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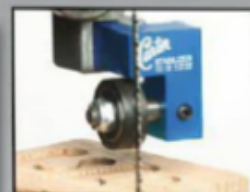
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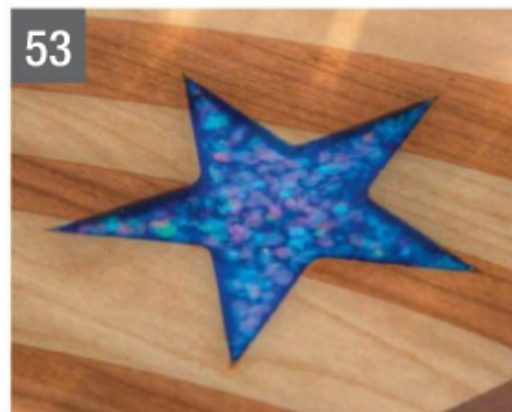
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Scott Grove has been working wood for 30 years, but he's also a talented sculptor, author, and tool designer. His work can be found in books, magazines, museums, and galleries. In addition to teaching at the Marc Adams School of Woodworking in Indiana, The Yestermorrow Design/Build School in Vermont, and the Chippendale International School of Furniture in Scotland, Scott shares woodworking tips and business advice on *ImagineGrove.com*. See Scott's offset routing and inlay techniques on pages 48 and 53.



Ken Burton has been working with wood since his father gave him a set of real tools at age six (much to his mother's dismay). In addition to his love of making, Burton also enjoys sharing his skills both as a writer and as a teacher. You can catch up with him at the FabLab in Bethlehem, PA, at Peter's Valley Craft School in NJ, or at Yestermorrow Design/Build School. Try out Ken's spun spoons technique on page 28 and read his experience working with cocobolo on page 62. ■

On the Web



The hunt is on

Visit the magazine's Facebook page to test your skills with our new Scavenger Hunt. We'll post a few questions about each new issue of the magazine. Find the answers in the issue and send them to us for your chance to win woodworking gear. Visit [Facebook.com/woodcraftmagazine](https://www.facebook.com/woodcraftmagazine) for the questions and contest rules.



Bonus content

Woodcraft's e-mail subscribers are in for a treat. Once a month, the magazine will feature highlights from our upcoming issue, share tips and videos, and bring you exclusive content. To subscribe, visit [woodcraftmagazine.com](https://www.woodcraftmagazine.com). Just scroll to the bottom of the page and enter your e-mail address.

Summer reading

Eric Gorges, host of the *Woodcraft 101* YouTube series and of the American Public Television show *A Craftsman's Legacy*, has released a new book. To find out more about Eric, and to read our review of the book, check us out [woodcraftmagazine.com](https://www.woodcraftmagazine.com). ■



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Inspiration Highway

A few years ago, my wife, two teenage daughters, and I drove across the country and back in sixteen days. No, we're not crazy. We witnessed magnificent landscapes and kitschy Americana at its finest. As we traveled Route 66 west through New Mexico, we detoured to TinkerTown. This wonderful, whimsical folk-art museum features twenty-two rooms packed with amazing miniature wood-carved figures, many animated at the push of a button. On our epic road trip, nothing captured my imagination as much as the fantastical carvings of TinkerTown creator Ross Ward. If you find yourself in the area, journey north off I-40, and enjoy the playful carved figures as they dance, perform circus acts, and gamble in a rowdy saloon.

My family and I pressed on through California, visiting San Jose to feast our eyes on an architectural spectacle like no other. Built in 1884, the beautiful, but bizarre Winchester Mystery House features some of the finest craftsmanship I've ever seen. The heir to the rifle fortune, Mrs. Sarah Winchester had at her disposal the most skilled carpenters of the day. Under her direction, these talented tradesmen constructed an eccentric mansion filled with labyrinthine pathways, doors that lead

nowhere, windows in the floor, two-inch high steps, and upside-down posts.

Of the many marvels my family experienced on that trip, I chose to share these two because of their connection to woodworking and to whet your appetite for The Wharton Esherick Museum. Contributor Rob Spiece leads us through the artist's home-turned-museum in all its delightful detail (p. 44). Along with great projects, techniques, and products, we here at the magazine hope to inspire you with fun destinations for woodworkers. This is vacation season, after all. On the pages ahead, we also profile a woodworker inspired by ax handles (p. 8) and share some of woodworking's rich history in our Famous Furniture department (p. 60).

Building projects and practicing techniques will improve your shop skills. But you can really advance your abilities by tapping into the creativity of your fellow woodworker and studying the work of those who came before. One of the best things about woodworking is the enjoyment we get from learning from others and sharing our own knowledge and ideas. So dig in, learn, and get inspired. ■

Chad McClung

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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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Here's your chance to help someone become a better woodworker and get rewarded for the effort. The winner of next issue's Top Tip award will receive a Woodcraft Gift Card worth \$250. All others will receive \$125 for a published illustrated tip or \$75 for a non-illustrated tip. Published tips become the property of *Woodcraft Magazine*.

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Important: Please include your phone number, as an editor may need to call you if your trick is considered for publication.

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:

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Submit an article idea:

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Share photos of your projects:

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Brad Smith

Maker of Farm-Fresh Furniture

For nearly 40 years, Brad Smith has made his living as an independent craftsman, cranking out a quirky line of what he calls "Farm-Fresh" Furniture. His business, Bradford Woodworking, is located about 30 miles north



of Philadelphia, Pennsylvania on a bit of property carved from what was once his father's farm. The surrounding fields have since given way to development, but Brad's place is still undeniably rural. His two shop buildings could easily be mistaken for classic old country barns, down to the saw-shaped weather vane on the top of one of the cupolas.

His spacious timber-framed main shop building is a sight to behold. The spacious structure is chock-full of lumber and a great mix of industrial and cobbled-together equipment that Brad and his assistants use to produce 400 to 500 pieces of furniture a year. On the day I visited, he had five projects underway in addition to a batch of his iconic axe handle chairs: a custom live-edge coffee table, three cabinet commissions, and an experimental circular dining table featuring blades from three dozen old hand saws embedded in epoxy. Nearly all of his work is distinctly contemporary, but with identifiable links to the past. His machinery is surprisingly low-tech, and much of it customized by Brad himself. In the back corner lurk his two axe handle lathes, ancient beasts (circa 1920) that Brad uses to crank out the legs for his chairs, stools, bedposts, and more. Despite their hair-raising, pre-OSHA appearance, Brad claims he can take someone right off the street and train them in under an hour to safely run one of the lathes. I met with Brad to see if I could get a better handle on his story.

—Ken Burton

WM: What made you choose a career in woodworking?

BS: I enjoyed my high school drafting classes, but one day my teacher took us into the wood shop to make some models. There, I found that I liked working directly with materials even better, so I took a woodworking course my senior year. (Ironically, my instructor ended up working for me several years later when he gave up teaching.) After high school, I opened a small shop doing refinishing and repair work.

WM: But didn't you also attend RIT's (Rochester Institute of Technology) School for American Craft?

BS: I found after a few years that I wasn't growing as a craftsman, and I was getting a little lonely. So, I enrolled in the furniture program at RIT to learn more about design and to meet more people. As part of my senior year, we had to choose and prepare for a specific career path: teaching, industry, or setting up an independent shop. I chose the latter and developed a line of kitchen implements to sell at craft fairs. By then, I'd also met Sandy, the woman who was to become my wife.

WM: So, you and Sandy started on the craft fair circuit?

BS: Yes. Right after I graduated in May, I was accepted into the ACC (American Craft Council) show in Rhinebeck, New York. The show was in June, so Sandy and I hustled to make enough inventory to stock the booth. We ended up taking wholesale orders for about \$16,000—several month's-worth of work—which got us started. I still do six or seven shows a year.

WM: How did you get from kitchen implements to axe handles?

BS: Having studied furniture design, I wanted to try making pieces of





Ax Handle Stool.

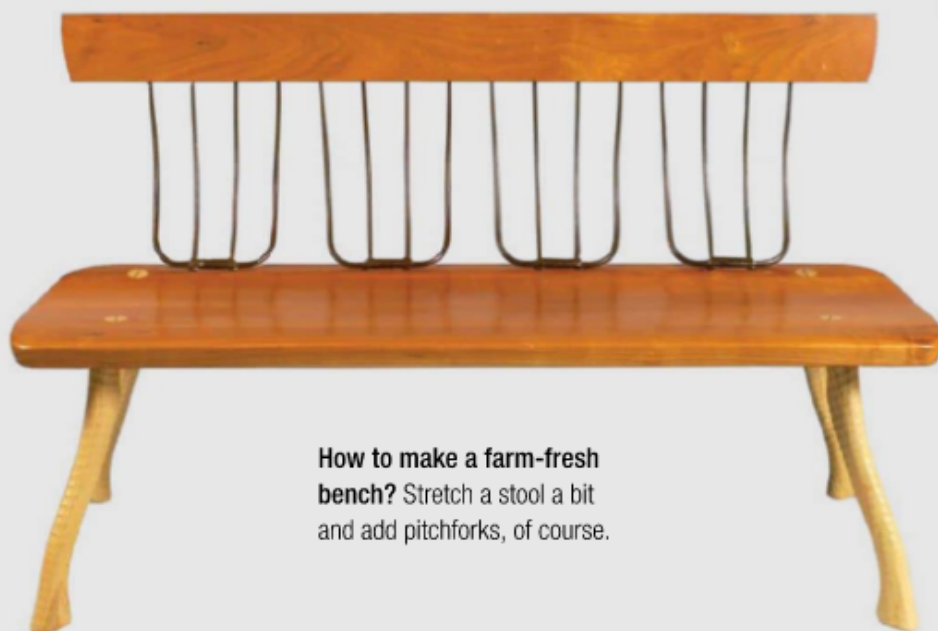
Brad and his crew crank out 300+ of these stools (and their variations) every year.

“ I love working with clients to get their input so they feel invested in “their” piece. I still get a kick out of it! ”



onlineEXTRA

See more of Brad's work on our website.



How to make a farm-fresh bench?

Stretch a stool a bit and add pitchforks, of course.

my own. I thought a stool would be a good place to start...who doesn't need a stool? To keep costs down, I decided to buy the legs. My original thought was that a sledgehammer handle would make a nice stool leg. I went to the Thomas Registry (this

was pre-Google) and found a place an hour away that made tool handles. When I got there, however, I saw a cart load of axe handles...

WM: But now you own the lathes to make your own handles?

BS: That's right. After the first few batches, the owner didn't have time to make handles for me anymore (mine used different wood than his stock handles). But he allowed me to use his equipment. Eventually, he got out of the handle business entirely, and sold me the two lathes I still use today.

WM: And the rest is history?

BS: Those lathes helped me to make some truly unique pieces that no one else can achieve. That gave me an edge.

WM: What advice would you offer someone interested in selling at craft fairs?

BS: A couple things: First, you have to make do with a hundred compliments before you actually make a sale. Also, keep in mind that you'll be competing against thousands of people doing for fun what you do for a living. Woodworking is a great hobby, but a tough way to make money.

WM: Is retirement on the horizon?

BS: What else would I do? I love making furniture, I'm still physically able to do it, and I'm not really a sit-around kind of guy. Plus, I love working with clients to get their input so they feel invested in "their" piece. I still get a kick out of it! ■



Handling the lathe. Here, Brad sets up to shape a leg on an antique (but fully functional) axe handle lathe.

Enter the Esherick Exhibition!

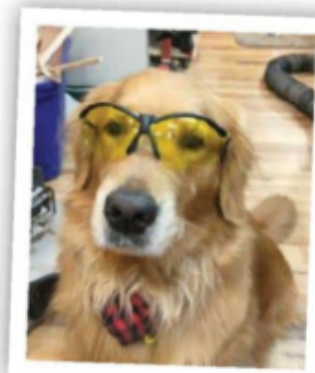
Wharton Esherick (1887-1970) pioneered the studio furniture movement, blazing a creative trail for the likes of Sam Maloof, Wendell Castle, and George Nakashima. His whimsical, free-flowing style continues to inspire makers of all kinds, especially those

lucky enough to visit the Wharton Esherick Museum (see p. 44). Every year, Esherick's legacy sees fresh expression in a juried woodworking exhibition that takes place at the museum. The theme for this year's show is "Lighting." The submission deadline is July 1, and the exhibition will open in early September. Cash prizes (including a student prize) are awarded for winning entries, which are then displayed at the museum. For detailed entry information, click on the "Programs & Exhibitions" tab at the museum website (whartonesherickmuseum.org).



Bella the therapy dog

I enjoyed Tim' Snyder's article on shop dogs in the Feb/Mar 2019 issue and wanted to share a picture of my pooch. Bella is a 3-year-old golden retriever and a registered therapy dog. I trained her to visit nursing homes, schools, hospitals, where ever she's needed. But her favorite place is by my side in my home shop. This pup makes my day, every day.
—Randall Pallister,
via email



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A match made in cherry

I completed the body of a cherry jewelry box a couple of years ago, and am now making the lid. Is there some way to correct the dramatic color difference between the aged and fresh cherry?

—Jim Ditzler, Wooster, OH

Senior editor Paul Anthony replies:

You could play around with dyes or toners on the fresh cherry to try to make it match its tanned partner, but waiting out the wood's natural change is a better option if you can afford the time. Depending on the color difference, it may take anywhere from a couple of months to a year or so for the color to even out, but it will. Cherry's coloring has a definite "end point" that both pieces will eventually reach. If you like, you can hasten the process by placing the finished box in a sunlit area, rotating it as necessary to best effect.



For more info on cherry, see WoodSense: Spotlight on Cherry, Oct/Nov 2015, Issue 67, p. 70.

Spray safe

What does Tom Monahan do differently that allows him to spray without a booth, gloves, goggles, and a respirator (Paint like a Pro, Feb/Mar 2019)?

—Jim Rikken, via email

Chief editor Chad McClung replies:

Safety gear is always a smart move. We should have been more diligent about showing proper safety procedures. Thanks for keeping us honest. ■



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Reader Gallery

Welcome to our new reader gallery. We'll use this space to showcase what you're up to. Whether you build one of our projects as shown, or use them as inspiration to create something new, we want to see it. See below for details on how to share your work. Enjoy!



DAVID MORMAN, VIA EMAIL

Same technique, new look. Using red oak, Morman modified the *Dynamite Dining Table, Done Easy* from issue 78 (Aug/Sept 2017) to make this glass-topped hall table.



GEORGE MANSFIELD, SPICEWOOD, TEXAS

Black walnut duo. Mansfield built the *Tiny Treasure Box* from issue 83 (June/July 2017) using black walnut and curly maple. The dulcimer from *Make a Mountain Dulcimer* in issue 80 (Dec/Jan 2018) was made using black walnut for the soundbox and fret board, and poplar for the soundboard.

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DAVID DONALDSON, ANCHORAGE, ALASKA

Dynamo drummer. Donaldson modified the *Dynamo Men Lamp*, issue 74 (Dec/Jan 2017) to immortalize his son's band. ■

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Read this issue closely to answer the following questions.

1. What wood species did Wharton Esherick use to build his famous spiral staircase?
2. Who teaches at the Yestermorrow Design/Build School in Vermont?
3. What would have been John Belushi's favorite article?

Go to our Facebook page for instructions on how to win.

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Simple slab solution

Woodpeckers Slab Flattening Mill

Woodworkers revel in building live-edged furniture, and for good reason: The finished piece can be striking, and it makes great use of wild-looking slabs. But there's a catch. Before utilizing wide stock, it needs to be milled, and most small-shop machinery can only accommodate stock up to 12"-wide. Woodpeckers' Slab Flattening Mill is the newest, fastest route to flat. Partner the mill with a 2¼ HP (or larger) router, a spoilboard bit, and a large flat work surface, and any woodworker can quickly surface slabs and other wide planks that would otherwise require professional-sized machinery.

Assembling the mill is straightforward, but it took me a few hours to work my

way through the bags of parts. Once assembled, using the mill is a cinch. Attach the aluminum guide rails to your work surface, then level your workpiece with riser boards or wedges, and secure it with the provided clamping dogs. Next, set the carriage and router base assemblies on the guide rails, adjust the bit for a light cut (about ⅛"), and then slide the router back-and-forth over the workpiece.

Thanks to a few strips of super-slick UHMW tape the router base assembly slides smoothly on the V-shaped carriage rails, that in turn, glide across the guide rails. With a spoilboard bit, the jig's smooth sliding action left a flat, tearout-free surface. The slab required additional sanding, but not that much.



onlineEXTRA

To watch this mill in action, go to www.woodcraftmagazine.com.

My issues with the mill are minor. First, the system lacks height control. To set the stock within the narrow cutting range of the bit, you'll need a healthy supply of riser boards. Second, milling is messy. Using a router with integral dust collection will help, but only so much. (It wasn't ready in time for my review, but Woodpeckers now offers a dust shroud upgrade for \$90.)

This system isn't cheap, but it can be a smart shared investment for a maker space, a woodworking club, or a group of woodworkers with a common interest in slab projects.

—Tester, Joe Hurst-Wajszczuk ■

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TANOS Mobile Workshop





Overview

- Basic kit: (2) 72" guide rails, (2) 48" carriage rails, router base, 4 clamping dogs
- Maximum slab capacity 38 x 57" (Extra rails sold separately.)
- Requires 2 1/4" HP router, spoilboard surfacing bit, plywood or MDF base
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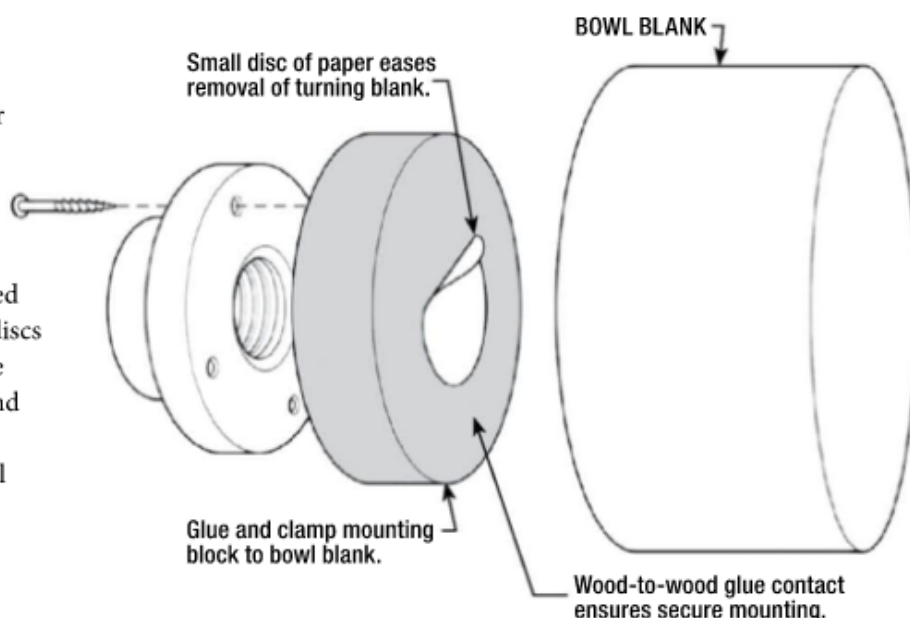
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TOP TIP

Better faceplate mounting

When I started turning years ago, I learned to glue a piece of standard paper (about .004" thick) between my bowl blank and the mounting block for easy separation of the finished piece. Unfortunately, I found that the technique worked a little too well, often releasing the bowl before I was ready to dismount it. I soon realized that the solution was to cut the paper discs about 1¼" smaller in diameter than the mounting block. This leaves a solid band of glued wood-to-wood contact at the perimeter of the block to keep the bowl solidly attached during turning. When I'm ready to remove it, I use a parting tool to cut into the seam down to the paper. At that point, a bump with the heel of a hand will pop the bowl free.

—Ken Burton, New Tripoli, Pennsylvania



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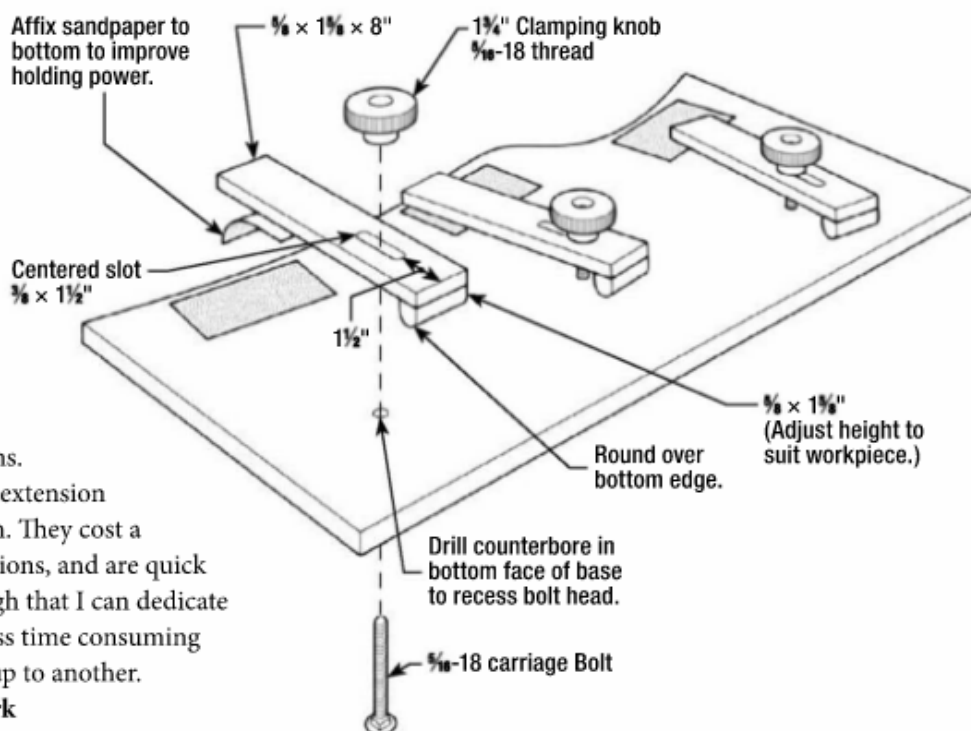
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Telescoping hold-down

Hold-down clamps are an effective way to secure work in process, as when pattern routing the flag cutting board on page 48. Unfortunately, most commercial hold-downs are restricted to a fairly limited reach. If the sizes of the workpieces vary, you need to remove and reposition a clamp in another jig mounting hole. Not wanting to turn my templates into Swiss cheese or waste time rearranging clamps, I make my own wooden versions. These include long slots that allow easy extension or retraction to increase or reduce reach. They cost a fraction of the price of commercial versions, and are quick and easy to produce. I have made enough that I can dedicate a batch to any particular jig, which is less time consuming than switching them out from one set-up to another.

—Scott Grove, Canandaigua, New York



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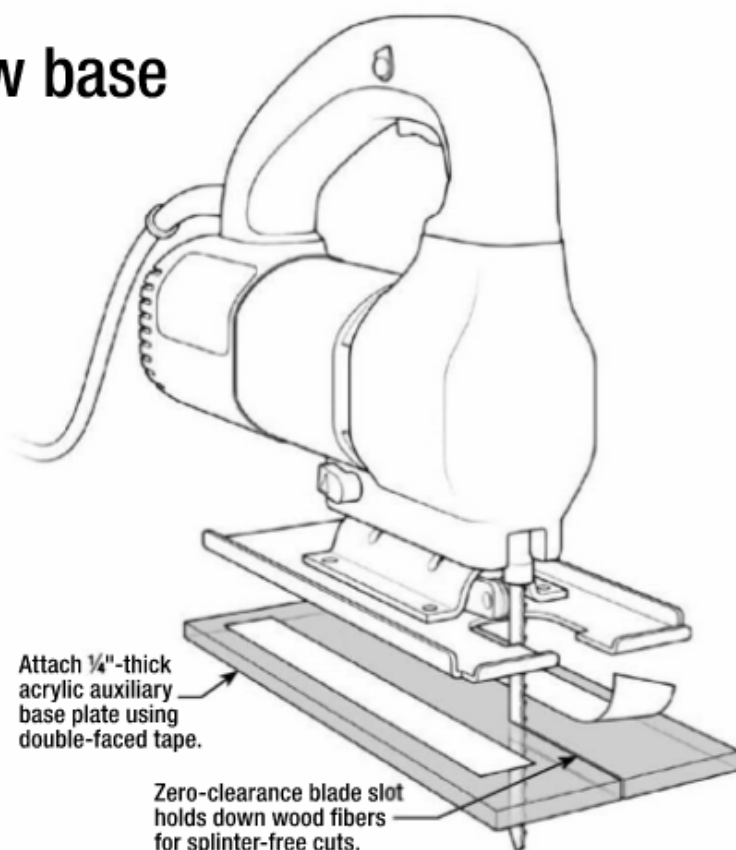
twists and mill marks are machined away leaving a flat, smooth surface that needs only light sanding afterwards.

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Zero-clearance jigsaw base

Some jigsaw manufacturers offer zero-clearance inserts that pop into place in a saw's base to hug the blade, minimizing tearout by holding down wood fibers at the edge of the saw kerf. If a commercial version isn't available for your particular saw model, you can make an auxiliary base plate with a zero-clearance blade slot to do the same job. Begin by cutting a piece of $\frac{1}{4}$ "-thick clear acrylic or polycarbonate to roughly the size of your tool's base plate. Then lay out and saw a blade slot using the bandsaw or your jigsaw, lightly sanding away any melted plastic burrs at the edges afterward. Attach the new plate to the bottom of your saw with double-faced tape, and you're good to go for splinter-free cuts. When making my base plate, I took the opportunity to extend it $\frac{1}{2}$ " forward of the existing base to provide more workpiece contact when starting a cut.

—Andy Rae, Asheville, North Carolina



Hardite Pen Kits

Hardite™ Plating is a new rich, smoky bronze-gold color option for some Wall Street II, Wall Street III and Cigar Pen Kits available at Woodcraft. More durable than titanium, the Hardite Plating is paired here in some kits with gunmetal, either as the primary color or as an accessory color.

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61626/64314 close

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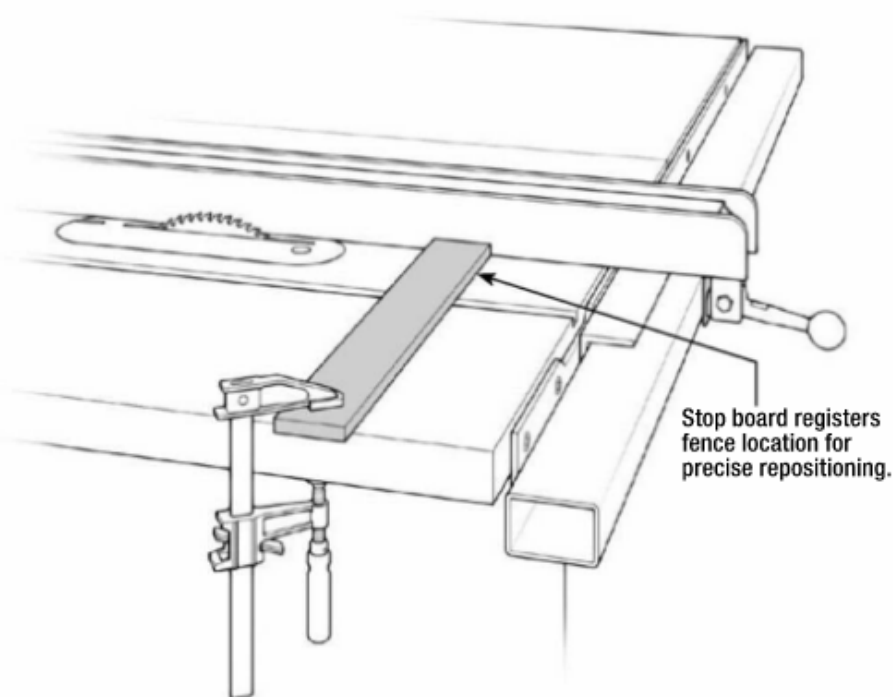
ITEM 64444/64445 close

64863886

Quick rip fence reset

There are times when your table saw rip fence is precisely positioned for a job, but sitting atop your throat plate when you need to change blades or perhaps adjust the width of a dado head. To save yourself the hassle of fussing a displaced fence back into position afterward, simply butt the end of a board against it and then clamp the board to your saw table before moving the fence. When done with the blade change, slide the fence against the board, lock it down, remove the board, and you are exactly back in action.

—Quinn Jackman,
St. Charles, Missouri



Piloting a Forstner bit

When drilling out a salt shaker interior on the lathe recently, I was having trouble keeping the Forstner bit traveling on center. I wondered if the old metal-working trick of drilling a large hole by starting with a smaller one might help. Sure enough, a 1/8"-diameter hole drilled though the axis of my shaker blank was enough to guide the tip on the Forstner bit to keep it on track.

—Ben Kerr,
Minneapolis, Minnesota

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SPUN SPOONS

Stir up some fun on the lathe!

By Ken Burton

Sometimes it's fun to get away from the rigors and complexity of multi-piece projects, and make something kind of off-the-cuff from a single bit of wood. I find that making a wooden spoon or two fills this need for instant gratification in the shop. Plus, the finished pieces make excellent gifts for the cooks in my life. While there are many ways to make a wooden spoon, I prefer to turn the handle and the basic shape of the bowl on the lathe, which creates a distinctive looking utensil. Once the handle is complete, I finish shaping the outside of the bowl with a stationary belt sander, and hollow the inside with a carving gouge. A little sanding on the drill press and a soak in mineral oil complete the job. It usually doesn't take me more than an hour or so of fun to crank out a spoon.



Order of Work

- Rough-cut the shape.
- Turn the handle and bowl profile.
- Shape the outside of the bowl.
- Hollow the inside of the bowl.
- Refine the shape, and polish.

Rough out the shape

Start with a piece of 4/4 stock about 2½" wide and 1" longer than your desired finished size. No need to surface it. Draw two lines along the length of the piece, leaving a 1" strip up the middle. Draw a third line across the blank ¾" from one end and a fourth one about 3½" from that same end. Sketch in the lines that define the bowl profile. Cut along the layout lines on the band saw. Also bandsaw shallow crosshairs on each end of the blank as shown.

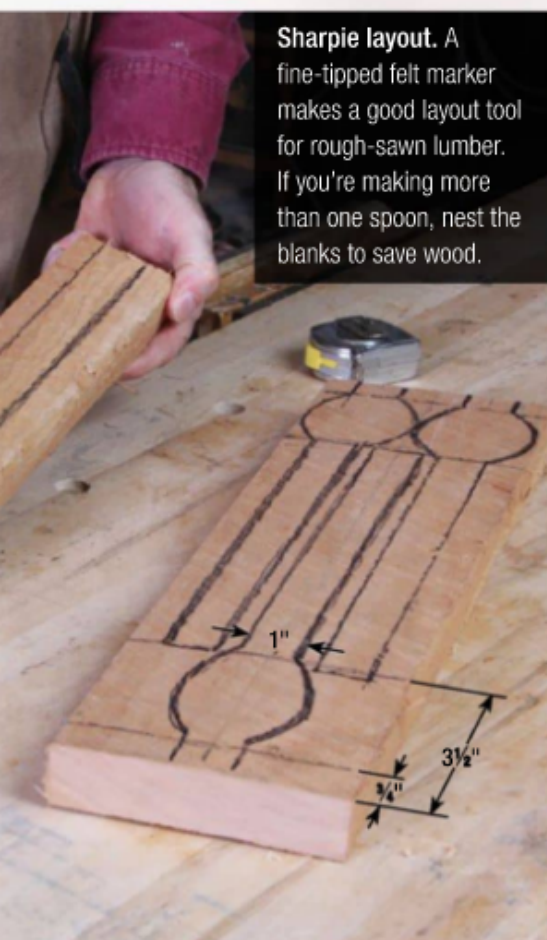
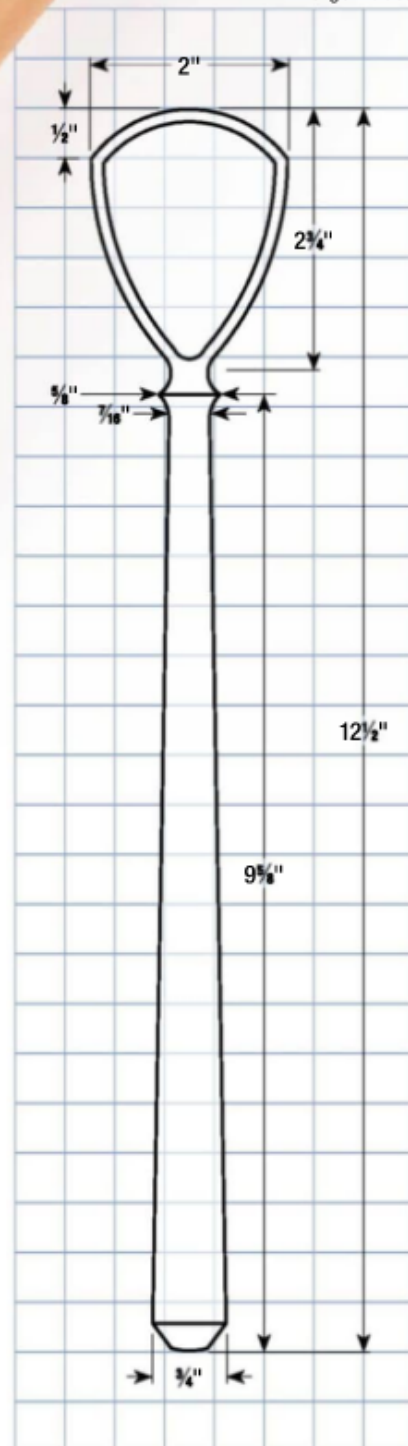
Spoons of Every Size

One of the great things about wooden spoons is that you can make them nearly any size. I've made some really big ones that see regular use mixing bread dough and stirring kettles full of tomato sauce. But I've also turned out diminutive versions perfect for adding a pinch of salt or measuring out loose-leaf tea. My typical spoons are about 12" long and 2" to 2½" wide—usually made from 4/4 stock. While almost any hardwood will work, I prefer finer-grained species such as cherry or maple. I've also had good results with some of the exotics such as goncalo alves and jatoba.





1 square = 1/2"
Enlarge 200%



Sharpie layout. A fine-tipped felt marker makes a good layout tool for rough-sawn lumber. If you're making more than one spoon, nest the blanks to save wood.



Crosshair kerfs. Two shallow intersecting band saw cuts create a centered target for the spurs on your lathe's drive center.

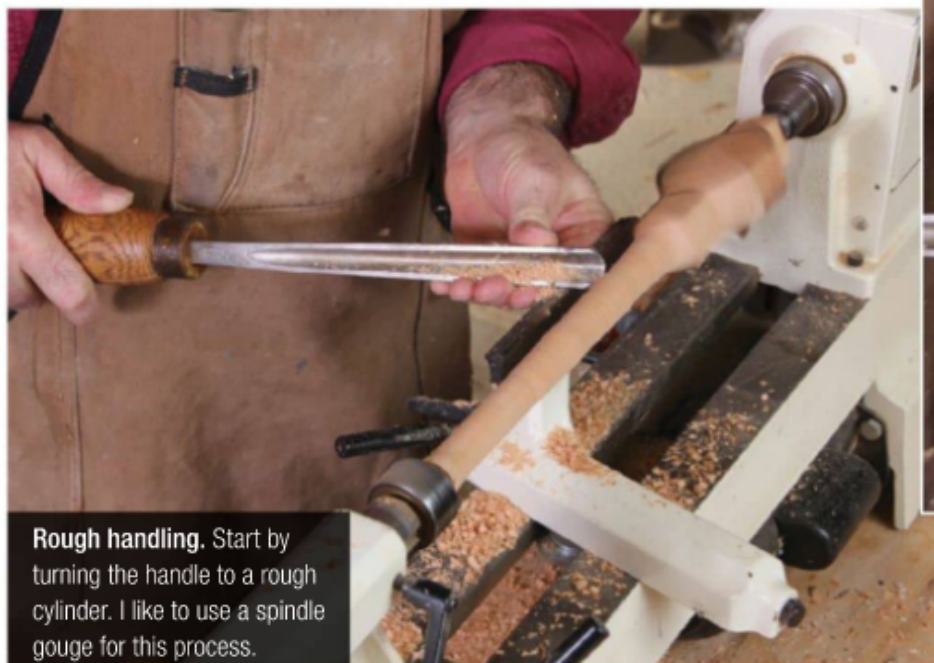


onlineEXTRA

Go to woodcraftmagazine.com
for two full-sized spoon patterns.

Turn the handle

Mount the blank between lathe centers with the bowl end toward the headstock. Then turn the handle to a cylinder. If you started with 4/4 stock, you'll end up with about a 3/4"-diameter handle at this point. Shift the tool rest toward the headstock, and turn the bowl to rough shape, which will bring its bandsawn edges into smooth symmetry. Also turn the little nub at the headstock end round. Once the bowl is roughed out, turn the handle to its final shape and sand it on the lathe. You'll sand the bowl later, after shaping it.



Rough handling. Start by turning the handle to a rough cylinder. I like to use a spindle gouge for this process.

Shape the bowl

Dismount the spoon and then bandsaw the nub from the end of the bowl. Round the outside of the bowl on a stationary belt sander as shown. The trick is to contour it smoothly both across its width and along its length. Until you have a few spoons under your belt, you may find it helpful to keep a commercial serving spoon on hand for comparison. Stop frequently to inspect your progress from various angles. I usually employ an 80-grit belt for this aggressive shaping.

To scoop out the inside of the bowl, hold the spoon in a vise and carve away the waste with a gouge. I typically use a bent #9 x 18mm gouge for the job. As you get deeper, you'll find that cutting from the rim into the center of the bowl yields the smoothest cuts. When you are satisfied with the shape, chuck a sanding mop in the drill press and finish-sand the back of the spoon, fairing the facets while removing the belt sander scratches. Switch to a round or wave sander to remove the gouge marks on the inside of the bowl. After machine-sanding, wet the spoon to raise the grain, and then give it a final hand sanding when dry. Finally, soak it in mineral oil for a food-safe finish. ■



Sanding spin. Press the bowl against the sanding belt as you spin the handle with your fingers. Spinning the handle shapes the bowl from side to side, while varying the handle angle shapes it end to end. To shape the part of the bowl nearest the handle, rotate the spoon downward toward a more horizontal orientation (inset).





Bowl in a blur. Due to some mid-air cutting, it can be hard to discern the bowl-shaping, so stop the lathe frequently to monitor your progress (inset). Make sure you ultimately remove all the bandsaw marks from the edges.



Handle with care. Finesse the handle into its final shape. For a typical spoon, I turn the smallest section down to about $\frac{7}{16}$ " in diameter, and the largest to about $\frac{5}{8}$ ".



Secure adjustability. The pivoting, padded jaws on this patternmaker's vise hold a spoon securely as you carve out the bowl. The vise elevates the work to a comfortable height and pivots to position the spoon for optimal cutting attack.

Urethane pads



Mop-up work. A 120-grit sanding mop does quick clean-up on the outside of the bowl, removing the belt-sander scratches and fairing the curves.

Concave sanding. I use an inflatable round sander to smooth the insides of my spoons, working my way up from 60 to 220 grit. A wave sanding pad will also do a good job.



Smooth operators. Useful accessories for sanding spoons include (left to right) a wave sanding pad, a sanding mop, and an inflatable round sander.



Buyer's Guide

See page 70 for a list of the tools used in this article.

How **GOOD** is Plastic **WOOD**?

You can build your next project with lumber that will never decay, crack, warp, or need finishing.

By Asa Christiana

Three years ago I resurfaced my deck with composite boards made from recycled plastic and wood dust. Although I live in the rainy Northwest, a giant Petri dish for moss and mold, the deck still looks as good as the day I installed it. And the only maintenance I've done is a yearly scrub with soap and water.

That got me thinking about using synthetic lumber for other outdoor projects. It took a while, but I tried out the main types of plastic lumber shown here—everything from decking boards skinned with faux wood grain to lightweight PVC trim boards and bright-colored solid plastic stock. All of these varieties offer the advantage of excellent durability under tough outdoor conditions. Plastic lumber will continue to look great while real wood will show

signs of damage from moisture, mold, sunlight, and insects. And there's more good news too: You can build almost anything with plastic lumber, using the same power and hand tools you already own. But there are important considerations you'll need to make when switching from real wood to plastic. I'll go over some useful tips about cutting, shaping, and joining the material.

Even though plastic lumber is made almost entirely from bottles, bags, and other products rescued from the waste stream, it's expensive to manufacture. Those costs are passed on to end-users, as you can see in the prices listed here. It's also important to note that plastic boards are typically sold in long lengths. This can be an advantage if you're building a deck, and picking up your

material from a local supplier. But if you want small orders or shorter material shipped to you, it can be challenging to find a supplier. See the Buyer's Guide on p. 70 for some recommendations.



fastFACTS

- All plastic lumber except for PVC is made with 95% recycled material.
- Most plastic lumber is warrantied against weather damage for 20+ years.
- PVC boards can be glued with special adhesive, but glues won't work on other types of plastic lumber.
- Changes in temperature cause plastic lumber to expand and contract.

Polyvinyl Chloride (PVC)

\$3.75 - \$5.63/bd. ft.

(\$30 - \$45 for 1" x 6" x 16')

- Sold in sheets and as 3/4"-thick trim boards. PVC fencing, railing, and decking are also available.
- Trim and sheet stock are available in white only, but these materials can be painted.
- Can be glued using special PVC adhesive.
- More flexible than other types of plastic lumber.
- Available at lumber yards and home centers.

BEST USE: weatherproof trim and cladding



Plastic-capped decking boards

\$5.00 - \$8.75/bd. ft.

(\$40 - \$70 for 1" × 6" × 16')

- Composite core (recycled plastic and wood dust), with wood-grain cap that protects core from wear, weathering, and mildew.
- Most common dimension is 1 × 5½".
- Many boards come with grooved edges for use with hidden deck fasteners.
- Many wood tones available. Premium decking looks like real wood.
- Available at home centers and building supply stores, and by special order.

BEST USE: decking and projects that don't require exposed ends or cut edges



Uncapped composite decking

\$6.25 - \$8.12/bd. ft.

(\$50 - \$65 for 1" × 6" × 16')

- Made from a blend of recycled high-density polyethylene (HDPE) and wood dust/fibers.
- Most boards have a textured surface to simulate wood grain.
- Boards are available in common dimension lumber sizes, and in different wood tones.
- Surface will show slight weathering with age.
- Has the same composition through and through.
- Slightly stiffer than HDPE plastic lumber.
- Available by special order from home centers and building supply stores.

BEST USE: decking, outdoor railings, and outdoor furniture



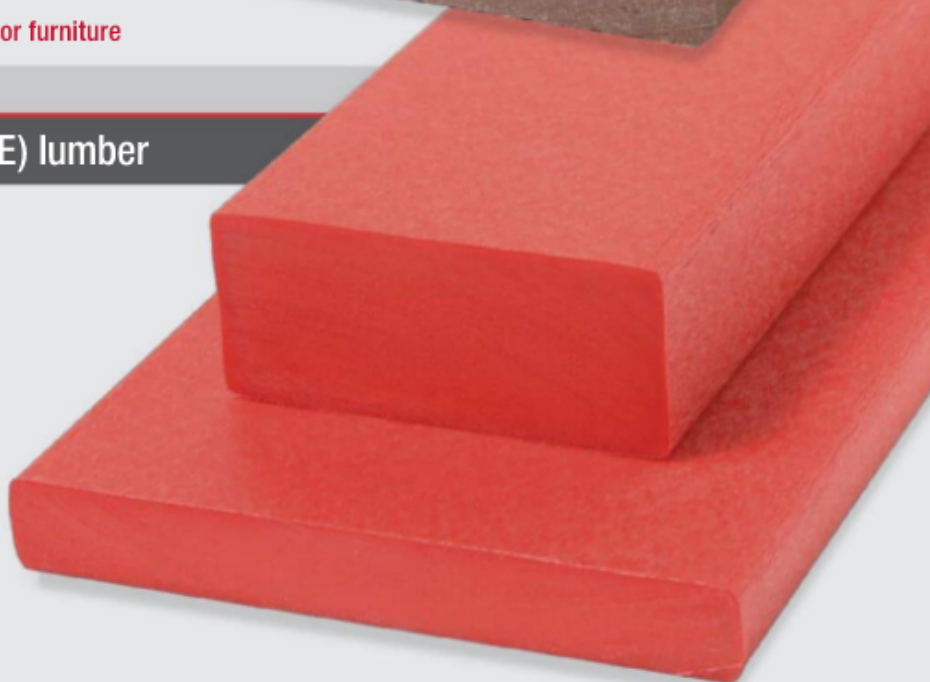
High-Density Polyethylene (HDPE) lumber

\$6.88 - \$8.12/bd. ft.

(\$55 - \$65 for 1" × 6" × 16')

- Sold mostly for commercial use in outdoor furniture, docks, and boardwalks.
- Available in many colors (with UV blockers added to minimize fading).
- Has the same composition and color through and through.
- Lighter than wood-plastic composites.
- More slippery than other plastic lumber.
- Available by special order

BEST USE: outdoor furniture



Tips for tackling plastic lumber projects

All types of plastic lumber can be worked with most of the same tools you use for woodworking, including (surprisingly) hand and power planes. Sandpaper will clog quickly,

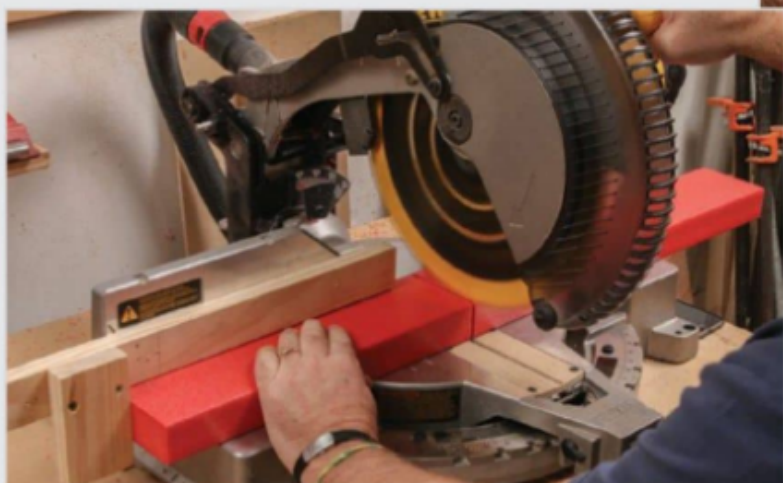
so edge-shaping should be done with a mill file, plane, or router.

PVC boards can be joined together with special adhesive, but all other plastic lumber can't be glued. So

you'll need to join parts with screws or through-bolted connections.

Plastic lumber expands and contracts in reaction to temperature changes. Movement and strength issues should

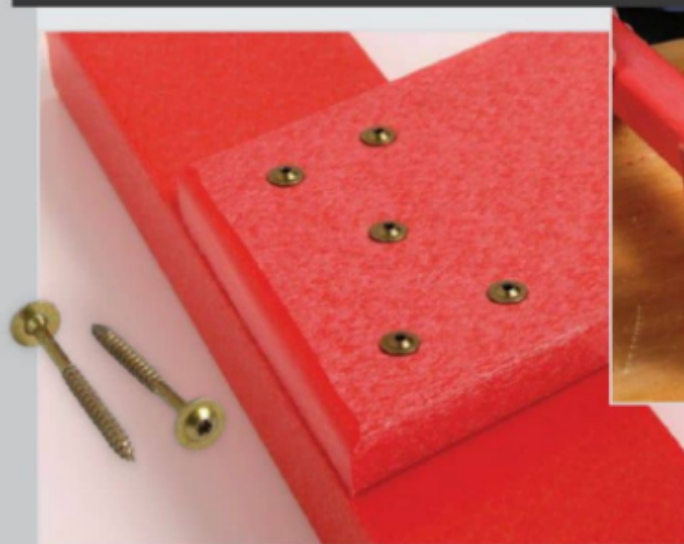
Cutting and Routing



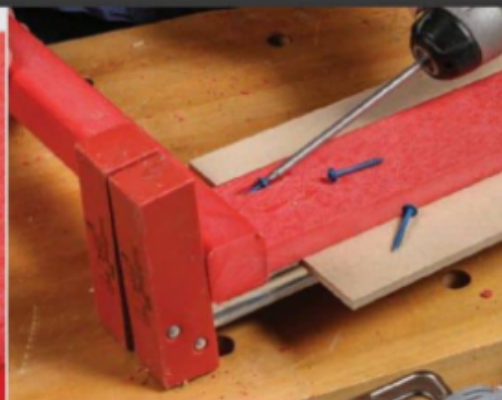
Smooth and safe. Cut plastic lumber with the same blades you use for wood. It's dense like MDF, but easier on cutting edges.



Joining with Screws and Hardware

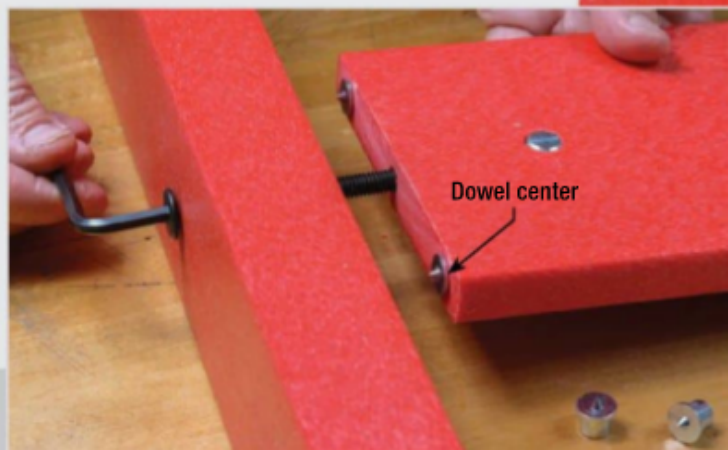


Cabinet screws for solid connections. A low-profile head with an integral washer makes these screws ideal for basic joinery, like butt joints. To avoid splitting, keep screws at least $\frac{3}{4}$ " from a board's edge, and drill clearance holes in the top board. Pilot holes in the base board aren't necessary with these screws, because they have self-drilling tips.



Clamp carefully.

Pocket hole joinery works well in plastic lumber, but slick surfaces can easily slip out of alignment. For accurate connections, make sure your parts are secured with clamps before driving screws.



Plugging Holes

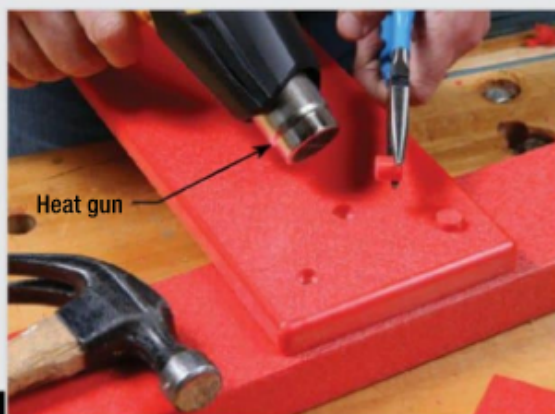
factor into the design of a plastic wood project (see Design Tips below). The cutting, shaping, and joinery details shown here will come in handy if you're building with plastic lumber. ■

Rout it like real wood.

Since plastic lumber lacks grain structure, you can rout without worrying about tearout. To complete more detailed profiles, creep up on the final shape in a series of progressively deeper cuts, as you would with a medium-dense wood like oak.

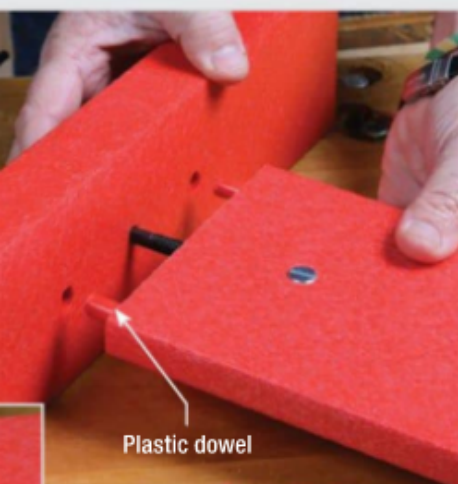


Plastic plugs. Make short plastic dowels with a plug-cutting bit, then cut them free. Use the dowels in cross-barrel joints (facing page), or to hide counterbored or pocket screws.



Hide holes with a heat gun.

Press plugs into place after heating the plug and the hole with a heat gun. No glue is necessary; just make sure both parts have been softened slightly before pressing a plug into place. Once the surface has cooled, trim the plugs slightly proud with a sharp knife, and then plane them flush.



Plastic dowel

Take advantage of special hardware.

For post-rail connections, cross-barrel fittings can be combined with plastic dowels to make strong, attractive joints. Use steel dowel centers as shown at left to mark plastic dowel locations as you close the joint.



Design Tips

- Plan to join parts together with bolts or screws.
- Test your design for flex. Plastic decking is designed for joists spaced on 16" or 24" centers. But for furniture like benches and tables, it's smart to mock up supports and make sure your stock won't deflect excessively under anticipated loads.
- Exploit the flexibility of plastic lumber. You can design projects with curved parts. Heating will increase plastic lumber's flexibility.
- For boards with trapped ends, leave a $\frac{1}{16}$ " gap for every 4' of length.



Storage OTTOMAN

A footstool, seat, table, and storage unit, all in one attractive li'l package

By Paul Anthony

My good half recently decided that she wanted a storage ottoman for our living room. I wasn't aware of this particular furniture configuration until she pointed out the hundreds of versions available online. Turns out storage ottomans are all the rage these days, and for good reason. They provide a place to prop tired feet, sure, but they also offer convenient occasional seating, as well as a place to tuck couch blankets, pillows, or books out of sight but close at hand. Some

can even convert into small coffee tables. Sizing typically ranges from a diminutive 15" height to a lofty 22" or so. And designs include everything from cheap collapsible units and fully upholstered pieces to wood versions that tend toward industrial and contemporary "crate-wood" styling.

I wanted something with class and full functionality. After a bit of head scratching and pencil sketching, I came up with this version, which incorporates everything I desired. Being an approximate 17"

cube, it's a good size for both propping feet and taking a seat, while maintaining a small footprint and minimal weight for easy placement and maneuverability. The top lifts off for access to the interior, and removing the cushion creates a small table. I made the framework from walnut, veneering $\frac{1}{2}$ "-thick, shop-grade birch panels with maple on the sides and walnut on the lid. Whatever woods you choose, I recommend $\frac{1}{16}$ "-thick veneer for the lid for durability as a table top.

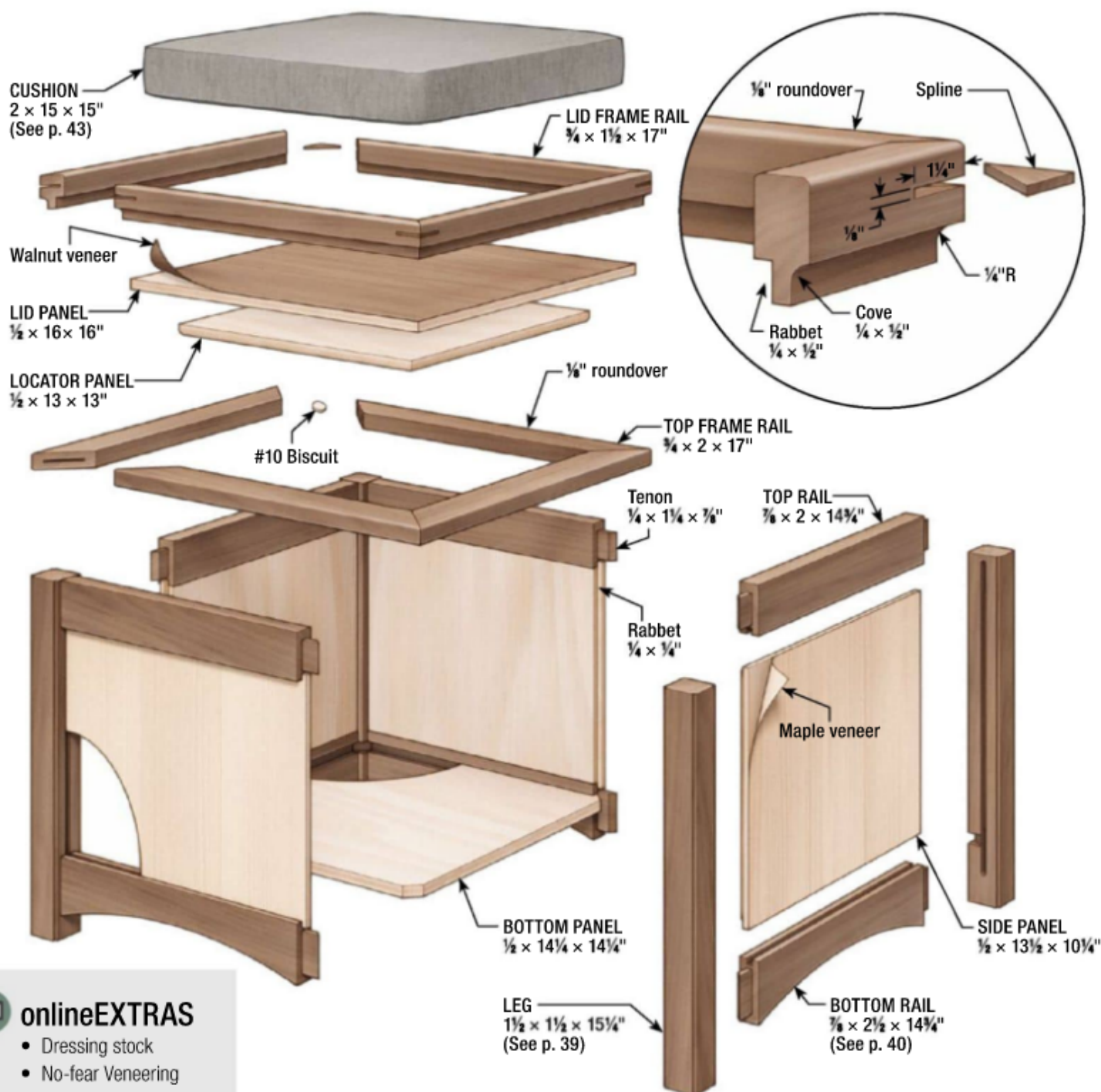
Stout and thought-out

This ottoman derives great strength from plywood side panels glued into grooves in the rails and legs, which are stoutly connected with mortise-and-tenon joinery. The top frame overhangs the box by $\frac{3}{8}$ " to allow easy lifting of the entire unit. The lid frame, which corrals a cushion, is coved at its bottom edges to provide finger access to remove the lid. The locator panel glued to the underside of the lid panel restrains it and strengthens the lid for seating.



Order of Work

- Make and veneer the panels.
- Make the legs.
- Make the side rails.
- Fit the panels and assemble the box.
- Make the top frame and lid.



onlineEXTRAS

- Dressing stock
- No-fear Veneering
- Miter sled

Note: Rail dimensions include tenons.

Begin with the veneered panels

Saw the lid panel and side panels about 1" oversized in width and length. Don't make the bottom or locator panel yet. Construct veneer sheets for the outer faces of the side panels and the top face of the lid panel as shown. To glue the veneer to the panels, roll a thorough (but not soaked) coat of yellow glue onto just the panel, press the veneer into the glue, and then

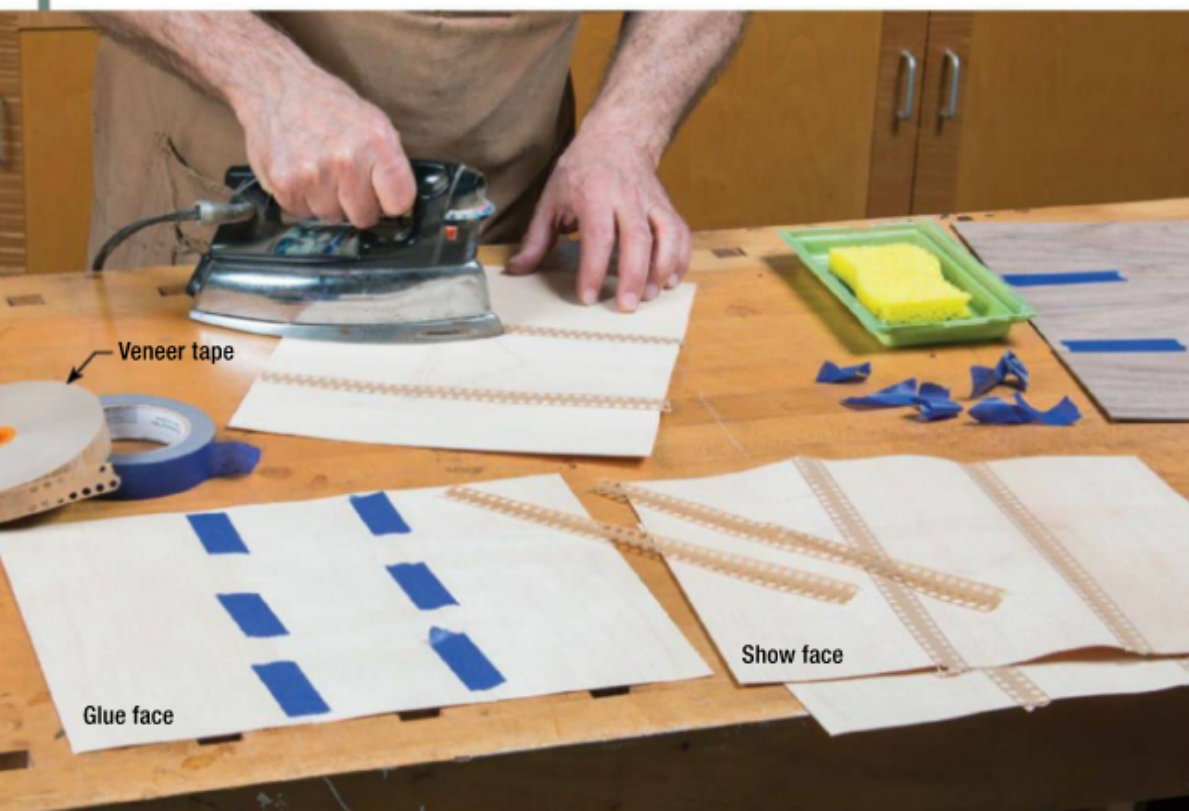
lightly spritz the veneer with distilled water to prevent curling. Quickly place a few sheets of newspaper atop the veneer, and clamp the veneered panel between $\frac{3}{4}$ " MDF panels for a couple of hours. Afterward, remove the veneer tape by spritzing it and letting it sit for a couple of minutes before scraping it off. (For more on basic veneering, see OnlineEXTRAS.)



Oversized veneers for oversized panels. Cut the veneers to suit your oversized panels. Tape the ends of a stack of several veneers to prevent shredding, and then use a veneer saw guided by a thick straightedge to make the cuts. A number of repeated pull strokes will do the job cleanly in short order.



Joint the edges. With the edges of several veneer sheets projecting $\frac{1}{16}$ " or so from between two dressed boards, use a plane to joint the veneer edges. For woods prone to tear-out, use 80- and then 120-grit sandpaper adhered to a flat sanding stick. Check the jointed edges with a good straightedge before unclamping them.



Tape the backside, then the front. With the "show" face of the veneer downward, pull the jointed seams together and use blue painter's masking tape to temporarily hold the pieces together. Then inspect the show side. Readjust the pieces to fix any gaps, rejoining if necessary. Next, with the show face of the veneer oriented upward, apply wet veneer tape. Then briefly apply high heat from an iron to dry the tape. Finally, remove the blue tape from the opposite face before veneering the panels.

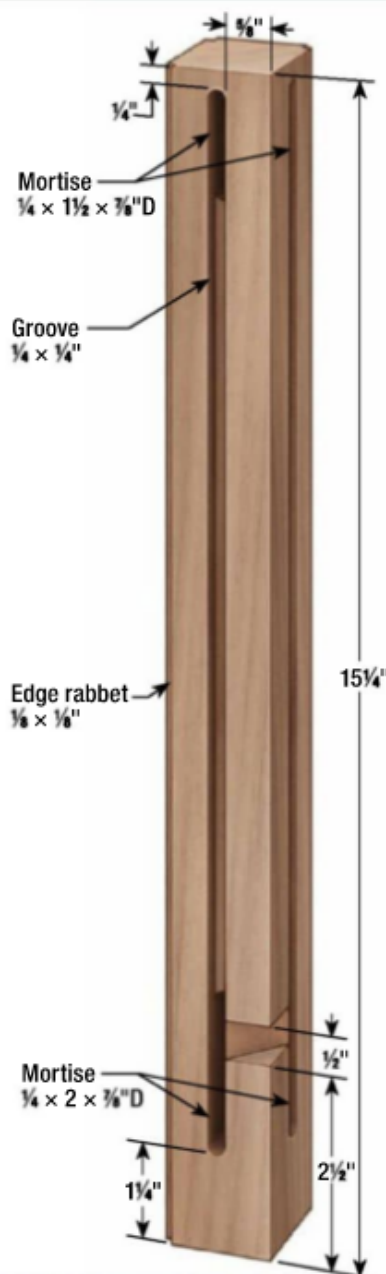
Mortise, groove, and notch the legs

Mill the legs to size, ripping them from rift-sawn stock (with diagonally oriented end grain) to display relatively straight grain on all faces. Use a stop block to ensure precisely matched lengths. Group the legs with the best faces outward, and mark the top ends

for reorientation later. Fully lay out one mortise, which you'll use to set your router's edge guide. For the other mortises, you need only lay out the mortise length extents. Rout the mortises first, then the grooves. Next, saw the notch, and then rout the corner rabbets.



Mortise first. Clamp 2 legs end-to-end at the edge of your bench with the mortise faces (taped here as a reminder) oriented upward and outward as shown. Place the remaining 2 legs to serve as additional router support. Outfit your plunge router with an edge guide and a $\frac{1}{4}$ " upcut spiral bit set for a $\frac{7}{8}$ "-deep cut. Rout the first pair of mortises, first plunging full-depth at both ends of a mortise before removing the waste between in successively deeper passes. Rearrange the legs as necessary to rout each subsequent pair of mortises in the same manner.



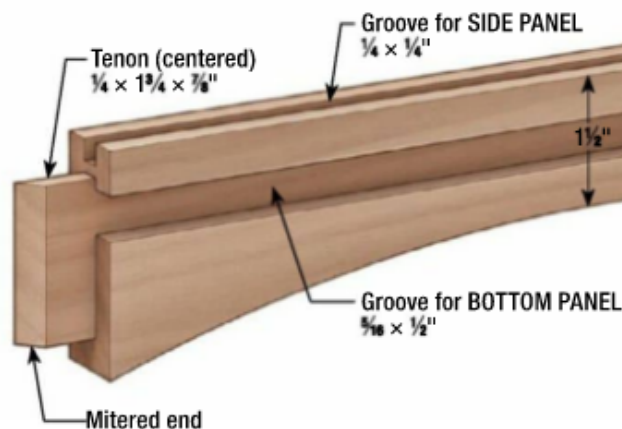
Groove second. Without changing the edge guide setting, adjust the bit depth for $\frac{1}{4}$ ", and rout the panel grooves, again making sure to register the fence against an inside leg face.



Saw the notch. Having set up a dado head to suit the thickness of your nominal $\frac{1}{2}$ "-thick plywood bottom panel, feed each leg in turn across the saw using a V-cradle guided by a miter gauge. A rip fence set $2\frac{1}{2}$ " from the blade serves as a stop for cut consistency.

Make the side rails

Mill the top and bottom rails to final size, using a stop when crosscutting to ensure they are all exactly the same length. (Then mark the parts for the best aesthetic orientation.) Saw the tenons first, cutting them a bit fat, and then trimming them to fit after mitering their ends. Plow the $\frac{1}{4} \times \frac{1}{4}$ " centered grooves for the panels, and then the $\frac{5}{16} \times \frac{1}{2}$ " grooves for the case bottom. Finally, make a $\frac{1}{2}$ " plywood template for the bottom rail curve. After tracing out the curve on each rail and bandsawing just outside the line, use the template to finesse the curve on the router table as shown.



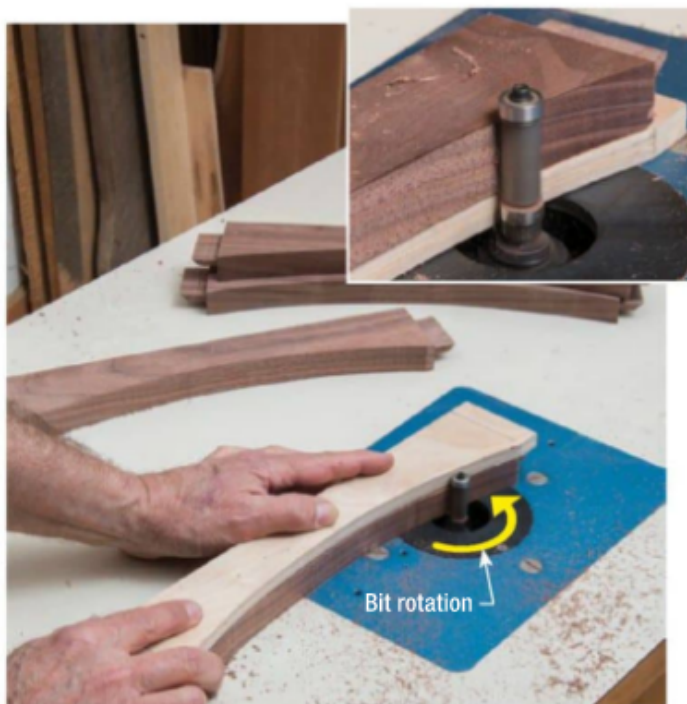
Saw fat. I cut the tenons with a dado head, sawing one cheek in two passes, then flipping the stock over to cut the other. After sawing all the cheeks, raise the dado head to $\frac{3}{8}$ ", and stand the stock on edge to cut the tenons to width.



Trim to fit. Use a shoulder plane and/or fine sandpaper wrapped around a dead-flat block to remove equal amounts from opposing tenon cheeks to achieve a perfect joint fit. The tenon should slide in place with a moderate amount of hand pressure only, with no smacking.



Spring the curve. I lay out the lower rail template curve using a metal yardstick sprung to a bow and clipped to a couple of #8 finish nails driven into a scrap board at the corners of the template. Double-faced tape holds the template board to the scrap.



Clean rout. Fasten the template to the rough-bandsawn rail with double-faced tape, and clean up the cut with a flush-trim bit. An "over-under" bit with top and bottom bearings allows flipping the work over to cut cleanly downhill with the grain in each direction.

Dry-assemble to fit the panels

Dry-fit the rails to the legs, carefully aligning and squaring the parts. When you've determined that everything fits well and that the panel openings are consistent, measure them for the panels, adding $\frac{1}{2}$ " in width and length to accommodate the $\frac{1}{4}$ "-deep grooves. Also measure for the bottom panel, noting how much needs to be nipped off the corners. Then sand the panels to 220 grit, saw them all to size, and rabbet the side panels to create tongues for the grooves. In preparation for assembly, I sand everything through 220 grit, making sure to re-mark any joint references as necessary. Then I "pre-finish" the parts, avoiding the joint surfaces and the top edges of the top rails. Finally, I glue up the unit in two stages as shown.



Hold your tongue. After cutting the rabbet shoulders with the work flat on the saw, stand the panel on edge to make the cheek cuts. Registering the tongue between the fence and the blade ensures that it will be a consistent thickness for a good fit in its grooves, especially with a featherboard pressing the work against the fence. Raise your featherboard above the rabbet to prevent pinching and kickback of the offcut strips.



Stage 1: Assemble opposing sides. After making a strip of $\frac{1}{2}$ " plywood that fits the bottom groove and notches, apply glue to the mortises and tenons for one leg. Attach the rails, aligning them with the top of the leg and the notch. Then spot-glue the panel rabbet and slide it in its grooves. Repeat for the opposite leg, and apply clamps. Make sure to clean up any glue squeezeout inside the open adjacent mortises and notches using a clean brush.



Stage 2: Join the side assemblies. Dry-fit the rails again to ensure good seating. Glue one end of each bottom rail to a side assembly, and insert the bottom panel. Then glue a top rail in place and install a side panel as shown. Repeat for the remaining side panel, add the opposite side assembly, and clamp up the box.

Pre-finishing

When a project has offset panels and joints, it's sensible to apply a couple of coats of finish before assembly. It makes the application and intermediate scuff sanding a lot cleaner. Plus, the dried finish will ease any glue squeezeout removal. I first wiped the 220-grit-sanded surfaces with one coat of Seal-a-Cell, wiping off the excess after a half-hour. The next day, I scuff-sanded with 320-grit stearted paper before wiping on a thin coat of Arm-r-Seal, which I left to dry overnight. After scuff-sanding with 400-grit wet/dry paper, I was ready to assemble. Two more coats followed after assembly.

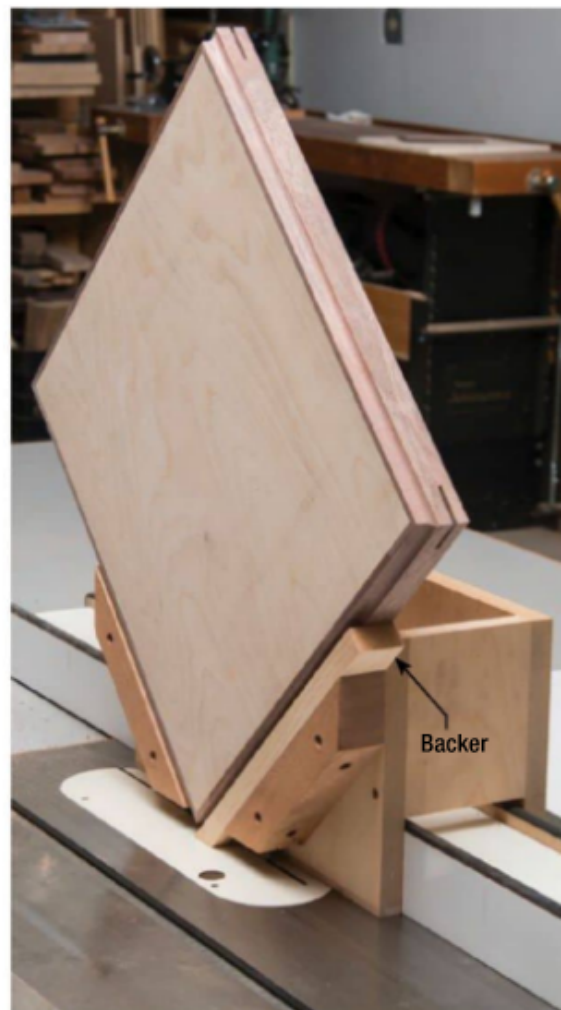
Make the top frame and lid

Dress the rails for the top frame and lid frame. Also saw the lid panel to size. Cut the lid frame rabbet, gauging its depth from the thickness of your veneered lid panel. Miter and dry-fit the lid frame rails around the lid panel, ensuring snug corner joints. (See OnlineEXTRAS for a great miter sled for the job.) On the router table, round over the outer edges of the top frame and the inner and outer top edges of the lid frame with a $\frac{1}{8}$ " roundover bit.

Sand the lid frame and panel through 220 grit, and glue up both frames, joining the top frame miters with #10 biscuits. Rout the cove on the router table, slot the corners of the lid frame, and then make, install, and trim the splines. Sand and glue the top frame to the top side rails. Finally, make the locator panel, sizing it for a close but easy fit in its opening, and then glue it in place, centered on the underside of the lid panel.



Lid frame glue-up. Having dry-fit the lid frame rails, dry-clamp two of them to opposite edges of the lid panel. Then glue on the adjacent pieces, raising the clamps on riser strips to direct clamping pressure against the edges of the panel. After the glue cures, attach the remaining pair of rails.



Saw the spline slots. To cut the slots for the reinforcing splines, use a jig to carry the workpiece at a 45° angle over the blade. Incorporate a backer to prevent exit tearout.



Trim the splines. A flush-trim saw nicely levels oversized splines, as its teeth are set to one side only to prevent scarring the surface. I finish up the job with a finely set block plane and 220-grit sandpaper.

Finish up

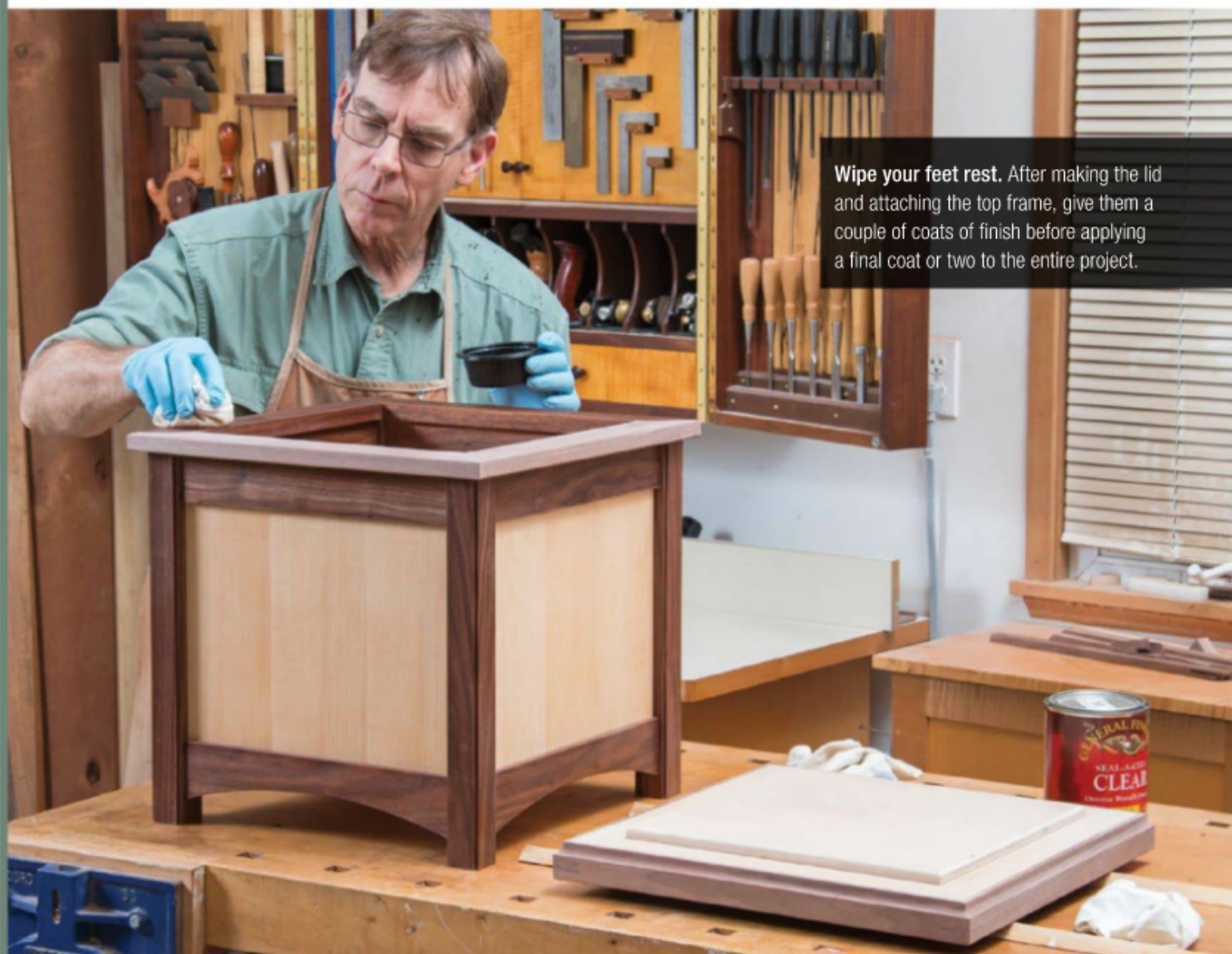
Inspect all your surfaces and do any necessary clean-up finish-sanding, making sure to ease any sharp edges in the process. Then apply the same finish treatment to the top frame and lid that you did to the

assembled box earlier. Following that, apply at least one more coat to everything. I wiped a total of 5 coats on the lid for extra protection against liquid spills. Finally, I rubbed out the finish with 0000 steel wool. ■



Buyer's Guide

See page 70 for tools and supplies used in this article.



Wipe your feet rest. After making the lid and attaching the top frame, give them a couple of coats of finish before applying a final coat or two to the entire project.

Pillow Talk

I bought my cushion from *CustomCushions.com*, which offers a variety of foam types and fabric covers in many sizes. I ordered a fabric-covered 2 × 15 × 15" boxed-edge polyurethane foam cushion with square corners, no fiber batting, and no ties, for \$65. Whatever size ottoman you make, the cushion should be ½" less in width and length than the distance between the lid rails to allow for the covering and slight discrepancies.





The main building. What began as a stone workshop in 1926 eventually became Esherick's home and studio, with additions and alterations taking place for the next 40 years.

Woodworking artistry in abundance at the WHARTON ESH

By Rob Spiece

The Wharton Esherick Museum is a stop every woodworker should put on his or her bucket list. Tucked away on a winding road in suburban Philadelphia, this beautiful property includes the artist's home and studio, a 1928 Expressionist garage (now serving as the Visitor Center), and other buildings, all situated on a wooded, 12-acre site. We've been including a visit to the Esherick museum as part of the curriculum at the Lohr School of Woodworking. No matter how many times I visit, I always find something new.

While it's called a museum, the experience is not a stuffy one. Visitors are encouraged to touch the furniture and take in the ambience of Esherick's home and studio. Staff members who lead small groups through different rooms and around the property make you feel as though Wharton's not home right now, but he could walk in at any moment. You can even find his clothing, neatly arranged in a smooth-running drawer under his bed.

Esherick's hand is evident in every corner of the home. The furniture is amazing, but the depth of the experience

is really driven home when you notice small details like carved light switch plates and heat registers with hand-cut openings. The list of hand-sculpted elements goes on: latches, knobs, coat hooks—even toilet seats. In the living room, you'll come across the most amazing hardwood floor you've ever seen. But the most famous feature here is the spiral staircase Esherick built in 1930 to connect three of the building's four levels. Sculpted from large pieces of red oak, the stairway is a striking expression of Esherick's sinuous, organic design aesthetic.



Spectacular steps. Each bolt in Esherick's spiral stair extends through a rectangular cover plate, meeting up with a captive nut in a tread tenon.



Who needs 90° angles? Sharp lines and contrasting angles conjure up a distorted, magical reality in this desk and chair set. Executing such playful designs demanded exceptional craftsmanship.



Delightful details. Every room includes ingeniously crafted features. Two favorites are the intricate latch above, and the whimsical heating vent carved into a wall panel.

ESHERICK MUSEUM

If you're visiting the museum on a weekend, you may be in for a special treat. On the second Sunday of each month (except for January, February, and September), you're likely to find woodworkers and other artists doing demonstrations on the grounds. On these days, the museum opens the studio for visitors to explore on their own, with docents in each room to answer questions and demonstrate the furniture. Other special events include the Wharton Esherick Woodworking Competition & Exhibition.

This event attracts woodworkers from around the globe who submit pieces inspired by Esherick's vision. Winning entries go on exhibition in the Visitor Center.

Wharton Esherick passed away in 1970 at the age of 82. Folks who pay a visit to his home and studio are sure to come away feeling that his legacy of creativity and craftsmanship is alive and well. If you're a woodworker, you'll be amazed and inspired by what you discover.



fastFACTS

- Early photos show Esherick's spiral stairway with wedges holding tenoned treads in place. But Esherick modified the stair so it could be disassembled and put back together. The stairway was exhibited at the New York World's Fair in 1940, then at New York's Museum of Contemporary Crafts in 1959.



A playful work station. Esherick's drop-leaf desk is an excellent example of the artist's ability to create sculptural, organic furniture without sacrificing functionality. The base contains a large, shallow drawer for drawings. More flat files are hidden behind a pair of carved doors.

From trash to treasure. Free wood scraps from a local sawyer were transformed by Esherick into a puzzle-piece floor. He also used odd-shaped boards as wall paneling.



Wharton Esherick: from painter to pioneer in the studio furniture movement

Born in Philadelphia in 1887, Wharton Esherick demonstrated an interest in art at an early age, prompting his mother to comment that there was never a blank piece of paper in their home. Esherick studied painting at the Philadelphia Academy of Fine Arts as a young man. At that time, American Impressionist painters were successful, so he was trained in that style. But the goal of imitating others didn't appeal to Esherick, so he left school before graduating. In 1913, Esherick and his wife, Letty, settled in the countryside outside of Philadelphia, intent on raising a family and making a place for themselves.

Esherick continued to try to find success as a painter. But his artistic path changed when a friend told him that the hand-carved

picture frames he made were more impressive than what was contained within. Esherick took this advice and ran with it, focusing on carving at first, then woodcut printmaking, and (finally) woodworking and furniture making. His work started with heavily carved and embellished surfaces, then morphed into a German expressionist framework, finally maturing into gracefully sculpted surfaces with flowing organic lines.

Esherick's first attempts at furniture making are impressive, but when he made a connection with his neighbor, John Schmidt, the work soared to new heights. A Ger-



Visiting Information

- **Address:** 1520 Horseshoe Trail, Malvern, PA 19355
- **Phone:** (610) 644-5822
- **Website:** whartonesherickmuseum.org
- **Hours:**
By reservation only
Tuesday–Saturday: 10:00AM–4:00PM
Sunday: 1:00PM–4:00PM
- **Ticket Prices:**
Adults: \$15
Seniors (Ages 65 and up): \$13
Students: (ID Required): \$12
Children: (Ages 5–12): \$8
- **NOTE:** Museum tours are by appointment only, so be sure to call ahead or visit the website to schedule your visit.



Twists and turns. A curved railing extends around a masonry-lined sculpture well Esherick created after demolishing a termite-damaged floor. His “Twin Twist” and “Spiral Pole” sculptures were carved from tree trunks.



Hand tool stools.

Esherick made many stools like these, always preferring to shape legs and stretchers with hand tools rather than on a lathe.

man-trained cabinetmaker, Schmidt's exceptional technical expertise was the perfect complement to Esherick's artistic creativity, enabling the duo to create amazing furniture.

Another local friend and colleague, Ed Ray, also helped Esherick on his path. Ray was a local sawyer who often put logs aside for Esherick, knowing that he would want to get his hands on the weirdest and wildest logs. One of the most impressive sculptures in the museum is the “Twin Twist,” a 15'-tall sculpture carved to twist and turn as it ascends. While Esherick did the sculptural work, it was Ed Ray

who identified the potential and supplied the log. Esherick's iconic hardwood floor was made from odd-sized scraps that Ray gave to him (photo above). Ray assumed that these offcuts would

While others would make reproductions in popular styles of the time, Esherick took a chance on himself and made what his creative mind desired.

serve as firewood, helping to keep the Esherick home warm that winter. Upon seeing the finished floor, he recognized the pieces and never gave Wharton free scraps again.

Esherick was the first among the studio furniture makers here in America. While others would make reproductions in popular styles, Esherick took a chance on himself and made what his creative mind desired. He set an example that makers like Maloof, Nakashima and Castle would follow. Like the Arts and Crafts Movement that originated in England, the American studio furniture movement arose as a rejection of mass-produced goods. Wharton Esherick pioneered this creative rebellion by injecting originality into one-off or limited production pieces that remain iconic today. ■

FLAG CUTTING BOARD

Tackle the curves with a pair of shop-made templates.

By Scott Grove



I like straight seams as much as the next woodworker, but I'd rather play with organic shapes. However, getting curvy seams to fit together demands special consideration. Sometimes a joint can be squeezed into submission, but as curves become tighter, or change direction, the matching parts must be cut to fit perfectly.

After many trials and errors, I came up with a simple system that makes curved joinery easy to master. I designed this patriotic maple and cherry cutting board in order to teach my woodworking students how I handle curved seams on my

more complex, one-of-a-kind creations.

The trick is creating a pair of complementary templates that set the bit to either side of the cut line, for perfectly aligned seams. Various bit/bushing combinations will work, but to simplify things and obtain the smoothest possible cut, I prefer using a $\frac{1}{2}$ "-straight bit and $1\frac{1}{2}$ " O.D. template guide. You can make your own $1\frac{1}{2}$ " O.D. bushing to fit a 1" O.D. template guide (see OnlineExtras), or purchase a ready-made guide (see the Buyer's Guide on p. 70).

As you'll see, the stripes don't need to be straight-laced. You can play around

with their width to create a billowing effect. And after completing the board, you'll get a chance to combine epoxy and mother-of-pearl to create an eye-catching inlay. (See the "Sparkling Star Inlay," on p. 53.)



Order of Work

- Make the templates.
- Trace, saw, and rout the stripes.
- Assemble the cutting board.
- Trace and saw the outer edges.
- Add the star (see p. 53.)
- Sand smooth, and apply finish.

A template guide and 2 templates outwit the bit

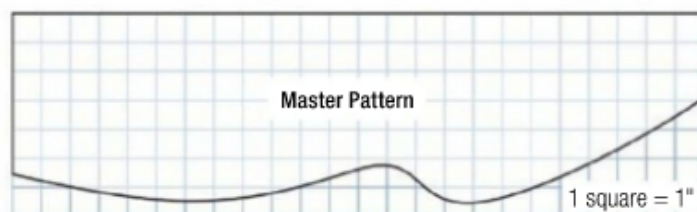
Creating a pair of complementary offset templates starts with making a master pattern. You can sketch out a curve freehand, or use the provided pattern. Just make sure that the curves are fair and smooth, since bumps can create gaps on the glue line. Also, make the pattern longer to prevent errant cuts at the beginning or end of a pass.

Make the "top" template as shown. To make the matching "bottom" template, affix the offcut from the previous step to another piece of MDF. Rout a second groove, and complete the template's edge as shown.

To complete the templates, add hold downs and sandpaper grip pads. Finally, reinforce the working edges with CA glue.

1½" O.D. Template Guide

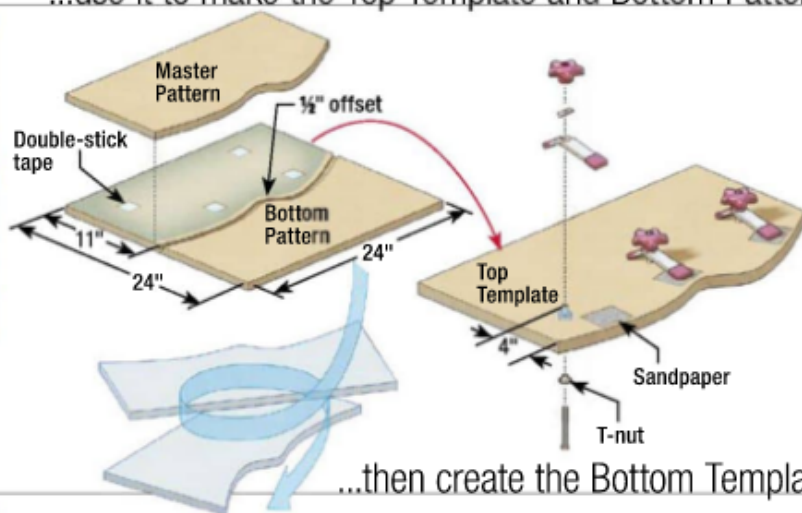
Start with a Master Pattern...



...use it to make the Top Template and Bottom Pattern...



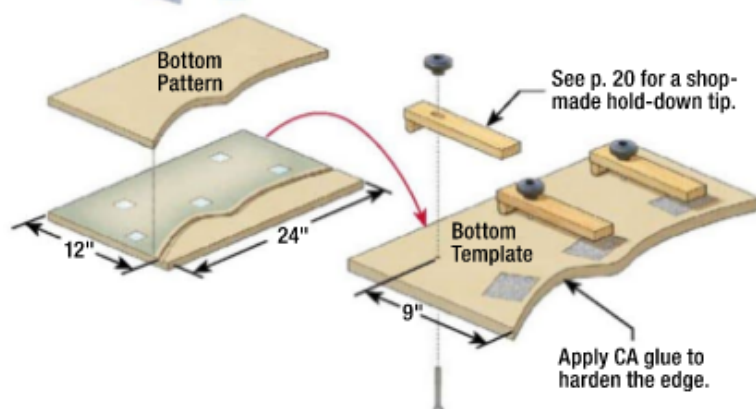
Make the top template. Pair the template guide with a ½"-dia. bit and rout a ⅜"-deep groove. Then, saw through the groove and finish the edge with a pattern bit.



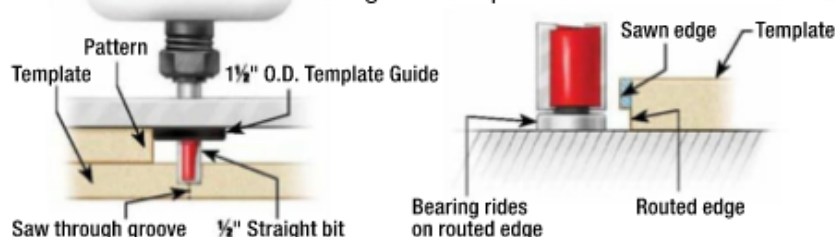
...then create the Bottom Template.



Make the bottom template. Using the cutoff from the previous step, rout a groove and finish the edge as before to create the bottom template.



Finish the edge with a pattern bit



onlineEXTRAS

For a full-sized master pattern, and instructions for making a 1½"-dia. O.D. template guide, go to woodcraftmagazine.com.

Start making stripes

You'll need about three board feet each of cherry and maple to make this cutting board. Start by milling your boards to $\frac{5}{8}$ " thick and 22" long.

The easiest way to keep track of the templates is to make the flag from the lowermost stripe upward. To start, lay out the first stripe as shown. (*Note: Leaving the outermost stripes square-edged helps with glue-up. You'll do the final profile shaping after assembly.*) After tracing the stripe's upper edge, use a bandsaw to cut just outside your line.

To finish the edge, secure the stripe to the top template so that the sawn edge extends just over the template edge, and rout as shown.

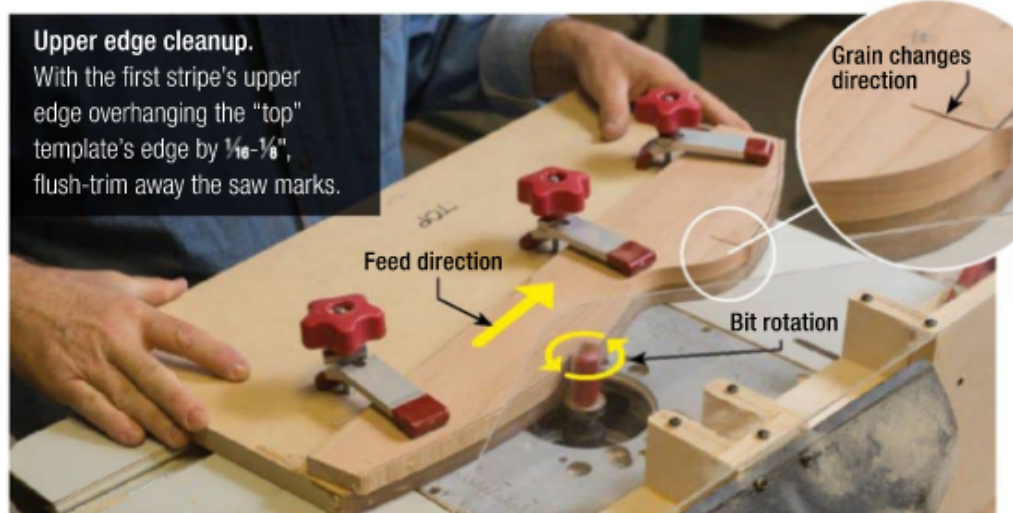


Lay out the first stripe. Positioning the opposite template on the waste side of the cut allows you to pay attention to the grain. Keep the bottom edges square until after assembly.



Upper edge cleanup.

With the first stripe's upper edge overhanging the "top" template's edge by $\frac{1}{16}$ – $\frac{1}{8}$ ", flush-trim away the saw marks.

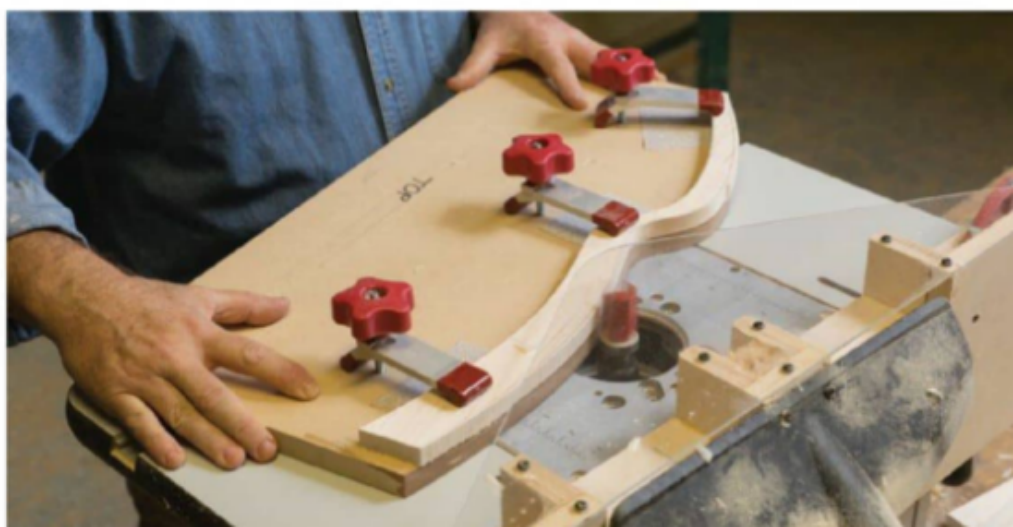
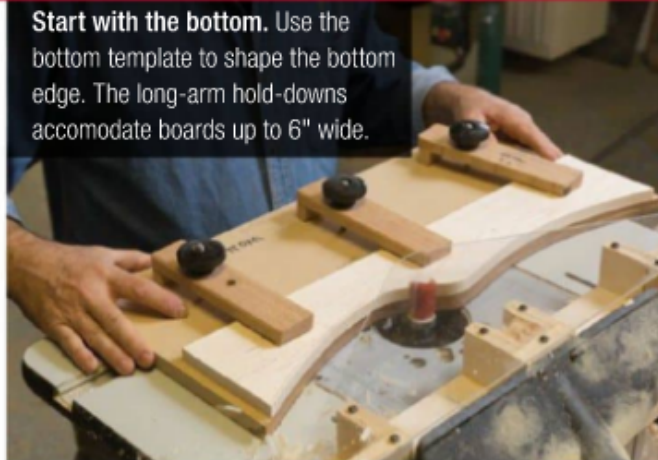


Rout the rest of the stripes

To create the next (and subsequent) stripes, start by tracing, sawing, and shaping the bottom edge. After routing, test the fit against the previous stripe.

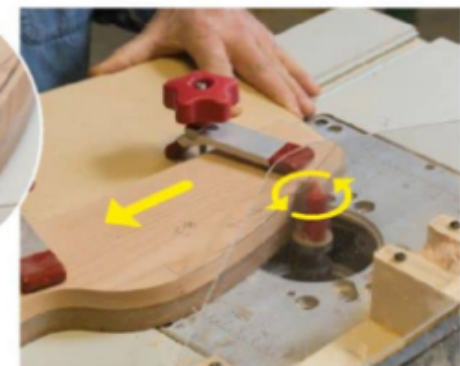
Now, here's where creativity kicks in. Varying the width of the stripes, and even tapering the stripes (as shown above, right) creates a billowing effect. The stripe's edges may not be parallel but the production process remains the same. Saw off the waste, and then clamp to the template and shape the top edge. Rinse and repeat until you have a stack of alternating colored stripes.

Start with the bottom. Use the bottom template to shape the bottom edge. The long-arm hold-downs accommodate boards up to 6" wide.





Bandsaw outside the lines. Use X's to distinguish the stripe from scrap. Leftover material can be used to make additional stripes.



Climb-cut for clean cuts. Feeding the stock from left to right, or climb-cutting, can reduce splintering where grain runs uphill. To maintain control, make light passes.



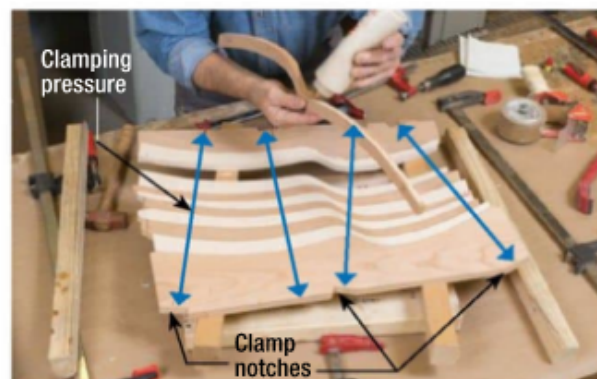
Blowing in the wind. Shift the bottom template slightly to create a tapered stripe. When assembled, the stripes create a billowing effect.

Finish the top edge with the top template. Saw your stripe to rough width, then use a router to clean up the cut.

Squeeze it together

The flag-shaped puzzle comes together fairly quickly, but don't rush it. First, do a dry run. (Note that the stripes can be arranged in any order.) Once you achieve the desired look, apply gentle clamping pressure to test the joints. To direct clamping pressure across the curved seams, notch the outer edges. After applying glue, position a single clamp and cauls and inspect the assembly. A slipped stripe can create a gap. To correct, simply tap the end, and then apply additional clamps.

Once the glue has dried, use the templates to lay out the top and bottom edges, and then saw and sand to shape. Plane or sand smooth, and then round the edges. ■



Stripe assembly.

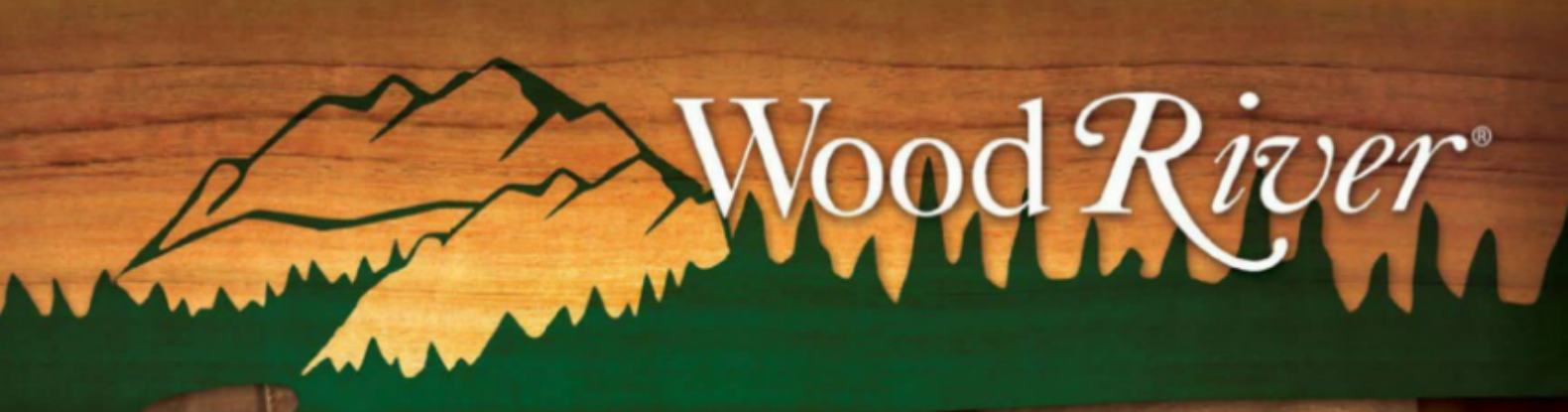
Arrange the stripes on riser blocks and waxed cauls. Notching the oversized outer stripes helps direct clamping pressure to the seams.



Tapped tight. Apply light pressure at the center of the cutting board, then add clamping cauls to keep the assembly flat. To correct minor gaps, tap the end of the offending stripes. Apply additional clamps at the end notches when the stripes fit together.



Trace the templates. Use the templates to finish the top and bottom stripes. Cut the edges and ends on a bandsaw, and then sand them smooth. Finish the edges with a roundover bit.



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Sparkling STAR INLAY

Create an eye-catching combo of epoxy and crushed mother of pearl.

By Scott Grove



I've been told that my striped cutting boards, without stars, bear more resemblance to slabs of bacon than waving banners. Don't fret...all it takes to transform Oscar Meyer to Old Glory is a little spangle. Like the project itself, this star teaches my students new routing techniques and offers an opportunity to experiment with new materials.

The secret of the sparkle is mother of pearl, a natural material obtained from the inner shells of oysters and abalones. This material's iridescent shimmer has been prized by luthiers and used in marquetry for centuries, but traditional installation—cutting the material to fit a matching mortise—can be challenging. Filling the cavity with Easy Inlay flakes (see the Buyer's Guide, p. 70), and then sealing it in clear epoxy is a simpler solution. In addition to accentuating routed cavities, this material can be used to highlight naturally-occurring cracks and voids.

Start with the star-shaped template

My technique for drawing a perfect 5-pointed star is easy. Forget math, and keep your computer off. Just grab a compass and follow the instructions below. (Note: Because of the bushing used to guide the bit, the routed cavity will be $\frac{1}{4}$ " smaller than your template.)



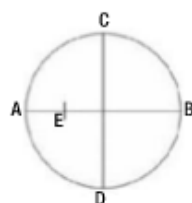
Set the arms, and then start swinging.

To lay out a perfect 5-pointed star, set the compass arms $1\frac{1}{2}$ " apart and then follow the directions below.



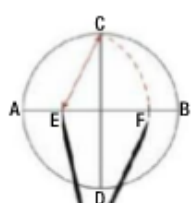
It's OK to cut corners. Drill a starter hole within the star, and slice out the points. If you have trouble following the lines, leave them and finish up with a file.

Use a compass to lay out a 5-pointed star



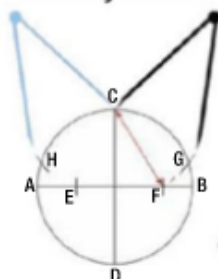
STEP 1

Set the compass to your desired radius (or $1\frac{1}{2}$ " for the flag) and draw a circle. Find the midpoint, E, of one radius.



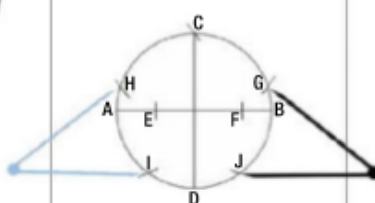
STEP 2

Place the compass point at E and set the distance to EC. Swing the compass and mark point F.



STEP 3

Place the compass point at C and set the distance to H. Swing the compass to mark points G and H.



STEP 4

With the compass set the same distance (CF), place the compass point at H and G and mark points I and J.



STEP 5

Connect the 5 marked points to draw a 5-pointed star.

Ready, set, rout

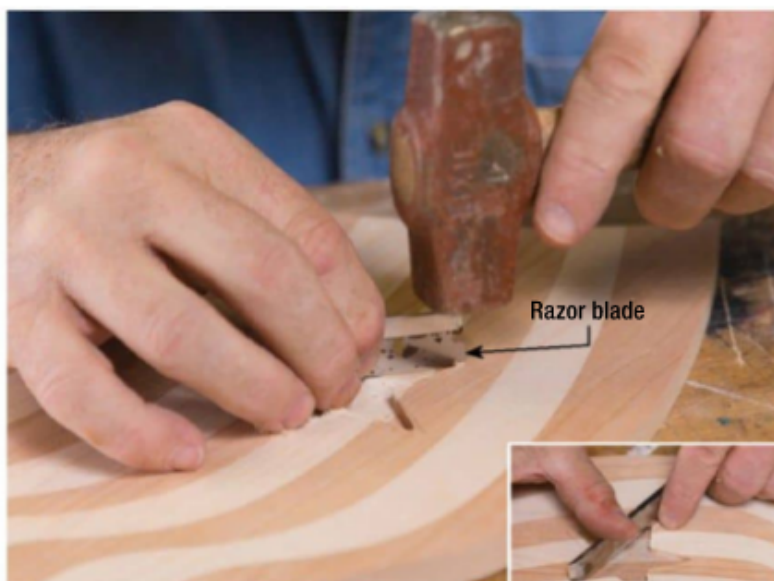
The trick with template routing is selecting the right bit and bushing combination. I used a $\frac{1}{8}$ "-dia. bit and bushing (from an inlay kit) because the pair could follow the pattern more closely

than a larger bit. (Take care when routing. If you push the bit too hard, it might snap.) Now, straighten the rounded points as shown.

Set the course. Use a paper pattern to see how the inlay works with the panel. Position the star so that its tips land within the strips and not on the seams.



Rout the recess. Attach the template with double-stick tape. Next, set the depth to about $\frac{3}{16}$ " and tip the router into the template opening. Run the bushing around the edge, and then rout out the material in the middle. Check your work before removing the template.



Get to the point. A single-edge razor blade sharpens the star points. Use a chisel to pare out the waste. To avoid adding a bevel to the edges of the mortise, use the flat side of the chisel outward when paring out the waste.

Finally, fill in the star

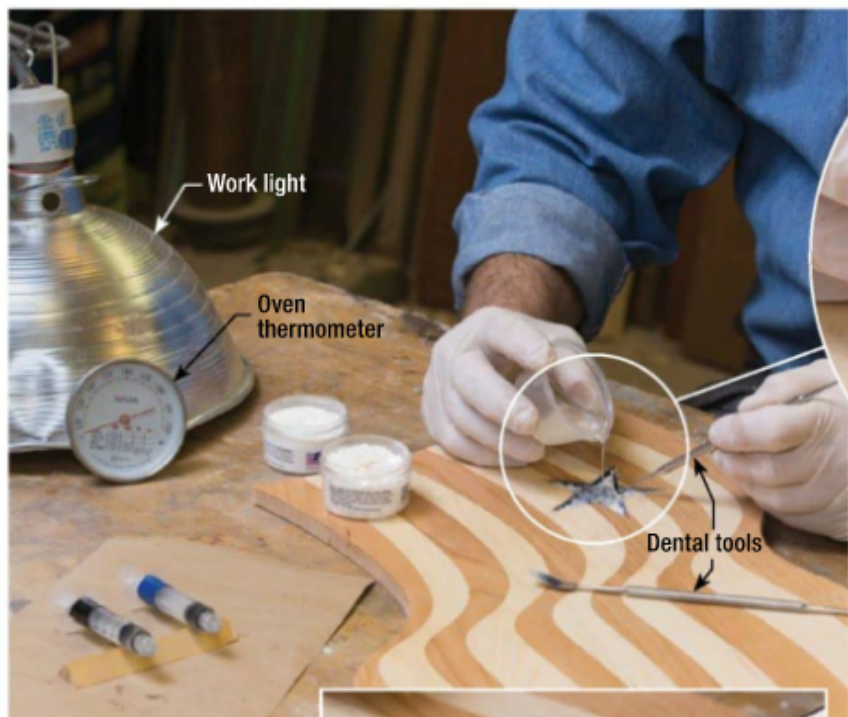
Adding sparkle to the star is easy, but don't rush it. To prevent bubbles, or having the blue base bleed outside of the mortise, seal the cavity by brushing on a light coat of clear epoxy. Once it's cured, mix up a second batch and tint it with a few drops of dye. Pour a thin coat of the colored epoxy into the cavity, and let cure.

Finally, sprinkle on the Easy Inlay (let a little blue show through) and top it off with a coat of clear epoxy so that it starts to puddle above the surface. Finally, wave a propane torch over the surface.

Curing times can vary, but you should plan on giving the star three days before levelling it off with a sander, and then working your way up through the grits (I stop at 4000 grit) until the epoxy regains crystal clarity. Finally, finish the entire board with your favorite food-safe finish. ■



A thin blue base. Make the base coat about as thick as a coat of paint. A dental pick, toothpick, or sharpened dowel can persuade epoxy into the star tips.



Add the twinkle.

After sprinkling the flakes evenly in the cavity, encase them in a coat of clear epoxy, and then inspect your work. Use a sharp-tipped tool or tweezers to put extra flakes in any empty spots and to dunk floaters.



Star power. Waving a propane torch about 8" above the inlay surface encourages bubbles to rise to the surface. Give the star three days to cure before sanding and finishing.





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Outdoor BENCH and PLANTER

It's time to build some colorful, durable furniture for your deck or patio

By Asa Christiana

I had a good time building this bench and planter set. It's a project you can easily complete in a day, and you'll be rewarded with years of enjoyment with no worries about fading finish, wood decay, or insect attack. This type of plastic lumber, made primarily from recycled plastic, is the type that manufacturers of outdoor furniture prefer.

It's available in a wide range of colors, and in a variety of dimensions.

Glue won't work on this type of plastic lumber, so connections need to be made with screws or bolts. On the planter, I left the trim-head screws exposed as a design element, spacing them consistently for good appearance. On the bench, screws are hidden

under cleats or in pocket holes that are plugged with plastic dowels. The multi-purpose screws I found at the home center work well for pocket hole and other connections. The design details and construction techniques featured here can be applied to other projects using plastic lumber.

A bench built from plastic boards

1. Cut parts to size.

Dimension spacer boards to create a snug-fitting mortise for the beam.

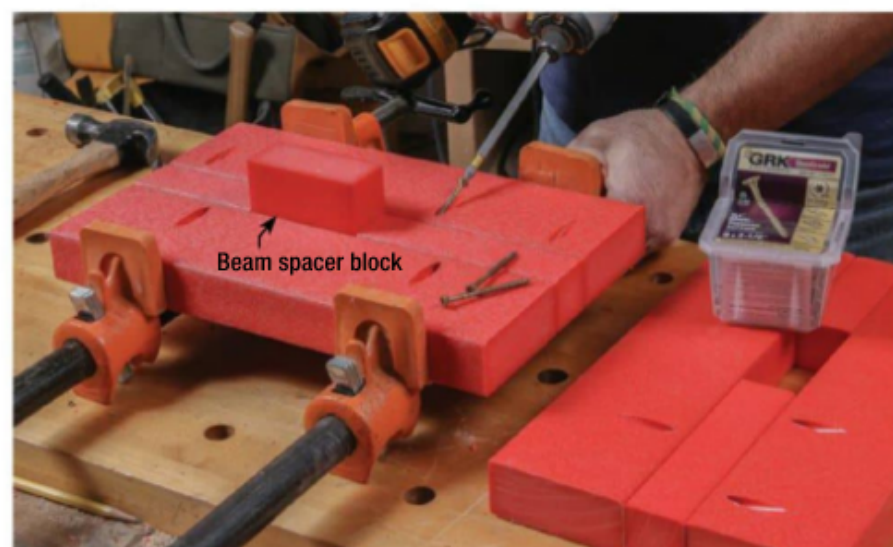
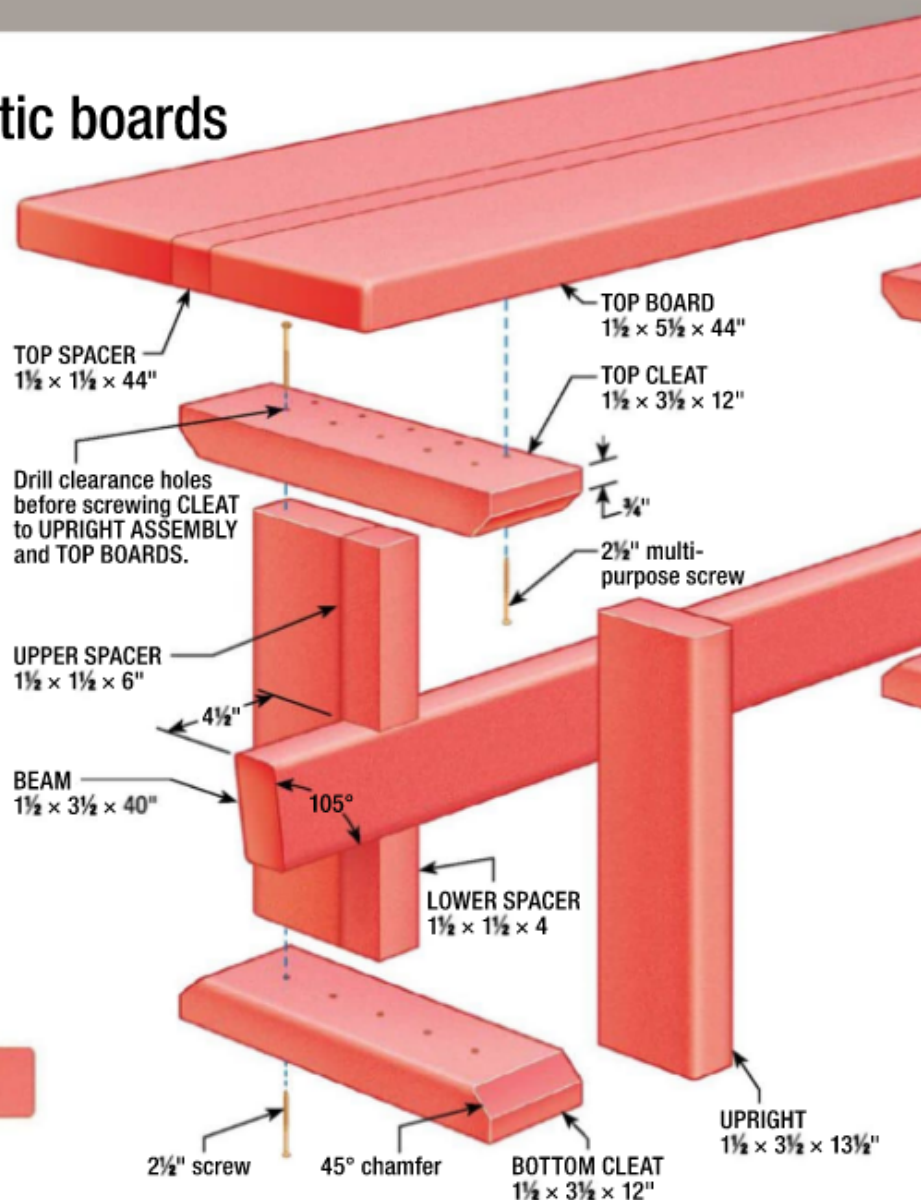
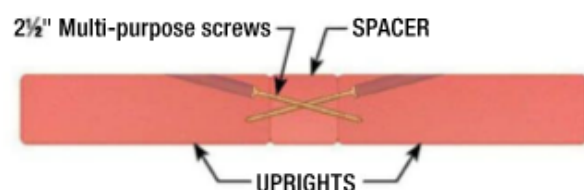
2. Assemble the uprights.

Drill pocket holes as shown in the detail below, so that 2½" screws extend through spacers and into the opposing upright.

3. Install the cleats, beam, and top.

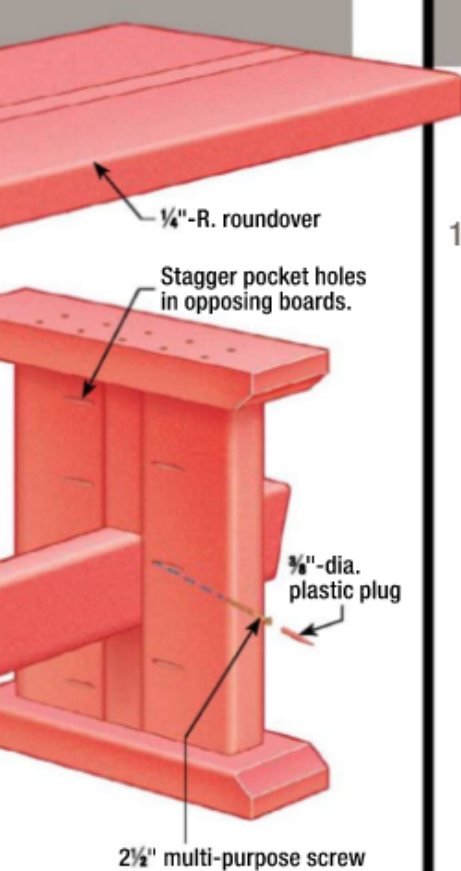
Center the cleats on the uprights and attach to both ends with 2½" screws. Next, insert the beam into the upright assemblies and secure each end with a pair of pocket screws. Finally, center the base on the top boards and screw the components together.

Upright Assembly Detail



Complete the upright assemblies. Set your pocket hole jig and bit for ¾"-thick stock, and drill pocket holes in uprights so that 2½" multi-purpose construction screws will extend through the spacers and into the opposite upright. Clamp the 4-piece assembly securely around a beam spacer block before driving your screws.





Planter made easy: 4 posts & 12 planks

1. Cut parts to size.

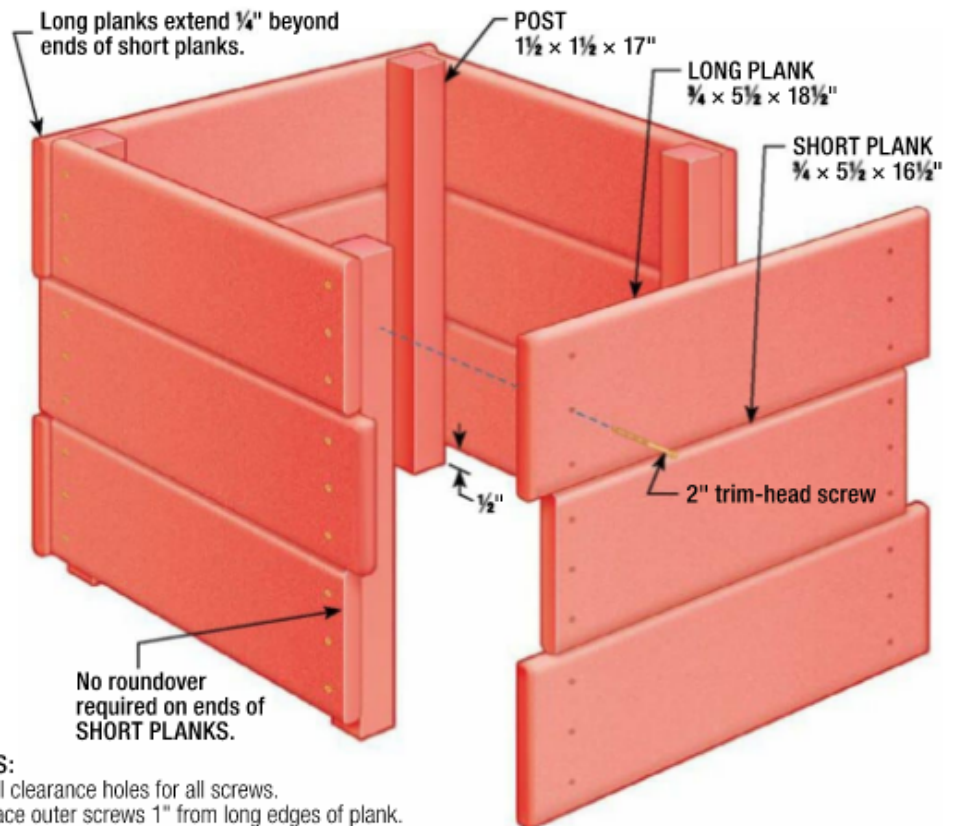
For this overlapping corner design, you'll need 6 identical short planks and 6 identical long planks.

2. Rout and drill.

Rout a 1/4"-radius roundover along corners and edges of planks, as shown below. Then drill clearance holes for the screws.

3. Screw planks to posts.

Assemble the opposite sides of the box, then join them together by attaching the remaining planks.



NOTES:

- Drill clearance holes for all screws.
- Space outer screws 1" from long edges of plank.



ADIRONDACK CHAIR

By Tim Snyder

The Adirondack chair got its start over a century ago, on the shores of Lake Champlain, in the small town of Westport, NY. Thomas Lee, who designed and built the first of these chairs, came from a wealthy Massachusetts family who owned a summer house at the edge of New York's Adirondack mountains. Lee graduated from Harvard University but dropped out of law school to spend more time in the Adirondacks, where dramatic natural vistas were abundant but rugged outdoor furniture was scarce. It took Lee three years (1900-1903) to come up with a comfortable design that could be built easily from locally available lumber, using the most rudimentary tools.

Don't be deceived by the hard angles and flat surfaces of the original "Westport" Adirondack chair (opposite page). Lee's design came about through a rigorous trial-and-error process, with comfort and utility as major goals. He experimented with various seating angles, getting feedback from some 20 family members over the course of several summers. His final version seemed to achieve the impossible, providing comfortable, relaxing

seating without curves or cushions. The secret to this success is an angled seating position that distributes weight evenly throughout the user's back and upper legs. It's much more comfortable than an upright position that concentrates weight on the butt and lower spine.

From its humble beginnings as a piece of slab furniture assembled with nails, the Adirondack chair has evolved into a classic, gaining iconic status not just in this country, but around the world. Lee's original design was patented in 1904 by Harry Bunnell, a local carpenter and hunting companion of Lee's who recognized the chair's potential to keep him busy through long winters.

The next major milestone in the chair's history occurred in 1938, when Irving Wolpin of New Jersey patented a "lawn chair" that incorporated the slanted seat and wide armrests of the Westport chair. But Wolpin's version had curves, achieved by replacing wide boards with narrower slats that were supported by contoured parts. Most modern Adirondack chairs incorporate the curved details that Wolpin added to the design.

Basic and beautiful.
Despite many variations, Adirondack chairs share certain features that make them instantly recognizable.

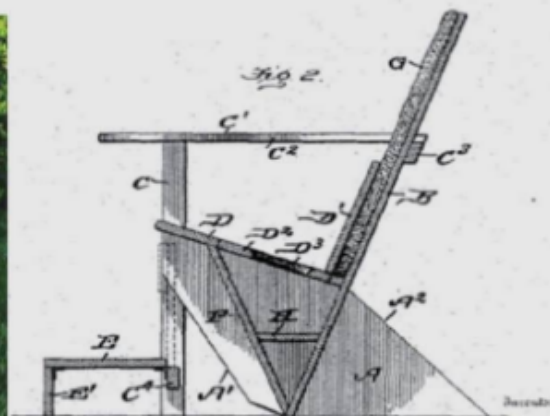
Today it's nearly impossible to explore any selection of lawn, porch, or beach furniture without encountering Adirondack chairs in numerous forms. Countless woodworkers and designers have incorporated the slanted seat, tall back, broad armrests, and slatted construction elements into a wide range of designs. Yes, there are Adirondack-style benches, love seats, rocking chairs, recliners, and paired chairs that share a built-in table (see photos). The basic form of the chair lends itself well to folding designs that make it much easier to store

and move. Despite its crude joinery and bulky form, this all-American chair seems to have as much staying power as fancier classics like Windsor and ladder backs. I think that's because the best versions retain the exemplary qualities of Lee's original design—sturdy, comfortable outdoor furniture that helps us relax on the porch, lawn, or beach.



The original "Westport" chair

At the Spruce Point Inn, in Boothbay Harbor, Maine, guests can still enjoy the view while sitting in an original "Westport" chair, shown below. Constructed from wide boards, the original design was patented in 1904. Many such chairs were sold to wealthy owners of vacation camps in the Adirondack mountains of upstate New York.



Tall back

Back support is connected to back ends of armrests.

Wide armrests

Diagonal brace provides additional support for armrest.

Angled seating position

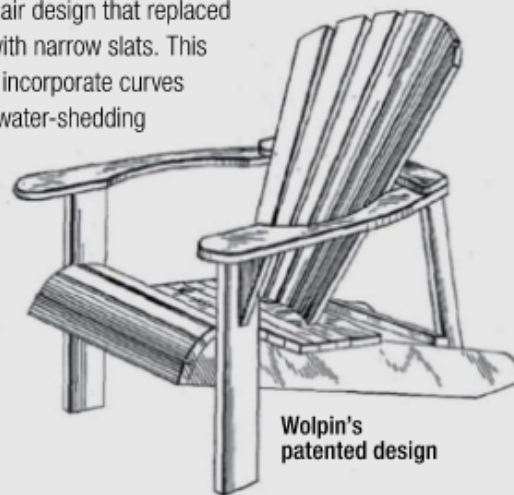
Narrow slats allow seat and back to be curved.

Slanted seat supports extend to form rear legs.

From slabs to slats

In 1938, Irving Wolpin patented a revised chair design that replaced the wide wood slabs of the Westport chair with narrow slats. This modification made it possible for builders to incorporate curves into the seat and back. Slats also improved water-shedding characteristics, facilitated easier repairs, and allowed for even more variations.

Today, folding chair designs are popular, and the Adirondack chair's signature details can be found in many different variations. Just a few are shown below. ■



fastFACTS

- The Adirondack chair was initially called the "Westport chair." It was briefly known as the "Bunnell chair." In Canada, it's known as the "Muskoka chair," due to its popularity in the Muskoka region.
- Some of the most popular Adirondack chairs today are made from recycled plastic lumber.
- Build your own best version! Woodcraft sells 18 different plans for Adirondack chairs and Adirondack-style furniture; you can also buy full-size templates to make all the parts for a classic Adirondack chair. Visit woodcraft.com for details.

COCOBOLO

Beauty that might bite

By Ken Burton

Mention cocobolo to a group of luthiers, and you'll likely get knowing nods and smiles. A renowned tonewood prized by instrument makers worldwide, this dense, tropical lumber is also a beautiful substitute for the rare Brazilian rosewood traditionally used for many guitar bodies. Sometimes called Nicaraguan rosewood, cocobolo is, in fact, a true member of the rosewood family.

Often featuring multicolored stripes, the heartwood ranges in color from yellowish-orange to almost black, while the sharply contrasting sapwood is a pale yellowish tan. Perhaps the only thing that's not attractive about the wood is that its dust can cause allergic reactions in woodworkers, but more on that in a bit.

Where the wood comes from

The lumber comes from a few similar trees, but the most common is *Dalbergia retusa*. Though a tropical wood, cocobolo doesn't come from the rainforest. Instead, the trees grow in the drier regions along Central America's Pacific coast, typically reaching a height of 80 feet, and 3 feet in diameter. Given their desirability, cocobolo trees have been heavily exploited

and even poached from national park preserves. Sadly, cocobolo is listed on the CITES (Convention on International Trade in Endangered Species) Appendix II and on the IUCN (International Union for Conservation of Nature) Red List of Threatened Species due to a 20% decline in its population over the last 20 years.

History in woodworking

Cocobolo first drew the attention of North American manufacturers in New England with the opening of the Panama Canal early in the 20th century. Before that, shipping the heavy wood around Cape Horn wasn't practical. This "new" wood resisted repeated water contact, making it well-suited for fine cutlery handle material. Today, you'll find cocobolo in both stringed and woodwind instruments as well as in pool cues, chess pieces, jewelry boxes, and furniture.

Selecting the best stock

Several online retailers claim that the lumber from Nicaragua has some of the most spectacular color. As when buying any lumber, the best way to get good material is to choose it yourself, but this can be tricky if you don't have a specialty hardwood dealer nearby. Your next best option may be to buy from an online retailer that posts photos of individual boards. Online prices vary widely but are usually north of \$30 per board foot.

Size matters. Much cocobolo is cut into smaller pieces for turning, or resawn into thinner pieces suitable for making musical instruments.

Working cocobolo

Cocobolo dust is a strong sensitizer that can cause severe allergic reactions, so protect your lungs and skin from exposure. Wear a respirator, long sleeves, and perhaps a skin protectant such as North's #222 Barrier Cream. Also, be sure to vacuum up the dust and blow off your clothing before leaving the shop. Don't take this wood lightly. As one woodworker I know put it: "There are two types of woodworkers, those who are allergic to cocobolo, and those who will become allergic to cocobolo."

Cocobolo is hard and heavy, but relatively easy to work using both hand and power tools with sharp blades. The wood turns well and polishes to a glossy luster. But cocobolo's high oil content can impede glues. Wiping the surfaces

Cocobolo Quick Take

DENSITY 69 lbs./cu. ft.
(sinks in water)

HARDNESS Very hard

STABILITY Good

ROT/INSECT RESISTANCE Highly resistant to both moisture and insect damage

TEXTURE Fine

TOXICITY Severe eye, skin and respiratory irritant. Cocobolo is a notorious sensitizer and known to cause nausea, pink eye, and asthma-like symptoms.

USES Musical instruments, turnings, pool cues, furniture, cabinetry, and gift items such as pens and boxes

Rainbow wood.

Cocobolo colors range from orange to purple, sometimes within the same board.

with acetone before gluing may help, but even then the oils may compromise aliphatic resin (white or yellow) glue. For best results, wipe your glue surfaces with acetone *and* use epoxy as an adhesive. Cocobolo holds screws and nails well, but drill pilot holes first.

Finishing

Cocobolo's oiliness loads up sandpaper in a hurry. (One of the shops where I work has banned the wood from the drum sander, as a couple of passes render the abrasive useless.) Use a card scraper before sanding, then an open-coat, stearated abrasive such as Klingspor's "Gold" to polish away the scraper marks. Stearated papers include a lubricant that helps prevent the abrasive from clogging.

Cocobolo's density requires sanding to a fairly high grit (400-600+) to eliminate obvious scratches.

Many wood turners find that cocobolo polishes well with wax-based finishes such as Hut's High Gloss. Evaporative coatings such as shellac or nitrocellulose lacquer work better than reactive coatings like polyurethane. In fact, poly on cocobolo has a reputation for never drying. If you want the durability of polyurethane, first apply several coats of shellac. This seals the wood's natural oils under the shellac, allowing the urethane to cure properly.

One other important note: if glued to another species (especially a lighter-colored wood) color can bleed from the cocobolo into the neighboring species, spoiling the sharply delineated contrast.



Something to pick on. Not only does cocobolo make a sweet-sounding guitar, but a spectacular-looking one as well.

Cocobolo: Working Notes

Cocobolo's reputation as a sensitizer had me worried, so I took a number of precautions. First, I added a dust pickup to my lathe to control the sanding dust. I also grabbed a fresh dust mask/respirator (3M #8210), buttoned my shirt sleeves, and made sure to don my high-necked turner's apron before digging in.

To start, I hand-planed the edges of a few pieces for gluing—I wanted to see if the warnings of cocobolo's oiliness were true. I glued two pairs of pieces together. The first pair I glued directly from hand planing. (The wood planed well, a pleasant surprise given its density.) I wiped the second pair with acetone before applying the glue. For both pairs, I used Titebond II, my go-to adhesive for just about everything. After leaving the test pieces clamped overnight to cure, I tried breaking them apart by securing them in a vise and smacking them with a hammer. Both pieces held better than I expected but gave up right on the glue line. (The lengths I go to give you good advice...)

Spread the news. Cocobolo is well-suited for kitchenware such as the shakers and the cream cheese spreader shown here.

As you can see (left), I turned three pieces from the samples I had. Note the color variation. All pieces started out dark brownish-

purple, almost black. As soon as I cut through the outer, oxidized layer, truly vibrant Crayola-like colors leaped forth: oranges and yellows and reds along with deep browns and purples. It was easy to see why cocobolo is sometimes called the rainbow wood. It turned beautifully, but I had to resharpen my spindle gouge more frequently than usual. The cut surfaces were burnished and glass smooth. Sanding went well too, though the paper loaded quickly as suspected. And even with 400 grit, the cross-grain scratches were obvious. So, I did my final sanding by hand, going with the grain. This produced a smoother surface.

Drilling the end grain for the shakers was not as difficult as I thought it might be, though I expect to sharpen my Forstner bits soon. But I had problems sanding the blade for the cream cheese spreader. After turning, the piece cut well on the bandsaw, but cleaning up the saw marks with my belt sander made short work of the paper. The vivid colors disappeared while sanding, leaving but a hint of oranges and yellows. I suspect that the oils from the darker areas tend to bleed into the lighter areas. Finishing was pretty straightforward: shellac on the shakers and mineral oil for the spreader. Will I use more cocobolo? Yes, but probably only as an accent here and there. Its dark color suggests a certain formality that doesn't quite fit my aesthetic, and its price doesn't quite fit my wallet. ■

No handle necessary

I discovered touch latches when building a pair of narrow wall cabinets for a bathroom remodel. Every door handle I looked at was too big and conspicuous. Touch latches solved the problem by eliminating the need for a handle. Like a conventional magnetic catch, this hardware has a receiving element that is screwed to the case, and a small steel button that's attached to the cabinet door. A short, spring-actuated plunger extends from the receiving element to "catch" the bullet. The plunger retracts when you push the door shut, and springs open when you push in slightly. No handle? No problem.

—Tim Snyder



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—Ken Burton



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Safe turning speeds

Q I enjoyed the article in issue #88 about turning a table lamp, and it got me wondering about lathe speeds. Can you give me some general guidelines as to appropriate rpm when turning? For example, should large-diameter work always be turned more slowly? And does the rpm depend on the type of wood and its density?

—Matt Beyerson, Albuquerque, New Mexico

A For the cleanest, most efficient turning, you want to spin the work as fast as possible while still maintaining stability for safe turning. An imbalanced blank can be difficult to cut. (In extreme cases, it can even make your lathe gallop across the floor.) As you surmise, the right speed is actually a range that depends on a few variables, the most relevant of which is the diameter of the turning blank. Basically, the smaller the diameter, the faster you can spin the wood, as shown in the chart above.

Of course these speed suggestions don't take into account variables such as lopsided wood density or voids, which can introduce imbalance into a piece. So can an asymmetrically sawn blank, which is why it's always wise to begin at low rpm regardless of the diameter.

DIAMETER	SUGGESTED TURNING SPEED (RPM)
Up to 4"	3500
4-10"	1800-3500
10-16"	1000-1800
16-24"	400-1000

Ramp up the speed from there as you shape the piece into balanced concentricity. (This approach is also prudent if you're not entirely certain about the security of the blank-to-lathe attachment.) And don't forget to check the lathe speed setting *before* you turn the machine on!

Changing speed and gauging specific rpm is easy using EVS (Electronic Variable Speed) controls, found on many modern lathes. Specific rpm may be harder to gauge on multi-pulley lathes that simply offer a variety of speed setting. Every turner has a particular comfort level regarding speed. Heed yours. Regardless of any recommended "optimum" rpm, if it makes you uncomfortable or tense, slow it down.

—Answered by professional turner Mike Kehs ■

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Build a Classic SPICE BOX Part 1

Master challenging joinery details to create a masterpiece

By Chris Hedges

Today you could easily use a spice box to store many things besides spices. But to appreciate the importance of this classic creation has for woodworkers, you have to go back several centuries, when spice boxes were true to their name. Back then, spices were a luxury that only the wealthy could afford. A family in Colonial America with financial means to purchase spices from around the world could also afford to have an exquisite storage cabinet designed and built by the best woodworker in the community.

Just as the spice box became a symbol of affluence for wealthy colonists, it also became a crowning achievement for a woodworker. It's easy to understand why. With its dovetailed case, molding details and intricately divided interior, this piece showcases challenging joinery as well as beautiful wood grains.

This article is the first in a two-part series that explains how I built a classic spice box from start to finish. Associated articles are also part of this multi-issue project—to cover special tips and techniques.

Building the spice box from start to finish—a big project with 6 major construction steps

Covered in this issue: *Spice Box, Part 1:*

1. Make the case (sides, top, bottom)
2. Make and install interior dividers
3. Make and install the cornice and base

Covered in April/May issue: *Spice Box, Part 2:*

4. Build and install the drawers
5. Make the door, install hardware, and then hang the door
6. Make and install the back, then sand and finish



Excellent elements. From bottom to top, this small case makes a big statement about the design and quality construction.



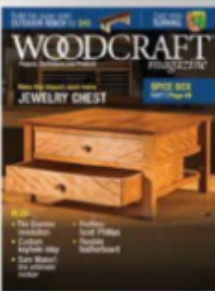
Track your progress!
The Project Tracker icon provides an easy way to spot where you are in the overall construction process.



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Photo: Larry Harner (carbide), Illustration: Christopher Nicks

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Looking Ahead

Here's a sneak peek at our next issue.

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Buyer's Guide

Hot New Tools (p. 16)

1. Woodpeckers Basic Slab Flattening Mill #165747, **\$799.99**
2. Whiteside Spoilboard Surfacing Bit, 2" D, 1/2" CL, 1/2" SH #868312, **\$79.46**
3. Lumber Wizard 5 Metal Detector..... #164254, **\$149.99**

Spun Spoons (p. 28)

1. WoodRiver Patternmaker's Carving Vise..... #142768, **\$144.99**
2. King Arthur's Tools Inflatable Round Sander..... #147535, **\$45.99**
3. WoodRiver New Wave 2" Sanding Disc Attachment..... #152801, **\$16.99**
4. Klingspor Abrasives Gold Sand Mop 2 x 6", 120-grit... woodworkingshop.com, **\$72.95**

How Good is Plastic Wood? (p. 32)

1. **PVC trim boards and sheets** are available from Home Depot, Lowes, and other building supply outlets. Trim boards are 3/4" thick. Different widths and lengths up to 16' are available.
2. **Capped decking boards** (typically 1 x 6 x 16") are available from Home Depot, Lowes, and other building supply outlets.
3. **Uncapped decking and other composite lumber** are available from:
 - Plastic Lumber yard..... www.plasticlumberyard.com, (610) 277-3900
 - Plasteak..... www.plasteak.com, (800) 320-1841
 - Tangent..... www.tangentusa.com, (630) 264-1110
4. **HDPE plastic lumber** is available from:
 - Tangent..... www.tangentusa.com, (630) 264-1110
 - Bedford Technology..... www.plasticboards.com, (800) 721-9037
 - WoodRiver 1/4" x 20 Cross Dowels (8-piece)..... #163135, **\$6.25**
 - WoodRiver 1/4" x 20 x 3" Knockdown Joint Connector Bolts (8-piece)..... #163130, **\$5.75**

Storage Ottoman (p. 36)

1. Maple Veneer, 3 sq. ft. pack (2 needed)..... #158814, **\$10.19**
2. Walnut Veneer, 1/4"-thick 3 sq. ft. pack (1 needed)..... #162239, **\$14.99**
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5. Whiteside Over-Under Flush Trim Router Bit, 1/2" D, 1" CL, 1/2" SH..... #147970, **\$25.06**
6. General Finishes - Seal A Cell Finish, Clear, qt..... #85S09, **\$19.99**
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Flag Cutting Board (p. 48)

1. Freud Double Flute Straight Bit, 1/2" D, 1/4" CL, 1/2" SH..... #828670, **\$18.47**
2. 1 1/2" O.D. Template Guide..... imaginegrove.com, **\$11.95**
3. Woodpeckers Deluxe Hold Down Clamp..... #142603, **\$11.99**
4. Freud Pattern Router Bit Top Bearin, 1 1/4" D, 1 1/2" CL, 1/2" SH..... #828894, **\$56.47**

Sparkling Star Inlay (p. 53)

1. System 3 Mirror Coat, 1 1/4 pt..... #143153, **\$40.99**
2. TransTint Dye, Blue, 2 oz..... #128489, **\$20.99**
3. Easy Inlay Mother of Pearl, Flake, 1 oz..... #164472, **\$12.99**
4. Easy Inlay Mother of Pearl, Fine, 1 oz..... #164473, **\$12.99**
5. Whiteside Solid Brass Router Inlay Router Bit Set..... #09116, **\$45.48**
6. Electric Start Propane Torch with Push-button Starter..... amazon.com, **\$24.99**
7. Howard's Butcher Block Conditioner, 12 oz..... #154382, **\$8.99**

Outdoor Bench and Planter (p. 57)

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1. Kreg R3 Pocket Hole Jig Kit..... #147643, **\$39.99**
2. Kreg Standard Pocket Hole Plug Cutter Bit..... #162475, **\$44.99**
3. GRK #9 x 2 1/2" Multi-purpose Screws, 110-pack..... www.homedepot.com, **\$7.20**
4. GRK #8 x 2" Trim-head Screws, 100-pack..... www.homedepot.com, **\$8.68**

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5. Bench:	Quantity:	Dimension:
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	1	2 x 4 x 12'
	1	2 x 6 x 8'
6. Planters:	Quantity:	Dimension:
	1	2 x 2 x 12'
	3	1 x 6 x 12'

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Great Gear (p. 64)

1. Hafele Magnetic Touch Latch, Single, Black..... #27H18, **\$2.25**
2. Gulf Wax Household Paraffin Wax, 1 lbs. Bar..... amazon.com, **\$5.99**

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Managing CRITICISM

OW! Thank you, sir! May I have another?!

By Paul Anthony

When I belonged to the Sonoma County (CA) Woodworkers Association back in the early 90's, the group hosted an annual competition and exhibition at the county museum. One of the benefits of submitting a piece was that you could request peer feedback during a pre-show critique. Although only about 15% of us in the group were professionals, most members approached their work just as seriously as we did, so the sessions were a great opportunity for thoughtful review by knowledgeable colleagues who really cared about the craft.

I always got something out of it, whether it was a suggestion to use better quality hinges or to pay closer attention to my veneer layups. Did the criticism sting? A bit, sure, but I guess I was primed for it, having grown up with three sisters who were unabashed about pointing out my personal failings. In fact, I've learned that constructive criticism can actually be a spoonful of medicine, even if it makes us purse our lips in protest. The problem is that our faulty filters can all too easily mistranslate what people are saying: "Um, you cut your dovetails backwards and that blob of epoxy filler looks like bird droppings" can too easily come across as "Your work sucks. You oughta just quit."

But inviting criticism shouldn't raise the specter of the fraternity pledge in *Animal House* requesting another paddle whack from the sadist Neidermeyer. What you

want is basically the friendly concern of a fellow chimp picking your nits. So go ahead and ask for it. But make the most of it by approaching it sensibly. For example, just pointing and asking "Whaddaya think?" may simply get you "Looks good!", which doesn't really help you out, even if it's honest. Instead, target specifics: "Does this wood combination work? Is this molding too prominent? Does that splinter you just got from rubbing the edge hurt?" This tack can yield some real food for thought: Hm-m-m, maybe cherry and oak aren't such great color companions. Or, yeah, the molding is a great transitional element, but it's just too big. And perhaps I should sand my edges a little better.

Also, be mindful of whom you ask, especially if you're looking not only for the bad, but the good, which is valuable intel too. My friend Walt, for example, is never short of thoughtful criticism, but everyone knows you don't go fishing for compliments in his lake. And keep in mind that sometimes things are just a matter of taste. After all, Barry Manilow probably wouldn't be your go-to guy for a critique of Kanye West's latest rap album. So don't hold up your Shaker chair for review by a rabid fan of recycled pallet furniture. That said, remember that valuable input can come from anyone.

The point is, if you want to up your woodworking game, learn to listen, but always keep a grain of salt on hand. And if you're veneer-skinned, you probably shouldn't ask for my sisters' opinions. Or Walt's. And definitely watch out for Neidermeyer. ■



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