available with finish on one face or both, so it can work for sides, backs, and shelving.

PRICE*

\$95 for a ¾-in. by 4-ft. by 8-ft. sheet

AVAILABILITY

Most specialty plywood dealers and some home centers.

SIZES

Sheets come in widths of 4 ft. and lengths up to 10 ft. with thickness ranging from ½ in. to 1 in.

COLORS

Options for color are based on veneer: Maple, walnut, oak, cherry, and sapele.

PROS

Not having to finish cabinet interiors is always a huge pro! Structural, inexpensive.

CONS

Only one finish is available. Voids and telegraphing of imperfections in the core.

Sequenced and matched. Rowan applied this walnut veneer to veneer-core plywood. They specifically used veneer core for its ability to hold a screw. In a kitchen where the fridge has an integrated panel and mounting brackets, veneer core's superior screw holding makes it a much better choice than MDF for the panel.



Perfect for cabinet interiors. Rowan uses pre-finished maple for most of their cabinet interiors. The tough, pre-applied satin finish works perfectly for anything you want to throw inside it. Additionally, the maple has warm neutral tones that won't distract from whatever material you use for the cabinet faces.



BALTIC BIRCH



The gold standard of multi-ply plywood, and the most widely available product, Baltic birch is more dense and rigid than classic cores or any other basic hardwood plywood. Its uses range from sturdy cabinets to shop jigs to fine furniture. Baltic birch is plywood made of an odd number of layers of birch hardwood (usually imported from the Baltic Sea region) crossbanded and sanded

flat, making for a dense, void-free core with more layers than a typical sheet. There are different options in glue, allowing uses that range from indoor cabinetry to outdoor and light marine uses.

NAMES

Baltic birch, Russian birch

USES

Painted cabinet faces, trim, or panels. It can be veneered with any material and makes a great stable substrate.

PRICE*

\$130 for a ¾-in. by 4-ft. by 8-ft. sheet

AVAILABILITY

Lumberyard or home center, also online from websites like Rockler, Woodcraft, and even Amazon.

SIZES

Sheets come in widths of 4 ft., 5 ft. or 8 ft., lengths up to 8 ft., and thickness ranging from ¼ in. to 1 in.

COLORS

No options for color. Birch veneer top sheets.

PROS

More sturdy than classic veneer core plywood, indoor and outdoor use, lots of size and thickness options, clear hardwood face typical of B1 grade. Excellent screw holding power. Edges can be exposed without edge-banding for a modern/industrial/European look.

CONS

More expensive than veneer core, fewer options for face grain.

APPLEPLY



When you're after that exposed edge look, ApplePly is another great option. Like its European multi-ply competition, it has a lot more ply layers than typical plywood (both have 13 plies per ¾ in.), making for a very good aesthetic. Appleply is manufactured in the United States using a mix of aspen and maple trees, setting it apart from the birch and poplar hardwood cores used in Baltic birch and Russian birch.

ApplePly is available with a variety of hardwood face veneers and measures up to the best quality European competitors.

NAME

ApplePly

USES

Sturdy cabinetry, exposed edge furniture and cabinetry, outdoor or high moisture exposed millwork.

PRICE*

\$180 for a ¾-in. by 4-ft. by 8-ft. sheet

AVAILABILITY

Some specialty plywood dealers and online at buyappleply.com

SIZES

Sheets come in widths of 4 ft., lengths up to 8 ft., with thickness ranging from ¼ in. to 1½ in.

COLORS

Based on veneer options; maple, walnut, oak, cherry, birch, and teak.

PROS

Able to finish the edge without edge banding, more sturdy than classic veneer-core plywood, indoor and outdoor use, lots of size and thickness options, made in America. It has almost no voids, is very flat, strong, and consistent in thickness. Excellent screw holding power.

CONS

Expensive, limited veneer options.

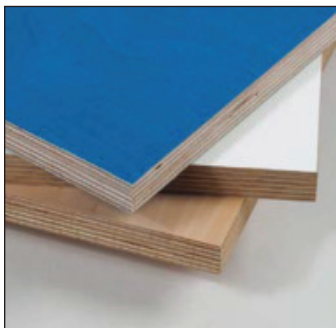


The go-to utility ply. Used here as drawer dividers inside a solid-wood drawer box, Baltic birch gives a higher-end look to something that can tend to be mundane.



As American as ApplePly. This domestic multi-ply is a fantastic alternative to Baltic birch or other European birch plywood. Here it's used specifically for its unique exposed edge, but also leaning on its stronger core to bear the weight in this modern desk and shelving.

MULTI-PLY WITH A TOUGH FINISH



The top-of-the-line multi-ply with the widest array of uses, this material is super stable and very durable. It is a Swiss army knife (or perhaps a Finnish army knife) in a world of plastic utensils. FinPly is very similar to Baltic-birch plywood but with a phenolic resin coating, which makes this a durable prefinished alternative to original Baltic birch. One of the most versatile materials on the

market, its uses range from concrete forms to high-end cabinetry and millwork.

NAMES

Fin Ply, Phenolic plywood, Colorfin Ply, Euro Color Ply

USES

Exposed edge furniture and millwork, exterior paneling, shop tabletops, and jigs.

PRICE*

\$290 for a 3/4-in. by 4-ft. by 8-ft. sheet.

AVAILABILITY

Some specialty plywood dealers such as Roberts Plywood. Woodcraft and Amazon in smaller sizes.

SIZES

Sheets up to 4 ft. by 8 ft. with thickness ranging from 1/2 in. to 3/4 in.

COLORS

White, yellow, orange, red, green, blue, gray, black, and natural clear.

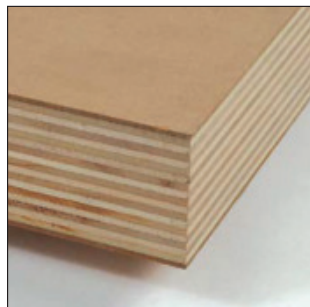
PROS

Stability, durability, void-free core for exposed edge furniture or cabinetry, beautiful colors and finish, resistant to moisture.

CONS

Very expensive, difficult to find, touching up the phenolic finish is near impossible. The phenolic coating can chip while cutting.

PLYWOOD MEETS FIBERBOARD



Garnica or Pluma Ply is a hybrid sheet good with an ultralight poplar ply core and HDF (high density fiberboard) face material on top that can be veneered, laminated, or painted. It has become one of the most coveted products on the shelf in our shop. We use it for anything from simple shop jigs and fixtures to the structural panels holding

together our most intricate cabinetry. It is a lightweight, void-free alternative to regular ply, and a more structural choice than MDF.

NAMES

Garnica, Pluma Ply

USES

Best for painted cabinet casework, lightweight structural panels, shop fixtures.

PRICE*

\$110 for a 3/4-in. by 4-ft. by 8-ft. sheet

AVAILABILITY

Most specialty plywood dealers

SIZES

Sheets come in widths of 4 ft. and 5 ft., lengths up to 10 ft., with thickness ranging from 1/2 in. to 2 in.

COLORS

Brown is the only option.

PROS

Easy to paint, holds a screw better than classic MDF/HDF, void and knot-free, little movement. Lightweight.

CONS

A bit more expensive, visible core needs edge-banding or face frame.

European modern design. Rowan used FinPly, a phenolic resin-coated birch veneer multi-ply, for all the casework in this bar and shelving unit, creating a sanded, chamfered, oiled, and waxed edge to achieve the aesthetic that the clients requested.



Your framing friend. Garnica is an ideal material for framing. It is flat, strong, light, and easier to rip into dimensional parts than wonky 2x material. Rowan frequently uses it in places such as inside a kitchen island, creating a chase for the electrical and plumbing. Or here, as the infrastructure holding a built-in bed together.

ECO-FRIENDLY BAMBOO



For the environmentally minded, bamboo has been a shining star in the sustainable building industry. Plyboo has a selection of stunning and eco-friendly sheet products with different cores and layups to match any project you have in mind. Plyboo is made of either three or four layers of fast-growing bamboo. Instead of a roll cut of veneer between the layers, these strips are glued up more

like a classic solid-wood lamination, making the sheets very stable, architecturally rated, and 100% rapidly renewable. As a sheet good, the classic look of the ancient material takes on a modern aesthetic.

NAMES

Plyboo, Plyboo plywood
(Smith and Fong)

USES

Indoor cabinetry faces,
interiors, or wall paneling.

PRICE *

\$220 for a $\frac{3}{4}$ -in. by 4-ft. by
8-ft. sheet

AVAILABILITY

Some specialty plywood
dealers such as Eco Supply

SIZES

Sheets come in 4 ft. by 8 ft.
with thickness ranging from
 $\frac{1}{4}$ in. to 1 in.

COLORS

Natural and amber.

PROS

100% rapidly renewable,
stable core.

CONS

Expensive, extremely hard
(dulls blades and bits), chips
easily when cut.

HONEYCOMB CORE FOR LIGHT WEIGHT



Think of these products as a futuristic model for what plywoods might become. The core of this sci-fi sheet good is made of materials including fiber, cardboard, foam, and PC2 polycarbonate plastic. This substrate will keep any panel rigid, flat, and super-light. The product's core, in a grid resembling a bees' honeycomb, is sandwiched between thin skins of HDF or MDF; the combination creates a strong,

lightweight torsion box that won't twist or bow.

NAMES

Plascore PC2
Polycarbonate Honeycomb
Comb Light

USES

Best as a thick, light sub-
strate, such as in a thick
wall panel detail or over-
sized door.

PRICE *

\$90 for a $\frac{1}{2}$ -in. by 4-ft. by
8-ft. sheet

AVAILABILITY

Plascore.com,
Thinklightweight.com

SIZES

Sheets up to 60 in. by 150
in. with thickness ranging
from $\frac{1}{8}$ in. to 2 in.

COLORS

Black, white, or clear
depending on dealer.

PROS

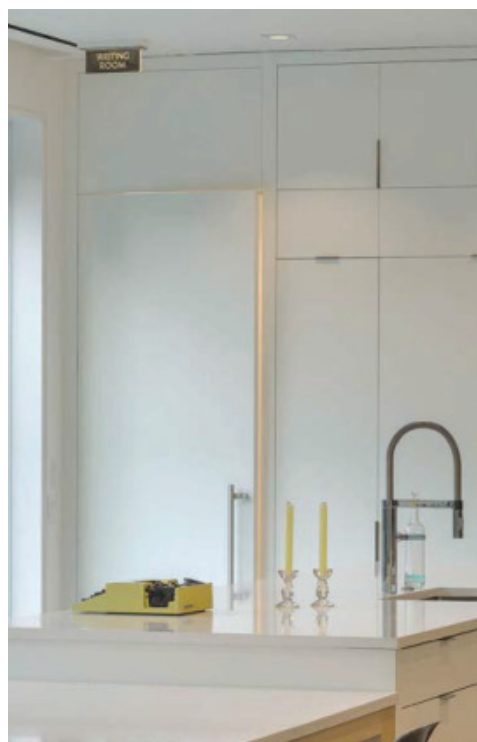
Stable, very light, avoids
twisting, unaffected by
moisture.

CONS

Hard to find, not very
versatile.

Sleek and sustainable.

Plyboo is a fantastic product that is a green alternative to regular ply veneer. It is sustainably made and can do any job other materials can do but with less of a carbon footprint, which can be very important to some clients.



Fun use of

Plascore. For these 30-in. by 8-ft. doors, the designers used a poplar frame with a polypropylene honeycomb core and an MDF veneer. The result is an ultra-light and stable door that moves easily, finishes well, and stays dead flat over the years.

Build an Andon Lamp

Re-create the warmth and style of a traditional Japanese light

BY CRAIG VANDALL STEVENS

Andon lamps capture the clean lines and simple beauty of traditional Japanese woodworking. The original, oil-lit style is no longer commonly used, but modern Andon designs with electric fixtures are plentiful. Although some traditional Andon lamps had hinged panels and could be opened to shed more direct light, Andons primarily provided accent light and a warm aesthetic statement rather than bright light to read by. I build mine in the same spirit. The size I'll demonstrate is suitable for a tabletop or floor lamp.

The Andon (pronounced ahn dohn) can be made in various ways, offering a range of design possibilities and levels of woodworking complexity. In this version, the rails of the lamp frame are joined to the legs with mitered tenons. As to the thin strips, or kumiko, that form the lamp's gridded panels, in many original Andons they were tenoned into the lamp frame's legs and rails. For this lamp I used a different method, making four separate lap-jointed kumiko panels that are press-fit into the lamp's frame. You can give your kumiko panels a plain grid pattern—relatively simple or more complex—or add one of the many traditional infill patterns. To see how I make the decorative



Softwoods (or softer hardwoods) without distinct grain markings are best for Andon lamps. This one is made with Alaskan yellow cedar; basswood is another good choice.



Kumiko grid pieces can be tenoned directly into the posts and rails, but to simplify the construction, Stevens made individual kumiko panels, which are press-fit into the lamp.



Chisel them square. A chopping jig straddles the leg and keeps the chisel plumb and square as Stevens cleans up the ends of the mortise. Next, he uses a wider chisel to trim any waste from the walls.

Tenon the rails



Tablesawn shoulders. Use a crosscut sled to saw the deep shoulders. For the shallow ones, add a piece of blue tape to the stop block; it moves the workpiece just enough so the blade won't nick the first shoulders.



Bandsawn cheeks. With a stop block clamped to the bandsaw fence, cutting the rail cheeks goes quickly. After all the face cheeks are cut, move the fence and cut the edge cheeks.



Freehand miters. Mark the miters on the tenon ends and cut them freehand on the bandsaw. The miters aren't a glue surface, and needn't be precise. Stevens holds a pair of rails as he saws for added stability.



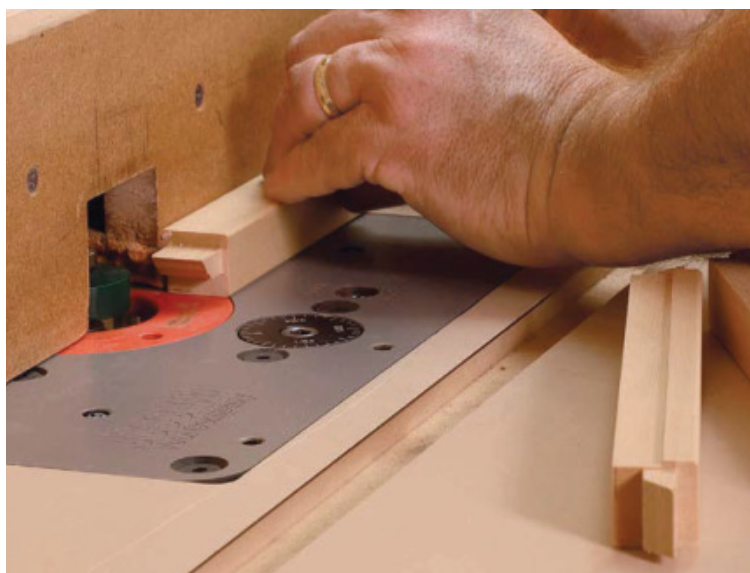
Rails get ripped. To simplify the joinery, the rails, like the legs, are milled $\frac{7}{8}$ in. square. But after the tenons are cut, Stevens trims $\frac{1}{16}$ in. off the outside face of the rails, so they'll be inset from the legs.

kumiko pattern for this lamp, see Handwork (pp. 22–24).

Millwork

The techniques for the lamp frame and kumiko panels are straightforward, but throughout the process precision is paramount. I start by building a mockup of the lamp frame in poplar, screwing it together. When I have the shape and size right, I make story sticks from the mockup: one the length of a leg, which I mark with the location of the two rails; another the length of a rail (not including tenons). I use the story sticks throughout the milling and joinery process.

In the completed lamp frame, the rails will be inset from the outside faces of the



Quick rabbets. At the router table, Stevens cuts a rabbet in each rail to receive the kumiko panel.

Assemble the lamp frame



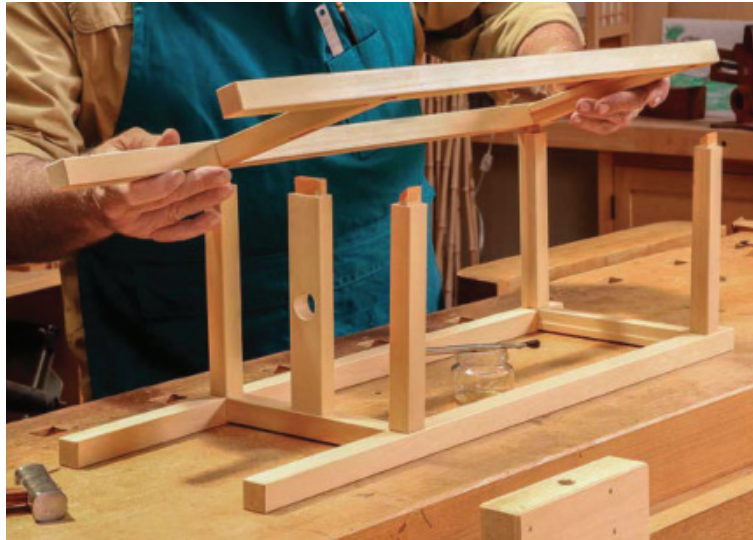
Front and back first. Stevens assembles the Andon in stages, starting with the front and back frames, which he glues up flat on his bench. Here he checks the diagonals of one frame with squaring sticks.

legs. But because it's easier to cut centered joints than offset ones, I mill the rails and legs to the same dimension, $\frac{7}{8}$ in. square. Only after cutting centered tenons do I rip the rails to their final width, removing $\frac{1}{16}$ in. from their outside face.

Frame joinery

I mortise the legs with a plunge router mounted on a saddle jig, which has a $\frac{1}{4}$ -in. MDF base and two adjustable fences snugged up to the leg stock. Layout for these mortises, which I do using the story stick, requires just knifed end lines for each mortise. I stay a bit shy of the end lines as I plunge rout, and then I square up the ends of the mortises by hand with a chisel and a squaring jig that straddles the leg.

Making the tenons on the rails begins on machines and ends with handwork. After cutting the rails to overall length, I cut their tenon shoulders on the tablesaw with a crosscut sled and a stop block. Then I cut the tenon cheeks at the bandsaw, using a fence and a stop block. I mark miters on the tenons and cut them by eye at the bandsaw, not worrying too much about perfection here, since they will not be glue surfaces. With all that done, I reset the bandsaw fence and rip the rails to final width. Then, at the router table, I cut the



Completing the structure. With the side rails and fixture rail in place, Stevens finishes assembly. He uses liquid hide glue from Old Brown Glue, which provides reversibility, a long open time, and a slippery texture for easy insertion of the multiple tenons.



Make strips for the kumiko grid



Strips start as a wide blank. It's simplest and most accurate to cut the half laps by cutting dadoes in a wide board and then ripping it into strips. Mill the board's thickness to the width of a strip. For the vertical strips, trim the board's length so it fits snugly between the rabbets in the lamp rails.

shallow rabbet in the rails where the kumiko panels will be seated.

Now there are a few steps at the bench before the lamp frame is ready for assembly. On the rails, I chisel away any waste at the intersection of the tenon cheeks and shoulders. Then all faces of the legs and rails get finish planed, and all the corners get a small chamfer. I use a dedicated chamfer plane, but any bench plane or router would do the trick. Next, I assemble the lamp frame and move on to the kumiko work.

Creating the kumiko grid

The wood that comprises the kumiko grid, or *jigumi*, could be cut into strips first and



Cut dadoes for the half-laps. Stevens cuts the half-lap dadoes on a crosscut sled, using a flat-topped blade and an auxiliary fence with a moveable indexing pin to control the spacing. To cut the open half laps on either end of the blank, he removes the pin and uses a stop block.



Similar spacing. For the horizontal strips, make a blank that fits snugly between the lamp's legs, then cut the dadoes with the auxiliary fence. Getting the dado spacing perfectly even is a challenge. Using metric measurement can help.

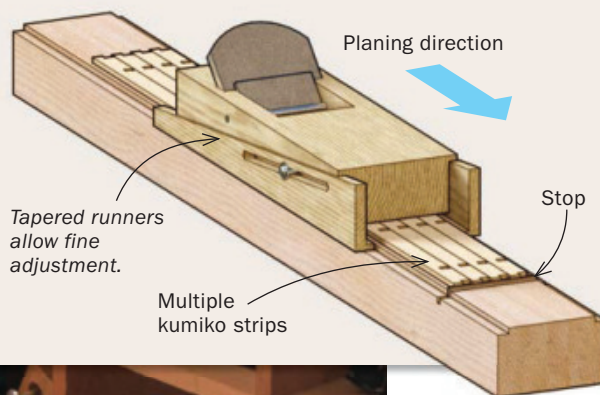
then notched for all the half laps. But I find it simpler and more accurate to cut the half laps as dadoes in a wide blank, which I then rip into strips. I mill all the blanks to $\frac{7}{16}$ in. thick, the eventual width of the strips. For the vertical kumiko strips, I cut a blank to length so it fits snugly into the rabbets in the lamp frame's rails. For the horizontal strips, I cut a blank so its length fits snugly between the lamp's legs.



Slice up the sticks.
At the bandsaw, Stevens rips the dadoed panel into kumiko strips. He saws the strips about $\frac{1}{32}$ in. over finished dimension.



KUMIKO THICKENING PLANE



A rig made for milling.
Using a Japanese kumiko plane, or hikouki kanna, that has adjustable runners and a mating fixture to ride on, you can plane four strips to final thickness and glassy smoothness.

TIP

BENCH PLANE BECOMES A PLANER

I cut the dadoes for the half laps at the tablesaw using a flat-topped blade with a $\frac{1}{8}$ -in. kerf. To dial in both the exact blade height for the half laps and the correct thickness for the kumiko strips, I use a test blank and test strips that I rip from it on the bandsaw.

To control the spacing of the half-laps, I use an auxiliary fence on the tablesaw's crosscut sled. It works like a box-joint jig, but its indexing pin can be moved to different slots to create different spacing. When cutting dadoes in the blank for the long vertical strips, I start with one at the midpoint of the blank; this is cut with the indexing pin removed. Then, to



You can tape a pair of runners to the sole of your bench plane to create a hand-milling system much like the dedicated Japanese version. To get just the right thickness, use extra kumiko strips as runners. Once they're taped on, you can rub them on sandpaper, reducing their thickness slightly to compensate for the thickness of the double-sided tape.

Assemble the kumiko grid

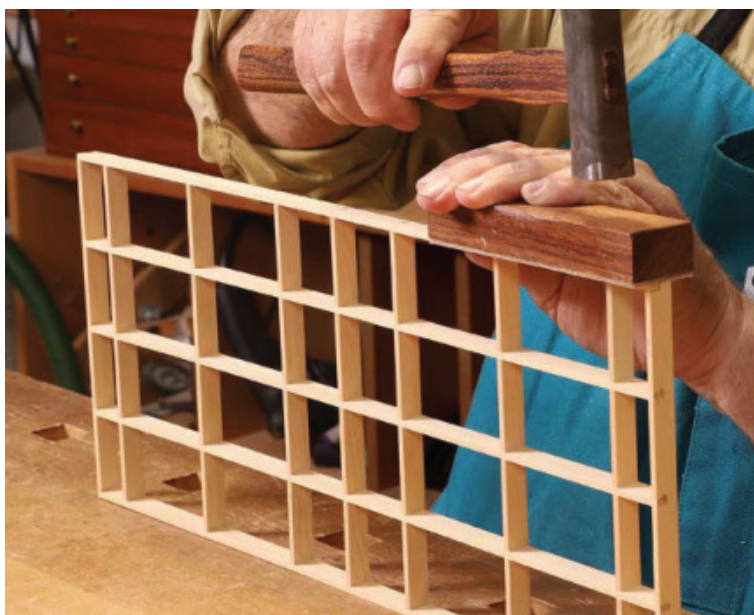


Gang up the strips for gluing. To prepare for assembly, Stevens aligns a batch of horizontal strips and applies glue to their half laps.



Gentle assembly. A hardwood block faced with mat board helps engage multiple half laps at once.

Tighten the grid. Once all the central strips are fitted together, Stevens presses the perimeter strips into place and taps them tight.



Add clamps at the corners. To keep the open half laps at the corners of the grid tight while the glue dries, Stevens stretches blue tape around the corners.



cut the two adjacent dadoes, I insert the indexing pin and rotate the blank between passes. I move the indexing pin to a more distant slot for the next two dadoes, and I move it farther away once again for the last two.

With the dadoing complete, I rip the blanks into strips, slightly thicker than final size, at the bandsaw, edge-jointing the blank after every five or six strips. I mill the strips to final thickness with a traditional kumiko plane, but you can add runners to a normal bench plane and do the same work a bit more slowly.

I assemble the kumiko grids flat on my bench. I use white glue and a palette knife and I gang parts to glue them, which makes it easier to get good coverage without excessive squeeze-out. After tapping the grid together, I clamp its corners with tape to keep the open half laps there tight.

I let the grid assembly cure, and if I'll be adding a decorative kumiko infill pattern, I do that next. If I'm leaving the grid plain, I move on and apply washi paper with starch glue. I get the paper, glue, and applicator from eShoji.com. When the glue dries, I trim the paper and spritz it with a little water to tighten it. Then the panel is ready to be pressed into the lamp. I skip a finish on Andon lamps; it would be very fussy to apply, and it seems unnecessary, since Alaskan yellow cedar and other light, unfigured woods look so good raw. □

Craig Vandall Stevens builds furniture and teaches at Philadelphia Furniture Workshop.

Add washi paper



Roll out the washi. The Japanese paper typically used in Andon lamps comes in a roll and can be cut with scissors or a knife. Cut the paper slightly larger than the kumiko panel.

Glue sparingly. Using starch glue and a special applicator that makes it easier to deliver a thin stream of glue accurately, Stevens coats all the exposed edges on the inside face of the grid.



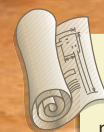
Weight the panel. After flipping the kumiko grid glue-side down onto the washi, add weights on top and let it cure for an hour or two.



Trim to the grid. When the glue dries, remove the weights, put a cutting mat beneath the grid, and trim the washi to the perimeter of the panel with a knife.



Tightened up and pressed in place. Once the starch glue has turned clear, spritz the inside face of the washi with a mist of water. As it dries, the paper becomes taut. Then the panel can be press-fitted into the lamp frame.



To purchase expanded plans and a complete parts list for this lamp and other projects, go to FineWoodworking.com/PlanStore.

Straw Marquetry

Revealing the secrets of a once-forgotten French technique

BY GERARD WILLIAMS



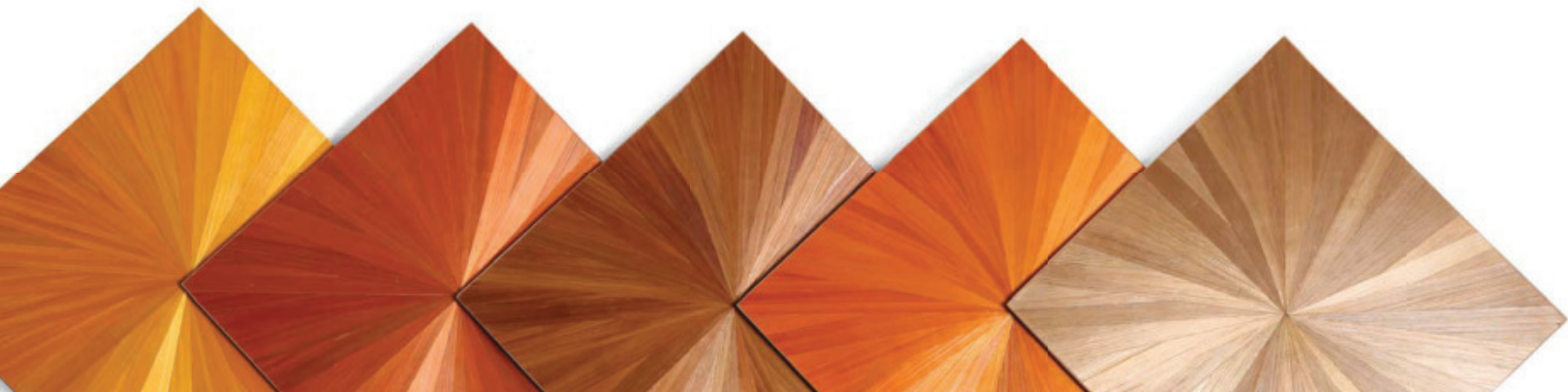
Straw marquetry is an ancient technique that has come in and out of fashion over the past few centuries. It is traditional marquetry that uses rye or wheat straw in place of wood veneers. Jean-Michel Frank's historic "Round Marquetry Table" is an excellent introduction to basic straw marquetry techniques.

The first straw line sets the stage

Before working with the straw you must split it, soak it, and flatten it. As the straw dries, it unfolds just enough to

prevent it from cracking under the pressure of your veneer hammer or flattening tool.

You'll glue down the straw strip by narrow strip. To begin, apply just enough glue to the substrate to fully cover the area where the first piece of straw will go. On this table, we're starting with the legs. Apply glue and a long piece of straw along one edge of a leg's side face. Lay the piece so it overhangs the edge a fraction of an inch; you'll remove that later. Press the piece down firmly with a bone folder.



The tools My go-to arsenal of tools for straw marquetry includes the following.

Hindenburg—used to split straw lengthwise and to smooth and flatten it.

X-Acto knife with a flat head—to remove excess straw and assist with glue cleanup.

Chamois leather—Works wonderfully to clean up excess glue. Like it or not, you will have quite a bit of glue to clean up, and a “shammy” works incredibly efficiently for this task.

Rye Straw—Straw comes in ¼-lb. packages (about 200 stalks ranging in length from 9 to 21 in.) that cost around \$30. Color options range from natural or bleached, to a variety of dyed colors.

Museum-quality PVA glue—This PVA glue is a pH neutral and acid-free adhesive that will dry clear and flexible and will stand the test of time.

Veneer hammer—or a purpose-made, wooden straw flattener.

Swann-Morton scalpel with #10 blades—The low angle of cut helps prevent tearout when cutting across straw.

6-in. and 18-in. very thin ruler—A standard-thickness ruler will cast a small shadow that makes precise alignment very difficult.

1-in.-wide bone folder—These traditional book-binding tools are made from real bone and are excellent for applying straw to a substrate. Some people prefer to use Teflon bone folders instead.

SOURCES OF SUPPLY

talasonline.com

leevalley.com

thestrashop.com

amazon.com

Prepare the straw

Before starting to apply any marquetry, Williams flattens, soaks, and splits all of the straw that he will use for the project. For this table, that is two ¼-lb. packets of natural, undyed (or dyed) rye straw.



Splitting straws. Using your thumbnail to split the straw is the fastest method; however, Williams has also filed down a crabmeat fork for this purpose. Another option is to purchase a tool called a Hindenburg.



Soaking it up. Once all the pieces are split from one end to the other, soak them in water until the insides of the straw have been fully soaked. A couple dunks in a bath of water will work fine. Let the straw dry overnight.



Flatten it out. With the inside face of the straw faceup, press down with a veneer hammer and pull the straw out from under it. Flip the piece to get the other side. Repeat two to three times until you have a ribbon.

One piece at a time

You will be joining multiple thin strips of straw, gluing as you go. Once you get the rhythm of applying the glue, pressing the straw in place, and laying the next line, you can move more efficiently.



First line first. Spread just enough glue on the leg for the first line of straw. Place the straw down so it barely overhangs the side of the leg and use a bone folder to press it in place.



Establish a parallel line. The flattened straw can be tapered, so you must cut the inside of the first line of straw parallel to the edge of the leg. Use your scalpel, leave the ruler in place, and use a flat X-Acto knife to peel away the excess. To stay parallel to the leg's edge, do this with the far side of each subsequent line of straw.



Then take your longer ruler and slice a straight line from top to bottom, parallel to the edge of the leg. Do not remove the ruler after slicing. Leave it in place and reach for the flat X-Acto knife. Referencing the edge of the ruler, peel away the excess straw with the knife. The next piece of straw will butt against this edge you've created. Finally, use the scalpel to remove the straw overhanging the edge of the leg.

Apply more glue and place the next piece of straw as close as possible to the line just cut. With your fingers barely overhanging the edge of the straw, pull it over and you will feel it butt up against the straw that's already been applied. This process is tactile, not visual. If you can't feel the straw sort of lock into place, it is unlikely to be accurate. Repeat this process until you've covered the rear and side faces of all four legs.

Assemble and cover the front of the legs and apron

Next you'll assemble the table, and use a handplane and sanding block to shape the square front of the legs to



Subsequent lines. Apply glue for the next piece of straw and lay it down, butting it against the piece before it. Use your fingertips to feel that the two pieces are joined with no gap or overlap. Repeat around the rear and side faces of all four legs.



Trim and clean up. Once the area you're working is covered in straw, use scissors to crosscut trim the overhangs close to flush, and then follow up with a scalpel. When cutting overhanging edges of straw flush with the substrate, focus your attention on slicing down to prevent tearout. Finally, lightly sand downward at a high angle to smooth the straw, and use the chamois to rub off excess glue.

Apply marquetry to outside faces

After covering the legs' side and back faces with straw, Williams attaches the legs to the table and shapes their front face to the curve of the top. Next he applies straw to the front face of each leg and the apron above it, and then fills in the apron sections between the legs.



Leg-to-apron marquetry. Williams starts on one side of the outside face of the leg and lays a piece of straw up the leg and over the apron (left). With all the strips in place, he uses his fingers to crack the overhanging straw against the edge of the tabletop, toward the center of the top, to score it. Then he uses a sanding block to free the straw flush to the tabletop.



The short straw. After all the leg faces and corresponding parts of the apron are covered in straw, you can lay straw on the sections between the legs. When working on this shorter surface, you don't have to slice a straight line once a piece of straw is applied. However, Williams marks a series of square lines on the edge to ensure that the work doesn't start to get out of square.

match the gentle curve of the circular top. Then apply straw to the outer face of each leg and the apron above it.

When you finish the legs, move on to the apron sections between the legs. When cutting overhanging ends of straw pieces flush with the substrate, focus on slicing down. If you just pull the scalpel across the straw it will tear out.

Once the legs and aprons are completely covered and the straw is all trimmed flush, do a final sanding with a sanding block, pushing toward the center of the table.

Lay out and begin the sunburst top

To lay out the sunburst motif, draw two perpendicular lines that span from one edge of the top to the other.



Cut and sand as you go. As you make your way around the apron work in manageable sections, removing overhanging straw as you go so that you don't accidentally tear it off. Crack the excess off over the edge, free it with a sanding block, and very lightly hit the edge with 220-grit sandpaper.



Behold the sunburst

Each ray of the sunburst top, except the last one, gets worked individually. As with the legs, you set a first piece of straw, cut a parallel line, and add another strip against that line. The difference here is that after laying the straw and cutting a parallel line, you angle cut its inner end to shape the ray.

Bisect these lines, and then bisect the subsequent ones, repeating until the sunburst is divided into 64 rays. Be accurate; you'll use these layout lines to guide the actual cuts.

Apply glue and lay the first piece of straw slightly overhanging one edge of a ray. Then line up your ruler precisely on the reference line and remove the overhang. Next slice a line parallel to the one you just cut; this makes a nice edge for joining the next piece of straw. Add the next piece, leaving it long at both ends. After laying down two or three pieces joined edge to edge, use the reference line to angle cut the inner end. Remember: when you make the cuts, make a slice and do not relieve pressure from the ruler until you remove the waste side of the straw.

The straw should overhang the top slightly. To bring the straw flush with the table's edge, use a 150- or 180-grit sanding block at a 45° angle, working until you just sand through the top. This prevents accidentally slicing through the straw on the edges.



First ray first.

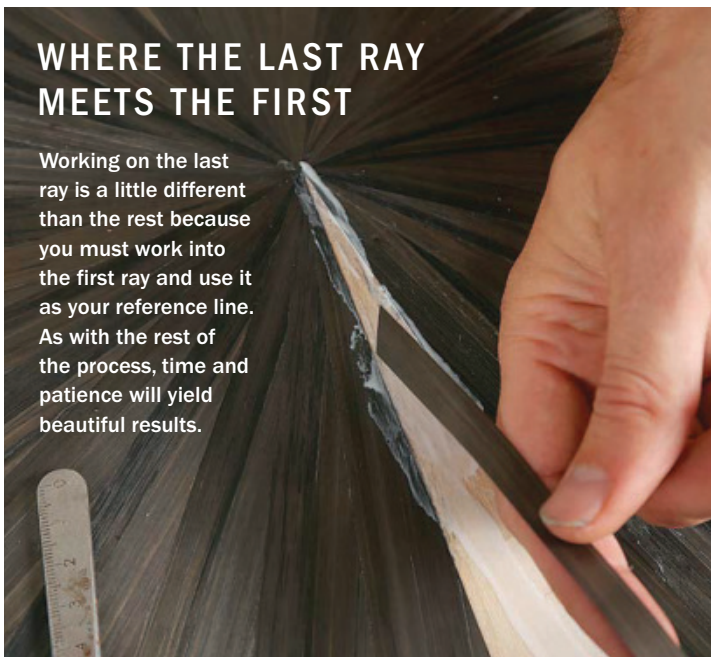
Choose a ray to start with and apply glue. Lay down the first piece of straw barely overhanging your starting reference line. With the ruler perfectly on that line, cut off the excess. As you did with the legs, cut a line on the other side of the straw parallel to the reference line to butt the next piece of straw to; repeat through the ray.



Establish the angle. *The strips should be overlength at both ends. Once you've laid a straw and cut a parallel edge, place the ruler on the reference line for the angle on the far side of that ray, and slice off the excess. Before lifting the ruler, use the X-Acto knife to remove the waste. Continue through the ray, laying down two or three lines before cutting the excess and repeating.*

WHERE THE LAST RAY MEETS THE FIRST

Working on the last ray is a little different than the rest because you must work into the first ray and use it as your reference line. As with the rest of the process, time and patience will yield beautiful results.



Work into the point at the top of the ray. Use scissors to trim an acute angle onto the end of every piece in the last ray. The angle doesn't matter, but the point should be able to sit in the apex of the last ray while the straw overlaps the first ray a bit. Apply a few lines of straw. Carefully use the first ray as a reference to make the cut. Then apply the remaining pieces.



Trim it flush. The straw should overhang the top. The table is nearly finished, so the stakes are high. Instead of using a scalpel to trim, hit the edge with a 150- or 180-grit sanding block at a 45° angle, until you just sand through the top, breaking the edge of the top and trimming the overhanging straw in one step. Then lightly hit the edge with 220-grit paper.

The final ray

The process is the same until you reach the last ray. With scissors, cut a point at the tip of the straw. Glue that piece into place with the point at the apex of the ray. Make the angle cut using your first ray as a reference. Repeat this, one piece of straw at a time, until you fill the ray. This is one of the hardest parts in the whole process, so be patient with yourself if it takes more than one attempt.

Sand away any overhanging straw. Clean up the final bits of glue with the chamois cloth, which works to burnish and clean at the same time. Straw has a natural coating of silicone, so it's not necessary to add a finish. However, I often apply paste wax for some extra protection.



Leave it unfinished. Because the straw has a natural coating of silicone, there is no need to apply finish. It's optional, but you can add paste wax for a little more protection. Here, Williams used black shoe polish to protect and enhance the color of the straw.

Gerard Williams makes custom furniture in East Hampton, N.Y. You can find him on Instagram @__gerard_williams__.

Endless possibilities

Straw marquetry is a graceful dance between a humble and unruly material and the artisan who works it. When the material's strengths and limitations are honored and understood, a designer can create a truly extraordinary piece of furniture that can last for generations.



LILIES CREDENZA

This credenza embodies the glamorous and dramatic spirit of the Art Deco period. The doors are adorned with meticulously handcrafted straw marquetry and brass, and the body is crafted from native ambrosia maple which is bleached and polished to a perfect finish. Its design is an homage to its European ancestors, Jean-Michel Frank and Jean Royère, the unparalleled masters of 20th-century texture and material.



L'AUBE COFFEE TABLE

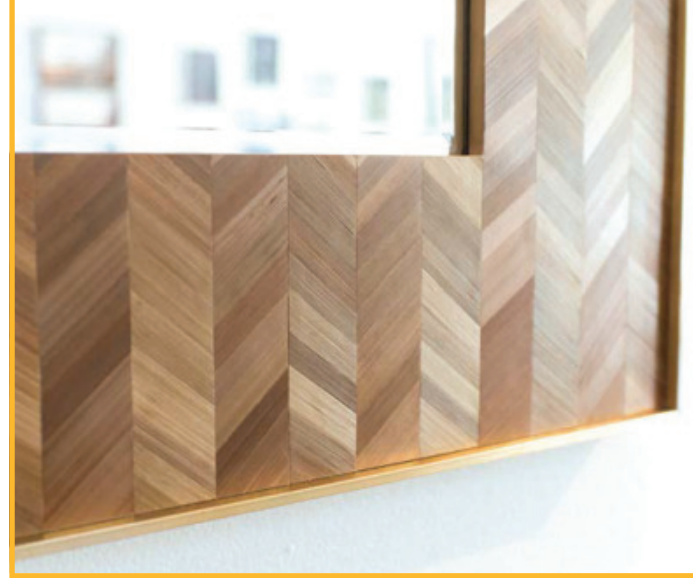
This table brings light and intrigue into interior spaces. The tabletops are adorned with ornate straw marquetry and wrapped in solid brass. Williams harvested the rye straw from a farm in Amagansett, N.Y.





TRAMP MIRROR

The Tramp Mirror was inspired by the intricate woodcarvings of 19th-century American tramps. Through its minimalist lines and harmonious combination of materials, the mirror holds both strength and grace.



‘FLAQUE’ LOW TABLE

This is an exact replica of Jean Royère's playful and sophisticated “Flaque” table. The stars—precisely inlaid with alternating grain directions—bring a wild vibrance to the motif of the sky at dusk.



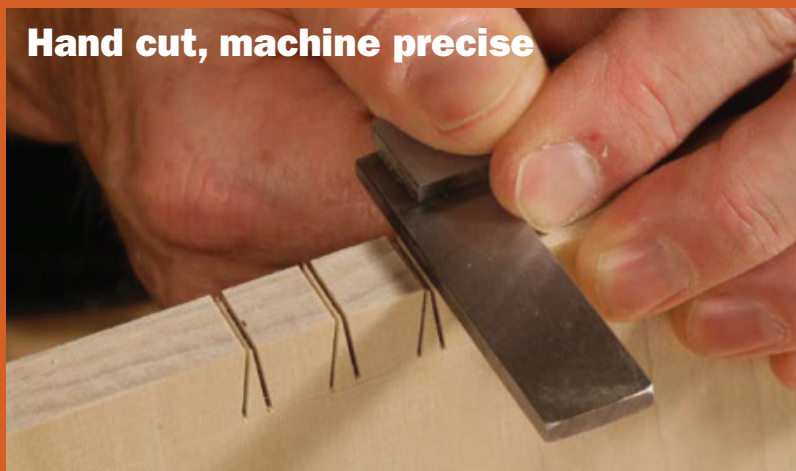
PAVLOVA SIDE TABLES

Named after the famous Russian ballet dancer Anna Pavlova, the side tables embody the delicate grace of ballet and the beauty of the ancient craft of straw marquetry. An intricate yet unpretentious pattern, inspired by the earliest examples of straw work, adorns the aprons, which then draw the eye to the polished legs that taper into solid brass ferrules.





Hand cut, machine precise



Always cut tails square to the face. The exact slope of the tail matters much less than cutting square to the face of the board. The guides use magnets or slots to hold your saw 90° to the workpiece, yielding reliable results that won't need paring. You can move right to removing the waste between tails.



Saw Guides for Dovetails

A helping hand is worthwhile
for novices and pros alike

BY MIKE FARRINGTON



Dovetail sawing guides may be single-task devices that people have worked without for centuries, but I wouldn't want to run my professional furniture shop without one. The idea behind them is simple: They hold your handsaw at a fixed angle—the slope of the dovetail—for both the tails and pins. They also hold the saw square for each cut—square to the face for the tails, and square to the end for the pins. As a result, they take much of the stress out of dovetailing. Far from being a solution without a problem, these guides can benefit everyone except the absolute dovetail expert in several ways.

First and probably foremost is confidence. As with anything, believing you can do something is critical to success. When a novice dovetailer cuts a corner joint, taps it together, and it seats nicely without gaps, they're hooked. I know that was the case for me. After stumbling through a few joints without a guide, I had started to think adding dovetails to my work wasn't going to happen.



Plumb pins too. Each guide comes with matching sawing surfaces, one for tails and one for pins, and yields a uniform slope for each cut. Just as the tail side cuts 90° to the face, the pin side cuts 90° to the board's end. If you saw close enough to your line, the only chisel work will be chopping to the baseline.

The hand-cut look without the hand-cut time. Whether you cut dovetails daily or yearly, sawing guides allow for clean joints without much fuss.

Katz-Moses

\$36

The Katz-Moses guide has a few unique features. First is its material: clear urethane, a durable product that's still soft enough to do little to no damage to the sawteeth. Additionally, the guide's post is inset from the head, meaning your saw will likely never hit it. Your saw's teeth will occasionally hit any of the guides, and while it's no big deal, it never feels good. The Katz-Moses, with its urethane and inset post, goes further than others to avoid that feeling.

The guide is clear, giving you a good view of your workpiece and layout lines. Two magnets hold the saw very strongly against the guide. It's the only guide with a face for cutting 90°.

Like many other guides, the Katz-Moses has a short bearing surface for the saw, allowing for a good depth of cut even if you are using a saw with a spine.



Sticky-back sandpaper helps with grip. This guide, made from tough polyurethane, can be a little slick. To help, Farrington adheres sandpaper to the stem.

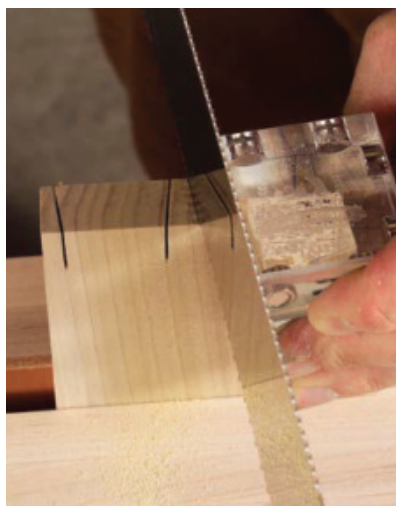


Two magnets keep saw in line. This is the only guide with two magnets. They do a great job of keeping your saw tight to the guide even if your mechanics are off.

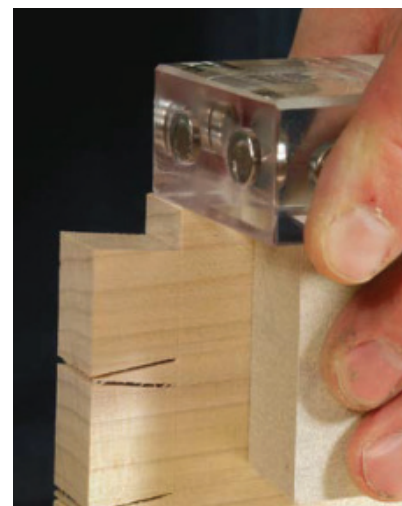
Then I decided to try a guide. Right out of the gate, first try, I had a very nice joint. I needed that win to give me the confidence to try dovetailing on an actual project.

Confidence is also critical for the seasoned woodworker who has cut lots of dovetails—again, like me. For example, if I am dovetailing a case, I have already invested several hours into panel glue-ups where I've used specially selected, beautiful boards. And this case may already have some joinery, like dados, and shelf-pin holes. In other words, the stakes are high. A mistake on one of the workpieces would mean a lot of work to repair or remake the part, and that's enough to spook me a bit. A dovetail guide helps me execute each of the four corner joints accurately, precisely, and without mistakes.

Avoiding mistakes points to another benefit: consistency. I am certainly no Christian Becksvoort,



Transparent guide lets you see layout lines from above. The closer you saw to your lines, the less fitting there is later. The Katz-Moses guide makes this easy.



The only guide with a square cutting surface. Tail boards always have a 90° cut at the edge. Thanks to this guide's square sawing surface, cutting these shoulders is easy and accurate.

David Barron

\$55

The David Barron is a simple, well-executed guide with a less-is-more style. It feels excellent in the hand, better than I can put into words. The machining is premium and the size is just right. The sandpaper applied to the reference surfaces helps hold it securely. There's only one magnet, but it straddles the line between strength and size excellently. It neither death-grips the saw nor lets the cut feel sloppy. The magnetic surfaces are covered with a slick, thin, replaceable plastic. The body of the guide is small enough to cut a reasonably deep dovetail using a saw with a spine. It also comes in the largest variety of dovetail angles.



Sticky sandpaper's supplied. You can hold the Barron guide in place with only moderate pressure thanks to the adhesive-backed sandpaper that comes with it.



It just feels good. Thanks to its machining, size, and finish, the guide feels great in the hand. Farrington could instantly tell he was using a premium tool that was equally intuitive.

but I am pretty good at cutting dovetails without a guide. Still, every so often I simply make a mistake, like not sawing square to the face on a tail. I honestly have never made this mistake while using a guide.

Plus, the guide means I'm always consistent; I don't need to worry if I've gotten rusty. I am a cabinet and millwork kind of builder, so I use screws, biscuits, and glue for most of my joinery. But a few times a year, a customer will approach me looking for finer work, and I'll use as many dovetails as I can. Because this happens infrequently, I may not have had the chance to cut a dovetail for months. Using a sawing guide allows me to jump right in and cut clean joints without much fuss. Without the guide, I would need to do a few practice joints—spending time and effort away from a paying gig—to even get close to an acceptable joint.



Effective magnet. The magnet strikes the right balance between size and strength to hold the saw in the two necessary planes for each cut. Its plastic cover, used to protect the saw teeth from the metal, is replaceable too.



Veritas

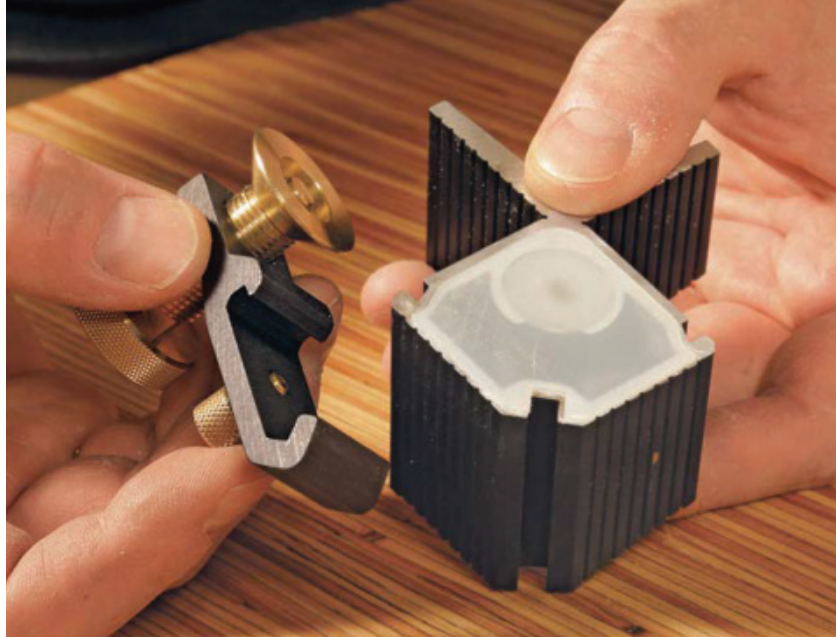
\$50

This guide's standout feature is its clamp, which I love. While it's not absolutely necessary, it certainly boosts my confidence that the guide will never drift. And since you don't need to hold the guide in place, you can cut on both sides of the guide with ease. Also thanks to the clamp, this guide works better than the others when cutting half-blinds. Sure, the clamp slows down the overall process, but the returns are worth it.

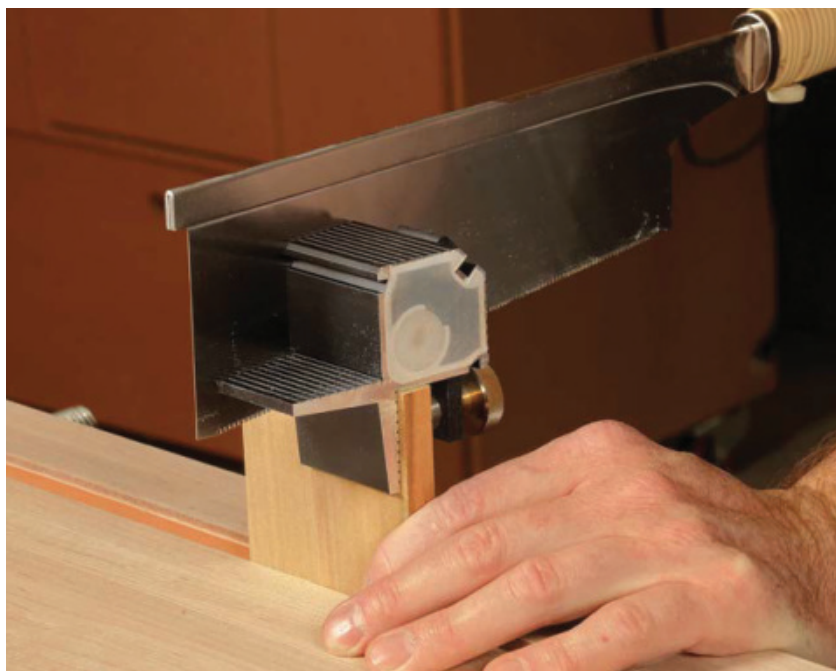
The guide's reference surface for the saw is wide and tall, letting it function well. However, because of the height of the guide above the workpiece, the depth of cut is much more limited when using a traditional dovetail saw, which has a narrow plate. I use a ryoba as an alternative, because it doesn't have a spine, but a saw with a deeper plate works too. Lee Valley bundles a spineless saw with the guide for an extra cost.

This brings me to the third benefit, speed. For all but the most seasoned professional, using a guide will speed up the process; and let's face it, cutting dovetails takes lots of time. Not only the act of sawing, but the whole process from start to finish. If you saw accurately, there's no checking and paring before transferring the joint. Each step builds on the last, and these little improvements mean a corner that is finished faster. I don't want to toot my own horn, but directly off the saw using a guide, I can cut a dovetail joint that is as close to perfect as possible. You can, too, once you get familiar with your guide.

So if I'm using a guide with my handsaw, why not just use a router and a dovetail jig? For one thing, sawing by hand makes it possible to leave a much smaller space between the tails, creating a look that instantly conveys "made by hand." The space can be even smaller than with a tablesaw



Flippable clamp holds the guide in place. Instead of securing the guide with your hand, the Veritas uses a clamp. You change the clamp's orientation depending on whether you're cutting pins or tails. A small set screw keeps the clamp from sliding.



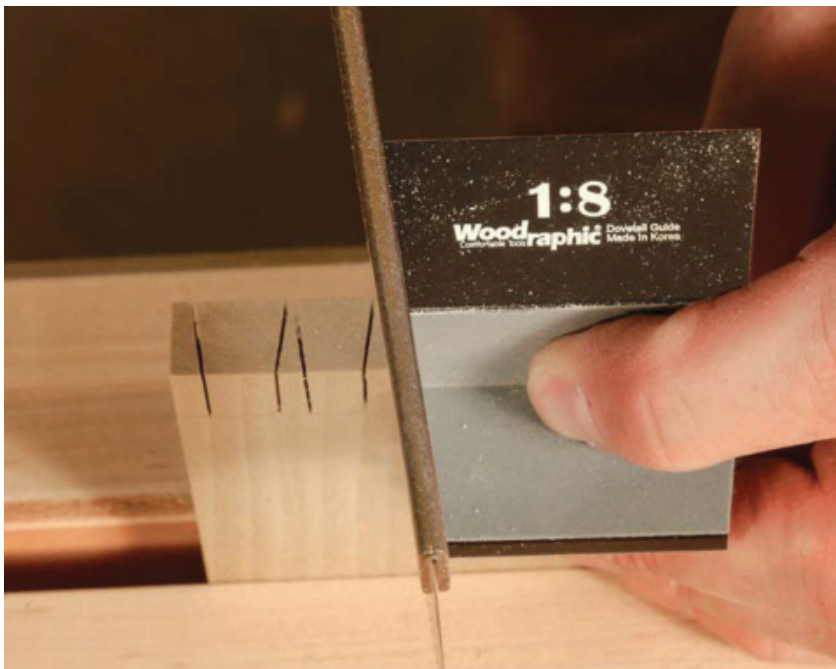
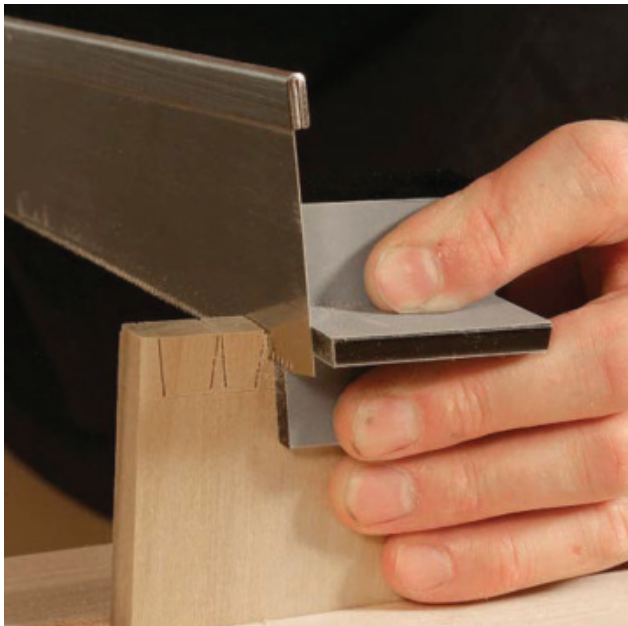
The off-hand can take it easy. Because the clamp, not your hand, holds the guide, the Veritas is a great option for those with hand injuries or grip issues. For everyone else, the clamp still lends a lot of confidence that the guide will stay put.

Woodraphic

\$30

The Woodraphic is the smallest of the guides, and it works well on small projects. Small saws feel at home on the guide, even small backsaws. When the guide is used with larger saws, though, the magnet doesn't have quite enough holding power and the saw reference surface isn't quite big enough to hold the saw as well as the other guides. The guide does have a nice slick surface for the saw to glide on, and the silicone gripper material holds the guide against the workpiece securely with minimal hand pressure.

Small guide pairs nicely with small saws and small stock. Like most of the other guides, the Woodraphic uses a magnet to hold the saw. It works nicely with light, scaled-down saws, but the holding power drops off with larger saws.



Great grip. The guide is covered in a silicone material, which increases friction against the workpiece and aids in keeping your fingers in place, letting you hold the guide securely with minimal hand pressure, a nice benefit on small stock.



TIP

ADD SUPPORT FOR CUTS NEAR AN EDGE



When cutting near the edge, you can add a second board so your guide isn't hanging out in space. Just make sure the ends of both boards are aligned. Alternatively, you can flip the board you're cutting face for face. (The Veritas typically doesn't need a workaround; the clamp stabilizes it, and it's easy to saw on both sides of the guide.)

blade ground for dovetails. Second, size and spacing are infinitely adjustable with a guide, while a router jig limits both. This second reason leads to the third: While a router jig is great for cutting a lot of identical dovetails on a lot of like boards, setting one up can be finicky and time-consuming for just four corners. Not so with the saw guide. And finally, handsaws are nice and quiet.

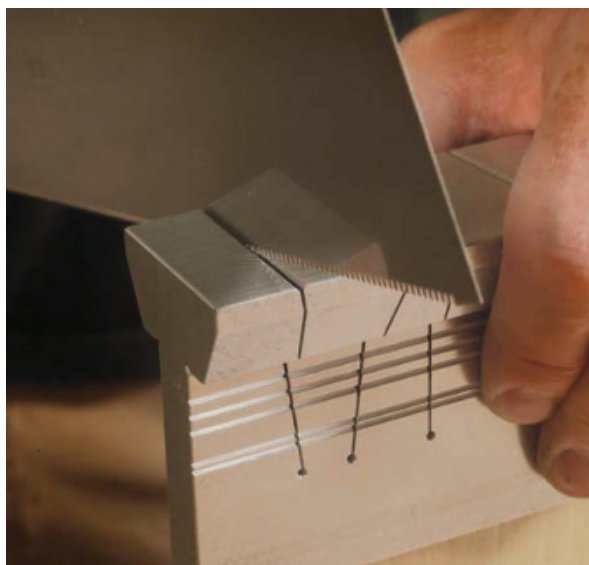
To be clear, these guides aren't perfect for everyone or for all situations. Take half-blind dovetails, for example. The tail board is easy enough, but the pin board can get fussy with almost all the guides. Next, while these guides excel when working with

Papa-Made-It

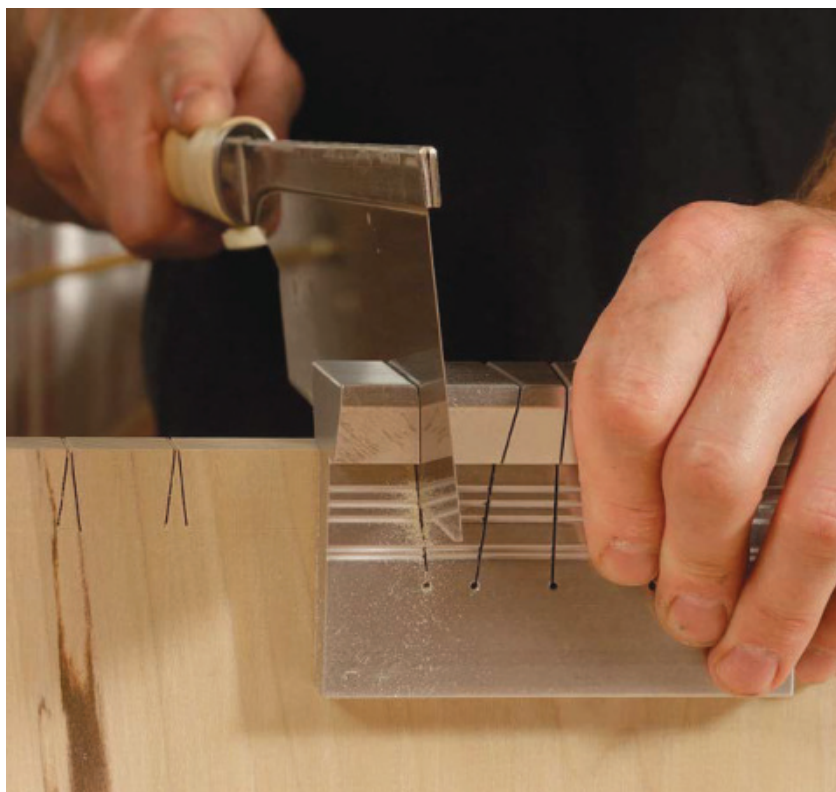
\$35

The Papa-Made-It dovetail guide does not control the saw with magnets, like the other guides. Rather, it uses four slots, two for each tail and two for each pin. The lack of magnets makes cutting smooth. For the slots to work, you need to use an appropriate saw, one whose kerf isn't too thick (the saw won't fit in the guide) or too thin (the saw will slop around, yielding a poor cut). The Papa-Made-It website lists several saws that work well with the guide, as well as the dimensions of the slots. The slots limit the depth of cut to just over 1 in.

The guide is the largest in the test, which gives it a very nice, beefy feel, but its size is something to consider if your work is especially small. For normal-sized drawer boxes, the size isn't an issue.



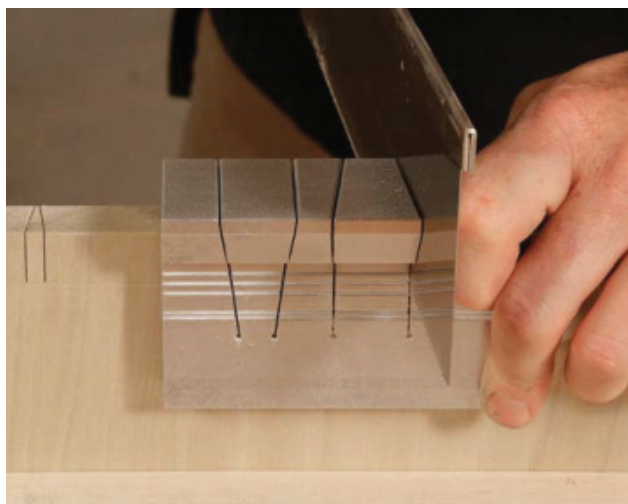
Slots guide the saw. Unlike the other guides, the Papa-Made-It uses slots, not magnets, to keep the saw on track. The manufacturer's website lists several compatible saws, as well as the slots' thickness in case you want to check a saw that isn't listed. The lack of magnets gives a nice, smooth feel during use.



flat and square stock, they start to falter on dovetails that aren't 90° to the board's face or are on a curved workpiece. They also limit you to one slope, so if your guide is 1:8 but you want to cut 1:6, you'll either need a second guide (assuming what you want is available) or you'll have to cut them without a guide.

To help you pick the right guide, I took a look at five quality options on the market. All work as advertised, and I can recommend each of them. It just comes down to your skills, tooling, work habits, and, primarily, preferences. □

Mike Farrington, a FWW ambassador, is a professional furniture maker in Aurora, Colo.



Four slots mean a wide, hearty guide. While the other guides need to be flipped to switch between pins and tails, this guide puts all the cuts in a single line. That makes for quick, intuitive use. But since the guide is the largest of the bunch, it's probably best suited to larger workpieces.

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MEEGAN McCAFFREY

Cambridge, Mass.

Meegan made this tall cabinet to sit beside a couch. The offset lower area forms a shelf that's a convenient place to leave a drink, book, or reading glasses. The lines of the top drawers on the lower unit emphasize the 3:4 ratio of the doors on the upper part.

MAPLE AND WALNUT, 21D X 37W X 80H



TAIT DETRO

Los Altos, Calif.

Chopping the curved and angled dovetails for the asymmetrical drawers was one of the highlights of making this desk, Tait says. "I also enjoyed designing pulls that wouldn't distract from the shape of the drawer fronts."

MAKORE, WITH WENGE PULLS
25D X 54W X 30H

JOHN AND BETH DZENITIS

Danville, Calif.

Based on a Michael Fortune design, the seat and back of this chair are plywood strips laminated into slabs and cut so the edges show across the whole surface. The support structure is made of 1-in. steel tubing. "We really like the way the stretchers look, and they make the chair rock solid," they said.

BALTIC-BIRCH PLYWOOD AND STEEL
23D X 21W X 32H

Photo: John Dzenitis





ANNA RYAN AND SAM SERLING-SUTTON

Seattle, Wash.

Looking to design a piece that was airy while still being solid, with light playing through the different patterns, Anna and Sam came up with this bedside table. Each panel was glued up, cut roughly with a jigsaw, and then routed to a template before final shaping was done.

MAPLE, 17½D X 20½W X 28H

Photo: Eirik Johnson

GEOFF McKONLY

Northampton, Mass.

Geoff had the board he used for the top of this coffee table for almost 10 years. "Finally, I brought it to my shop and put it in a corner where it stared at me for many months," he said. "I would tell the piece of wood, 'I'm going to run you through the bandsaw someday and see what you look like on the inside.'" Eventually he did, and found a lovely, deep, dark, toasted piece of cherry.

CHERRY, 24W X 51L X 17H

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JOHN SHERIDAN

Portland, Ore.

John made this stool, which he calls the PV stool, as an homage to the Peters Valley School of Craft in New Jersey, where he served an apprenticeship in 1973–74.

CHERRY, 15D X 14W X 20H

Photo: Mario Galluchi



TEXAS FURNITURE MAKERS' SHOW

The annual statewide competition for custom furniture makers was held in November at the Kerr Arts and Cultural Center in Kerrville. Here and on p. 70 are just a few examples of the beautiful work on view. For more, you can check out their page on Facebook or Instagram.

CRAIG SPACEK

Austin, Texas

The refined look of the back, armrests, and legs contrasts with the live oak seat slab, and that's the effect that Craig was going for in this design. "I was able to bring a refined element to the work without overshadowing the nature of the live oak," he said.

LIVE OAK AND RED OAK, 24D X 73W X 32H



JOE ADAMS AND ERICH ELFELDT

Manvel, Texas

A live-edge top is supported by a thick, angled steel plate and a sweeping curved leg. The base is decorated with an Aboriginal-inspired night-sky painting. It also has cutouts of the Southern Cross constellation that allow light to pass through and project star shapes on the floor beneath.

RED GUM EUCALYPTUS BURL, AMERICAN HOLLY,
TEXAS BLACK WALNUT, 28W X 34L X 25H



MATTHEW HEDGEPTH-SMITH

Austin, Texas

Matthew's inspirations for this cabinet came from his time studying boat building. The parquet pattern in the door panels recalls a nautical flag, and the sides, with their curved top and bottom edges, are meant to reflect a boat in plan view.

CHERRY, CURLY MAPLE, EBONY, 16D X 21½W X 34½H

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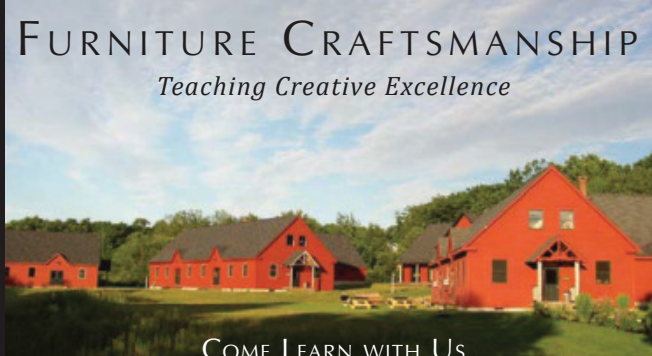
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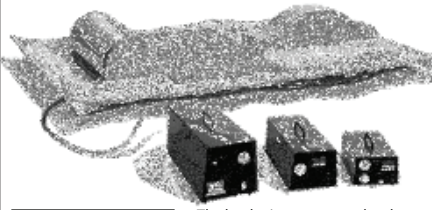


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MARK SEAY

Plano, Texas

Comfortable working on linear-style furniture, Mark challenged himself with this rocker, which has very few straight lines. The main design elements came from Sam Maloof's rockers. "The challenges of sculpting and carving the pieces were quite rewarding," Mark said.

CHERRY WITH JATOBA ACCENTS, 48D X 24W X 49H



**ROBERT
GRAHAM**

Round Rock, Texas

A longtime admirer of James Krenov, Robert designed this cabinet-on-stand in curly maple with a contrasting walnut base. He says he's most happy with the effect created by the contrasting woods and the curved, sculptural legs.

WALNUT AND CURLY MAPLE
10½D X 20½W X 61H

LEO LITTO

Austin, Texas

This desk was inspired by a piece made by the French art nouveau furnituremaker Jacques Gruber, though this design is simpler and visually lighter. The legs are tapered, bent laminations, their plies cut from 12/4 stock. Leo veneered the top with a 24-in.-wide leaf of flat-cut Cuban mahogany veneer from a tree harvested in the early 1970s.

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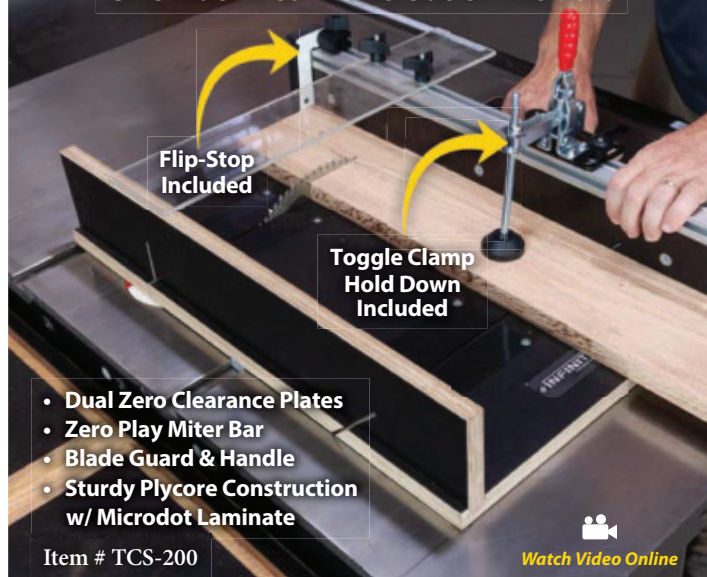
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Inspired by nature

BY AUSTIN HEITZMAN

Woodworkers sometimes let the tree inspire their work; I produce work for trees, specifically tables and stands for bonsai.

Bonsai (pronounced bone-sigh) is the art of evoking the sublime in nature by carefully cultivating trees. These are regular tree species, kept compact by growing them in small pots and gradually trimming, bending, and carving them. The goal is to shape the tree to appear ancient and weathered, as if plucked from the wild. Any woody plant can be a bonsai, though some species take to it better than others.

It's a complex and time-consuming art, and trees often take decades to reach a "finished" state. The National Bonsai Museum in Washington, D.C., has a tree from Japan that has been in its pot for almost 400 years. The origins of the art date back to 8th-century China, where it was called *penjing*. The Japanese adapted the idea, added their own style, and called it *bonsai*, meaning "tree in a tray." Today the art is practiced around the world.

In order to survive, a bonsai tree must be grown outside year-round. They are brought indoors for just a few days at a time to be shown as art, traditionally on a stand or slab and accompanied by a small potted accent plant and sometimes a scroll. These other elements are selected to give a sense of where the tree is growing and what can be learned from its ancient experience. Top trees commonly fetch \$30,000 to \$50,000 in the United States, and up to \$1 million in Japan.

I was first exposed to the art of bonsai—and handmade furniture—while growing up in Indonesia. When my wife and I moved to Portland, Ore., to pursue a career in craft, I found myself in the epicenter of America's growing bonsai community, and decided to see if there was a



Cedar. The design of this stand flows from the characteristic downward droop of cedar foliage. The edge of the tabletop curves toward the floor, and the cloud-lift brackets hang downward also.



Limber pine. This pine's curvy roots and Chinese pot made Heitzman think of American bombé furniture, which is also Asian in origin. Sculpting large curves from thick lumber, he created a seamless bombé outline in a simple yet sophisticated stand.

market for unique, carefully designed stands. I have since carved out a niche for myself crafting display tables for bonsai enthusiasts and professionals around the world.

In formal Japanese display, the stand serves as a frame of sorts but isn't considered part of the artistic tableau the way the tree, pot, and other accents are. For me and my clients, however, integrating the stand more fully into the tree's story and landscape allows for a more interesting display.

How to draw inspiration from Asia

My earliest influences were American Colonial. The more I explored them, however, the more I discovered their roots in Europe and beyond, leading me out of my comfort zone. Bonsai stands have shown me how to mine Asian furniture for design elements, and encouraged me to use curves in my work.

Like many modern furniture designers, I'm not so much attempting to faithfully recreate a specific period piece as acting as a historical pillager, digesting as much inspiration as possible and using parts and pieces as I see fit. I encourage you to let your own influences wander. You will advance your craft, expand your creativity, and keep your practice fresh and new.

I begin any design with a series of quick sketches. I like to



Ponderosa pine.
The cabriole-inspired front legs reflect the flow of the tree and the extreme mountain forces that shaped it.



Winter hazel. This is a common Japanese table design with a few deviations. Heitzman made the inner line thinner to add femininity to the large stand. The tiny spindles add strength and evoke the visual noise of deciduous branches.

figure out shape and movement before getting too picky about proportions and scale. Also, I focus on just one or two central design elements, like a foot detail or skirt, and let those inform the rest of the design. Only after I've settled on the general look do I figure out the logistics. For the large hemlock below, I embedded metal brackets in the stand to help the miter joints withstand the extreme leverage of the 150-lb. tree. For three-way miters like those in the winter-hazel stand at left, I use a technique outlined in *FWW* #169, which delivers clean looks with modern production methods. For the limber pine stand (opposite page), I did cove cuts on the tablesaw to remove waste from the inside curves, roughed out the outer curves with bevel cuts on the tablesaw, and then refined their shape with handplanes. □

Austin Heitzman is a professional furniture maker in Portland, Ore.



Hemlock. This is a traditional stand design Heitzman turned on its side to put more air under the tree's extreme overhang.

Betty Scarpino's inner journey

BY ASA CHRISTIANA



Diving beneath the surface. Betty Scarpino's turned and carved sculpture "From Within Our Own Bodies," which is in the collection of the Renwick Gallery of the Smithsonian Museum, is emblematic of her approach to work. "I've always felt there were infinite possibilities in exploring something below the surface of the plate or pod or other shape," she says. "It's like the way the layers peel back when you get to know a person."



Editor and artist. Scarpino served twice as the editor of *American Woodturner*, the journal of the American Association of Woodturners.

As a wood sculptor, Betty Scarpino is interested in going beneath the surface to find the beauty that lies within. She turns objects on the lathe and cuts them apart—carving, texturing, and reassembling the parts. The exploration beneath the surface mirrors Scarpino's inward journey as she creates. "When I work I feel like I'm connecting with some sort of universal creative energy," she said, "and I need to let my mind get out of the way. If I start thinking I want it to be this or that, it gets in the way of channeling that energy straight into my hands and the wood."

"I'm working on a subconscious level, I think. I doodle a bit after turning, but I don't really draw my pieces. I'm just carving and connecting, and playing and doodling, and connecting the lines and the forms. When I start to recognize relationships, and the forms and the flow

of it, it starts getting exciting. Only then do I more consciously start connecting the parts."

While collectors and writers have commented on common themes in Scarpino's work—such as masculine and feminine archetypes and the yin-yang symbol—she says, "I often miss things in my work that other people point out or I notice only later."

Moving on is part of the process. "Then I just turn another piece and do something different," she said. "If something doesn't work, I set it aside. Sometimes I come back to it later, even years later. Some pieces are just more interesting than others."

Determination and integrity

An inward search for meaning and truth is also reflected in Scarpino's career path. "I didn't set out to do this stuff," she says. "I took a woodworking class because it



From industrial arts to fine arts. While majoring in industrial arts at the University of Missouri, Scarpino convinced a sculpture instructor to let her take classes. “Reaching Out” was the first wood sculpture she made, in 1981. Its forms and curves have reappeared in her work throughout the years.



Deconstructed disks. Much of Scarpino’s lathe-turned sculpture begins as turned disks, “which contain multitudes of possibilities for cutting and carving,” she says.

looked like fun, and I liked working with my hands.”

That class led to her majoring in industrial arts at the University of Missouri, and subsequently to the fine arts department, where she was immediately attracted to sculpture.

When she asked the sculpture instructor, Don Bartlett, about taking classes, he said he had tried before to have industrial-art students come over

and take sculpture classes, but it didn’t work out because the students had no background in art.

So Scarpino took all of the prerequisite art classes Bartlett suggested. “It turned out that he was right: I didn’t know about line or form or any of that.”

Her first sculpture assignment was to make an abstract bust using only cones and cylinders. Bartlett placed hers last in the row of best to worst,

his uncompromising way of grading assignments. “But a light bulb went off for me,” Scarpino said. “I got it.”

On her next assignment, to sculpt a classical nude based on a live model, Bartlett spent more and more time with Scarpino as she worked, giving tips and suggesting refinements. “This time, my work was at the other end of the row, ahead of his graduate students,” she said.

Seeing an unused lathe in the back of



Double Entendre, 2007. Like a number of Scarpino’s sculptures, this one can be displayed as nested pieces or two standing apart.



Portal to Joy, 2017. For this piece, Scarpino turned a sphere, cut it in half, turned grooves on each inside face, and then cut a wedge out of one half, to use as a gateway for viewing the inside. In the grooves, she wrote positive words and thoughts to represent the joy that resides within all of us.

the craft studio, she asked Bartlett about making sculpture from turned pieces. “He said it wasn’t possible,” she recalls. “‘Everything that comes off that is round,’ he said.” She learned to use the lathe, but didn’t use it for sculpture.

Years later, at a 1994 workshop taught by Michael Hosaluk at Arrowmont School of Arts and Crafts in Tennessee, Scarpino created her first lathe-based sculptural object, cutting apart and carving a wood turning. Setting up shop in her garage soon after, she began turning out the pieces that have earned her renown in both the woodworking and art worlds.

The person behind the piece

Scarpino credits her time with fellow artists—at exhibitions and symposiums—with showing her what was possible and inspiring her to dig deeper. It also showed her a way she could give back to the craft. “I remember my first woodworking symposium, outside Seattle,” she said. “It was my first immersion into the wider world of wood turning, and I sat on a bench overwhelmed with what turners were doing and showing.”

The way demonstrators talked about their work was striking, too. “When guys presented themselves, it was all about

the work, and they acted like they had done everything on their own. But there was a woman who was a production turner doing architectural work, and she talked a bit about her personal story and her family,” Scarpino recalled. “That meant something to me.”

After that experience, she began to share more about her life when she presented work. At a 1996 conference, while talking about “In Lieu of Housework,” an altered plate, Scarpino included a few slides of her family, explaining that she was able to get much more done when her husband and kids were away on a trip. That revelation connected with several women in the audience, one of whom came up afterward and said, “I didn’t know you were married and had kids.”

“I wanted to share my whole story because I know that’s what it takes for other women to find themselves and find their path,” Scarpino said. “Role models are really important, and I saw myself as someone who could encourage other women in the making of artwork.”

After her divorce, Scarpino supplemented her income with journalism work, as a contributing editor for *Woodworker’s Journal*; and two stints as editor of *American Woodturner* (AW), the journal of the American Association of Woodturners (AAW). She also served two residencies at the acclaimed Center for Art in Wood’s Windgate International Turning Exchange (ITE).

In her second term at AW, Scarpino revolutionized the glossy magazine, expanding the diversity of its authors and topics, running articles by 15-year-old and 90-year-old members, and covering everything from the very basics to the artistic heights of the craft.

Advice for prospective pros

To woodworkers thinking about going pro, Scarpino places work over image. “Don’t think, ‘I want to be an artist,’” she said. “The important part is to make work.”

As for social media, she recommends emphasizing finished pieces on your feed—not your process or daily life. Highlighting your work will set you up



Body Language: Dancing Around the Obvious, 2017. This piece is 12 in. dia., made of maple and colored with acrylic paint.



to attract buyers and patrons—not fellow woodworkers. She further cautions that sharing too much of your process and experience will place posting, likes, and followers between you and your own sensibilities.

While social media has its place, Scarpino recommends in-person opportunities for learning, meeting peers, and attracting buyers. She advises starting with local exhibitions. Apply for fellowships and residencies, she added, and attend conferences. “Almost every show has an opening night,” she said. “Talk to the people who are looking at your work.”

“Hang around with other artists and read about art,” Scarpino added. “That’s what keeps me curious about what else I can make.”

An unexpected blessing

Seven years ago, at 65, Scarpino had retired from editing the AAW journal, and was demonstrating, teaching, and making at a slower pace, when she received an email invitation that would lead to one of the most rewarding experiences of her life, rekindling her artistic flame and rebooting her career.

The invite came from famed Australian wood artist Terry Martin, asking her if she would be the American representative at an eight-day wood carving competition in Dongyang, China, sponsored by World Crafts Council. There she would join 19 other internationals and 20 Chinese carvers, and be surrounded by “crowds of students, TV crews, and newspaper reporters,” she said.

Knowing she was out of shape for doing the large-scale carving required by the competition, Scarpino threw herself into a workout regimen that included weightlifting, biking, and yard work. “As my plane lifted off, I felt strong and ready for the adventure,” she said.

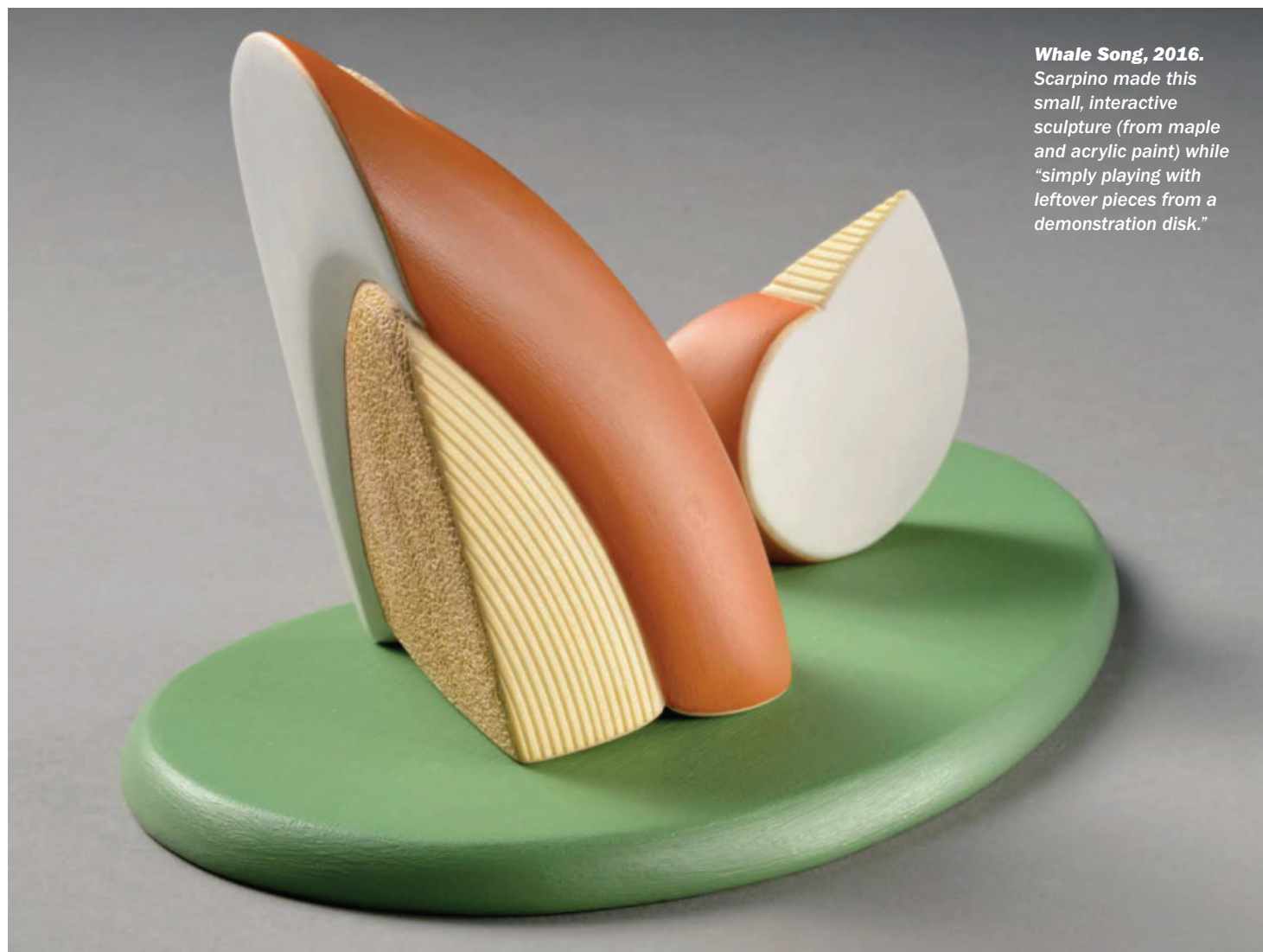
Inviolate Portal, 2007. This 14-in.-dia. piece, made from ash and oak, with dye and liming wax, will be featured in a May, 2022 exhibit at the Smithsonian’s Renwick Gallery.



Internal Profundity, 2018. Maple, pink ivory, poplar. Scarpino begins these pieces using sections of a greenwood log, turning a pod shape, cutting it apart lengthwise on the bandsaw, and then carving away the pith area to prevent cracking. Each half can become a different sculpture.

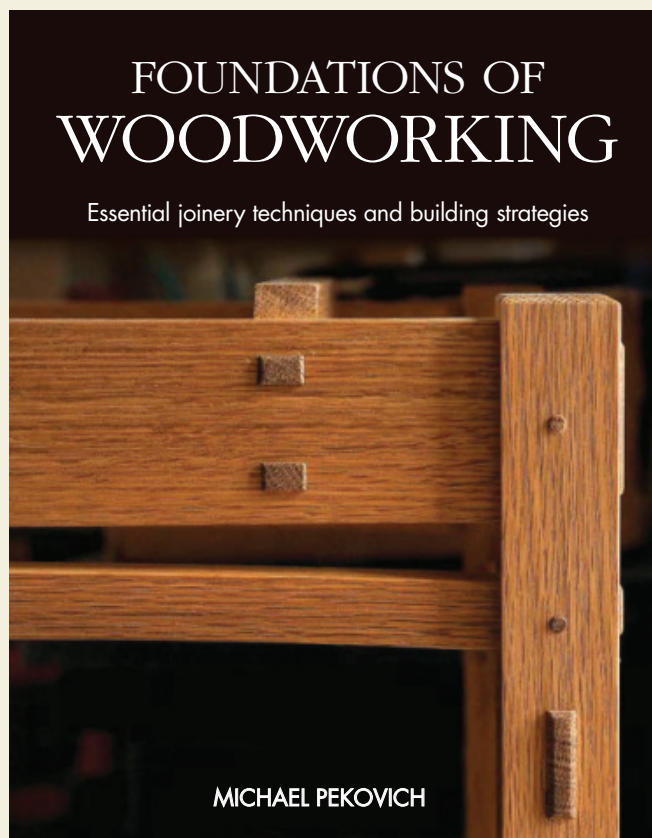
In Dongyang, China's woodcarving capital, she was provided with a big cutoff from a log of golden teak. The cutoff was of poor quality, containing weak pith wood and a fair amount of rot. So she changed her design to work around the defects and got on with the carving. After a severe allergic reaction to the wet teak, and a trip to a local hospital, she returned the next morning and got back to work.

Over the eight days of the timed competition she noticed that master carvers from China and Japan were watching—watching her fight through the difficulties and emerge with a large, curvaceous piece of sculpture. At the end of the competition, a celebratory



Whale Song, 2016. Scarpino made this small, interactive sculpture (from maple and acrylic paint) while "simply playing with leftover pieces from a demonstration disk."

NEW FROM MICHAEL PEKOVICH

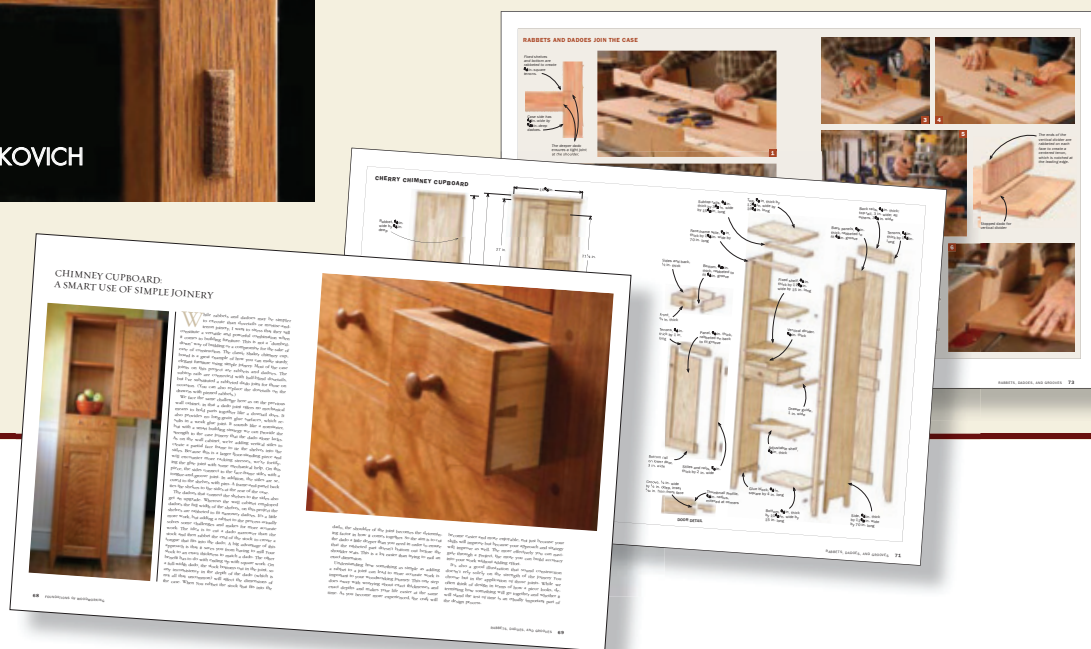


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Carving in China. At 65 Scarpino received an invitation to be the sole American competitor at an international carving competition in Dongyang, China. To prepare for eight days of work on a large piece, she embarked on a fitness regimen. As a warm up, she carved *Parallel Conversations* (left), made from spalted sycamore and acrylic paint, with metalwork by Julie Ball. The title refers to the dialogue between the soft, spalted wood and the hard steel of the frame. The competition changed her life and reinvigorated her career.

banquet was held at the studio of Master Lu Guangzheng. In China the title of Master Carver earns a craftsman wealth and status, and, Master Lu employed hundreds of workers to carve and sand his panels. Over the course of the evening, many people approached Master Lu to offer him the traditional Chinese toast to a superior: holding one's glass of liquor lower than theirs, and downing the whole thing afterward. Each time, Master Lu responded by taking the tiniest sip from his own glass.

At the end of the evening, Scarpino was surprised to see the renowned carver approaching her for a toast. He held out his glass, lowered it and clinked hers, and then downed the whole thing. "I still get chills thinking about it," Scarpino said. "In China they are just now allowing women to become master carvers. He was acknowledging that I was there, that he had watched me carve, watched me get sick, watched me make a good sculpture. I was kind, I respected the culture, I ate with

chopsticks, and he seemed so puzzled and so taken by me."

In the end, most of the awards in the politicized event went to Chinese carvers, but Scarpino had won. Now 72, she credits her experience in China with giving her a new lease on life. "I realized that I can do whatever I want for the rest of my life," she said. "What a shame it would be to just sit back and drift!" □

Asa Christiana is a former editor at FWW, now building, teaching, and writing in Portland, Ore.

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Local time

BY BILL HUYETT

It's 2019 in Concord, Mass. As I work, I wonder what I've gotten myself into—agreeing to build a reproduction clock case for the Concord Museum. The simple rectangular box that forms the basic case has the same form as the Shaker furniture that I build as a hobby. But how was I going to handle the not-so-linear forms of the 11 different molding profiles—some straight, others on radii—that turn that basic box into an 80-in.-high clock case? How was I going to deliver the simple beauty of the original, created 250 years ago by Nathaniel Mulliken, just six miles away?

1769, Lexington, Mass. *Nathaniel has been running his family's clockmaking business since his father died in 1767. Down the hill from his shop on the town green sits John Buckman's Tavern, first licensed in 1693. Nathaniel delivers an 8-day case clock that John had ordered. The face is inscribed with Buckman's name, Mulliken's name, the year, and a reminder: Tempus Fugit ("time flies").*

1775, Lexington, Mass. *John Adams and John Hancock have fled to Lexington from Boston as the British occupation is about to boil over. Paul Revere and William Dawes ride into town just after midnight on April 19 with news of the British march. The town's small militia, including Nathaniel, assembles on the green. Some head to Buckman's, where the clock measures out the hours until the British column arrives at dawn. Eight Americans die in the short fight. A few hours later, the British burn buildings—including Mulliken's house and shop—as they retreat from Concord.*

250 years later

The Concord Museum has owned the Buckman clock since the 1970s. The movement and its face are in fine condition, mounted on the original rough 1-in. pine base. But the case has been lost. David Wood, curator of the museum, asks me if I'd be willing to build a reproduction case for this tavern clock.

Since no barroom I'd ever been in had a "grandfather clock," I assume this is a small clock—perhaps for a mantel. I say yes on the spot; how hard could it be? A local collector owns a sister clock and graciously invites me to photograph and measure. David joins me; I don't think he catches my surprise when I see the case, which is taller than I am, with a complex sarcophagus top, two doors, three windows, lots of curves, and 10 turned



pieces. I make measured drawings of everything.

Over the next 18 months, I build the clock case, a tribute to a local craftsman who died young in our revolution. And the case builds my skills as a reproduction craftsman.

What the clock taught me

Push yourself. I wish I'd done a piece this complex 20 years ago. It taught me new techniques; mostly it taught me that my basic skills scale up easily.

Leave a mark behind. The case I measured had a small triangle inscribed in the pine secondary wood on the top of the sarcophagus. I found a batten from a 200-year old barn door with a similar scratching and used it for my top. Nobody will see it, but I know it is there.

The original isn't perfect; yours doesn't need to be either. I made mistakes. I corrected most, but a handful remain. I found at least that many in the case that I copied; they make the piece authentic.

Understand the variation in the originator's work. David Wood took the time to show me many examples of Mulliken's cases. The differences of design, construction techniques, and workmanship, even across a single maker, is remarkable. Knowing that range gives you confidence to make design variations that are authentic.

A reproduction doesn't need to be an exact copy.

Instead of mahogany or walnut, I used cherry, a wood whose behavior I know and love. I happily used brass screws instead of nails and glue in the hidden joints.

Enjoy the hand tools. I do not have the skill to use only hand tools to build the case. But the time I spent with hand tools (probably $\frac{2}{3}$ of the hours) was the most satisfying. And quietest; time to reflect on the life of a local craftsman working by candlelight in 1769 with tools not much different from mine.

Tempus fugit

Mulliken died early in the war. His widowed mother rebuilt their house, which still stands. Buckman Tavern still overlooks the Lexington Green. It is a museum and historical society, complete with a musket ball hole from April 19 in the front door. It is worth a visit. Mulliken's Buckman clock is in the permanent April 19th exhibit of the Concord Museum. It sounds magnificent and it keeps fine time. □

Bill Huyett is a furniture maker in Concord, Mass.

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A Challenging Beauty

When it's finished, a beautiful design can have an air of sweet certainty that belies the daily struggle involved in bringing it into being. While building four of his milk-painted beech Wellborn chairs, North Carolina furniture maker Evan Berding found that pursuing his aesthetic vision often meant taxing his skills and stamina. The chair's slender parts, all hand-shaped, are linked by 40 mortise-and-tenon joints and two half laps. Each chair required five glue-ups. Berding cut the joints while the parts were square, then did the majority of shaping—with a drawknife, spokeshave, and rasp—before assembly, leaving enough meat at the joints so he

could blend the parts after glue-up. He sculpted the doubled crest rail from a single bent-laminated blank so it resembles two parts joined at the ends. Berding enjoys hand shaping, but with so many parts to make, at times fatigue and exasperation were simply part of the process. Caning the seat was not straightforward, either. To achieve a smooth curve where the seat meets the back, he had to combine round-section warp strands with flat-section weft ones, and doing the weaving “felt almost like basketmaking.” Achieving what he envisions is often a challenge, but, Berding admits, “I can’t not build it the way I want it to look.”

—Jonathan Binzen