

PICTURE FRAME basics p.38

TINTED RESIN tealight p.22



WOODCRAFT[®] Magazine

Projects, Techniques, and Products

21
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p.31

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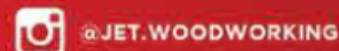
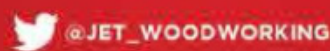
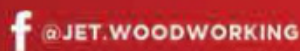
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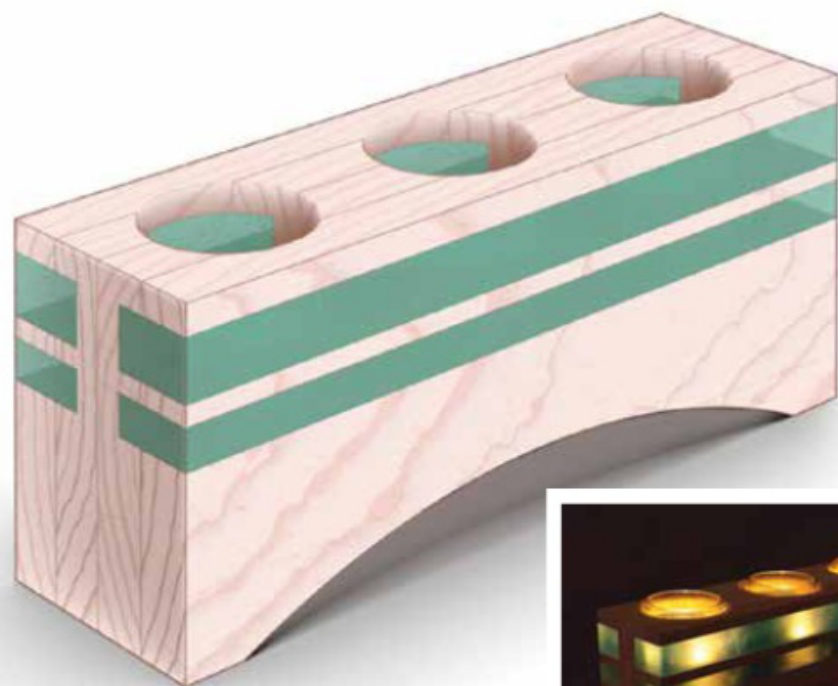
STAND BEHIND YOUR WORK™



31



44



22



27

Features

- 22 **Tealight Centerpiece**
Faux candles flicker through colorful epoxy in this creative table-topper.
- 27 **Shop-Made Soap Finish**
Coming clean on a traditional Scandinavian polish.
- 31 **Glass-Topped Coffee Table**
A refined, splined piece of minimalist furniture.
- 38 **Picture Frames**
Surround your artwork with custom works of art straight off your miter saw.
- 44 **Contemporary Dining Chair**
A comfortable seat to compliment any table.



12



16

54



Departments

04 Getting Sharp

- Fresh look, new member, great team

06 News & Views

- Take your best shot
- Happy birthday
- Multi-axis multimedia
- Low-carb finishing stands
- New direction

10 Reader Showcase

12 Tool Reviews

- Triton TMNRTR Trim/Plunge Router

16 Tips & Tricks

- A sled for small parts
- Mitered stop block
- Turner's sandpaper holder
- Sizing sandpaper

54 Woodsense

- Monkeypod

58 Great Gear

- Micro Fence Edge-Guide
- Golden Mean Calipers

64 Expert Answers

- Shedding light on hidden finishing flaws

This issue's Contributors



John Hamel has photographed icons from Paul Newman to Arlo Guthrie, plus Olympic medalists (and several *Woodcraft Magazine* editors). His award-winning work is included in the permanent collection of The International Center of Photography in New York. **Check out his photos on this issue's cover and page 31.**



Ellen Kaspert, a graduate of the North Bennet Street School's Cabinet & Furniture Making program, is a member of the Charlestown Furniture Makers cooperative in Boston. In addition to designing and building custom furniture, she has been teaching woodworking for over 15 years. **See her project on page 44.**



Melenah Martin began her career as a violin maker before venturing into instrument repair and restoration, furniture making, and sculpture. She is a community organizer for Women in Lutherie, and a Mentor for the International Women in Lutherie Fellowship. **Read her article on page 64.**



Jamie Sumague is a Filipina born in Atlanta, raised in LA, schooled in NYC, and rooted in Baltimore. A seasoned lifestyle and food industry photographer, **Jamie's photos for Shop-Made Soap Finishes, page 23**, are her first with *Woodcraft Magazine*.

Fresh look, new member, great team

As you have no doubt noticed, your favorite woodworking magazine looks a bit different. But rest assured, wrapped in this new skin beats the same vigorous heart. These new colors and graphics are designed to draw you in; to make our woodworking content that much more engaging. That's all thanks to our new Art Director, Michael Church. Michael's stellar layouts are a welcome refresh to these pages. As of this writing, he's been with us for only three weeks, but with his experience and eye for detail, it seems like he's been on the job for years. He understands what it takes to clearly and accurately present our top-notch projects and techniques.

Michael got interested in woodworking while working as a display technician at the National Gallery of Art in Washington D. C. He had complete access to their fully-stocked underground woodshop and was sure to take advantage. Now, Michael leads *Woodcraft Magazine's* art team, which includes our ace graphic design intern, Kelley Powell, and a host of the best illustrators and photographers in the business.

In addition to overseeing the art staff, Michael also works closely with our excellent editorial crew. Veteran woodworker and project designer extraordinaire, senior editor Ken Burton

leads the team that also includes first-rate associate editors, Sarah Marriage and Derek Richmond. Sarah brings a unique eye for design and a mission to increase gender diversity in woodworking. See page 27 for her take on a safe, reliable, eco-friendly finish. Derek, a skillful woodworker and writer, designed and built our cool cover project—a glass-topped, Mid-Century-inspired coffee table (p. 31).

For this issue, our great in-house group teamed up with a few talented contributors to bring you even more outstanding content: Boston-based furniture maker Ellen Kaspern co-designed the contemporary dining chair on page 44. Former Fine Woodworking editor Asa Christiana shares his method for making picture frames (p. 38) while Willie Sandry, "The Thoughtful Woodworker," mixes resin and dye for an illuminating effect (p. 22). And on page 64, Melenahe Martin, who repairs and restores musical instruments, reveals her process for preparing projects for finishing.

We are all dedicated to bringing you the best projects, techniques, products, and inspiration for today's woodworker. Michael is no exception; his contributions have already made a positive impact. We're looking forward to more exciting improvements in the future. Stay tuned! ■



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magazine

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Share your ideas.

We love hearing from readers! And there are all kinds of reasons to get in touch with the crew at *Woodcraft Magazine*. Check out the details below.

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Have a tough woodworking question?

We'll do our best to find the expert and provide the answer. Email us at editor@woodcraftmagazine.com and put "Expert Answers" in the subject line.

News & Views:

This catch-all column is where we do our best to correct mistakes, publish feedback from readers, and share other noteworthy news items. It's easy to participate in this discussion. Just email us at editor@woodcraftmagazine.com and put "N&V" in the subject line.

Submit an article idea:

Do you have a story idea? We'd love to hear about it. To find out how to submit an article, email us at editor@woodcraftmagazine.com and put "Submission" in the subject line.

Share photos of your projects:

We'd like to see what you're building. To show off your work send your photos to editor@woodcraftmagazine.com, or find us on social media.



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Take your best shot

As much as I love your projects and techniques, I open every issue and flip immediately to the Reader Showcase, dreaming of the day my woodworking and photography skills will be good enough to appear there. The woodworking side I can learn through the rest of your magazine, but do you have any tips on photographing finished pieces? —Jonathan Freeman, Greentree, NJ

Woodcraft Magazine staff replies:

Digital cameras and even most camera phones can take high-quality shots that do justice to your work. A three-quarter angle that catches front and side is better than straight on. And take a few steps back to avoid distortion—you can always crop the image later. You don't need photo lights, but even a pair of work lights let you control shadows better than your camera's built-in flash. And of course, practice makes perfect. In addition, our website features several free photo tips. From lighting and composing to building a tripod for your camera. Go to woodcraftmagazine.com and click on the Photography Tips button on our homepage.

Happy birthday

Swedish workbench maker Sjöbergs celebrates its



100th anniversary this year. Founded in 1922, the company still makes its benches largely by hand, with a commitment to sustainability. In 1959, a son of the founder traveled to the United States with a miniature version of the company's carpenter's bench tucked into a briefcase. The immediate interest necessitated a full-size bench be shipped across the Atlantic, eventually ending up in Sacramento where it won a gold medal for good design. The U.S. has been Sjöbergs' largest bench market ever since.

Robert Sorby
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Set fences for resawing and transfer measurements.



Center router bits and set blade cutting depths.



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Multi-axis multimedia

Ken Burton's multi-axis bowl story (Feb/Mar 22) spurred production of a video detailing the eccentric turning technique. You can view that full-length video – along with others – on our website at woodcraftmagazine.com. Plus, follow us on your favorite social media platforms for other video content.



Low-carb finishing stands

I liked the tip in the Aug/Sept 22 issue that suggested using pizza protectors as finishing stands. Over the years, I seem to have collected a large number of 1/4" dowel centers. These fit perfectly into the holes in pegboard, so I lay a sheet on my bench, then arrange the dowel centers to suit the shape and size of the piece I'm finishing. Their fine points hold the workpiece aloft, and while they're lower than the pizza tables, they're also lower calorie.

—Dorothy Hertzog, Roosevelt, NY

New direction

Matt Hoggle has been hired as Executive Director at the Center for Furniture Craftsmanship, effective June 1. The Center is a non-profit woodworking school located in Rockport, Maine. Hoggle comes from The Contemporary Austin, where he served as the Director of the museum's Art School at Laguna Gloria. He brings more than 15 years' experience in non-profit arts education and administration to the position, taking over the Center's reins from founder Peter Korn. ■

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Reader Showcase

DAVID GRAVES

DEVON, PA

CNC critter cutting.

When he wanted to make a half-dozen Oven Squirrels (Issue 102, Aug/Sept. 21), Graves turned to tech. After converting the pattern from our pages into a CNC file, he loaded maple into his homemade CNC router and quickly set to cutting squirrels. Graves emblazoned each kitchen critter with the name of its recipient. We're sure he'll squirrel away the file for the next time he needs to batch some oven helpers.



JOHN PATALON

ERIE, PA

A place to fall. Woodworker Patalon designed and built a trio of similar entry benches for his three daughters, crafting one each from cherry, maple, and oak



(shown). After milling lumber from trees on his property, he air-dried it for several years before beginning the builds.

Each bench features mortise-and-tenon joinery and frame-and-panel doors. Trying his hand at marquetry, Patalon adorned the end panels of the benches with a motif corresponding to the primary species used – in this case an oak leaf and acorn.

CHIP EPPINGER

WADSWORTH, OH

Quite an undertaking. Military veteran and hobbyist woodworker Eppinger says he conceived this terrifying toolbox as a casket-shaped trunk, but it evolved to include drawers and lift-out trays. He built it of pine and plywood, and says that while the build was straightforward, the coffin angles were not. Eppinger cut all the box joints by hand, angling them to fit the casket angles. He finished the build by casting his own skull feet and adding matching drawer pulls. Eppinger's finest hand tools now have a final resting place.



ROY GILLETTE

KALAMAZOO, MI

Wand-erful gifts. When his nieces and nephews chose Harry Potter-themed Halloween costumes, this long-time subscriber was happy to turn each a unique wand. Ranging from 10¼ to 11½ inches long, they are made of (top to bottom) Brazilian ebony, olive wood, blue mahoe, and ironwood. Gillette turned the wands between centers, leaving the ends blunted to protect little eyes from being made to disappear. He finished them with linseed oil topped with wax for added protection. ■

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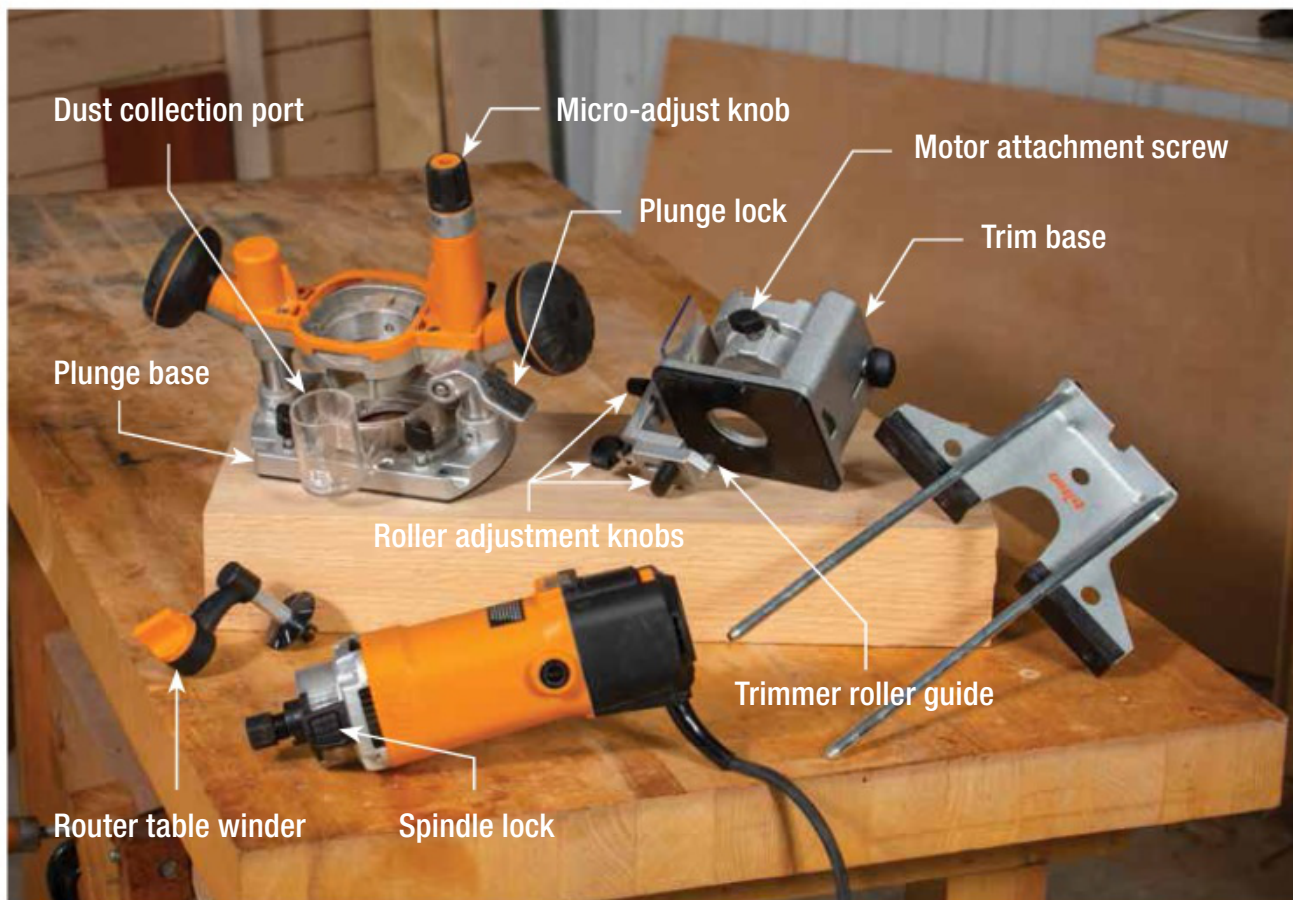


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Triton trimmer could be your go-to router

Triton TMNRTR 1.2 HP Trim Router with Plunge Base



Price: \$179.99, #184295

Overview:

- 11,500 – 31,000 RPM
- Micro-depth adjustment on plunge base
- Depth stop on plunge base
- Adjustable roller guide for trim base

Trim routers are uniquely suited to certain jobs in the shop. They're ideal for flushing up laminate and hardwood edging or adding small-radius roundovers to corners. Plus, the compact, lightweight design makes them easy to control single-handedly and adept at working in tight confines. It used to be that a trim router augmented your routing arsenal, but depending on the work you do, Triton's new trimmer is powerful and versatile enough to make it your only router.

As a trim router, the TMNRTR functions as expected. In addition, its small base allows plenty of visibility without

compromising stability, the 1/4" collet fits common straight and edging bits, and the soft startup keeps you in control as its variable speed spindle ramps up. The motor securely attaches to the base via a thumb screw that threads directly into the motor housing rather than relying on a pressure fit. A knob on the base allows for minute vertical adjustment. The trimmer base also accepts the included trim roller guide, effectively adding an adjustable guide bearing to bits without one of their own.

Triton's offering includes a plunge base, adding even more versatility to this compact dynamo. The plunge base gives you the ability to easily make cuts that start and stop away from the edges of a board—stopped dados, mortises, hinge gains, and the like. While sporting its plunge base, Triton's trimmer opens the door to a wide range of woodworking, including sign making, inlay, and even smaller-scale mortise and tenon joinery.

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PINNACLE RULES

These black anodized, extruded aluminum rules with machined edges feature laser-engraved measurements. 24", 36", metric, and more are coming this fall to Woodcraft. Check the website for prices. **12" Straight Rule #175851, Straight Rule Hook Stop #179716, Universal Slide Stop #181120, 6" Straight Rule #175849, 6" Thumb Rule #175861.**



SAWSTOP COMPACT TABLE SAW

Designed for space-starved job-sites, this tiny table saw features everything you'd expect from SawStop: power, precision, cut capacity, and, of course, finger-sensing technology. A centrally located knob controls all blade adjustments, and the rack and pinion fence is square and easy to adjust. This unit measures only 23 1/2 x 27 x 14 1/4" h and weighs 68 pounds. **Available this fall at Woodcraft for \$899, #184486.**



Speed adjustment

Power switch

Depth stop turret

Edge Guide

The plunge base features a depth stop turret and a micro-depth knob for precision depth adjustment. It accepts the included edge guide, as well as proprietary guide bushings. The kit also comes with a winder that allows depth adjustment through the router base, useful for router table setups. Mount the plunge base and motor setup below a compatible router table, insert the winder and make height adjustments from above without fiddling below the table.

In testing, the motor proved powerful enough to handle everything I threw at it. This included plowing a $\frac{5}{8}$ " wide, $\frac{3}{8}$ " deep mortise in red oak, a task usually better suited to a full-size plunge router than a typical trimmer. I found the springs on the plunge base to be very tight. While that's preferable to them being too loose, they require a fair amount of force to plunge. I'm hopeful they'll loosen up over time. The $1\frac{1}{2}$ " diameter dust collection port works well, but the collection shroud does interfere with fingers and wrenches when changing bits while the motor is in the plunge base.

Those minor grievances aside, the TMNRTR is a great router. If you mostly make boxes, gift items, and the occasional piece of small furniture, this may be the only router you need. And if your shop tends toward larger furniture, the clever bases, plunge capability, compact size, and versatility of Triton's tiny titan will help earn it a spot on your router shelf. ■

—Tester, Derek Richmond

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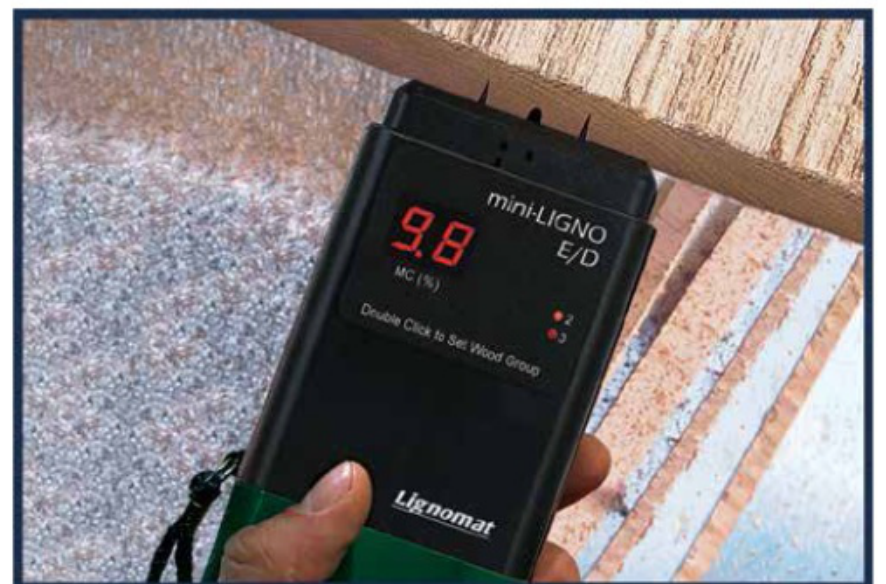
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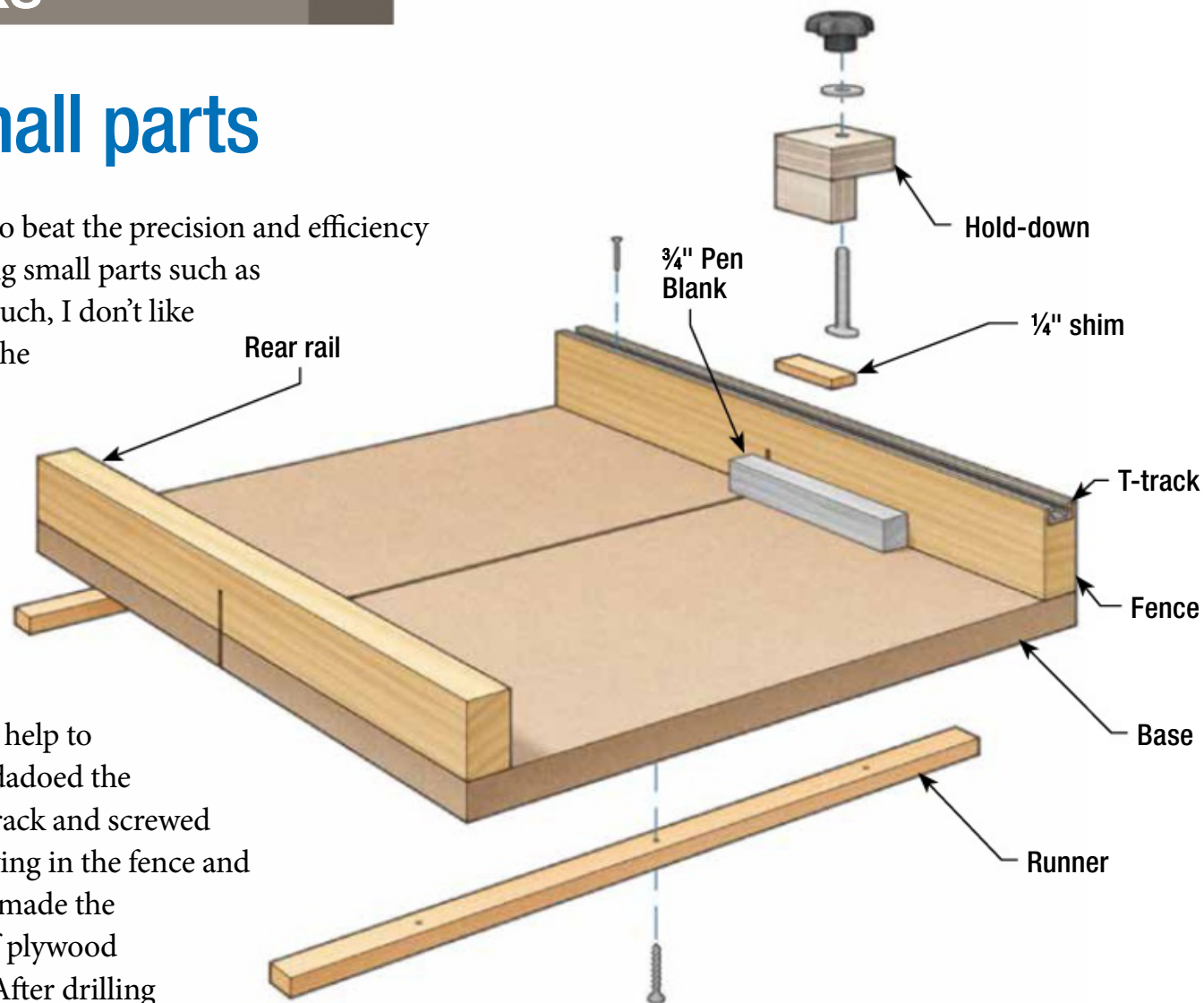
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TOP TIP

A sled for small parts

When crosscutting, it is hard to beat the precision and efficiency of a table saw. But when cutting small parts such as pen blanks, drawer pulls and such, I don't like getting my fingers so close to the blade. To make the process safer, I built a dedicated sled. It is comprised of an MDF base with screwed-on hardwood runners that engage the slots in my saw's table. The fence and rear rail bridge the center saw kerf and help to hold the two sides together. I dadoed the fence to accept a length of T-track and screwed the track in place before screwing in the fence and adjusting it for square. Then I made the hold-down from two pieces of plywood glued together in an L shape. After drilling a hole in the longer piece, I added a T-bolt and star knob to fasten the hold-down to the track. I sized the hold-down to secure 1" stock when tightened. For thinner stock, I add appropriately sized shims as needed.

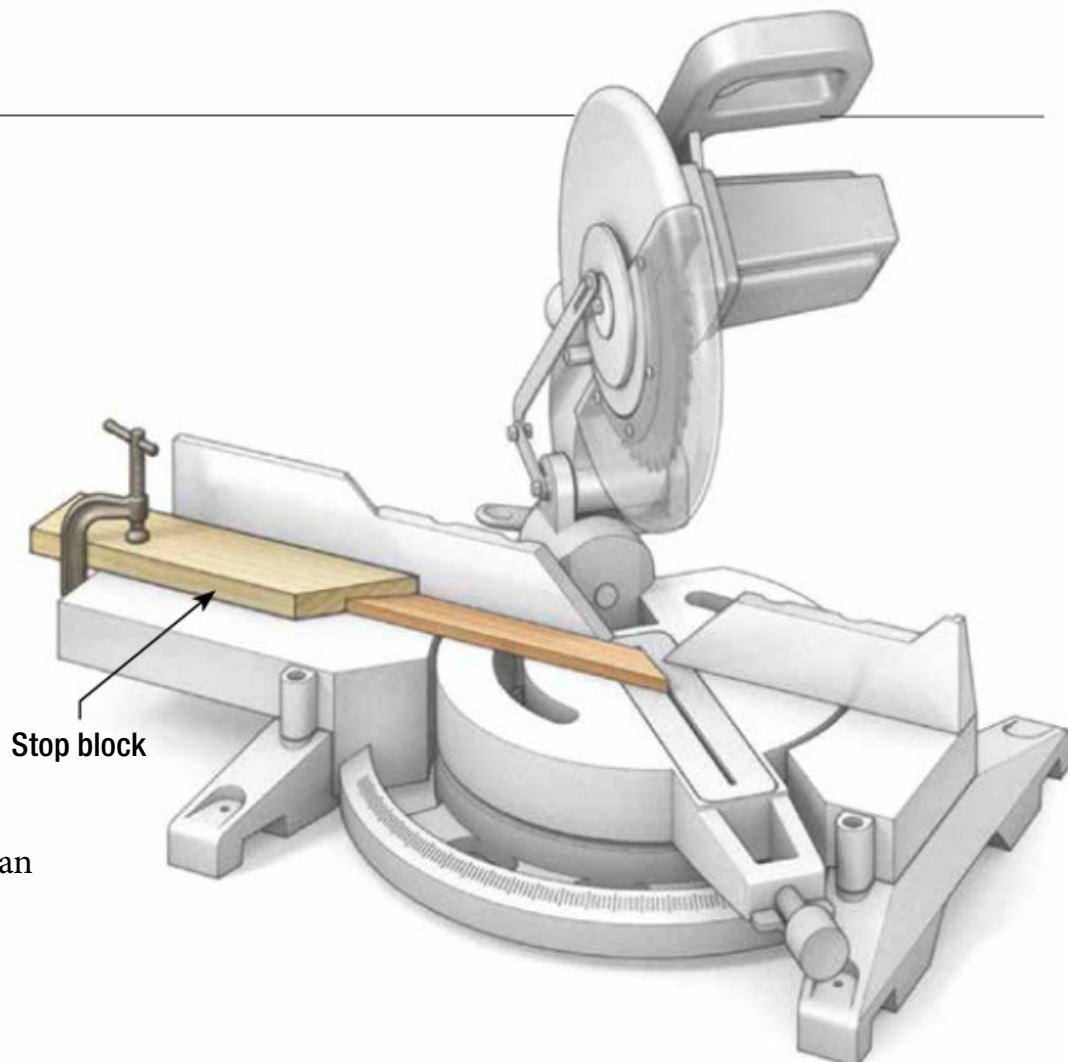
—**Robert Godwin,**
Tyrone, Georgia



Mitered stop block

The seemingly simple process of making a mitered picture frame can be fussy. There are several things you have to get just right for the final result to be square with tight joints. First, the miter cuts have to be cut cleanly at precisely 45°. Second, the opposing sides of the frame have to be exactly the same length(s). To make this second part easier, I like to clamp a mitered stop block to my saw. I find the angled end of the block is easier to register the mitered end of a frame piece against and is less likely to damage the fragile tip than a square stop. For more on framing, see page 38.

—**Dan Martin,**
Galena, Ohio






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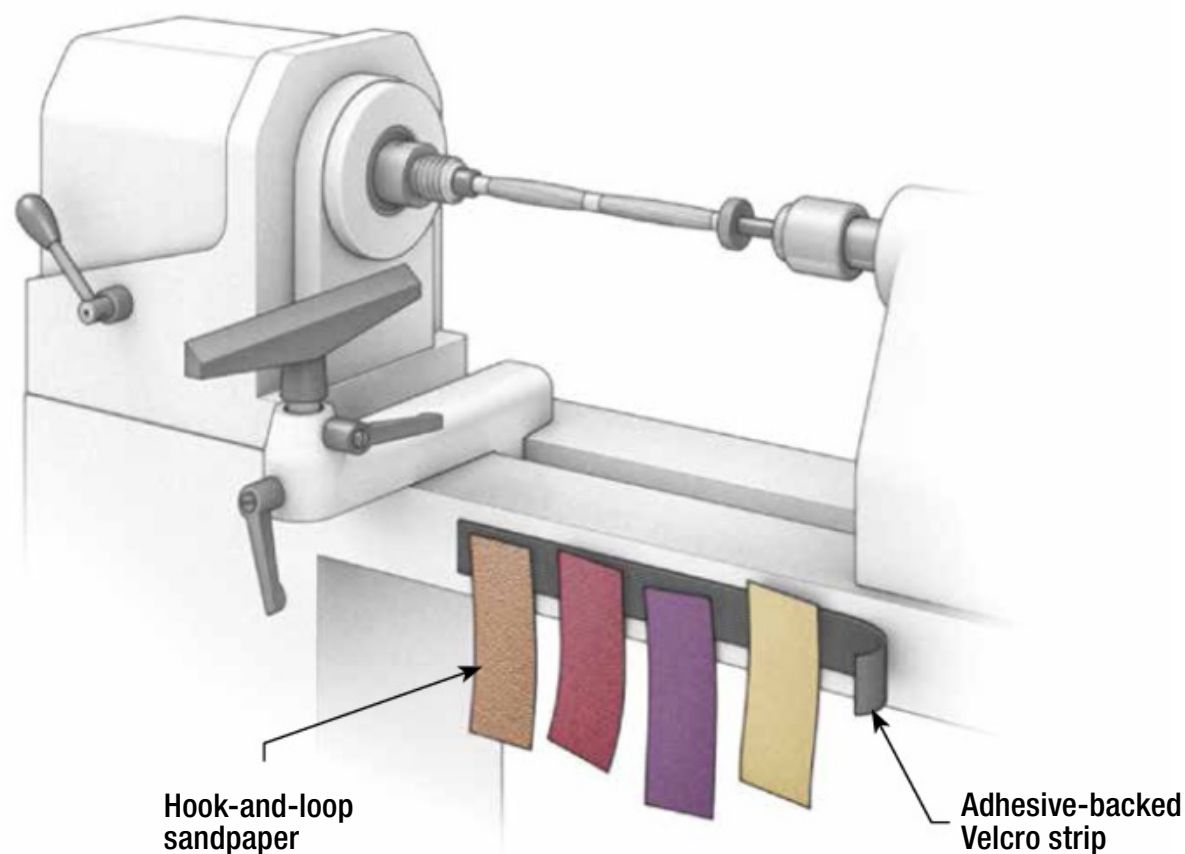


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Turner's sandpaper holder

I do a lot of production turning making multiple bottle stoppers, pens, and such at a time. Sanding a batch means frequently swapping out one grit of paper for the next. To keep the various grits from getting mixed up, I use hook-and-loop abrasives and hang them in order from a strip of adhesive-backed Velcro adhered to the front of my lathe. I prefer to start with my coarser grits toward the headstock, but do what makes sense to you.

—**Richard Entwistle,**
Highland Lakes, New Jersey



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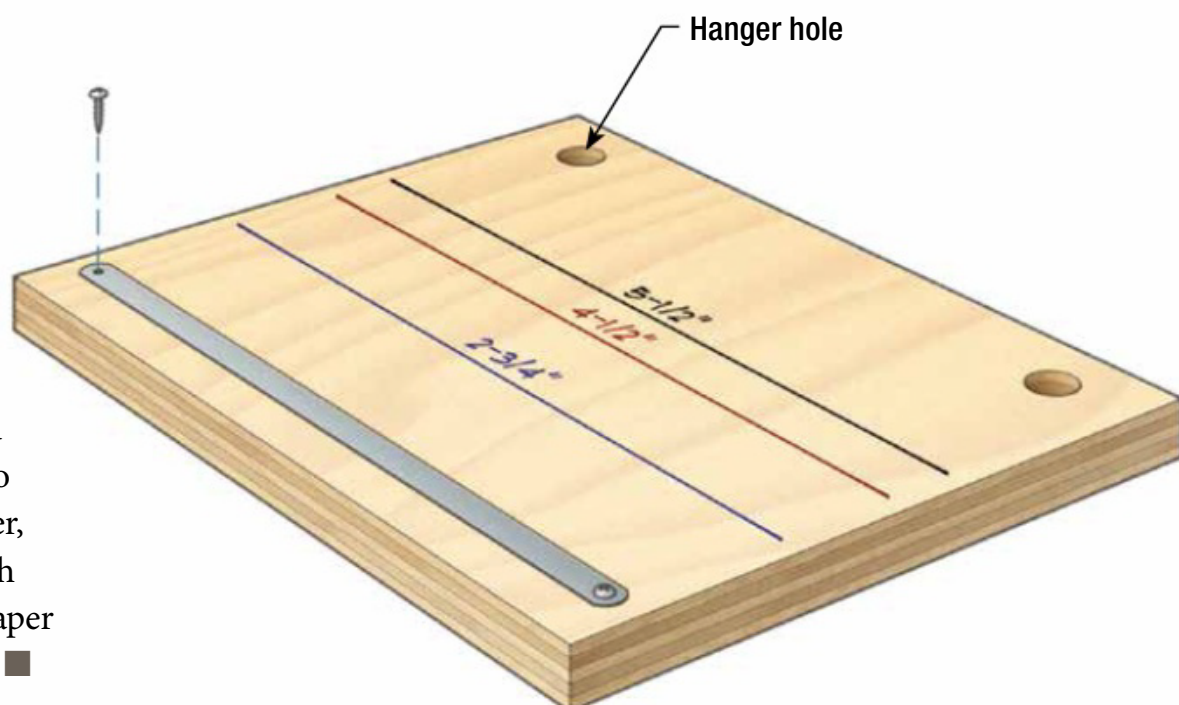
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Sizing sandpaper

I purchase sandpaper in 100 sheet sleeves. This saves some money, and allows me to size it as needed. To facilitate this, I made a cutter from a piece of scrap plywood and a hacksaw blade. I drew lines on the plywood corresponding to the sizes of paper I frequently need. The 4½" and 5½" lines allow me to quarter the sheets for a palm sander, and the 2¾" line gives me 1/8 sheets—a size I like to use when sanding on the lathe. To use the cutter, slide the paper under the blade and align it with the appropriate line. Then pull up to tear the paper neatly along the blade; no measuring required. ■

—**Jim Kelly,**
Trappe, Pennsylvania





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TEALIGHT Centerpiece

Set the mood with this shimmering table topper

By Willie Sandry

This tealight holder is a fun and inexpensive project, and makes a perfect gift for a friend or relative. Its highlight is the wonderful effect of flickering light through bands of translucent colored epoxy. The “candles” are actually battery-powered flicker lights set in glass votive holders. (Because there’s wood involved, I don’t recommend using open-flame candles.) Both the flicker candles and the glass holders are readily available from most craft stores.

Any clear two-part epoxy resin will work for the colored bands. You’ll need 24 oz. of epoxy—about 12 oz. for each side of the centerpiece. I tinted the epoxy with mica powder, available in many colors from several online sources (see the Buyer’s Guide on p. 60 for what I used). Instead of building an

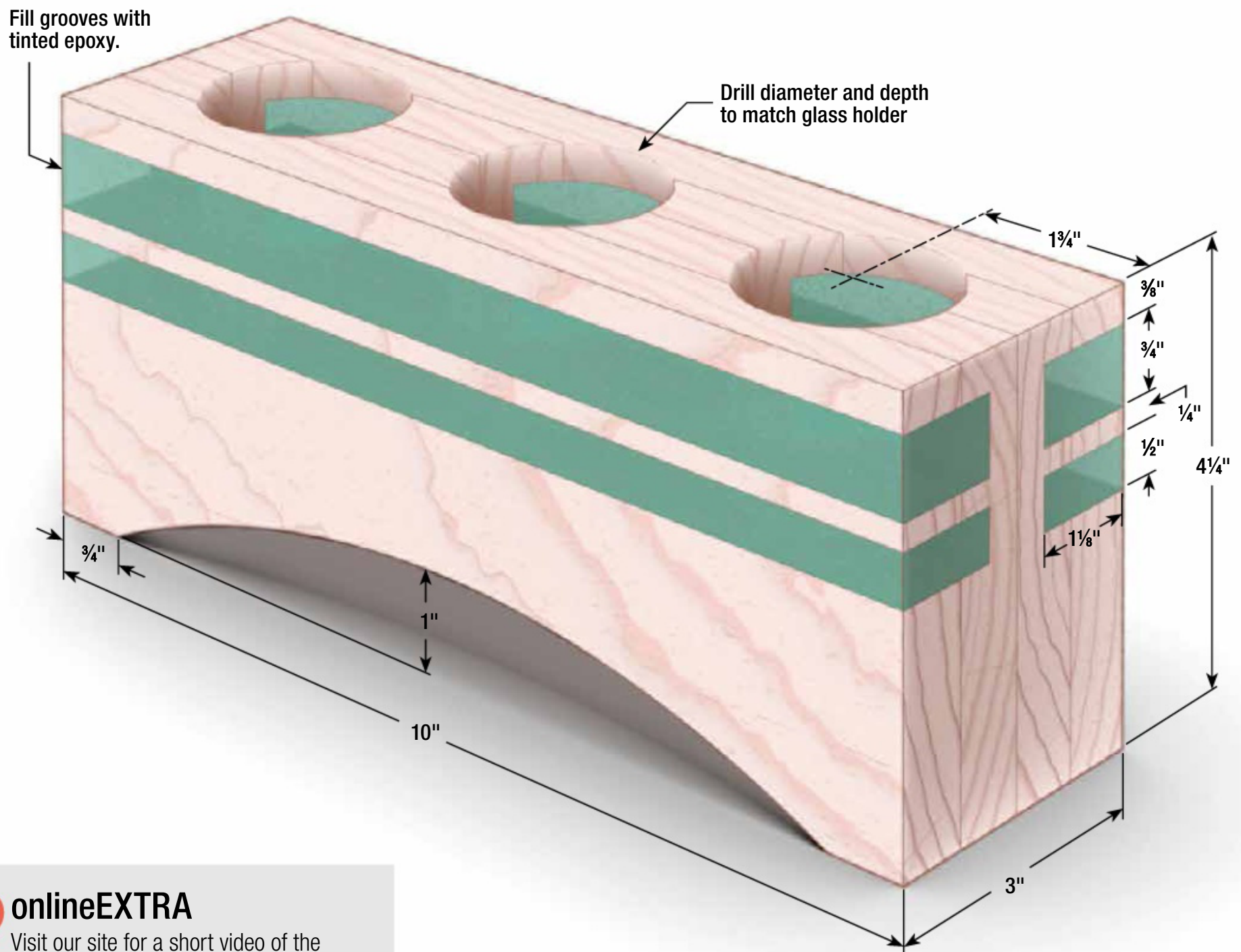
elaborate form to contain the epoxy, I poured it right into the grooves in the block after capping the ends off with scrapwood wrapped in non-stick Tyvek tape.

The finished dimensions of the piece are 3"-thick by 4¼" high by 10" long. Instead of sourcing 3-inch thick solid lumber, I glued four boards together to make an oversize block that I trimmed to size after pouring the epoxy. The one shown in the photos is made of maple, but you can experiment with different wood species and various colors to discover your favorite look.

Some of the steps in this project are simple enough for young woodworkers, which hopefully will light the candle of woodworking passion in the next generation.

Glued-up block with grooves for epoxy

Four face-glued maple boards make up the 3"-thick block. Three holes drilled in the top house glass votive holders with battery-powered flicker candles that shine and glimmer through tinted epoxy. Two different-sized grooves on each face hold the epoxy. And an arch at the bottom elevates the piece.



onlineEXTRA

Visit our site for a short video of the centerpiece flicker in action.

Order of Work

- Glue up block
- Saw grooves
- Mix and pour epoxy
- Trim to size
- Drill holes
- Cut arch
- Sand and finish



About the Author

Willie Sandry is a process guy. His designs often begin with inspiration gleaned from antique shops and old catalogs. After that comes detailed drawings and mock-ups, followed by drying his own lumber. "The more control you have over each step of the building process, the better the finished product becomes," he says.

Gluing and grooving the block

Face-glue four boards dressed to about $\frac{3}{4} \times 4\frac{1}{2} \times 11\frac{1}{2}$ " to make an oversized block that you'll trim later. When dry, joint the centerpiece's top edge, then plane the bottom to reach final height. Square up the ends at the miter saw for an oversize length of about 11". At the table saw, position your fence to cut the top groove. Then set your dado

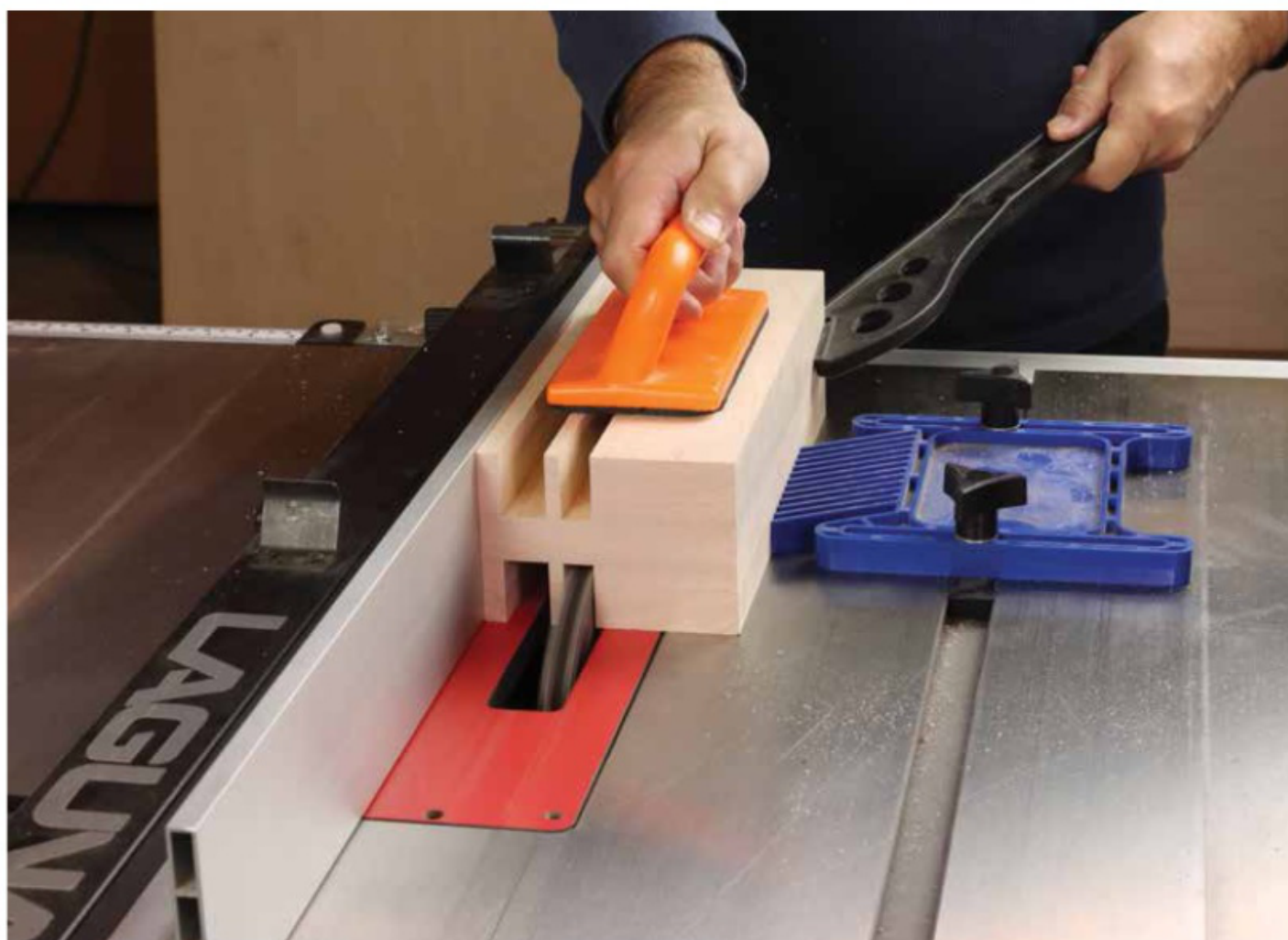
blade to $\frac{3}{4}$ " wide and $\frac{9}{16}$ " high—half the depth. (It's safer and cleaner to cut these grooves in two passes. Saw the groove on each face, then raise the blade to cut the full $1\frac{1}{8}$ " depth and repeat. Reset your fence and dado blade to saw the $\frac{1}{2}$ "-wide bottom grooves in the same manner.



Joint the block. Joint the top edge of the glued-up block to make a flat surface. Keep the face of the block flat against the jointer fence to ensure square. Clean up the bottom surface with the planer to the finished height.



Square the ends. Crosscut the block oversize in length at the miter saw. Trimming to final length comes after the epoxy has been poured and cured.



Saw the grooves. After sawing the top groove on each face in two passes, reset your fence and repeat the process for the narrower bottom groove. Push pads and featherboards ensure safety and clean, consistent grooves.

Mixing and pouring the epoxy



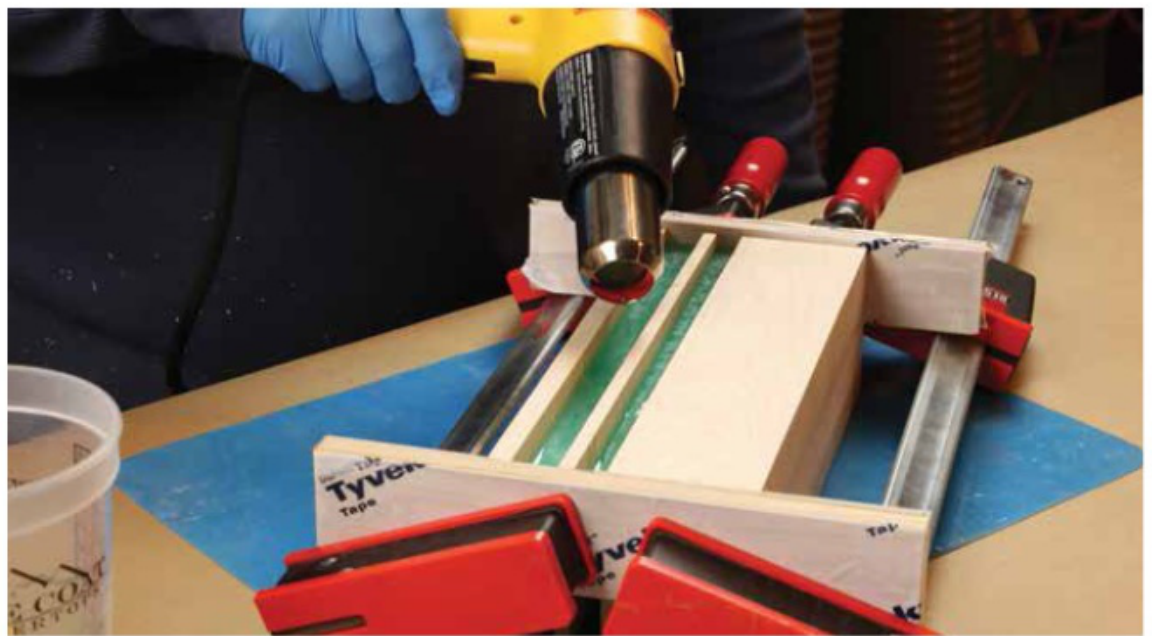
Tint the epoxy. Mix the resin and hardener before dropping in the mica powder. Stir the mixture for five minutes, then let it sit for a few minutes to release trapped air bubbles.

Each side of the block takes about 12 oz. of epoxy and is poured right into the grooves one side at a time. Cap the ends of the block with scrapwood covered with Tyvek tape (sold at home centers), and pour the colored epoxy to fill the grooves halfway. It's important to mix in only enough colored mica powder to give a pleasant color, while still maintaining a translucent look to the dried epoxy. If you add too much mica, you might obscure the light from the flicker candles. I used $\frac{1}{8}$ teaspoon of mica powder for each 12 oz. pour.

Air bubbles in the epoxy can spoil the light effect. After pouring, make a few passes over the grooves with a heat gun or hair dryer to bring air bubbles to the surface. When the first side has cured, plane it to re-establish a flat and repeat the process on the opposite side.



Fill the grooves. After capping the ends of the block with tape-covered scrapwood, fill the grooves halfway with the mixture.



Heat out the bubbles. With the grooves half full, make a few quick passes using a heat gun to release trapped air bubbles. Then fill both grooves to the brim, and make another pass with the heat gun. Let the epoxy cure for at least 24 hours.



While working with epoxy keep a few safety pointers in mind. Wear long sleeves, gloves, a respirator and safety glasses to protect yourself from the chemicals. Be sure to read all the instructions and safety warnings of the epoxy product you choose.



Plane off the excess. Once the epoxy has cured, re-establish a flat surface at the planer.

Trimming, drilling, and shaping

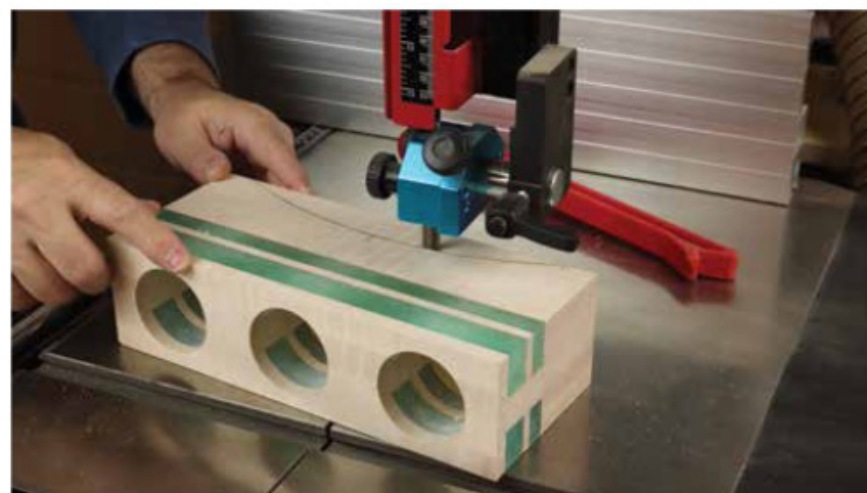
At the miter saw, crosscut the ends of the block to finished length. Lay out the holes as shown in the drawing on p. 23, and head to the drill press. Clamp the block to the drill-press table and set the depth stop to nearly the full height of the glass holders. It looks nice if the rim of the glass projects slightly above the surface of the wood. Drill a hole in the center using a 2"-diameter Forstner bit (or whatever diameter matches your glass holders). Then drill the other two holes. Next, lay out and trace the arch as shown. Then bandsaw outside the line, cleaning up at the spindle sander. Ease all the corners at the router table using a 1/8" roundover bit. Rout the ends first to minimize tearout. To polish the epoxy, sand from 120 to about 1200 without skipping grits. Use a clear finish (I used Watco Danish Oil) as stains or dyes may minimize the flickering effect. A topcoat is optional.



Drill the holes. Clamp the block at the drill press, and set the depth stop so that the rims of the glass holders project slightly above the top.



Trace the arch. Lay out the arch as indicated on the drawing (p 23.) Then, trace the curve along the bottom of the block using a bowstring jig.



Bandsaw the arch. Cut just outside the traced arch at the bandsaw. And then finish up at the spindle sander.



Insert the candles. Place the battery-powered flicker lights and glass holders into the centerpiece and enjoy the pleasant mood-setting effect. ■

Shop-made SOAP FINISH

*Five reasons to lather
on this traditional
Scandinavian polish*

By Sarah Marriage

Soap finish, a shop-made polish with a long history of use in Europe, is becoming increasingly popular among furniture makers here in the States. It's environmentally friendly and safe to use without PPE, and although it only provides moderate protection and durability, its simple formula, silky finished feel, and easy reparability tip the scale in its favor for many applications.

I first learned of using soap as a wood finish when I was studying fine woodworking at The College of the Redwoods. One of my fellow students hailed from Sweden, where the use of soap finish on floors and furniture is more common, and he used it to finish a dining table that was sure to see plenty of daily use. I've been enamored of this simple mixture ever since. It may seem counter-intuitive, but heavy traffic surfaces are where this soft finish really shines. Dirt and grime are easily cleaned up with the same soap mixture, renewing the finish, all in one step.

Perhaps the most compelling advantage of shop-made soap finish is its convenience and affordability. All you need to make this sudsy sealer is a bar of pure Castile soap, some boiling water, and a little bit of time

1

Natural look and feel

If you're looking for a finish that preserves the simple beauty of raw wood, soap finish is one of your best options. Once it dries, it causes little to no change in color tone or value. Although impurities in the soap or minerals in tap water could cause reactions with tannins in the wood, distilled water and high-quality soap will avoid this. And taking the final step to buff a soap finish will add a satin sheen to its appearance and provide a soft, silky feel to the surface.

2

Easy to maintain, and repair

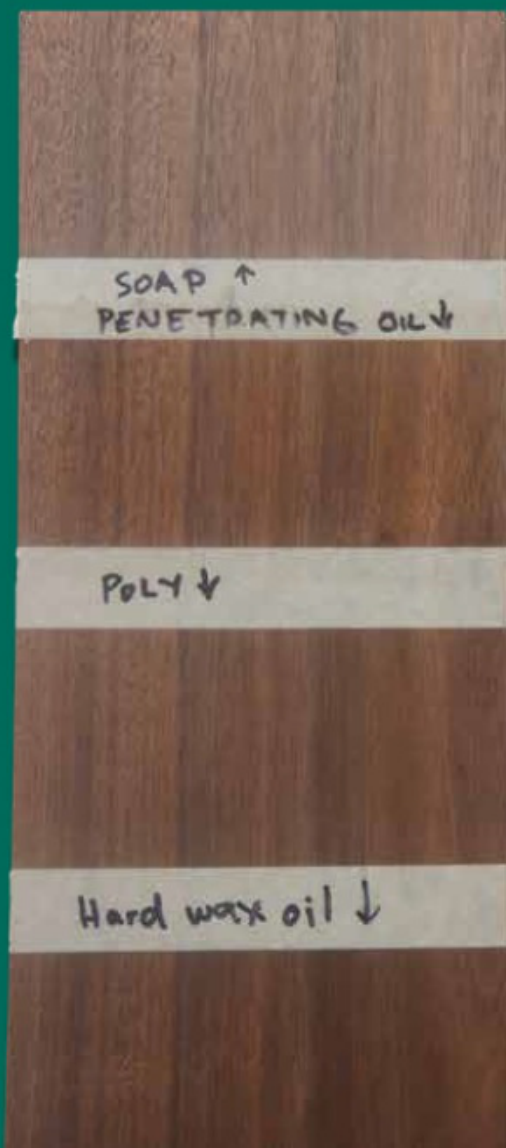
For day-to-day cleaning of soap-finished pieces, dust with a dry or lightly damp cloth. If you need to sanitize the surface, reapply your soap finish mixture: it also cleans the surface. If a stain requires sanding or a dent needs to be steamed out, attend to the trouble spot and reapply the soap finish locally, blending seamlessly into the surrounding areas. Add a fresh coat to projects at least once a year to maintain the protective properties of the finish, and buff the surface with a soft cloth to maintain its satin luster.



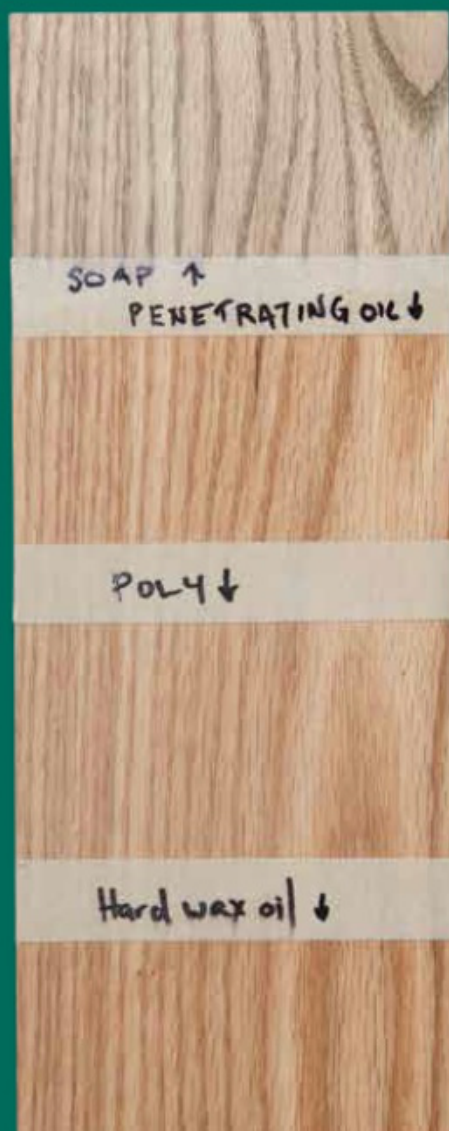
Scrub away the stain. While soap finish is resistant to water and alcohol, spills can leave a mark. Sop up excess liquid with a cloth and use an abrasive pad loaded with soap finish to scrub away any stains left behind. Wipe off excess suds and wait a few minutes before buffing the surface with a soft cloth.

A clear choice. Causing little to no color change once dry, soap finish preserves a raw wood appearance in comparison to other common finishes.

Black Walnut



Red Oak



Ash



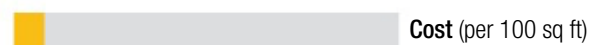
3

Inexpensive and convenient

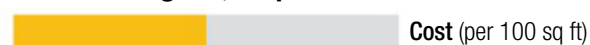
A 4 oz bar of pure, unscented Castile soap will run you somewhere between \$1.50 and \$5 at your local pharmacy. Using a 1:1 mixture (instructions at right), I was able to apply three coats to a 3 × 5' ash dining table. Coverage will vary depending on your mixture, number of coats, and wood species, but it will never break the bank.

A cost comparison

Soap, 4oz bar | \$2.19



Penetrating Oil, 1 qt | \$26



Wipe-On Poly, 1 qt | \$19



Hardwax Oil, 1 qt | \$55



4

Safe and environmentally friendly

Fragrance-free, pure Castile soap contains no volatile organic compounds (VOCs). It cleans up with itself and water. It's safe to wash down the drain, and soapy rags do not pose a combustion hazard. Working with soap finish is as safe as washing your hands.

5

Easy to make and apply

Soap finish is made by mixing pure Castile soap with boiling water. I prefer a 1:1 ratio by weight. First, shred the soap into flakes using a kitchen grater. Weigh out a portion of flakes into a mixing bowl; 1 oz is a good amount to start with. Pour the same weight of boiling water into the bowl. Mix until the flakes are all dissolved. I like to use a whisk chucked into a hand drill to whip the solution until it expands to several times its volume and soft peaks form. Let this sit, undisturbed, for about an hour until it has hardened to a soft solid. Then the finish is ready to be applied using a rag or abrasive pad, as shown. Sand between coats with 320 grit paper. Buff the final coat with a soft cloth for a silky satin sheen.

Grate the soap. Use a kitchen grater to convert pure Castile bar soap into flakes that dissolve easily in boiling water. I prefer buying and grating bar soap because of its wide availability, but you can also skip the grater by purchasing pure soap flakes in specialty stores or online.

Whip it up. Stir the soap flakes and hot water (be careful not to splash yourself) until all the flakes dissolve. I like to chuck a whisk into my hand drill and whip the mixture into a frothy foam. This method causes the mixture to expand to several times its original volume, so be sure to use a large bowl.

Lather it on. After you've given your mixture time to cool and firm up, apply the finish with a #0000 abrasive pad. There will be suds, but keep spreading the soap in the direction of the grain until the surfaces are coated. Wait a couple minutes before wiping away the excess. ■

TIP

Customize your recipe. You can experiment with different soap-to-water ratios to achieve different consistencies. For easier mixing, try a thinner mixture, although you may need to wait a day or two—or place it in the fridge—for the mixture to gel up.





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GUARANTEE



Glass-Topped COFFEE TABLE

Angles and splines combine for an airy design

By Derek Richmond

For the last few years, the “table” between my couch and fireplace has been an old leather steamer trunk. A hold-over from my bachelor days, it was too bulky for our small parlor, and obscured our view of the fireplace. It was time for something new. In its stead, I designed and built this minimalist, mid-century inspired table.

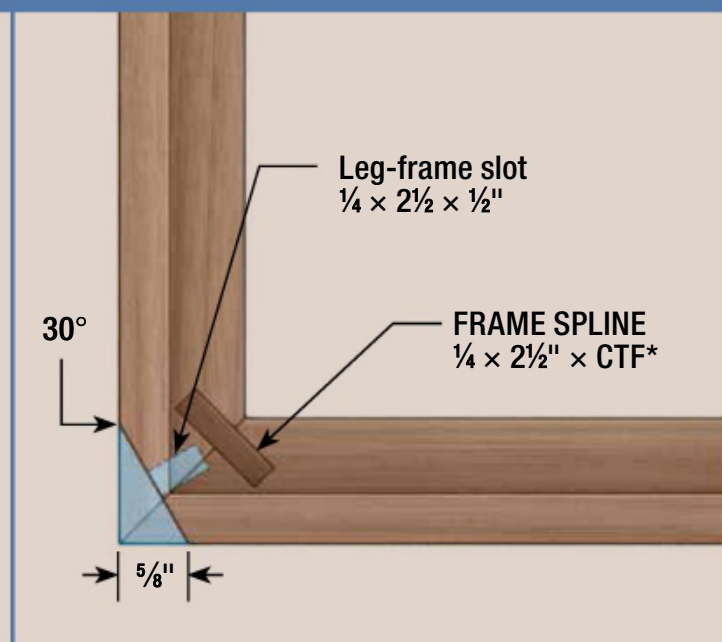
The glass top shows off the elegant form of the curved legs, and minimizes the table’s profile. Three sets of splines secure

the joints, holding the legs together and attaching them to the mitered frame which itself is splined together. A rabbet in the frame holds a shelf, handy for storing coasters, magazines, and the like. I used slate from a local quarry (they take phone orders, see pg. 60) which contrasts nicely with the black walnut I used for the rest of the structure, but a glass shelf or veneered plywood panel would also be suitable.

A study in splined joinery

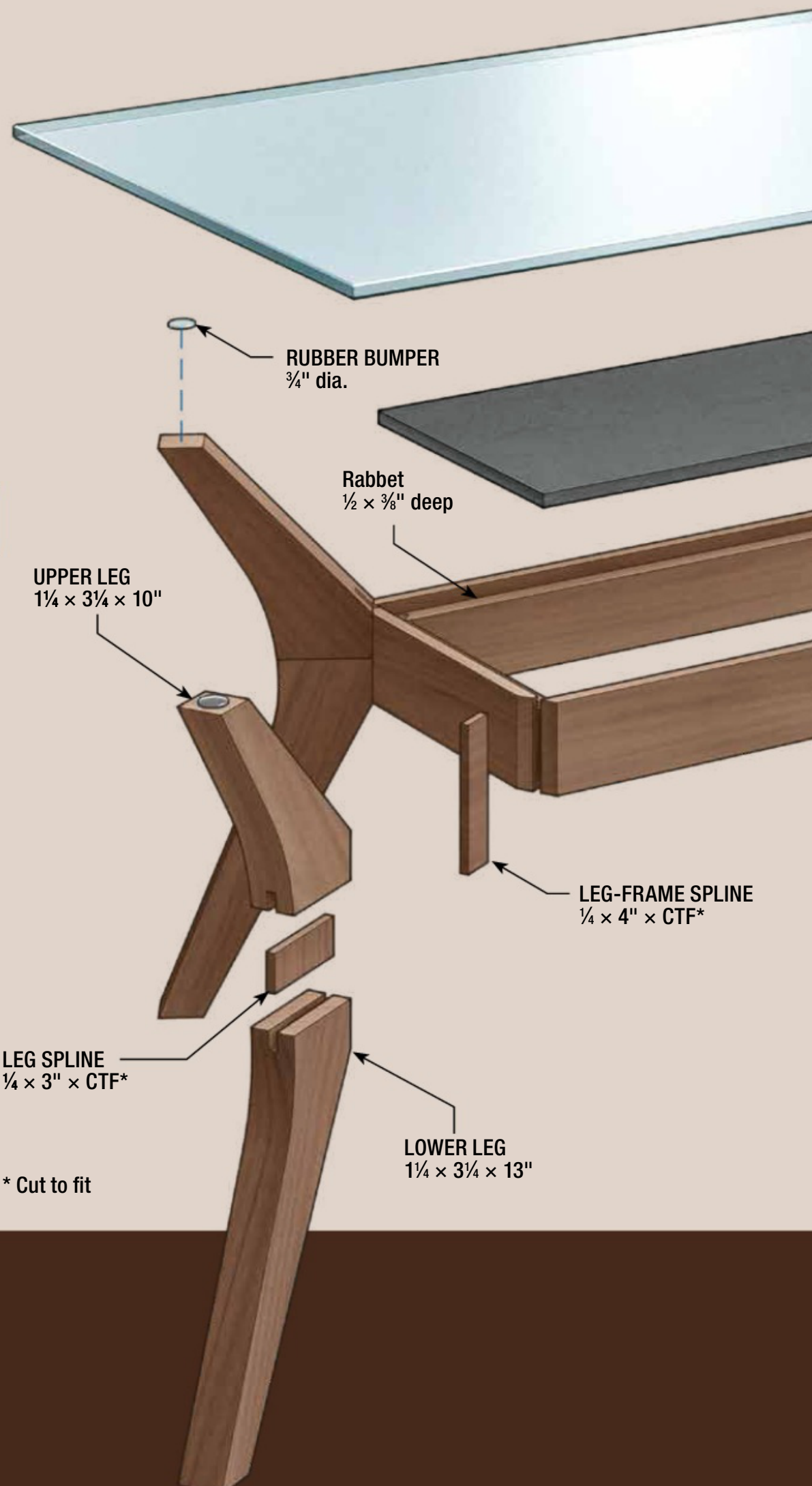
The table's base consists of a rectangular frame with four legs angling out from the corners to give the table a stable stance. The frame is mitered and splined together and has a rabbet cut in its top edge to hold the shelf. Each leg is made from two pieces to prevent the short grain problems that would arise should it be cut from a single, wide piece. Splines in between the upper and lower leg parts reinforce the joints. After the upper and lower parts are glued together, the leg blanks are shaped at the router table using a template and an over-under flush trim bit. A third set of splines attaches the legs to the frame.

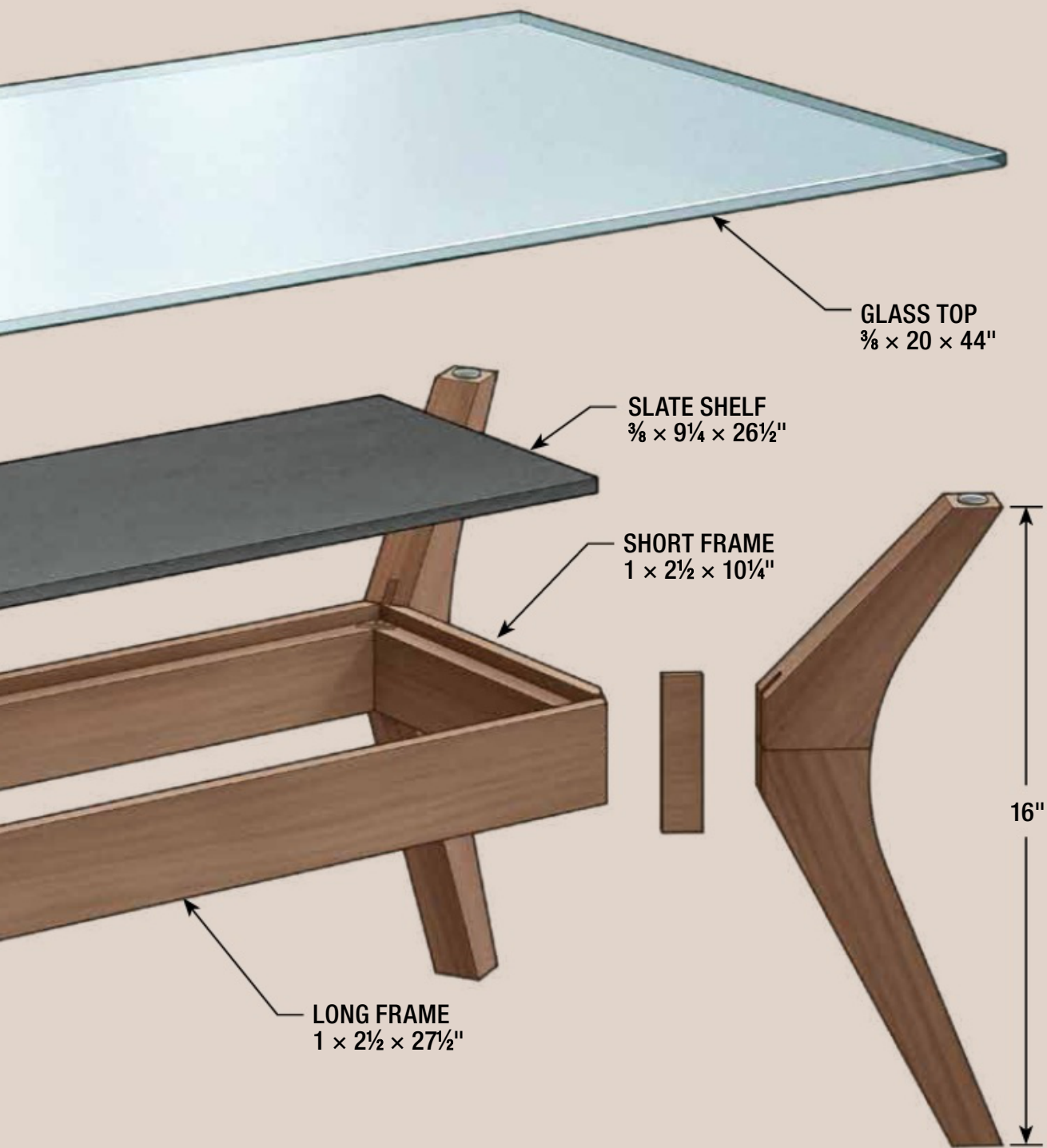
Frame detail



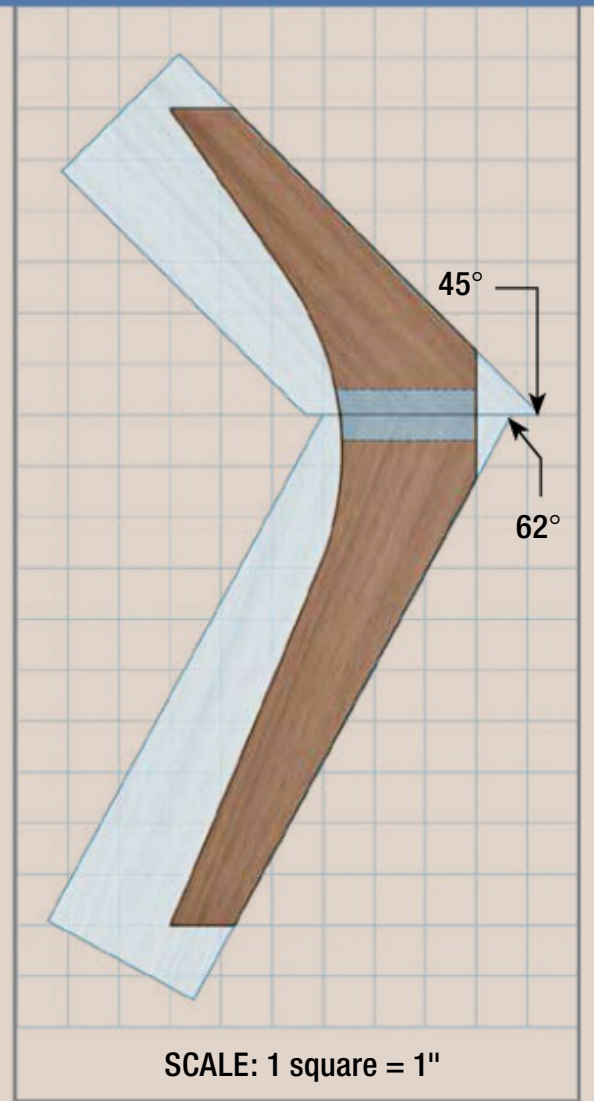
Order of Work

- Spline and shape legs
- Make the mitered frame
- Attach legs to frame
- Finish up and install glass and shelf





Leg pattern



onlineEXTRA

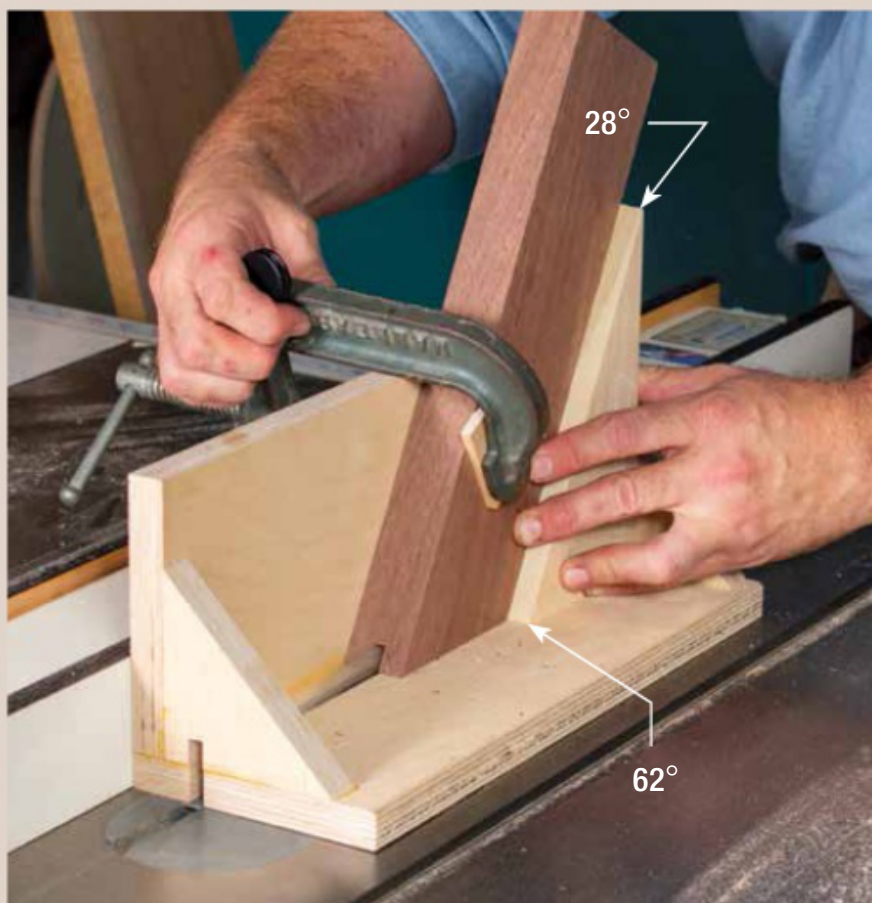
- Full-size leg template pattern
- CNC file for leg template

Make the legs

Mill the upper and lower leg blanks to size and miter their mating ends at two different angles as shown. Also cut two 1 $\frac{3}{4}$ "-thick spacer blocks: the first a right triangle about 4 × 7" with a 62° and 28° base angles and the second 4 × 5" with a 45° angle. Assemble a simple sled as shown below, and use it in conjunction with the spacers to position the leg blanks as you slot the upper and lower leg parts. Then mill a length of spline stock to the necessary thickness (see drawing, p. 32) and width before cutting the individual splines to length. Note that for strength, it is critical that the splines' grain runs perpendicular to the joint line. Glue up the legs, using offcuts as clamping cauls. Print and adhere the leg template pattern onto $\frac{1}{2}$ " plywood, then cut and sand it to shape (or cut the template using the CNC file from OnlineEXTRAS). Trace the template onto each leg blank, centering the joint perpendicular to the template's flat front facet. Bandsaw the leg blanks to rough shape, then attach the template to the leg blank and use an over-under flush trim bit (see Buyers Guide, pg. 60) to finalize the leg shape.



Miter mating ends. Cut the mating ends of the upper leg pieces at 45° then cut the mating ends of the lower leg pieces at a 62° angle as shown.



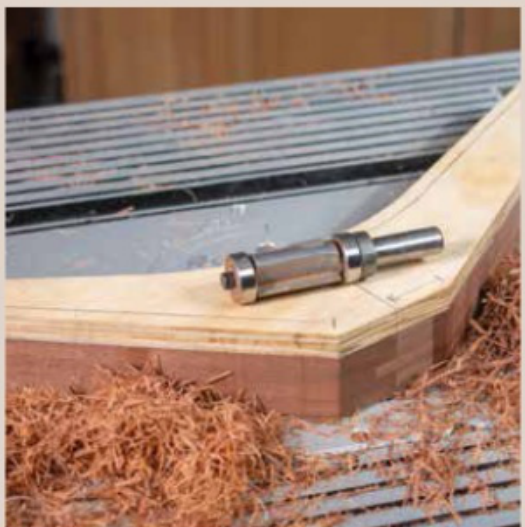
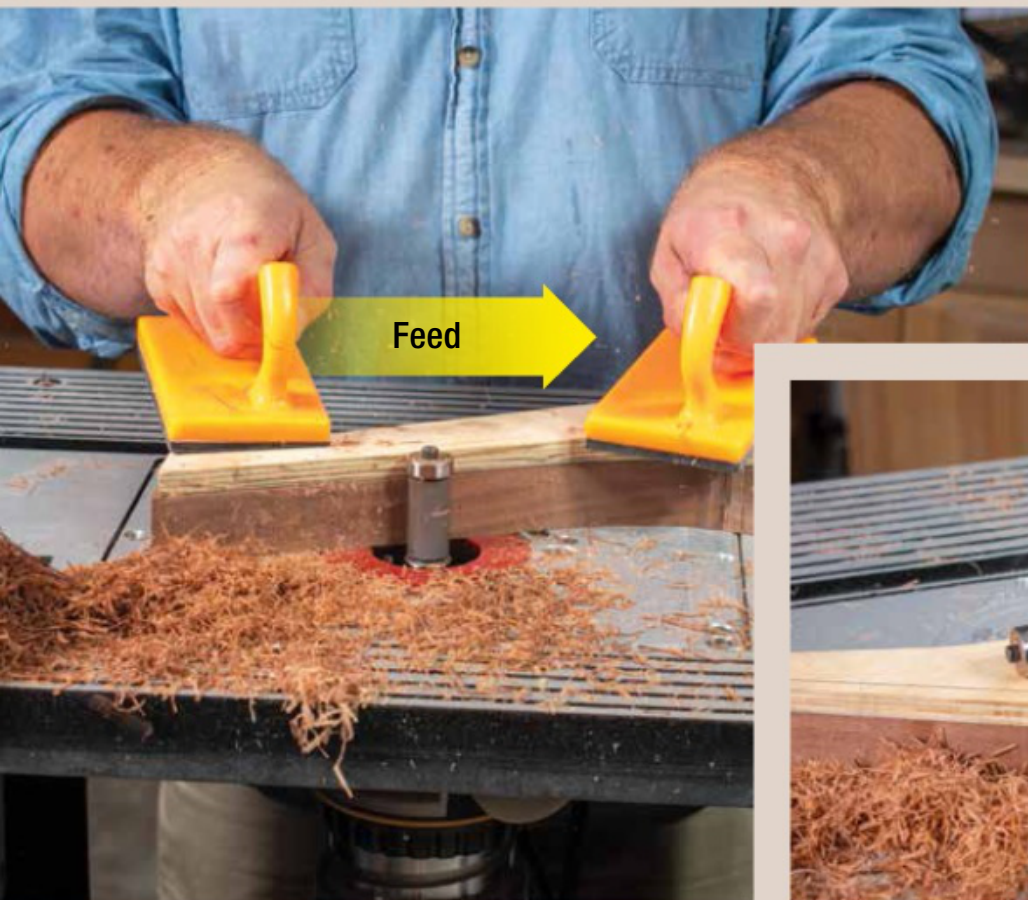
Slot the lowers. Install a $\frac{1}{4}$ " dado blade and adjust it to cut a $\frac{1}{2}$ "-deep slot centered in each leg blank. Screw the 61 $\frac{1}{2}$ ° spacer block vertically in the *rear* corner of the sled before clamping and slotting the lower leg sections.



Slot the uppers. Attach the 45° spacer block in the *front* corner of the sled and cut the slots in the upper leg blank. This registers the same face of the legs against the sled and helps guarantee alignment with the slots in the lower blanks.



Glue up the legs. Glue the offcuts from mitering to the leg blanks to act as cauls before gluing the leg segments together. You'll trim these off later.



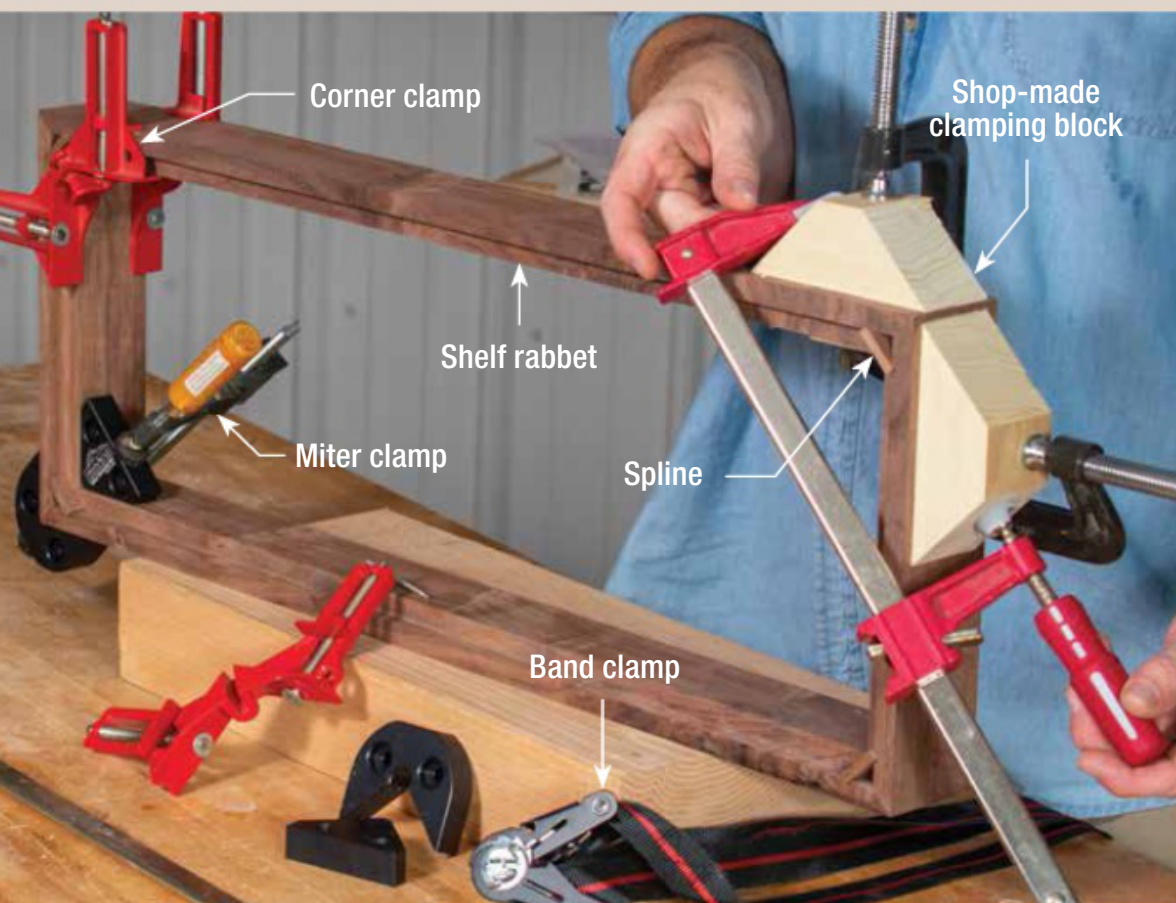
Shape the legs. Fasten the template to the rough-cut leg blank using double-faced tape. Chuck an over-under flush trim bit in your router table and adjust its height so the upper bearing engages the template with the template on top of the workpiece. Start in the center of the curve and feed the piece against the bit's rotation around the end and to the center of the opposite side (left). Then flip the assembly over, adjust the bit height to employ the lower bearing, and trim the other end (right).

Create the panel frame

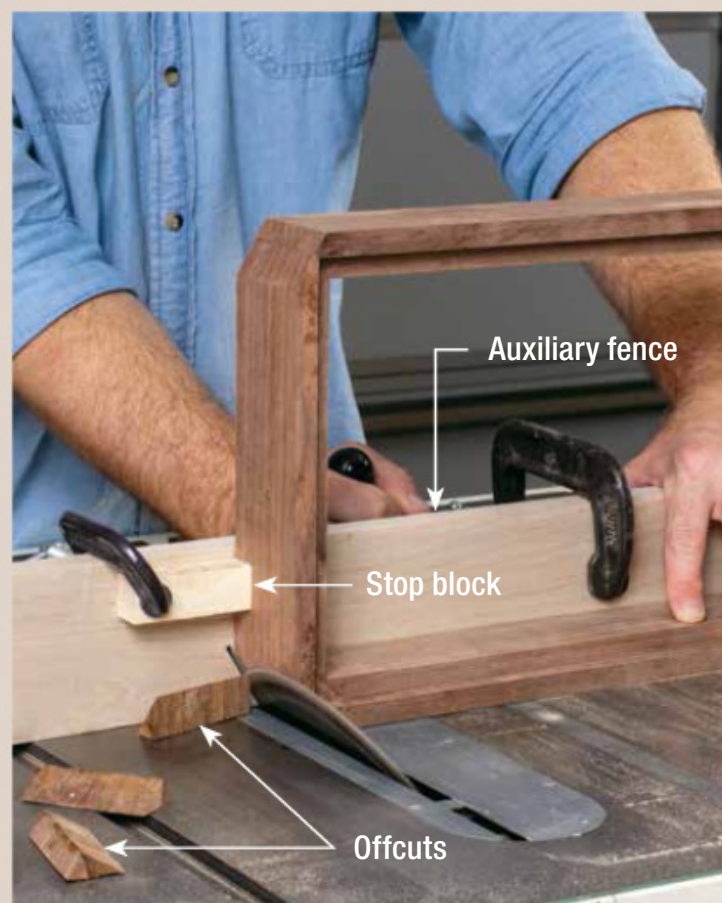
Mill the frame pieces to thickness and width, leaving each about an inch overlong. Tilt the blade on your table saw and miter both ends of each piece at 45°, trimming the pieces to length in the process. Cut the spline slots in the pieces as shown, then size splines to fit. Again, for strength, the grain of the spline should run perpendicular to the joint line. Cut a ½" wide, ⅜" deep rabbet to accept the shelf material. Install the splines and glue the frame together. When the glue is dry, use a chisel to pare the spline flush with the frame's top, bottom, and rabbet. Then bevel the corners at 30° as shown, to create bevels that are 1¼" wide.



Slot the bevels. With a ¼" dado blade installed and tipped to 45°, set up your fence on the opposite side of the blade. Raise the blade to cut a ½" deep spline slot in the miter, located ⅛" from the frame member's inner face.



Glue up the frame. Whether you use a special miter clamp system, a band clamp, or shop-made clamping blocks, the goals are to get good pressure across the beveled joint and to make sure your corners are square.



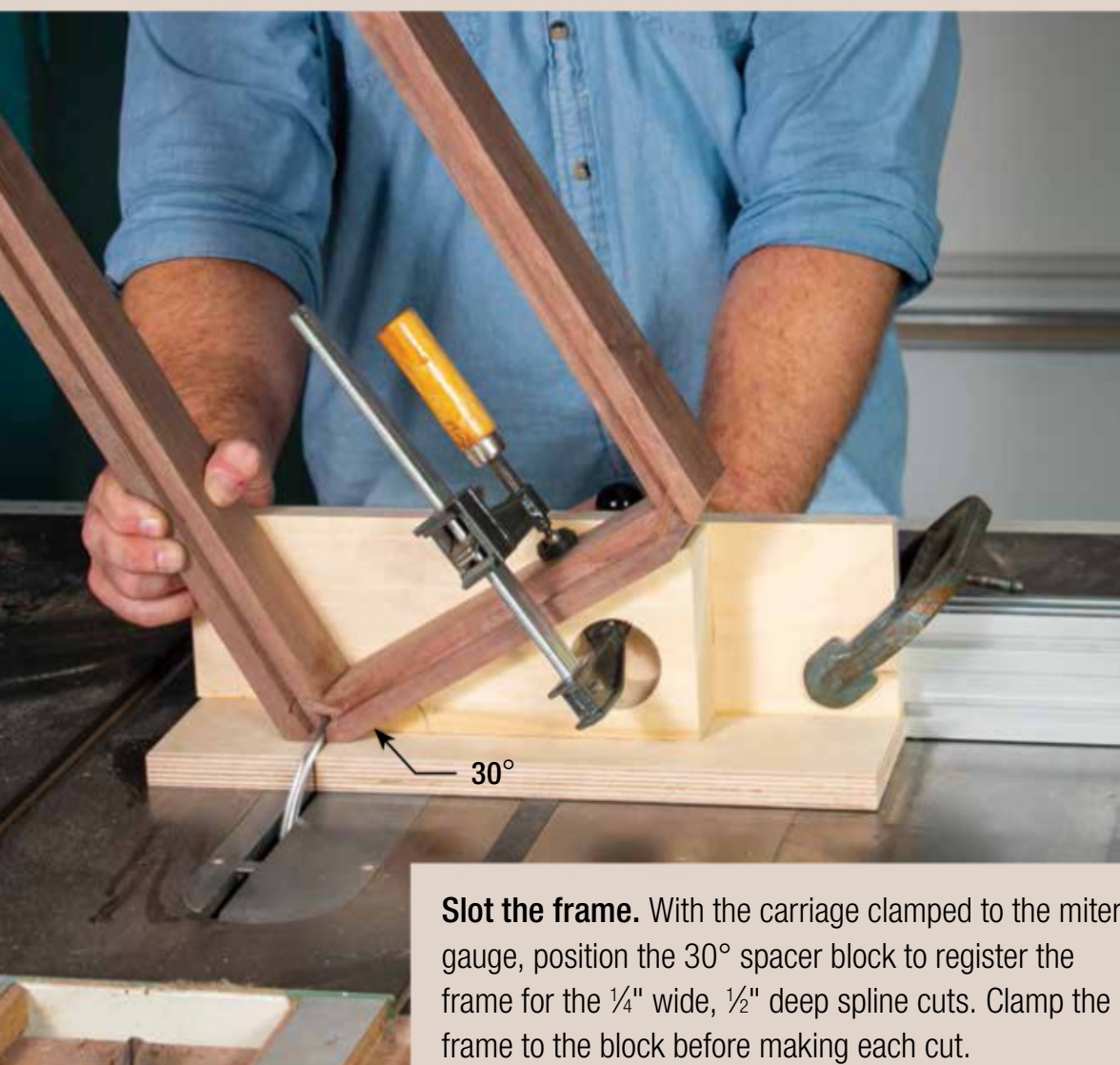
Cut bevels for legs. Tilt your table saw blade to 30°. Clamp a stop block to an auxiliary fence to position the frame as you bevel the corners. Try to save the offcuts to use as cauls when you clamp the legs in place later.

Attach the legs

To cut the slots for the splines that join the legs to the frame, position the 28-62° spacer block to use the 28° end as shown. Then cut one last spacer block at 30° to use when slotting the frame. Cut the spline slots in the legs with the sled you made earlier. Make another carriage to clamp to your miter gauge. Use this along with the 30° spacer block to position and cut the spline slots in the corners of the frame. Mill spline stock and glue the legs to the frame as shown. After the glue dries, trim the splines flush with a flush cut saw. Chamfer the bottom of the legs, sand and finish the table—I used a Danish oil to enrich the walnut's color and topped it with a water-based varnish for added gloss and protection. Attach rubber bumpers to the tops of the legs before adding the slate shelf and glass top. Then sit back and admire your splendid new coffee table. ■



Slot the legs. Using the sled and 28° end of the spacer block from earlier, cut a spline slot in the flat face of each leg. Cut two legs with the spacer block toward the back of the sled, and two with the spacer block toward the front of the sled. Mark the legs to show which face was against the fence.



Slot the frame. With the carriage clamped to the miter gauge, position the 30° spacer block to register the frame for the 1/4" wide, 1/2" deep spline cuts. Clamp the frame to the block before making each cut.



Glue up. Cut two 8 3/4"-wide pieces of plywood to hold the frame level above a flat surface. Spread glue on the mating surfaces and fit the legs and splines to the grooves in the frame. Make sure the legs stay in contact with the surface below and the marked faces are oriented consistently. Use the frame offcuts as cauls in the inside corners as you clamp the pieces together.



Picture Framing **BASICS**

Create elegant frames with simple tools and techniques

By Asa Christiana

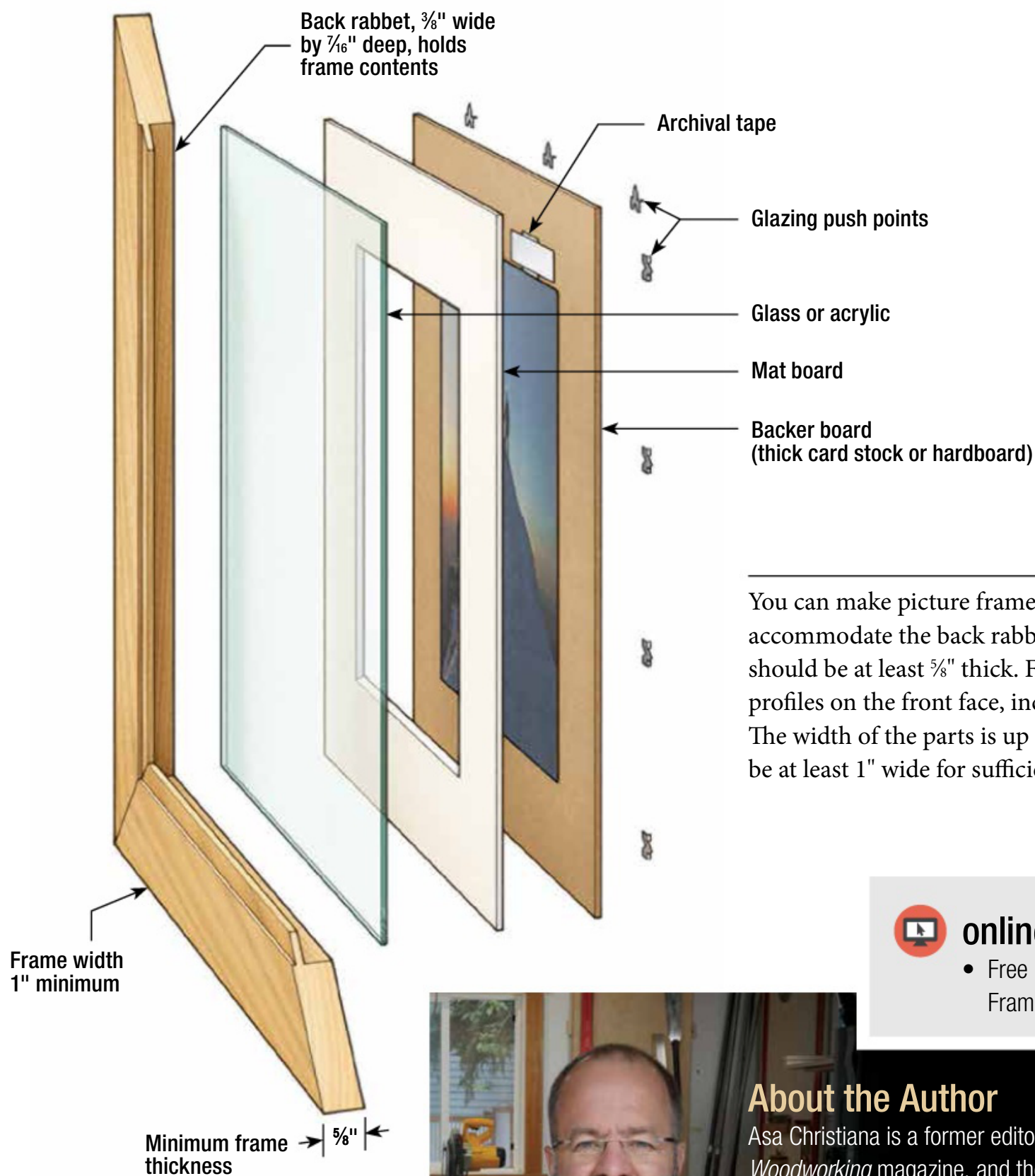
As a woodworker, it's tough to buy pre-made picture frames or shell out big bucks at the custom-framing shop—especially when you have so much nice wood lying around. Making frames yourself not only saves money but also lets you personalize your pictures.

Despite the seemingly simple joinery, however, picture framing can be intimidating in its own way. The decorative aspect is easy, as there are lots of wonderful details you can create on a router table, table saw, or even bandsaw, and the miter joints carry them beautifully around the frame. But perfect miters are trickier to make than they might look.

A picture frame puts them on full display, so they need to be dead-accurate and chip-free. To make that happen, you'll need a reliable way to cut and assemble them.

Then there's the contents of the frame. Everyone knows what they want to display, but may be less familiar with how to incorporate the mat board and glass, how much room to allow for them in their rabbet, and how to hold them in place. Last, there is a variety of ways to hang the finished frame. Not to worry; in this article, I'll provide some straightforward solutions using basic tools, ensuring perfect picture frames that can be made by any woodworker.

Anatomy of a picture frame



You can make picture frames from any wood. To accommodate the back rabbet, your frame stock should be at least $\frac{5}{8}$ " thick. For deep molding profiles on the front face, increase the thickness. The width of the parts is up to you, but should be at least 1" wide for sufficient glue surface.



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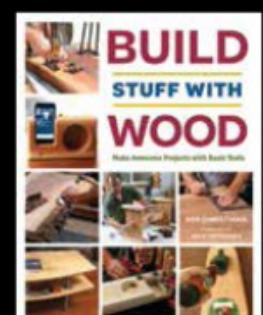
Order of Work

- Mill frame stock
- Rabbet the back
- Cut molding details
- Miter ends
- Assemble frame
- Fill and hang



About the Author

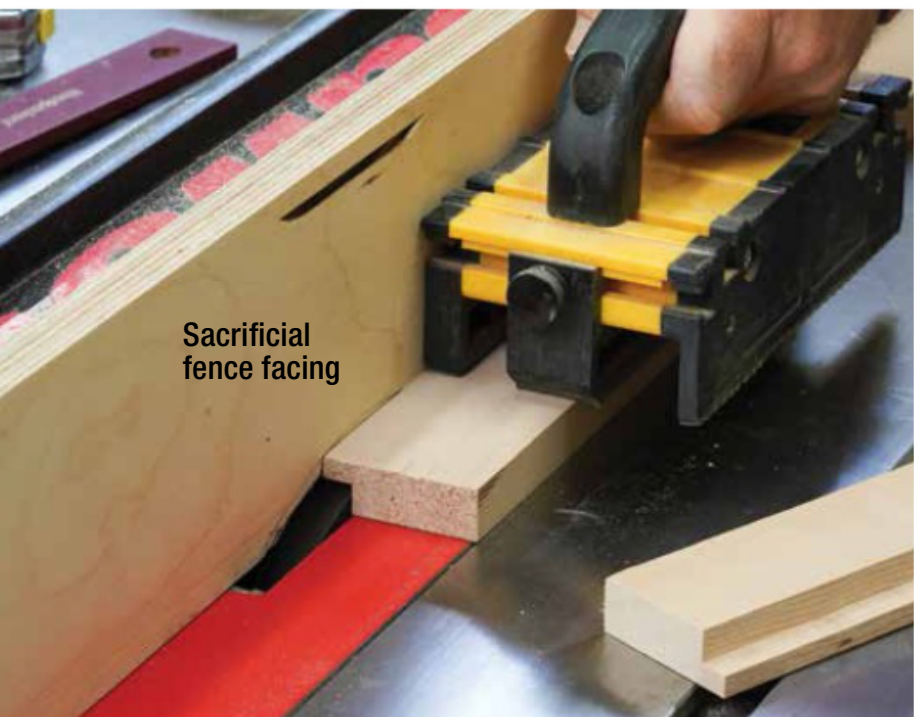
Asa Christiana is a former editor of *Fine Woodworking* magazine, and the author of the “**Build Stuff with Wood**” book series, designed to take beginners “from zero to hero.” The second volume, “**Build More Stuff with Wood**” (Taunton Press), goes on sale in September 2022. Like book one, it’s packed with stylish yet straightforward projects, and will appeal to woodworkers of all skill levels. A third and final book is planned for 2024.



Vol. 1

Rip and rabbet at the table saw

Rip stock that will be long enough to wrap around your artwork and mat, making all the parts from the same board for the best look. After milling the stock to size, rabbet the back edge. The fastest way to do this is using a dado head on the table saw, as shown. You'll need to attach a sacrificial facing to the rip fence using clamps or double-stick tape, and then raise the spinning dado head into the facing, being careful to avoid your rip fence.



Efficient rabbeting. Using a dado head partially buried in a sacrificial fence facing lets you cut the rabbet to full depth and width in a single pass. For safe feed control, use a push pad and push stick.

Save money on glass, mat, and backer board

You can buy glass (or acrylic), mat board, and backer board at a frame shop, but they are also hiding in plain sight at your local dollar or department store inside very inexpensive frames that are made to fit standard photo sizes. Chuck the frame, keep the contents, and save significant cash. If you dive deeper into picture framing, you can also cut your own mats, glass/acrylic, and backer board.



Three decorative details

You can cut any number of profiles on the face of your frame stock using various tools. The following are just a few approaches. Whatever profile you create, make sure your frame stock is thick enough to leave at least $\frac{1}{8}$ " of wood above the back rabbet.



Face rabbet. This detail creates a nice transition between the wood and the artwork. To cut it, slightly bury a standard table saw blade in an auxiliary fence facing, and feed the stock on edge.



Simple saw slotting.

For a retro look, try making a series of evenly spaced slots using a standard $\frac{1}{8}$ " blade set up for a $\frac{3}{16}$ " deep cut. Move the rip fence $\frac{3}{8}$ " after each pass.



Easy texture. To create a rustic-looking frame, prepare your stock by resawing it at the bandsaw. Then use the sawn surface as the show face on your pieces.

Perfect miters at the chop saw

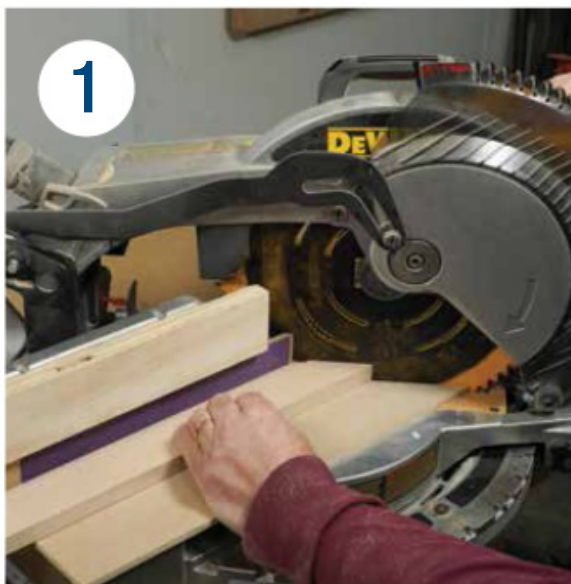


Saw prep. To minimize exit tearout, tape ¼" MDF panels to your saw table and fence to serve as zero-clearance workpiece supports. Adhere fine sandpaper to the fence to prevent workpiece shift that causes errant cuts.

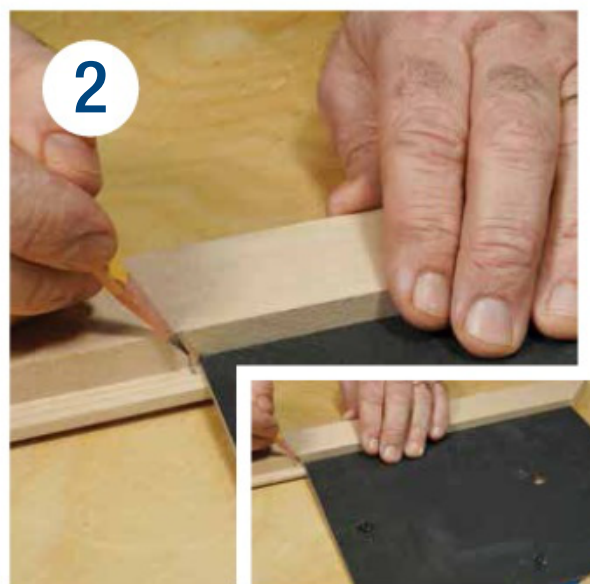
Frame miters can be cut with a variety of tools, but a miter saw offers the most straightforward approach. However, this contractor's tool needs some prep to cut clean, accurate joints. First, outfit it with a high-quality crosscut blade. Then adjust the saw for a perfect 45° angle, and cut a small sample frame to check its accuracy. To ensure that opposite frame sides match exactly in length, use a stop when mitering the second end of each sample piece.

After establishing a perfect miter setting, use double-stick tape to attach MDF panels to the saw's base and fence. Saw through the panels to create zero-clearance support surfaces, and then adhere sandpaper to the fence as shown. You now have a clean-cutting machine that can stay locked to the right like this for all your miter cuts. For cleanest results when mitering, plunge the blade slowly and steadily into the work, especially when the "show" face is oriented downward.

Three basic miter steps



1 Miter one end of each piece. After laying out and cutting the frame members to rough length, miter one end of each with the "show" face up.



2 Mark the other end. To mark the second miter, lay your backer board, mat, or glass in the rabbet, adding an extra ¼" or so at each end.



3 Miter parts to final length. When sawing the second miter on each workpiece, use a stop to ensure that opposing frame sides are cut to the exact same length.

Assemble, fill, and hang your frame

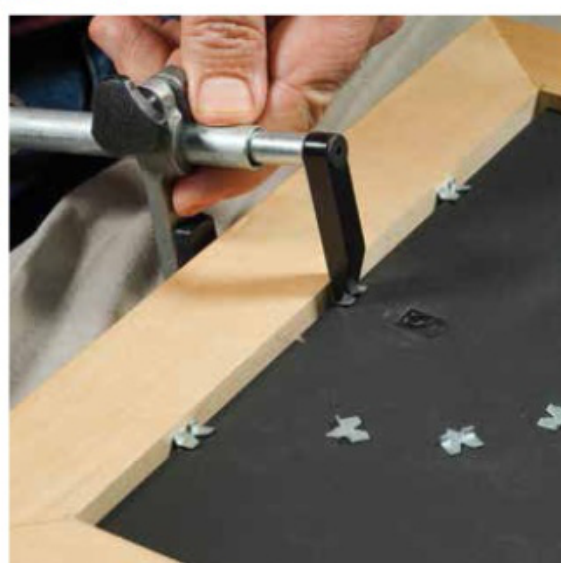
There are lots of products sold for clamping miters, but I prefer to use a basic band clamp. It's nothing more than a length of nylon webbing with a ratcheting handle that draws it tight, pulling the miters together while aligning their tips. The clamp won't automatically flush up the front faces, but it leaves room for additional clamps to do that if necessary. After applying glue and clamping, let the glue dry for a few hours, scrape off the excess, and reinforce the joints if you like (See box below). Sand everything flat and smooth, apply finish, and fill and hang your frames.



Thirsty joints. The end grain of miters drinks up a lot of glue, risking starved, weak joints. So spread glue liberally on both faces of each joint, and add a little more on any dry areas right before assembling the frame.

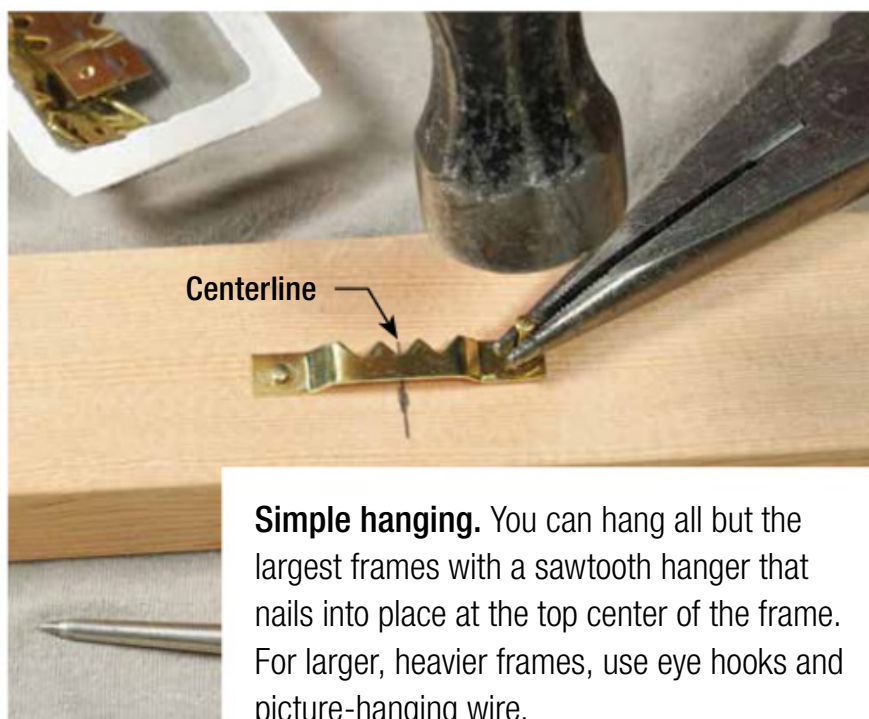


Band clamping. Before you start spreading glue, have a band clamp already set up just a little looser than necessary. As you tighten the clamp, press the joint faces into alignment, using traditional clamps if necessary.



Glazing point retainers.

Place the glass, mat, artwork and backer board in the back rabbet, and secure them by installing inexpensive glazing points. You'll need specialized pliers for the job, but they're cheap too.



Simple hanging. You can hang all but the largest frames with a sawtooth hanger that nails into place at the top center of the frame. For larger, heavier frames, use eye hooks and picture-hanging wire.

A call for reinforcements?

If frame miter cuts are accurate and glue-ups go well, I don't generally reinforce the joints, and I've never had a frame break. However, it's never a bad idea to incorporate splines of some sort, especially if the frames and/or cargo are large or heavy, or if they might get knocked from the wall. Splines can also add a decorative accent, particularly if made from contrasting wood. When I do reinforce miters, I glue small "key" splines into slots sawn into the corners of the assembled frame. (See OnlineEXTRAS for a project that addresses the whole process.) Also, if you have a biscuit or Domino joiner, you can easily add strong, hidden reinforcement to frames with wide parts. ■

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Read this issue closely
to answer the following
questions.

1 How many splines hold
the Glass-Top Coffee
Table together?

2 What does Willie suggest using
to remove air bubbles from the
epoxy in the Tealight Centerpiece?

3 What are the ingredients
that go into Sarah's Shop-
Made Soap Finish recipe?

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Contemporary DINING CHAIR

*Simplified geometry
with a woven seat*

By Ellen Kaspert and Ken Burton

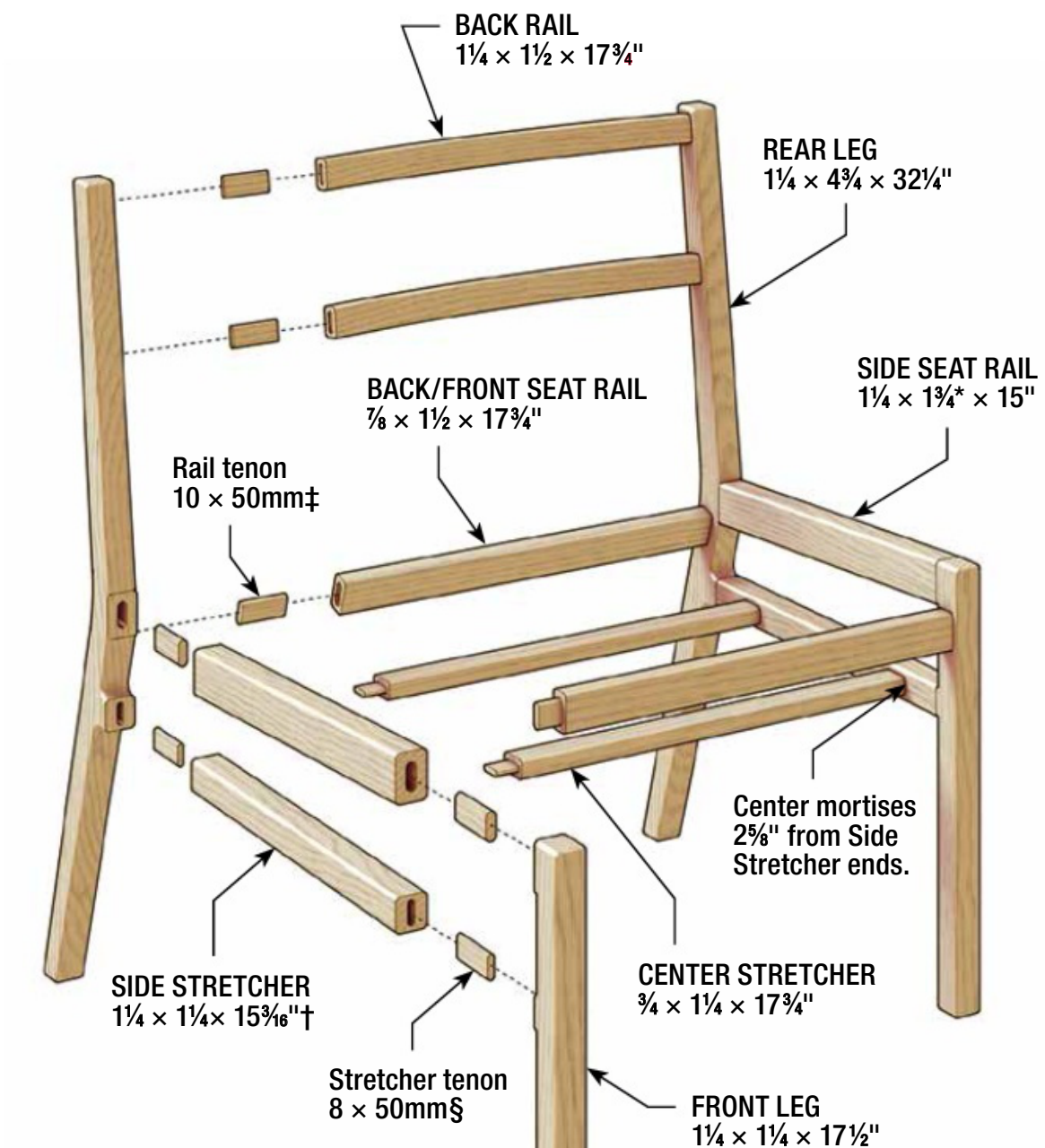


Last May, we had the good fortune of teaching a chairmaking class together at the Yestermorrow Design/Build School in Warren, VT. As we were putting the class together, we knew we wanted a chair that was: comfortable, contemporary yet classic, and relatively easy to build for woodworkers with limited experience. But we also wanted to include some sound chairmaking techniques to give the students a solid foundation upon which to advance their skills. As we put the class together, we developed the chair presented here, which seems to tick all those boxes. The chair's comfort stems from the angles incorporated into its

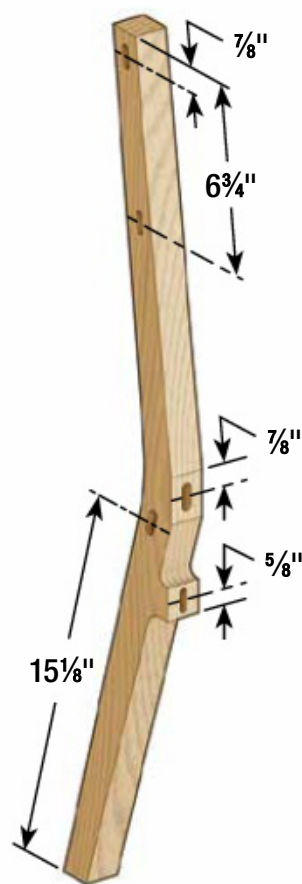
pattern-routed back legs. The woven seat and back are easier on the backside than solid wood, and the design is light and airy but still fits in well with many decors. The 1½"-wide webbing for the upholstery is available in a variety of colors; each chair requires 25 yards. Construction can be accomplished almost entirely with 90° joinery but also incorporates pattern-routing, a powerful technique for creating identical parts. The class went well: In just five days, we had gone from rough lumber to folks weaving their seats. If you have a need for a dining chair or four, we think you'll enjoy building this design.

Shaped pieces with square joints

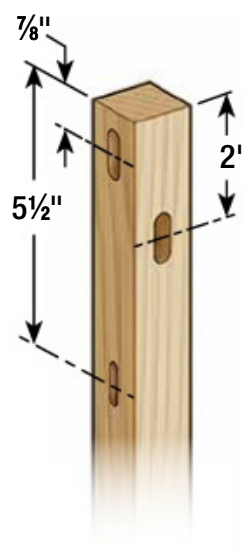
The back legs are cut from a single piece of wood and are bandsawn roughly to shape before being pattern routed to final size. The curve in the back rails is also sawn rather than bent. While the side seat rail appears to be a parallelogram, it actually begins as a rectangle. The parallelogram shape comes after the joinery is cut. As for the joinery, all the pieces are connected via loose tenons. In the class and in the photos presented here, these joints were cut with a Domino machine, but they could also be easily cut with a plunge router and mortising fixture or slot mortiser. Of particular note are the small flat lands on the back leg where the side seat rail and side stretcher connect. These surfaces are parallel to each other and perpendicular to the floor. The seat and back are woven with 1½" webbing. In the class, we used 1" Shaker tape. Both work well, though purchase them first and adjust the dimensions as noted so that the spacing works out.



Back leg detail



Front leg detail



* Start with a piece 2½" wide
 † Cut to fit during the build
 ‡ or ¾ × 1 x 2" loose tenon
 § or ¼ × 7⁄8 x 2" loose tenon



onlineEXTRA

- CNC cutting file for template/back legs
- Free project: Mortising Fixture
- Seat Weaving Video

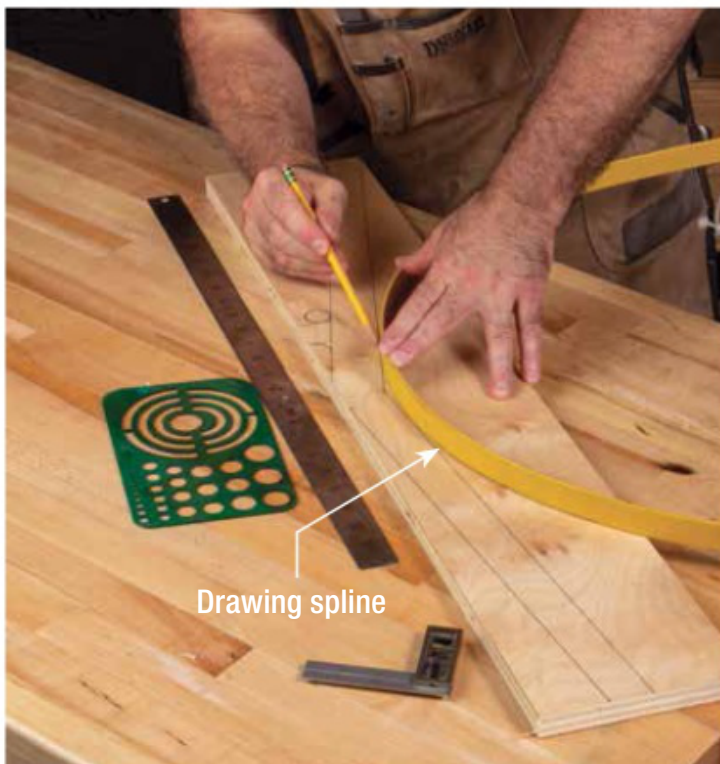


Order of Work

- Make back leg template
- Pattern rout back legs
- Cut joinery
- Assemble sides
- Shape back rails and cut roundovers
- Final assembly and finish
- Weave

Make the back leg template

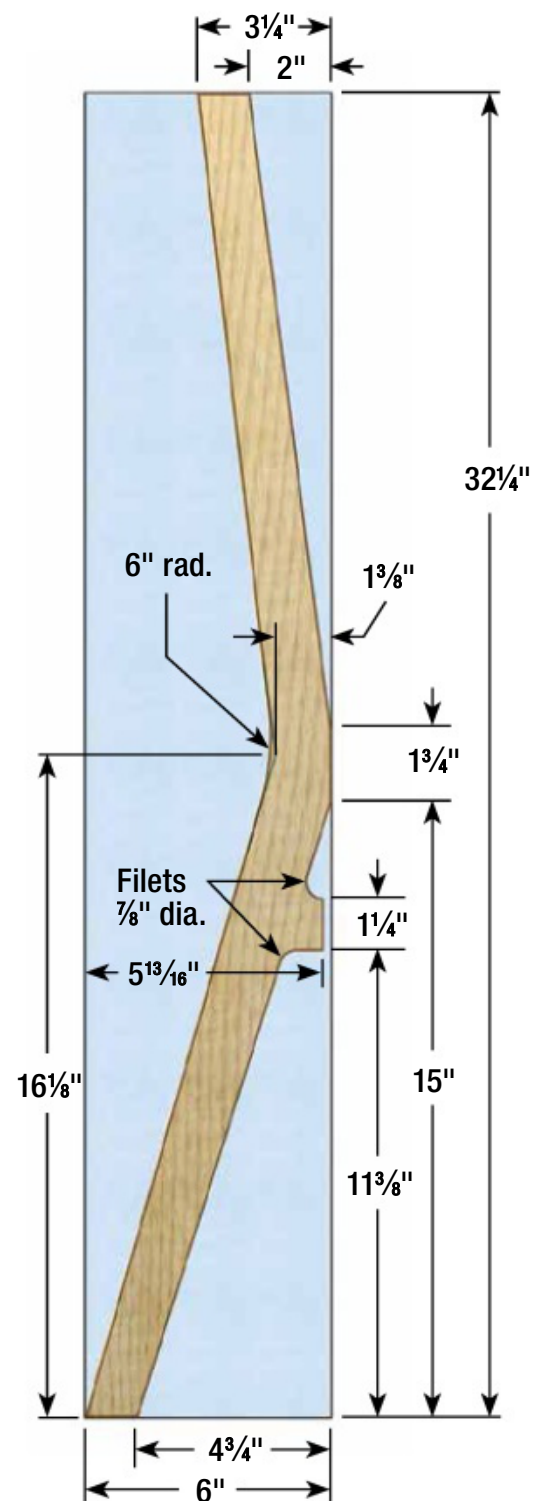
Cut a piece of $\frac{1}{2}$ " or $\frac{3}{4}$ " thick sheet stock to size and lay out the shape as shown in the Back Leg Template Layout (right). After drilling the filets on the leg portion, rip away the front edge of the lower part of the template to make the land for the side stretcher. Bandsaw the rest of the template just outside your layout lines. Clean up the straight parts of the template at the router table and the curved portion at the drum sander.



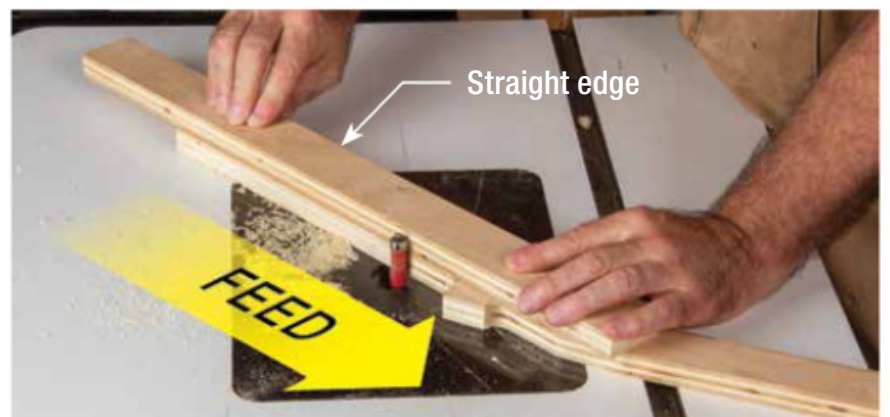
Drawing spline

Lay out the template. Plot the endpoints of the lines, then connect the dots with a straightedge before adding the curved transitions with the help of a circle template and a drawing spline.

Back leg template layout



Make a stopped cut. Drill the two filets with a $\frac{7}{8}$ " Forstner bit. Then make a stopped rip cut to create the land for the side stretcher with the fence set at $5\frac{13}{16}$ ".



Rout to the lines. Adhere a plywood straight edge to the rough-cut template with double-faced tape, aligning its edge with the layout line. Cut the template to final shape with a flush trim bit.

Shape the back legs

Use the template to help plan where to cut the back legs from your stock. Rough cut the pieces, then mill the stock for all four legs, the side seat rails, and the side stretchers to size. Pay particular attention to the grain on the legs and stretchers, as these will be visible. The seat and back rails will be covered with webbing, so you can hide less desirable grain patterns on these pieces. Retrace the template and

bandsaw the back legs roughly to shape. Try to stay about $\frac{1}{16}$ " outside of the layout line to allow enough material for routing, but not so much that the bit has to make too big a bite. Then rout the legs to final shape at the router table using the template as a guide. Note: when you double-face tape the template to the blank, squeeze the pieces together with a clamp briefly to ensure good adhesion.



Align for grain match. When you lay out the back legs on your stock, you'll want to make the most of your material but also get a good grain match. On wider pieces, you may be able to nest the back legs (left). On narrower stock, it may make better sense to arrange the pieces in a zigzag pattern (right).



Cut with the grain. Chuck an over-and-under bit in your router table and tape the template to the blank. Adjust the bit height so that the lower bearing engages the template. Start at the center and rout the right-hand end of the leg to shape.



Flip to continue. Turn the blank over and adjust the bit height so that the upper bearing engages the template. Rout the remaining end to final shape, again starting in the center. Flipping the stock ensures you're cutting with the grain as much as possible.

Cut the joinery

Cut the front and back seat rails, back rails, and center stretchers to size. Note that the lengths of the pieces worked well with the 1½" wide webbing we used for the seat and back. If you're using a different width of webbing, double-check the dimensions to be sure there is enough room for an odd number of both cross and longitudinal pieces. You can increase or decrease the width and depth of the chair by up to ½" or so as necessary. Cut the side seat rail-to-leg joints before tapering the side seat rails. Then rip them to final width, running the tapered edge along the fence. Clamp the side seat rails between the legs to get the length for the side stretchers. Then cut the stretcher-to-leg joints as well as the stretcher-to-stretcher joints, the back rail-to-leg joints, and the front and back seat rail-to-leg joints. Note, when mortising the lands on the rear legs for the stretchers, set the Domino to cut a little deeper than usual to make up for the gap that results from the legs' shape.



Gang and plunge. On one end of the side seat rails, cut the mortises ⅞" offset from the outside of the pieces. On the opposite end, offset the mortises to the inside. Ganging the pieces together when cutting adds stability.



Taper the top edge. Taper the side seat rails from finish width at the leading end to full width at the trailing end. When loading the pieces on the sled, be sure to orient them so that you are not cutting through the mortises.

Clamp and measure. Fit the legs to the side seat rails and clamp the assembly together. Measure to determine the actual length of the side stretchers. Cut the stretchers to length and mortise their ends.



Burn an inch for accuracy



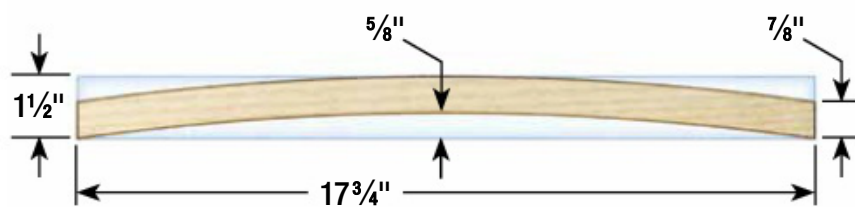
Add a contact point. When mortising the stretcher land, clamp the leg down and position a piece of scrap of the same thickness to provide a second contact point so that the Domino machine sits perpendicular to the land.

Shape, assemble, and finish

Glue up the two side assemblies individually. Cut the curves in the back rails as shown in the Back Rail Layout (below). Shape all the edges of the back rails, front and back seat rails, and center stretchers with a $\frac{3}{16}$ " roundover bit chucked into your router table. Also, round all the edges of the side assemblies. Sand everything through 220 grit. Dry clamp to ensure all fits as planned. Then glue up. Clean up any excess glue and do a final sanding. When all looks good, finish as desired. We applied a coat of Seal-A-Cell followed by two coats of Arm-R-Seal.



Back rail detail



Clamp from side to side. After final shaping and sanding, glue up the chair, clamping across all the crosspieces from side to side.

Weave the seat and back

Unlike traditional Shaker tape upholstery that wraps completely around the surfaces it covers, the webbing on this chair only covers the top of the seat and the front of the backrest. So, instead of being wrapped in long strips, it is cut into individual pieces that are stapled in place. While a manual staple gun will work, the process goes a lot better with a pneumatic model (see Buyers Guide on pg 60). Start by determining the length of the side-to-side pieces for the seat by pre-wrapping an uncut piece. (Ours were 29½" long.) Staple the front, back, and middle pieces in place. Then fill in the spaces on either side, spacing the pieces evenly. Next, determine the length of the back-to-front pieces. (Ours were 29".) Staple the middle and the two outside pieces to the back seat rail before weaving them across the seat and stapling them to the front seat rail. To conceal the staples on the side-to-side pieces across the back, the pieces need to be longer than those for the seat. (Ours were 34"). Staple these in place, twisting them initially to hide the second set of staples. Then add the vertical pieces (ours were 16" long), stapling them first to the lower back rail and then the underside of the top back rail. Have a seat and relax; you've earned it.

Over and under. Wrap the piece completely around the back seat rail before weaving it across the side-to-side pieces. The two outside pieces start by going over, while the middle piece starts by going under. Alternate the rest of the pieces as you fill in the spaces to either side.



Staple, wrap, and staple. Fold ½" of the webbing over and staple the end to the *inside* of the side seat rail. Wrap it around the rail and across the seat. Wrap it around the opposite seat rail and pull it taut as shown before stapling it home (inset).



Staple to the outside. Start attaching the back-to-front pieces by stapling them to the *outside* of the rear seat rail. Fold the ends as before to contain any fraying. Use a towel or other padding on your bench to protect the chair as you turn it to gain access.





Pull and staple. Pull the pieces taut as you wrap them around the front seat rail. Fold over the ends before stapling them in place. You may need to cut a little off the pieces that run across the center of the seat. With our webbing, we found leaving a $\frac{1}{8}$ " gap between the pieces worked well.



Twist aside. To install a side-to-side piece for the back, staple it to the *outside* of the leg. Wrap it completely around the leg and across the front of the chair. Twist it up as shown before wrapping it around the second leg. Work it as tight as possible before stapling. Then ease the twisted part down.



Staple underneath. Start the vertical pieces by folding and stapling them to the *underside* of the lower back rail. You may notice the side-to-side pieces aren't as tight as those for the seat. Don't worry; you'll take up the slack as you weave the back.



Weave and staple. Wrap the vertical pieces completely around the lower back rail, covering the staples. Weave them through the side-to-side pieces—the outside pieces start in front, and the middle one starts behind. Pull them taut around the top back rail before folding and stapling them to its *underside*. ■

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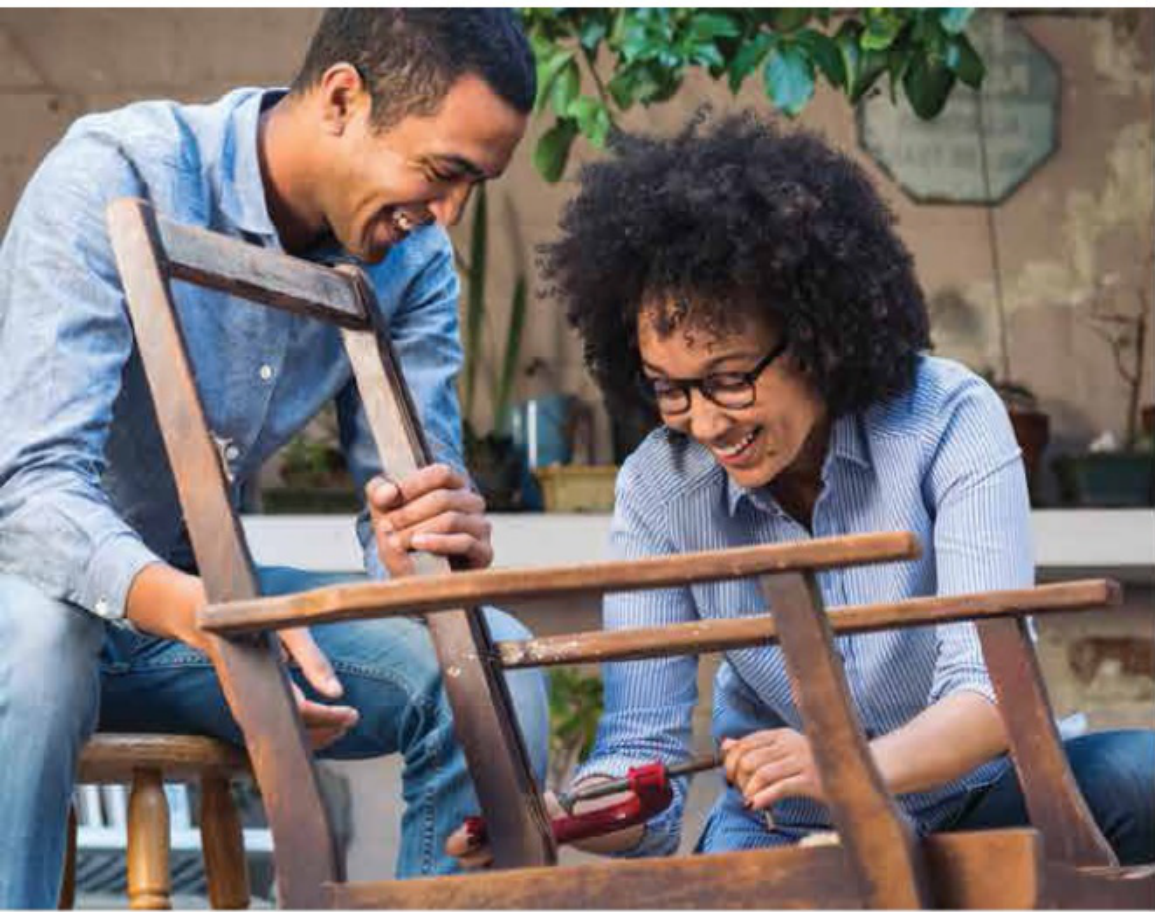
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MONKEYPOD

Tropical beauty with a funny name

By Ken Burton

Find it hard to say monkeypod without at least cracking a smile. And, contrary to the environmental concerns surrounding some tree species, monkeypod, (*Pithecellobium saman* also *Albizia saman* and *Samanea saman*) is something to smile about. Not only is the wood beautiful, but the trees it comes from are both abundant and flourishing. While somewhat expensive here in the continental United States, in many parts of the world where the trees grow, the species is treated as a utility wood, much the same way we view pine and poplar. The lumber itself runs from golden to a reddish-brown reminiscent of mahogany. Some boards exhibit dark streaks, while others can contain curl and other wild figure.

Monkeypod trees grow fast and can reach significant sizes: 100' or taller and 3-4' in diameter, so wide boards are

commonly available. The wood is very stable and highly resistant to rot and insect damage.

Where the wood comes from

While monkeypod trees are native to Central and South America, the trees have been propagated and naturalized in the tropics around the world. One story, for example, holds that in Hawaii, a businessman brought two seeds to the islands in 1847. Both of those seeds germinated, giving the tree a foothold in the islands. Today, all of the monkeypod trees in the Aloha state are alleged to be related to those two original plants. The monkeypod moniker stems from the spiral-shaped fruit pods the tree produces: its scientific name *Pithecellobium* means “monkey earring” in Greek. In other parts of the world, the species is known as raintree because the leaves tend to curl up when skies darken, allowing rainfall to pass through the canopy to the ground below.

History in woodworking

Perhaps the most famous use of monkeypod wood comes from Hawaii. Following World War II, the islands became a favored vacation destination. In response to the influx of tourists, islanders began producing a variety of carved and turned souvenir bowls as keepsakes for the masses to take home. Nearly all of these were made of monkeypod. These days, while you can still purchase a monkeypod bowl to commemorate your time in the sun, it was most likely made in the Philippines or Thailand, where labor costs are lower. Currently, with the renewed interest in live-edge furniture, makers are seeking wide monkeypod slabs for use as tables and desktops.

Working and finishing

For a basis of comparison, monkeypod is about the same weight and hardness as cherry. The grain, however, is much coarser and tends to be interlocked or “rowed.” The wood cuts well with both

Shimmery stripes. A lot of figured monkeypod features alternating darker and lighter stripes and streaks. These shimmer as light strikes the interlocked grain.



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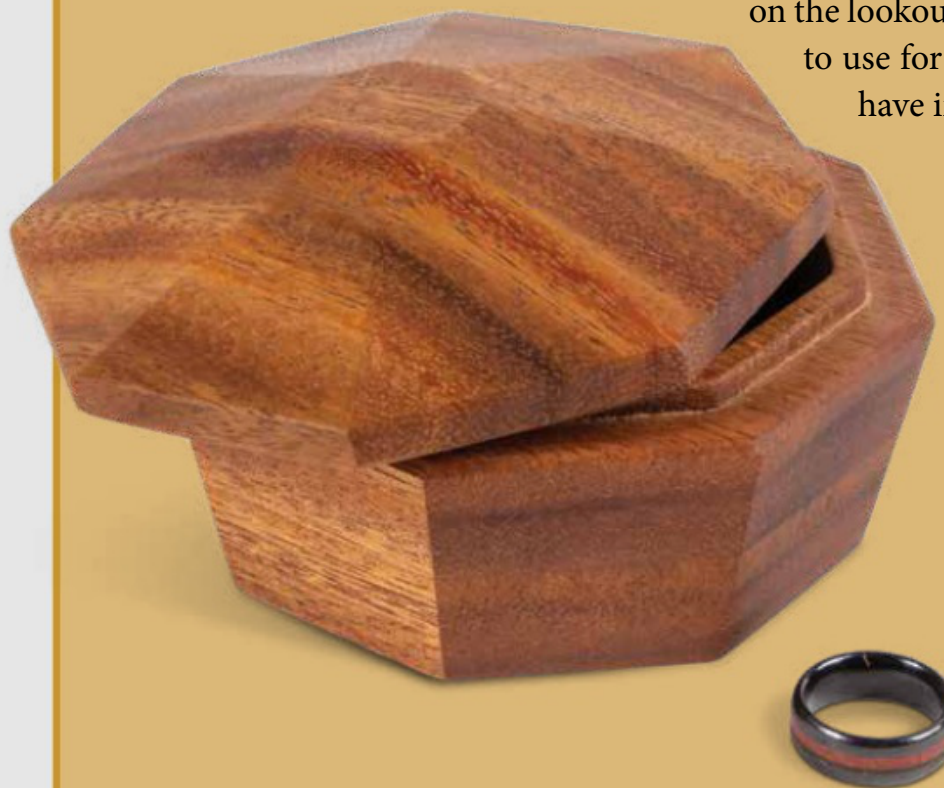
Echoes of mahogany. With its reddish-brown hue and darker pores, monkeypod is very similar in appearance to mahogany. Its creamy white sapwood can provide a nice splash of contrast.

hand and power saws, but planing and jointing can be challenging, with the surface often appearing fuzzy and tearing in places due to the variable grain direction. You'll likely find scraping and sanding yield a far superior surface than hand-planing. The rowed grain can also make hand-carving the wood daunting though it turns and power-carves well. Unlike so many other tropical species, monkeypod doesn't contain a lot of oils and resins, so it's straightforward to both glue and finish. It's typically available as solid stock in boards of various thicknesses from 4-24" wide and 8-12' long. Pricing varies from source to source, but expect to pay at least \$16-20 per board foot and much more for wider and highly-figured pieces. You can also find veneer, turning blanks, and smaller, craft-sized stock. Note that the color can vary significantly depending on where the lumber grew. Wood from Central and South America tends to be yellower than stock from the Pacific islands that skews redder.

Monkeying around to avoid tearout

Writing this column is a lot of fun. Sometimes it is revisiting old friends, and sometimes, as was the case here, it is getting to know a new species. Preparing the samples for the photos is telling in how the wood responds to surfacing. That monkeypod has rowed grain is no exaggeration. None of the surfaces on my samples could be handplaned without significant tearout. In fact, the tearout left from the initial surfacing (the boards I purchased had been milled on both sides: "S2S") was so bad that one of the samples still had small cross-grain checks even after a significant amount of prep. In preparing the stock for the box (below), I found that the best way to achieve a tear-free surface was to run the pieces on edge through the table saw, taking about a 1/16" skim cut off each face. While this worked for the relatively narrow pieces I used, for wider stock, a drum or wide belt sander would be a better bet. Other than the tearout issues (and the relative cost), I enjoyed working with monkeypod and am now

on the lookout for a nice slab to use for a coffee table I have in mind. ■



Facets, facets, facets. Despite monkeypod's ornery grain, I was able to cut the small chamfers around the box opening with a block plane. As the flats were so narrow, I think I was lucky enough to miss areas of interlocked fibers.



Monkeypod

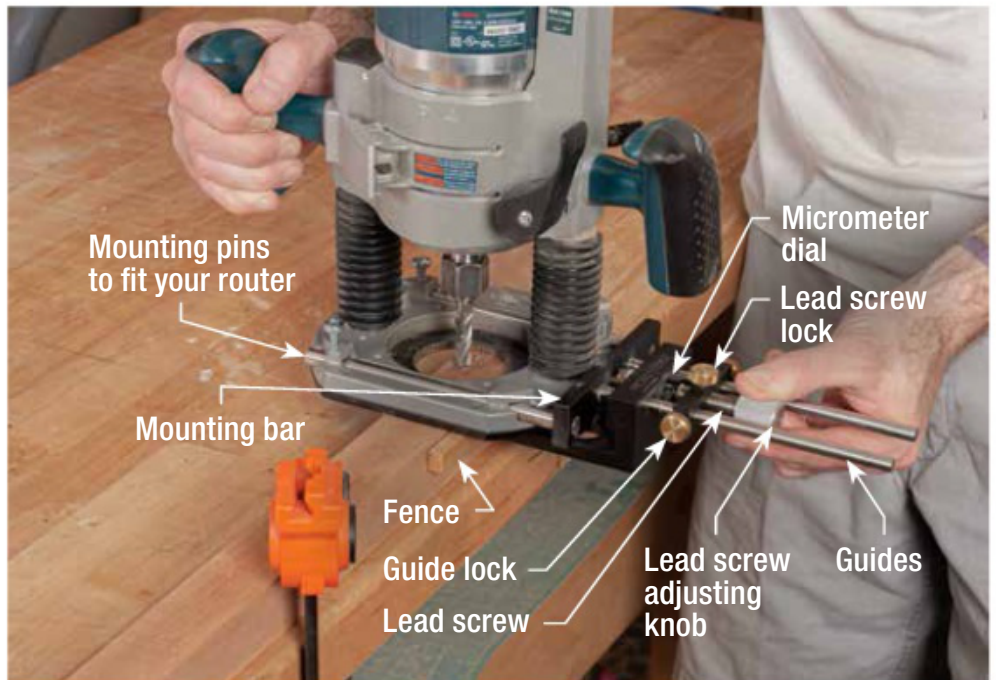
- Turnings
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Easy and accurate

While the Micro Fence Edge-Guide has been improving router functionality for 30 years, I only discovered it a year ago. The Edge-Guide is precise and impeccably machined. You specify your router model when ordering, so the appropriate pins and mounting bar come in the box for a perfect fit. It brings accuracy to nearly all hand-routing operations, especially joinery.

I use it mostly to rout mortises. Mark the center of the mortise and butt the provided fence against the workpiece. Roughly center the bit over the mortise, and lock the lead screw. Dial in dead center by turning the adjusting knob (clockwise pulls the bit toward the fence; counterclockwise pushes it away), and then lock the lead screw. The Edge-Guide also excels at cutting dados for shelves in a cabinet, say. Measure your shelf stock with a caliper, rout the dado using the Edge-Guide and an undersized bit, and then measure the dado. Subtract the difference and adjust by the thousandths with the micrometer dial. It's reliably accurate, repeatable, and a joy to use.

—Chad McClung



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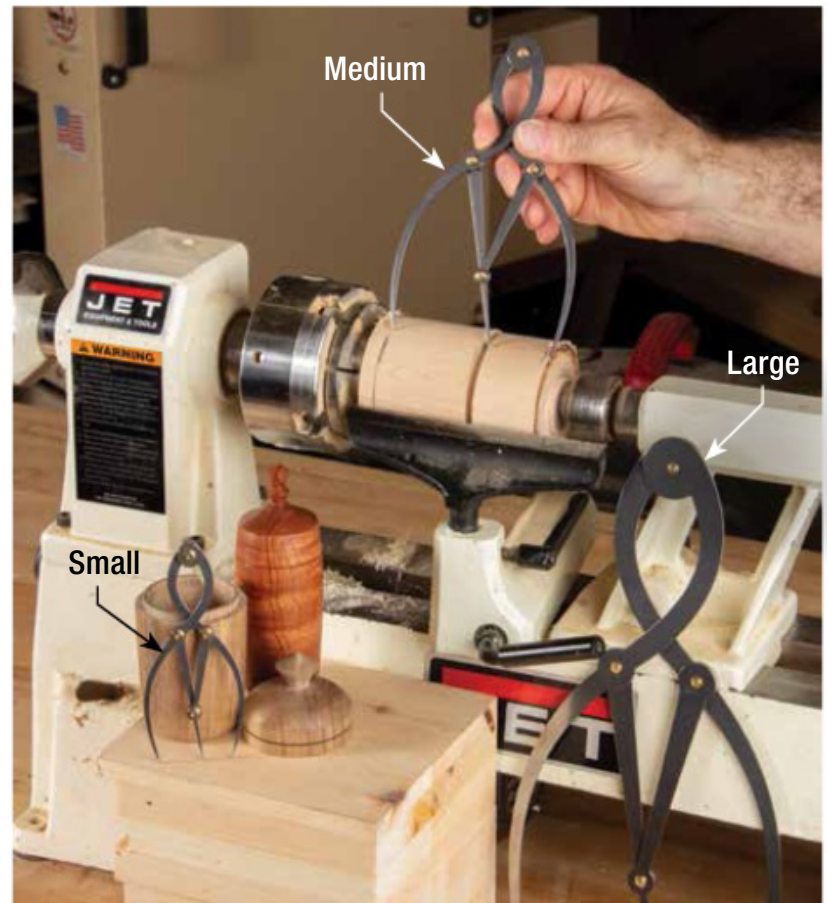
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Clever design aids

When I teach turning classes, one of the questions that comes up a lot is: “How do you make things look right proportionally?” For example, where should the dividing cut go when turning a lidded box? One good way to determine this is to use the “golden mean,” a ratio of 1:1.618 that is found frequently in nature. It’s also the basis of a number of mathematical constructs, including the Fibonacci sequence. But short of breaking out a calculator, figuring out what these measurements actually are when you’re standing at the lathe is a bit tricky. To make this a lot easier, I use this special set of calipers. Made in three sizes by New Zealand craftsman Nick Taylor, these delightful measuring instruments have three legs that move in unison. Set the outer two to the overall length of your piece, and the inner leg divides the space in between using the golden mean. Very clever, Mr. Taylor. If you struggle with proportions when designing, these calipers may help you to produce better-looking work. ■

—Ken Burton



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Tool Reviews (p. 12)

1. Triton TMNRTR Trim/Plunge Router..... #184295, **\$179.99**

Tealight Centerpiece (p. 22)

1. General Purpose Epoxy Resin, qt..... #124520A, **\$46.99**
2. System Three Slow Hardener #3, pt..... #124526, **\$29.99**

Following items available from craft stores

3. Mica powder
4. Battery-powered flicker candles
5. Glass votive jars

Shop-Made Soap Finish (p. 27)

1. Kirk's Fragrance Free Traditional Castile Bar Soap..... *kirksssoap.com*, **\$2.19**
2. Norton Non-Woven Sanding Pad #0000, 6 × 9"..... #146748A, **\$1.99**

Glass-Topped Coffee Table (p. 31)

1. Clear Rubber Bumpers, ¾" Round, 20 pc..... *amazon.com*, **\$9.97**
2. Whiteside 2715 Over-Under Flush Trim Router Bit,
7/8" D, 1½" CL, ½" SH..... #149528, **\$47.99**
3. Slate Slab, Clear Natural Cleft, ¾ × 9¼ × 26½"..... *pennbigbedslate.com*, **\$206.00**
4. Watco Black Walnut Danish Oil, qt..... #146169, **\$22.99**
5. General Finishes High Performance Water-Based Varnish, pt..... #85T61, **\$25.99**

Contemporary Dining Chair (p. 44)

1. Whiteside 2715 Over-Under Flush Trim Router Bit,
7/8" D, 1½" CL, ½" SH..... #149528, **\$47.99**
2. 1½" Heavy Cotton Webbing, 25 yds..... *countrybrookdesign.com*, **\$46.97**

Following items available from *nailegundepot.com*

3. Grex 80ADLNS 20 ga. Long Nose Staple Gun..... **\$159.00**
4. ½" 20 ga. Stainless Steel Staples 80/12..... **\$59.13**

Great Gear (p. 56)

1. Micro Fence Edge Guide..... *microfence.com*, **\$279.00**
2. Golden Mean Calipers, set of 3..... *goldenmeancalipers.com*, **\$185.00**

Items above available at Woodcraft stores, at *woodcraft.com*, or by calling (800) 225-1153, unless otherwise noted. Prices subject to change without notice.

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Bosch	<i>boschtools.com</i>	21
Carter	<i>carterproducts.com</i>	63
Connecticut Valley School of WW	<i>schoolofwoodworking.com</i>	62
E-Z LOK	<i>ezlok.com</i>	9
Freud	<i>woodcraft.com/Freud</i>	IFC
Howard	<i>howardproducts.com</i>	62
JessEm	<i>jessem.com</i>	15
JPW	<i>jpwindustries.com</i>	1
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Mercury Adhesives	<i>mercuryadhesives.com</i>	13
Microjig	<i>microjig.com</i>	7
Milescraft	<i>milescraft.com</i>	58
Next Wave	<i>nextwaveautomation.com</i>	17
Oneida	<i>oneida-air.com</i>	30, 56
PS Wood	<i>pswood.com</i>	62
Rikon	<i>rikontools.com</i>	5
Rustoleum	<i>rustoleum.com</i>	19
Satellite City	<i>caglue.com</i>	62
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Tormek	<i>tormek.com</i>	14
Triton	<i>tritontools.com</i>	30
Whiteside Machine	<i>whitesiderouterbits.com</i>	IBC
Woodcraft Franchise	<i>woodcraftfranchise.com</i>	63
Woodcraft Magazine	<i>woodcraftmagazine.com</i>	8, 43, 62
Woodcraft Supply	<i>woodcraft.com</i>	52, 61



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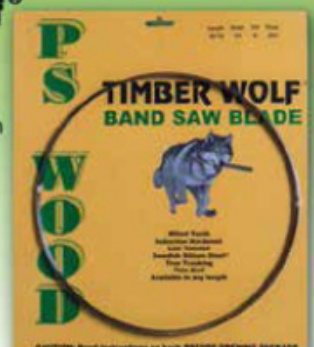


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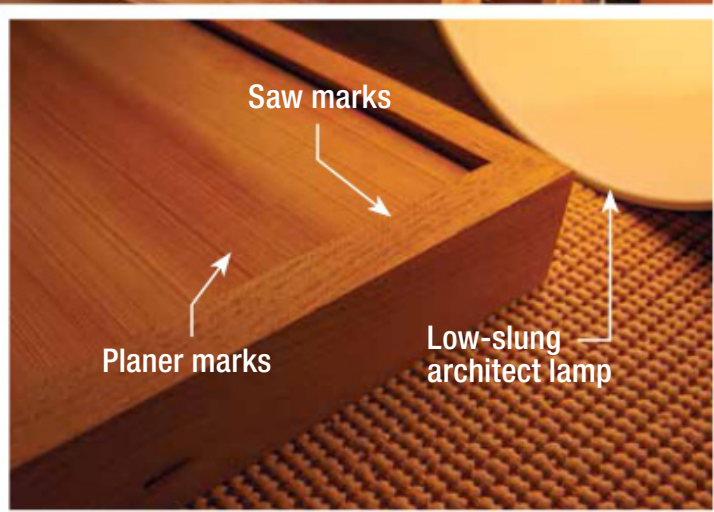
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Shedding light on hidden finishing flaws

Q: Sometimes, after I've sanded and finished a piece, I'll take it outside or into another room and notice scratches and machine marks on the surface that I didn't see as I was working in my shop. What can I do to make sure my work isn't covered in scratches waiting to surprise me in a different light?

Grady Housel
Charleston, SC



A: As we excitedly approach the “finish” line of our projects, we need to slow down and check for scratches and tool marks. But even taking our time won't do the job unless we inspect our work under light cast at a low, “raking” angle. Raking light is a critical tool in the surface preparation process. It spreads across the work, emphasizing dents and scraper/sandpaper marks, accentuating shadows, and pointing to missed spots that are difficult to see with standard room lighting. It doesn't really “highlight” trouble spots but instead “lowdarks” them with shadows. I know I just made up a word, but it works. If you are lucky enough to have windows in your workshop, you can borrow raking light in the morning as the sun rises or in the evening as it sets. If not, you can use adjustable architect lamps, which mount to the workbench in ½" holes as shown. I use three such lamps

on each bench in my shop. This set-up allows me to move the lamps around without having to fuss with unwieldy clamps or jigs, as I periodically inspect my pre-varnish surfaces. As I check over my work, I pull my lamp down to just above or next to each surface, casting light across the plane, creating shadows where there might be scratches.

Before you start applying finish to a piece, look over your work under raking light again. Be sure to pay close attention to the edges of surfaces, where most defects hide. If you find scratches or machine marks, don't try to sand them out with the finer grits. Start with your coarsest grit, spreading further out with each finer grit. Or resand the entire surface, checking it with raking light between grits. Don't be daunted, the second time will be faster, and your effort will shine through the finish.

Have a tough woodworking question?

We'll do our best to find the expert and provide the answer.

Email us at editor@woodcraftmagazine.com, and put “EXPERT ANSWERS” in the subject line.



Melenah Martin

Melenah is a luthier and owner of Martin Violins and Fine Woodworking in Baltimore, MD, where she splits her time among lutherie, furniture making, and sculpture.

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