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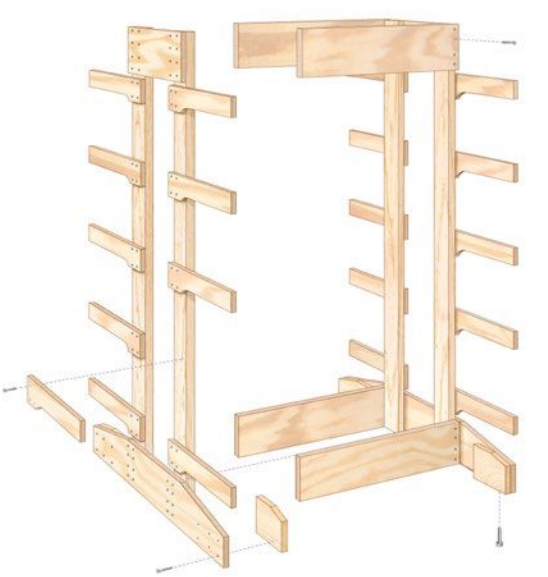

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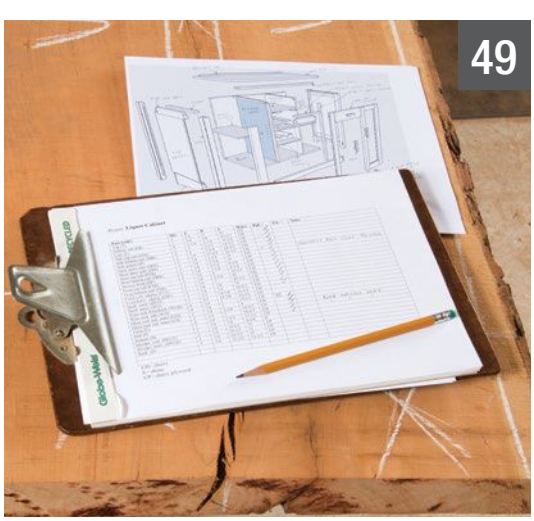

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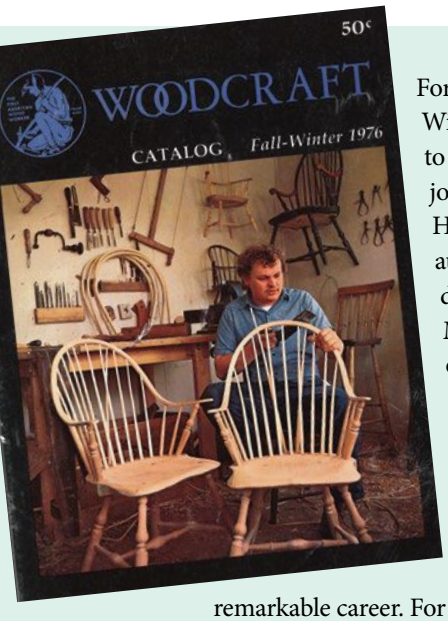
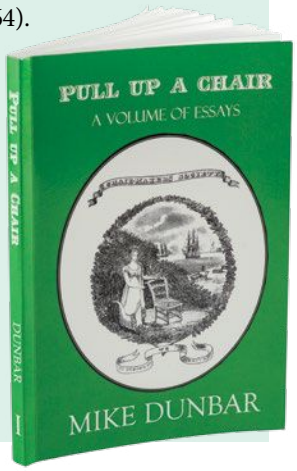
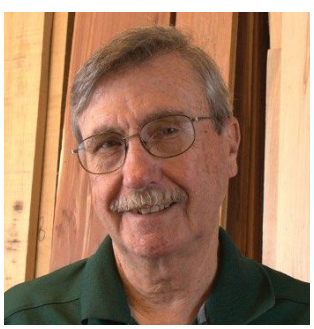
Contributors



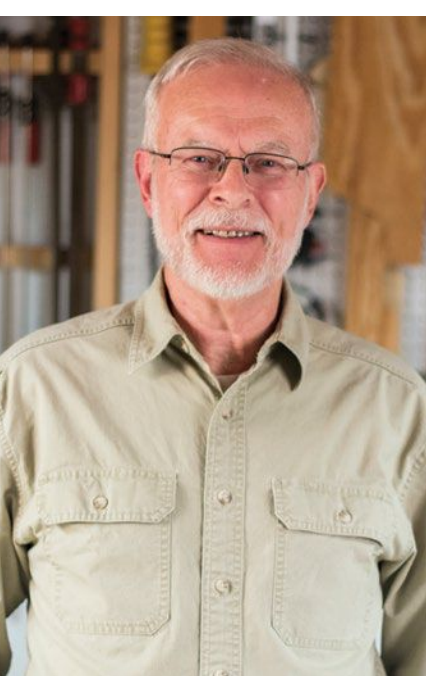
For over 30 years, **Mike Dunbar** has built Windsor chairs and taught chairmaking to students from all over the world who journeyed to The Windsor Institute in Hampton, NH. There could be no better authority to launch our Famous Furniture department (see p. 64).

Mike was featured on the cover of a Woodcraft catalog back in 1976; the cover image (left) shows the craftsman at the beginning of a remarkable career. For an informative and entertaining view of chairmaking history, pick up a copy of his new book of essays, *Pull up a chair*.





With over 40 years of woodworking experience and affiliation with Woodcraft for 11 years, **Al Huls** currently manages the Woodcraft store in Indianapolis, Indiana. Al teaches classes on tablesaws, bandsaws, sharpening, finishing, Shaker oval boxes and hand planes (see p. 21) at the Indianapolis store.

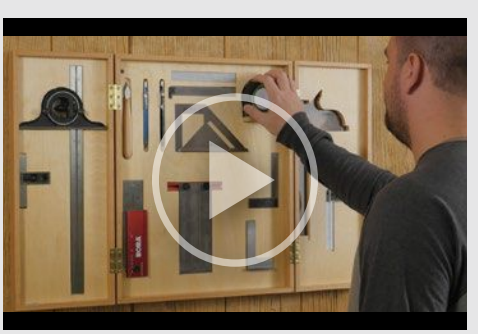


Russ Svendsen, a mechanical engineer and Vietnam vet, grew up on the north coast of California. For 18 years, his professional career in aircraft engines and oil and gas machinery took Russ and wife Diane to the Netherlands, Denmark, Iran, England, and India. Despite no formal training in woodworking, Russ has been creating household furnishings and more recently woodcarving for more than 50 years. His work in process innovation has instilled a natural instinct to simplify his many projects. In addition to an interest in old cars, Russ is a keen Ancestry researcher which has led him to write down the memories of his life. Russ and his wife Diane have three daughters and seven grandchildren and are now retired and living in the enchanted mountains of Olean, NY.

A former art teacher and interior designer, **Susan "Swooz" Hudson** now employs her colorful collection of experiences assisting with the development of the Black Dog Salvage paint line, devising new finishes for the projects featured on the DIY network's *Salvage Dawgs* and/or sold in the store, and teaching her finishing tips and tricks at Black Dog's factory-turned-store-and-workshop in Roanoke, Virginia.

Swooz spends her free time in her studio refinishing and painting furniture, throwing pots, and creating wacky sculptures using found objects and other junk. ■

On the **Web**



Handy holder. First see page 56 for details on how to customize a cabinet for your favorite measuring and marking tools. Then stop by our website for a video demonstrating the innovative features. ■

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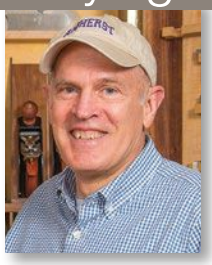

Enjoy the journey

There was some debate about putting this issue's cover project in the magazine.

"A spice box is way too complicated."

"We'll never be able to cover all the steps in a single issue."

"Can we really afford all the drawings we'll need for this project?"

So what tipped the scales to make this impressive display of joinery part of this issue's project selection? Let me explain…

First of all, even if you don't want to build a spice box, there are some useful techniques here that you may want to use on other projects: building a dovetailed case, installing a cornice molding, or dividing a small cabinet into compartments, for example. And the second half of this project (coming up in the next issue) includes other useful techniques, like installing a faux ivory inlay around a keyhole and fitting a door with a half-mortise lockset.

When I expressed my concerns about the spice box to its builder, Chris Hedges, he had an interesting answer. "It's the ultimate challenge for a woodworker, and has been for centuries," he explained.

Josh Lane, curator of furniture at the Winterthur museum, agrees with Chris. "Over the years, we've seen collectors pay between $25,000 and $100,000 for antique spice boxes and similar tabletop chests," he says. Wow! How do you feel about building something that will be a family heirloom for generations to come?

Of course, there are plenty of other good features in this issue besides the spice box. How about trying out some decorative finishing techniques (p. 25) or transforming a block of wood into a block plane (p. 21)? The adjustable trivet is another weekend project that is sure to be appreciated right away. And Paul Anthony's cut list story (p. 49) has insights that will help you avoid mistakes and get excellent results in all kinds of projects.

Like the path each of us takes through life, our woodworking journeys have plenty of twists and turns. We like to try things out and take on new challenges. Whether you think there's a spice box in your future or not, our aim is to make your journey fun and rewarding. We're in this together, and we're always interested to learn what woodworking challenges you'd like to explore. ■

Quest for the best. Photographer Larry Hamel-Lambert goes all out to get the right viewpoint when we're documenting project construction. Here he's photographing Chris Hedges, who designed and built the spice box for this issue.

WOODCRAFT magazine

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Senior Editors: Paul Anthony, Joe Hurst-Wajszczuk
Managing Editor: Chad McClung
Associate Art Director: Bobby Schehl
Contributing Editor: Chris Hedges
Copy Editor: Sharon Hambrick
Publisher: Gary Lombard
Advertising Sales Manager: Vic Lombard
Circulation Support: Kim McLaughlin, Stacey Bartenschlag
Office Manager: Connie Harmon
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Contact us:
4420 Emerson Avenue, Suite A
P.O. Box 7020, Parkersburg, WV 26102-7020
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editor@woodcraftmagazine.com

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Marc Spagnuolo

on starting The Wood Whisperer, *mentors, and working with your hands.*

A motley crew. Marc (the one in the middle) and his two apprentices, Mateo (left) and Ava.

Marc Spagnuolo, aka The Wood Whisperer, has been sharing his craft online for over a decade. But that's not all. Since then, with his family firmly in his corner, he's created a successful guild, produced audio and video podcasts, sold project plans, and written a book called *Hybrid Woodworking* to share what he's learned about combining hand tool and power tool techniques.

I managed to catch Marc during a rare few minutes of downtime. We talked about how *The Wood Whisperer* got its start, who inspires Marc, and the importance of working with your hands.

—Chad McClung

WC: How did *The Wood Whisperer* get started?

MS: My wife, Nicole, and I originally tried to boost our furnituremaking business. I wasn't expecting to teach people woodworking and encourage them to join a movement. But we soon realized that our real audience is the woodworker. We thought "maybe we should talk to them directly," and that's when *The Wood Whisperer* was born.

WC: So you decided early on to reach woodworkers online rather than through other channels?

MS: Back then, if you wanted recognition in the woodworking world, you had to be published. Magazines were the gate keepers. If you weren't published in one of those magazines, it was difficult to break the barrier from nobody to somebody. But social media allowed me to build an audience without asking permission. My content existed on its own merit. If people liked it, they liked it, and if they wanted to follow me on social media, they could. It was the presence of social media and burgeoning technology that allowed me to spread my own message.

WC: These days the Internet is inundated with woodworking education. What do you do to keep relevant?

MS: My goals are to be as high quality as I can be, and to keep the videos clear with good lighting and a good camera. Of course the other side of the quality is the information. I vet the information that I push out to people, so no one can say, "Hey, I tried that, and it didn't work, you're full of it!"

WC: Have there been mentors who have helped you along in your woodworking and media journey?

MS: Woodworking for me comes down to the two shows I watched growing up: *The New Yankee Workshop* and *Woodworks*. Norm was like an awesome uncle. He had such an amazing television persona that is inviting and makes you feel good. It was inspirational. Norm and David Marks taught me that woodworking is a great way to spend my time. I owe both of them a huge debt for inspiring me to follow this fun and rewarding career path.

WC: What about non-woodworkers?

MS: I'm a big fan of Mike Rowe. He's an advocate for blue-collar workers everywhere who make a living with their hands. Not everyone is college-bound. In the U.S. we've been brainwashed to think that for success, you must go to college. There are so many good blue collar jobs out there for people who want to work with their hands in a trade and make a living and provide for a family. That should not be put down or be seen as lesser than white collar work. That's an incredible message.

WC: What advice would you give to a beginning woodworker?

MS: Focus on hand tools early. This isn't about tradition; it's about technique. Using a hand plane will teach you the importance of reading grain direction, and keeping cutting edges sharp. You'll get better results from power tools if you have hand tool fundamentals in place. ■

onlineEXTRA

We've only scratched the surface here. Go to *woodcraftmagazine.com* to read our full interview with Marc.

Photo: Nicole Spagnuolo

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- Cutterhead speed: 5000 RPM
- Cutterhead diameter: 2½"
- Maximum depth of cut: ⅛"
- Maximum rabbeting depth: ½"
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- Spindle travel: ⅞", Diameter: ½", Length: 3"
- Spindle capacity under nut: 2⅜"
- Spindle speed: 8900 RPM
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- Swing over tool rest base: 9½"
- Distance between centers: 16½"
- Variable speeds (650–3800 RPM)
- Tool rest width: 5⅛"
- Spindle size: 1" x 8 TPI RH
- Spindle and tailstock taper: MT#2
- Overall dimensions: 38¾"W x 12"D x 17"H
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Check out our convoy

In the days before Christmas, we received many emails from readers, woodworking guilds, and Woodcraft stores, all proudly sharing photos from successful toy-building events inspired by Don Russell's "Toy Trucks from 2×4's" (Oct/Nov, Issue #73). Don's clever design and mass-production tricks proved to be a winning combination. Based on the feedback we received, the trucks were as fun to build as they were to give away. In addition to brightening the holidays for hundreds of kids, it was clear that the project also afforded experienced woodworkers the opportunity to share their skills and passion for woodworking with beginners of all ages.

So, to all those who donned elf hats during the recent holidays: Woodcraft Supply and all of us at the magazine extend our congratulations for a job well done!

Walpole, MA

Austin, TX

Keep on truckin'. With help from their local Woodcraft stores, volunteers used the toy truck article appearing in issue #73 to build hundreds of toys to help brighten the holidays for tons of needy kids.

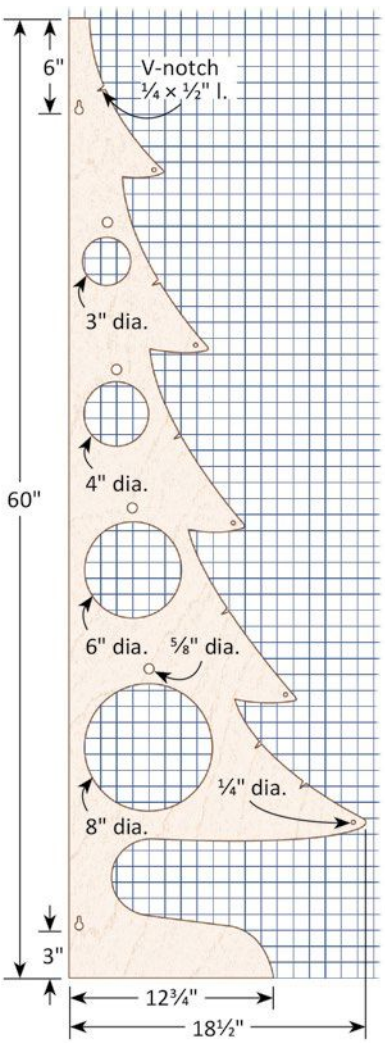
Keep those big wheels turning

Several sharp-eyed readers alerted us to a few errors that snuck into Issue #74's "Dynamo Men Lamp." To review the revisions and download full-scale (PDF) patterns of the gears and men, go to *woodcraftmagazine.com* and select the onlineEXTRAS tab.

This project's popularity has created a temporary shortage of 16-rpm timing motors to spin the gears. Author and kit supplier John Hutchinson reports that a fresh supply of motors is on the way. In the meantime, similar motors can be obtained from different sources, but you might need to improvise a driveshaft connection to link up with the gear assembly.

Special plywood for the Flat-Pack Tree

As I scanned through the "Flat-Pack Christmas Tree" (Dec/Jan, Issue #74) I noticed that the Bough Layout pattern seemed a bit out of sorts. As listed in the story, the dimensions of the sheet are 60" square. I am not familiar with lumberyards stocking 5×5'-wide panels, except as a custom production run? Is this a typo?
—Cecil Crider, Calumet, Michigan



Senior Editor Paul Anthony responds: It's true that that 5'-square plywood panels are not typically available in regular lumberyards or big box stores, which is why the article intro notes: "Baltic birch or Appleply plywood (available from hardwood plywood dealers) is a good choice for the panels." Compared to standard plywood, Appleply is stronger, lighter, and free of voids. It also accepts paint wonderfully, making it the perfect material for this job.

To find a dealer in your area, visit: *appleply.com* and click on "Where to buy" in the top menu bar. Once you try it, I think you'll agree that this specialty sheet good is worth the hunt.

(Although this response is arriving a little late for the 2016 Christmas season, we didn't want readers to miss out on a stellar product for other projects. Of course, it's never too early to start working on projects for Christmas 2017.)

California Dreamer announced

Woodcraft and SawStop are pleased to announce the winner of the "The Jory Brigham Experience" sweepstakes. Gigi Branch, from San Antonio, Texas, was randomly selected from over 24,000 entries. Later this year, she and a guest will fly to California and enjoy a three-day, two-on-one furniture-making class with cutting-edge woodworker Jory Brigham in his Paso Robles studio. In addition, Gigi will be receiving a SawStop Professional tablesaw and over $1,000 in additional tools and accessories. ■

Two clock-beating glues

Titebond Quick & Thick and DAP Rapid Fuse Wood Adhesive

	Rapid Fuse	Quick & Thick
Type	CA	PVA
Works with	Wood, ABS, PVC, Ceramic, Glass, Stone, Melamine, Rubber, Steel, Fabric	Wood, Ceramic, Glass, Stone, Fabric, Leather
Initial Set	30 seconds	3-5 minutes
Clamp Time	5 minutes	15 minutes
Full Cure	30 minutes	24 hours
Viscosity	Medium (syrup)	Thick (caulk)
Gap-filling	No	Yes (up to 1/32")
Water-resistant	Yes	No
Cost	4 oz., $10.99	8 oz., $3.99
Cleanup	Wait until dry	Water

Woodworkers don't need a degree in theoretical physics to understand the relativity of time; particularly, how a clock spins faster as a deadline approaches. Waiting for glue to dry can be a major frustration. Titebond and DAP have recently introduced two new glues that can help you get to the finish line faster. To find your go-to glue the next time that time's tight, here's what you need to know.

Titebond's Quick & Thick behaves much like other polyvinyl acetates (PVAs), but compared to regular yellow glue, this special blend can cut your assembly time in half. The only noticeable difference is in the viscosity of the glue; as the name suggests, Q&T is 3× thicker than regular glue. I noticed one advantage of this caulk-like consistency right away: The glue doesn't drip, minimizing cleanup. Another plus: The glue's higher solids content enables you to fill small gaps (up to 1/32").

Full cure is overnight, but I found that sample joints were solid enough for light handling after only 15 minutes of clamp time. Quick & Thick has admirable versatility. In addition to wood-to-wood bonds, this glue sticks to a host of other materials as long as one of them allows water to escape during the curing process (see chart, above). Add in "easy water cleanup," and the result is a great multi-purpose adhesive.

For crazy-fast assembly times, consider Rapid Fuse. In most cases, you can remove the clamps and proceed with light work in less than 10 minutes. In a half-hour, the joint is fully-cured and ready for planing, sanding, or finishing.

What makes this glue different from other fast-drying cyanoacrylates (CAs) is its woodworker-friendly formulation. For starters, despite a fast curing time, clamping isn't a race against the clock. The glue remains wet for several minutes until the parts are joined together and clamping pressure is applied. Even after applying the clamps, parts can be repositioned for about 3 minutes before the glue sets. In contrast to other CA glues that are notoriously brittle (and get even more so in time), Rapid Fuse has additional flexibility that improves its initial and long-term bond strength.

Picking a winner depends on the nature of the race. Quick & Thick's ability to bond all sorts of porous materials, to fill minor gaps, and easy water cleanup make it the more forgiving of the two. In addition, this glue costs less. It's a great product to have on hand for woodworking projects, general repairs, and crafts—definitely my first choice when working on a project with kids.

Rapid Fuse is the clear winner when saving time is a top priority. When you factor in the glue's water resistance, you've got an excellent option for making a last-minute cutting board, or an outdoor project. And, unlike PVA adhesives, CAs are not water-based, so there's no risk of sanding joints and having them shrink and create divots later as the wood dries out. On the other hand, Rapid Fuse comes with a characteristic CA solvent smell, and the possibility of stuck fingers. Good ventilation and protective gloves are important when using this adhesive.

Bottom line: I think most woodworkers will find it helpful to keep both glues handy. ■

Tester: Joe Hurst-Wajszcuk

For more information, see Buyer's Guide on p. 66.

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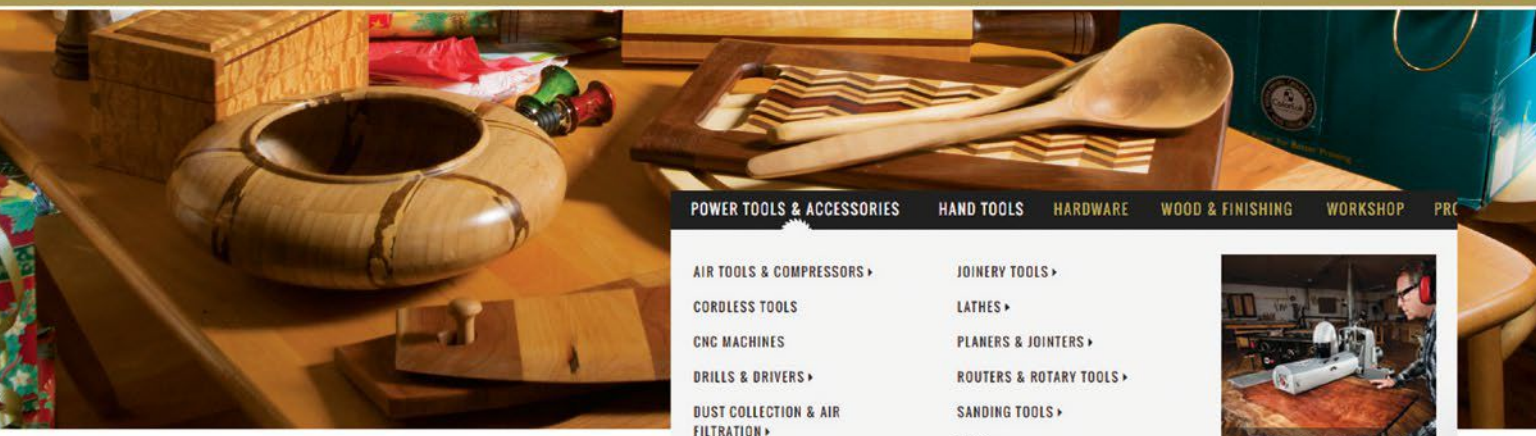

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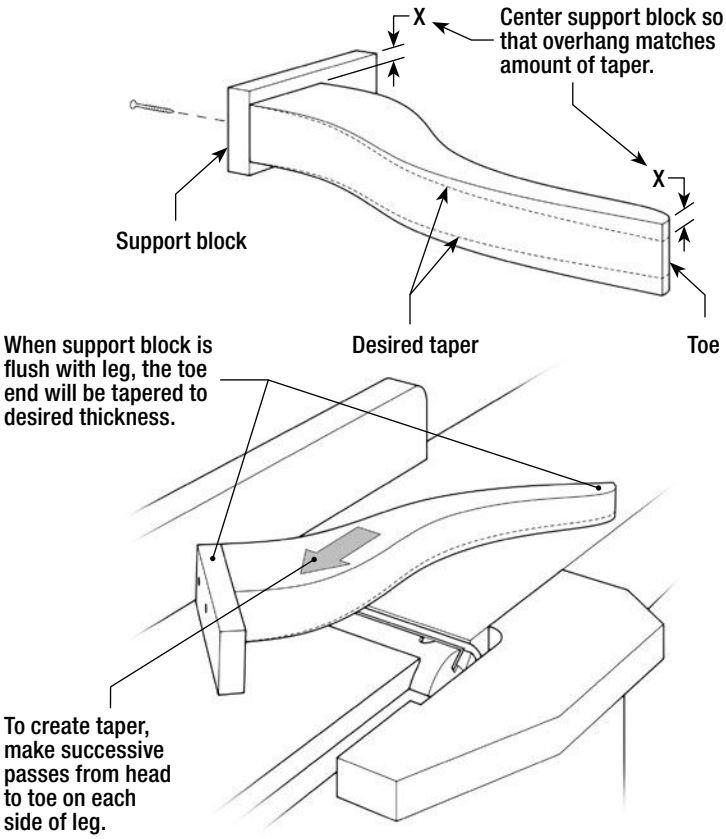
TOP TIP

Curved tapers on the jointer

I recently had to replace a broken leg on a Duncan Phyfe style candlestand table. These legs are curved, so you can't taper them on the tablesaw. They are also tapered fully end-to-end, so you can't shape them on the jointer the way you can a stop-tapered leg. So here's how to pull off the job: After planing the leg stock to the thickest dimension at the head and cutting the curved shape, mark the desired thickness at the toe. Then prepare a piece of sacrificial support stock that's wider than the head end by an amount equal to twice the desired taper, and longer than the length of the head by a couple inches. Center the support across the thickness of the head, attaching it with two screws. Run the piece over a jointer from head to foot in successive passes until the support is flush with the leg, at which point it should be down to the thickness marks you made at the toe.

—Russ Svendsen, Olean, New York

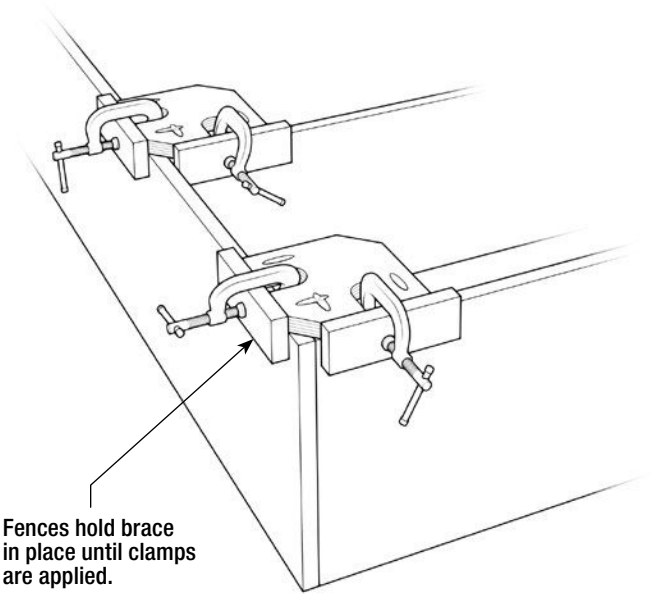


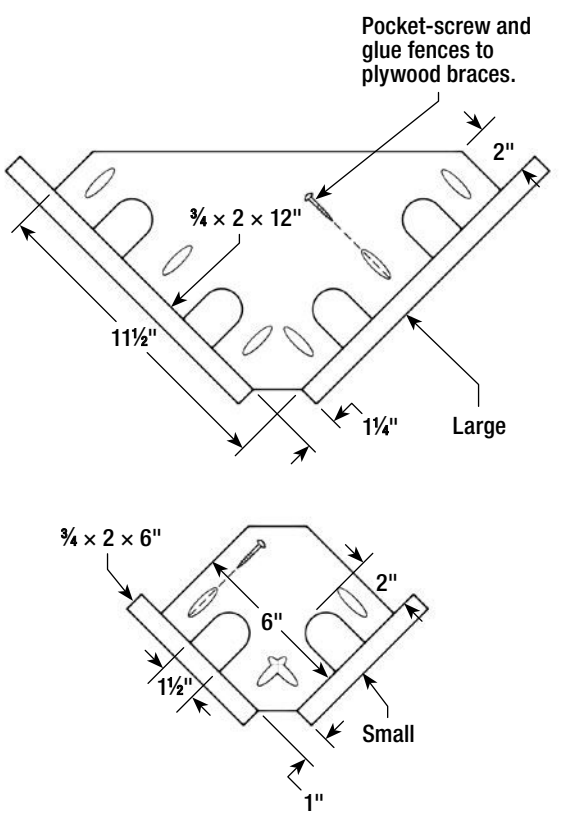
Self-positioning assembly braces

Squaring braces can be very helpful for assembling cases and drawers. Expensive commercial versions are available, but simple plywood triangles with notches or holes serving for clamp purchase work pretty well. However, I decided to upgrade to the shop-made fenced versions shown for a recent large cabinet project. Unlike standard flat triangles, these braces can rest atop case or drawer side edges, holding the parts together while you set the clamps.

I recommend making large and small braces to accommodate different size cases. The dimensions aren't critical, but the outermost corner must be an accurate right angle. Locate the fences about 1" out from the inside corner so that they don't get in the way when positioning a divider or shelf in the middle of a case. These braces are designed for ¾"-thick adjoining pieces. For thicker wood, or for assembling face frames or other projects, they can be clamped to the inside corners, like simpler fence-less braces.

—Joe Hurst, senior editor





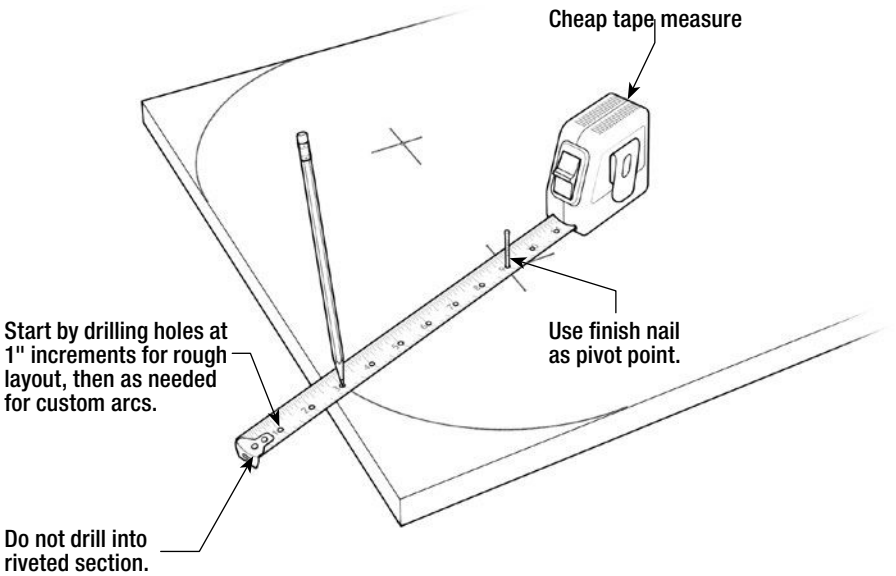
Illustrations: Christopher Mills

Tape rule trammel

Trammel heads—the kind that clamp onto a strip of wood—are the tool of choice when laying out circles and arcs. Unfortunately, they can be expensive, and require a suitable strip of wood for the job, which may not be available when you need it. A handier alternative may be sitting in your kitchen junk drawer: an old tape rule.

All it takes to convert a tape rule into a trammel is a few minutes on the drill press. I drilled a row of ⅛"-diameter holes (roughly the diameter of a #4 finish nail) at one inch increments in the tape blade. (For a custom-sized arc, it's easy enough to drill or punch another hole where needed.)

—Walt Summers, Miami, Florida



Hide your dark side

When you're trying some new technique or finish on a project, start off in a discreet area like the back, an underside, or low at the rear of the piece to let you get the feel of it. That way, if you happen to screw up, you won't be loudly announcing the flaw. And when you do make a mistake on a piece, for gosh sake, don't ruin someone's compliment of your work by immediately pointing out and apologizing for the goof. Well, try not to, anyway. ■

—Uncle Remus, Truth or Consequences, New Mexico

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Handmade BLOCK PLANE

Turn a block of wood into a useful, beautiful tool

By Al Huls

This block plane project is a great way to get started in plane-making. A few inexpensive items from Woodcraft and some scrap wood are all you need to make an attractive and handy tool in just a few hours. It's as easy as cutting apart a block and gluing it back together in a different way. A simple template will help you align the parts during glue-up. Using the same techniques shown here, you can create larger handmade planes to add to your hand tool arsenal. You'll find a new satisfaction in your woodworking when you reach for a wooden plane that you made.

Inexpensive materials. A block of thermally modified "roasted" maple provides you with strong, stable wood for your plane (see p. 68 for more details). Add a high-quality blade, two dowels and some scrap stock for the wedge, and you're ready to build.

Solid performer. The plane shown here has sides made from walnut, but it's also possible to build your version from a single block of wood, as shown on the pages ahead.

Photos: Larry Hamel-Lambert

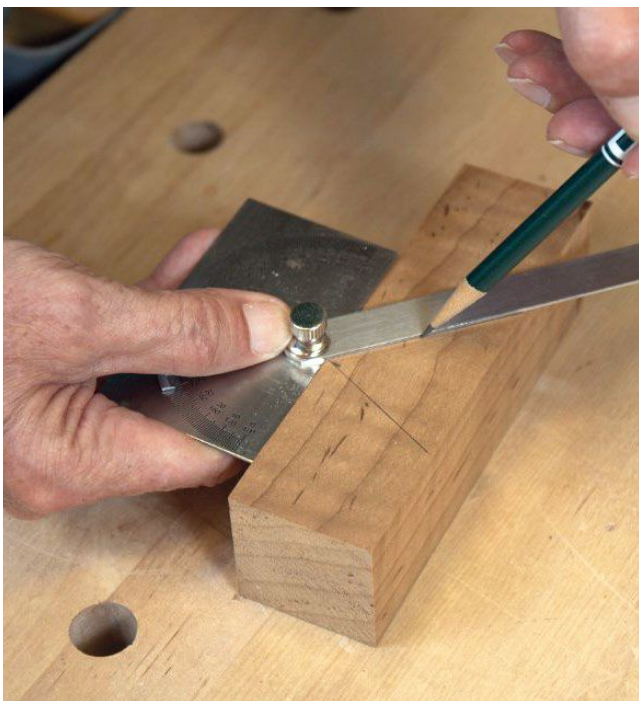
Keys to success: Accurate angles, a template, and good boring work

One nifty thing about this project is the transformation that occurs when you cut a solid block of wood apart, and then glue it back together in a different way. It starts with accurate angle layout on a workpiece dimensioned with square corners. I make the angled cuts on a bandsaw, then sand the sawn surfaces smooth. But if you start with a longer block, the angled cuts can be made on a chop saw or tablesaw.

The template is also important because it ensures proper spacing of parts. Give it a good coat of wax so that nose and tail pieces can be clamped to the template without sticking when you glue the parts together. The triangular piece can be glued in place separately, after the initial assembly is complete.

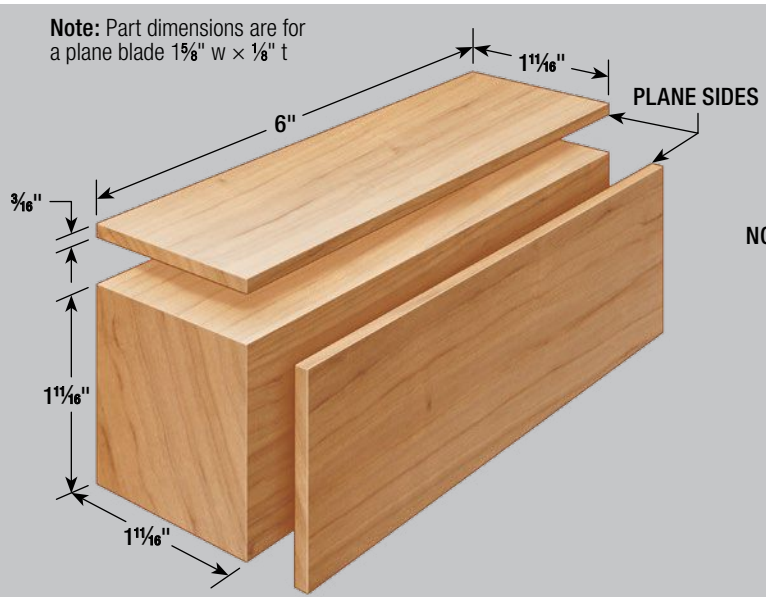
Accuracy isn't important with the dowels that pin the sides to the nose and tail pieces. But it is for the crosspin dowel that holds the wedge. Lay out the hole location carefully (see photo), and use backer blocks to prevent tearout when drilling through the sides.

Round the corners of your plane for appearance and comfort. Fine blade adjustments are made by using a mallet to tap the front end of the plane (to advance the blade) or rear (to retract). Lock blade position by tapping the wedge.

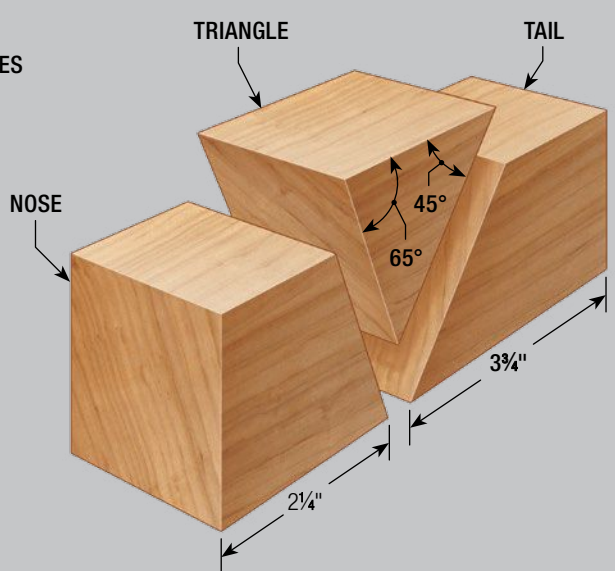


Find the angle and cut the block. Measure 2¼" from one end of your block. From this mark, draw a 65° line toward the front end, and a 45° line toward the back. Cut to these lines on the bandsaw and sand the 45° and 65° surfaces. Save the triangle cutout. Now, cut off the tip of the nose piece, creating a ¼" flat.

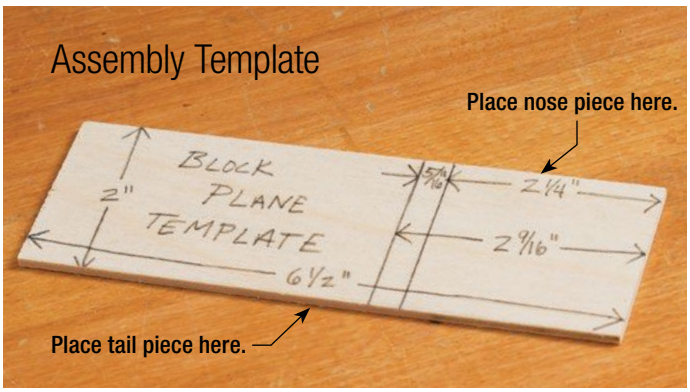
Tricky transformation: Cut the block apart, glue it back together, then add dowels and wedge

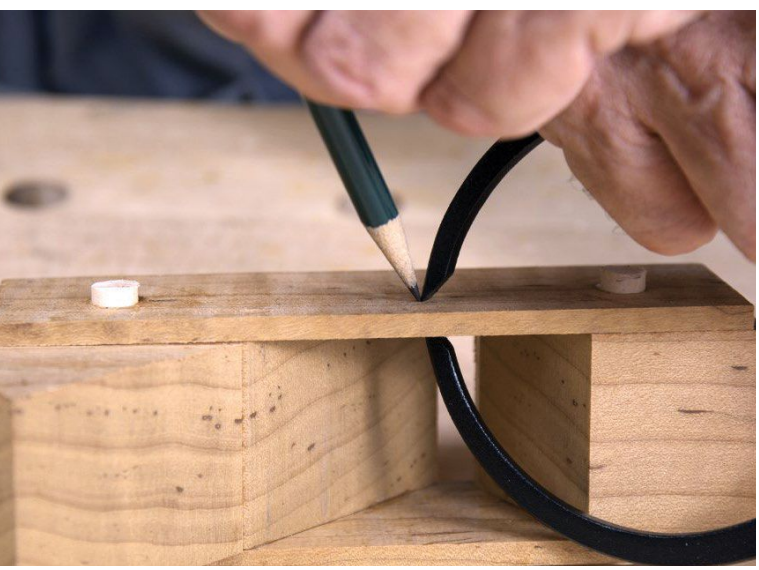


Step 1: Start with a blank that's 2 × 2 × 6" or larger. Rip your block 1/16" wider than the width of your plane blade. After ripping, it should be square in section.

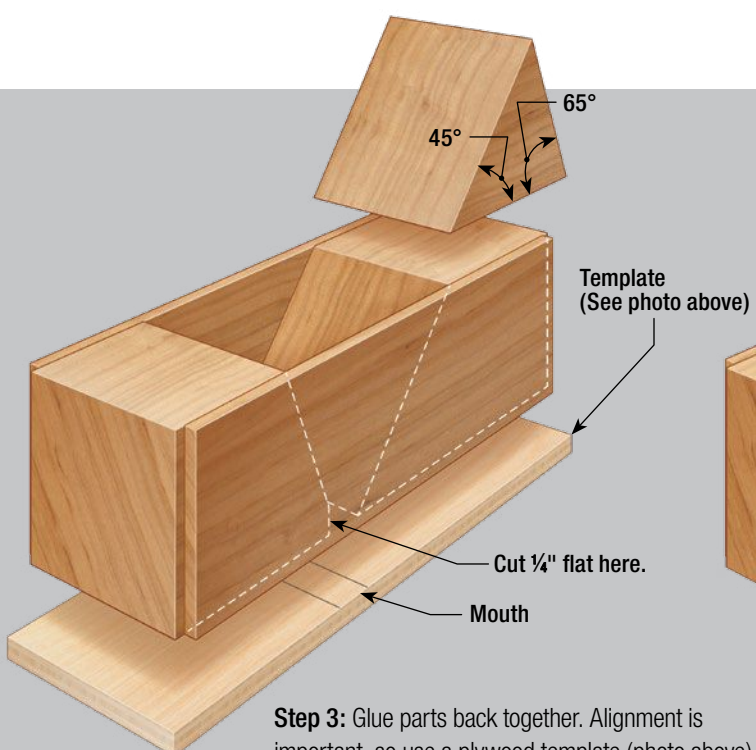


Step 2: Set aside the side pieces, and cut the block into three angled pieces as shown. Sand surfaces smooth to prepare for the next step.

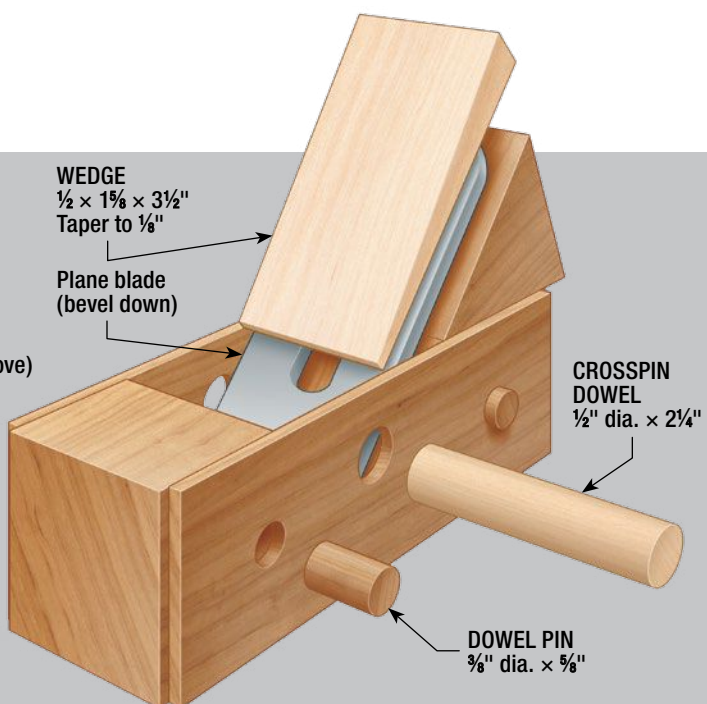




Find the hole location and drill. From the center of the plane side, measure down inside the throat ⅝" from the top edge. Place a rule against the 45° ramp and measure out ½". Use calipers as shown at left to transfer your mark to the outside of the plane wall. Center a sharp ½" brad-point bit on this mark, and drill through both sides of the plane, using backer stock to prevent tearout.



Step 3: Glue parts back together. Alignment is important, so use a plywood template (photo above) to make sure parts are properly positioned.



Step 4: Install dowels and make the wedge. Glue the dowel pins, but not the crosspin dowel.

Project photos: Rick Dubbs; Illustrations: Frank Rohrbach III

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DISTRESS Done Right

3 great ways to add years of character (in about a day) with Black Dog paints

By Susan Hudson

Not too many years ago, if an old piece of furniture started to show its age—a few too many scrapes, scars, or some patches of peeling paint—it was dunked in a dip tank, stripped bare, and completely refinished; or tossed to the back of the barn. Times have certainly changed. Today, designers seek out furniture and accessories that have stories to tell. Homeowners appreciate how these so-called "distressed" pieces add a fresh sense of style to almost any décor.

Having exhausted the reserves of most barns, basements, and garages, many enterprising finishers have found ways to replicate the effects of time. As the finishing expert at Black Dog Salvage, I've devised my own techniques for distressing that, contrary to what the name suggests, add appeal by color coordinating (and sometimes, cleaning up) found pieces and brand-new creations.

In the next few pages, I'll show you three easy ways that you can add color and a little "history" to your next project in about a weekend. You don't need many materials (see photo, right). In addition to the paints and topcoat, you'll need a few brushes and some rags.

Making history. With 16 intermixable colors to choose from, you can match your project to any room in the house. Finish things off with Topcoat.

Technique photos: Amy Pearman; Sample and product photos: Larry Hamel-Lambert

Wet or Dry: same base,

Start with a solid base

These three techniques start with a solid color base coat. Priming isn't necessary since the Black Dog Furniture Paint is formulated to stick to all types of clean surfaces. Oils, waxes, and silicone-based polishes are another story. If you're working with a flea market find, clean it with a mild solution of TSP (Tri-Sodium Phosphate), and let dry.

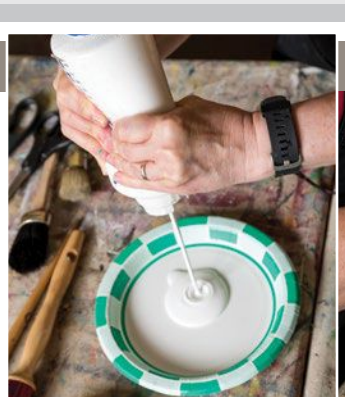
First coat. Using a stiff bristle paint brush, apply the base color to the project. Brushing with the grain, lightly scrub the paint onto the surface.

Working Wet

Wet distressing is the fastest and easiest distressing technique to master: simply brush on the second color, and then wipe it off. If you make a mistake, wipe it off completely and try again. Working quickly is the main challenge. Furniture paint dries fast, so it's best to focus on one section at a time. I typically start with a project's front face, and then finish with its ends.

As shown in the photos, start by brushing your second color onto a section. Next, wet a clean, lint-free rag (I like to use old t-shirts), wring out any excess water so that it's damp, not drippy, and bunch it into a ball. Tuck the rag's "tail" into your palm so that it doesn't drag across your work. Now wipe the rag across the surface in the same direction as you applied the paint. The top color will blend in with the base color of the flat sections and build up in the crevices, highlighting any decorative profiles. If you remove too much, just brush on more paint and rewipe. Continue the brushing and wiping two-step process until you achieve the desired effect.

After giving the piece time to dry (about 24 hours), I'll apply a coat of Guard Dog Topcoat to protect the finish and to add depth to the color. If the piece will be subjected to heavy use (chair seats, tabletops, etc.) I'll apply a second or third coat. Give each coat about a day to dry, and then scuff-sand the surface with 320-grit sandpaper before applying the next.



Paper plate palette. Pour a little paint on a plate to keep contaminants from getting in the can. Dipping the bristle tips puts just the right amount of paint on the brush, controlling drips.

Lay it on, and then wipe it off. Brush the second color onto a section, and then wipe off the paint. Flip the rag so that you're wiping with a clean face.

Corners come last. After finishing the front, finish up with the ends. Use the rag to blend in any drips.

2 different looks

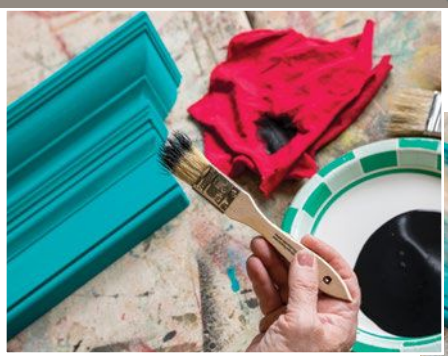
Try Dry

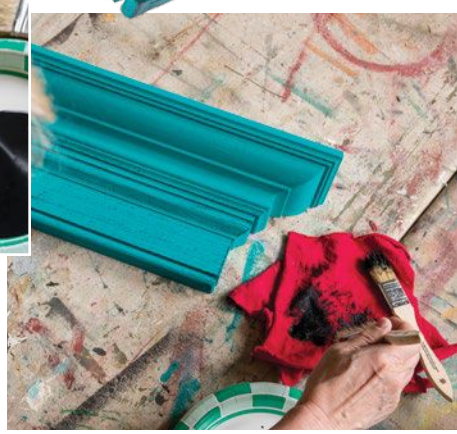
Dry distressing isn't much more difficult than wet distressing, but it is a bit tricker because attempting to wipe off the second color (even a drip) will create a noticeable smear. If the second color gets too heavy, let the paint dry, then brush the base color over the area to cover up the trouble spot. Let the base paint dry, and then continue with the second/top color.

For this technique, two things are important that sound contrary to "good" painting. First, for the best effect, you want a ratty brush. (If you can't find one, you can make one. See the sidebar below.)

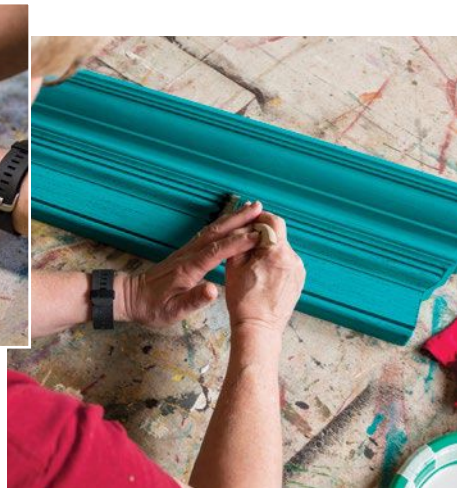
The second tip is to remember that less is always more. You can apply a second or third coat, but if you go overboard at the get-go, you'll need to reapply the base color, and start from scratch. To charge your brush, dip the tip in the top color and then blot out the excess on a clean rag (see photos, right).

To lay the paint, lay the brush on its side, and pull the brush across the piece, parallel to its surface. Use the tips of the brush only after applying paint on to the piece. When the brush starts to skip, do not be tempted to press it against the workpiece. Lift the handle and let the bristles streak for a few additional inches, and then dip, blot, and continue brushing. (One more tip: If you think that you're close to the desired level of distress, walk away and let it dry. This way, you won't risk blurring your initial success.) When you achieve your desired level of distress, seal the piece under a coat or two of Guard Dog, matte or satin.





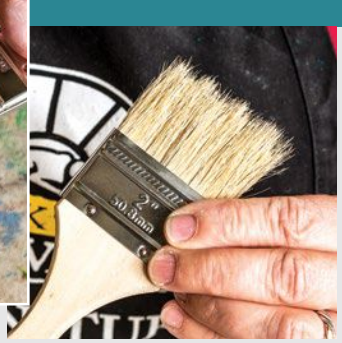
Less than a dab will do ya'. Too much paint will spread instead of streak. To load your brush, dip only ¼ of the brush in the puddle of paint, and then dab it into a rag.



Touch and go. Hold the brush parallel to the surface and drag the head across the work. For long passes, use your free hand to help steady your brush.

Make a good brush bad

Ratty old brushes are my secret weapons for distressing. In a pinch, you can wear out a brand-new chip brush with a pair of scissors. Trim the bristle tips at an angle, as shown in the photo left, then flip the brush and cut from the other side. (Think "awful haircut"…the more uneven it is, the better it will work.) After trimming, slap the brush against your bench to shake out any loose bristles. To prep it for paint, rinse it and then blot it on a clean rag to remove excess water.



Try glazing for more age and depth

Give glaze a go

Glazing takes more time than the other distressing techniques (most of the time is spent waiting for the paint to dry), but the multiple layers of color create a richness and depth that make it worth the extra effort. Another advantage is that this technique is a little more forgiving than a single-color topcoat, since any uneven spots can be concealed under subsequent coats of paint.

The first step is to apply your base color (for this example, I used "I Need a Bandage," which is our version of red). After allowing time for the base to dry completely, apply the glaze with a dry brush, then gently wipe it with a rag to blend it in (see photos, right). Continue adding the glaze in stages until it looks good to you. (In this case, I liked the look of a 50/50 base and glaze ratio.) Now give your project time to dry. Depending on the weather, you might be able to continue painting in a few hours, but to be safe, I recommend 12 to 24 hours.

For the next layer, you'll reapply the base color. In this photo, I'm using a dry brush technique (see photo, right), but if you wish, you can soften the topcoats with a rag. You can continue layering the base and top colors, but be sure to apply less paint with each successive coat. The goal is not to hide underlying layers, but to allow them to shine through.

A multi-step finish deserves a little protection (Guard Dog matte or satin). I find that the clear coat helps tie the colors together. Give the piece a day to dry, and then show off your new "old" piece.

Quick Tip

For added character, try scuff-sanding a few spots with 220-grit sandpaper. To replicate a well-worn surface, sand through both colors to uncover the underlying wood.

Build up the glaze. Apply the glaze in stages until you achieve the desired color balance. To imitate a weather-worn finish, apply the glaze with a brush, and then use a rag to soften the streaks.

Layer it on. Top off the glaze with a few streaks of the base color. You can continue adding alternating layers of base and top color for more depth and complexity.

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Adjustable TRIVET

Turn your wooden leftovers into a versatile coaster for casseroles

By Russ Svendsen

A trivet is a great gift and an appropriate way to express appreciation to any cook in your life. And this is no ordinary trivet. In addition to being a lovely thing to look at, it adjusts in length to support anything from a small pot to a 9 × 13" casserole dish. (Of course, you can easily adjust the size shown here to suit whatever serving dishes you like.) It's also a good opportunity to use scraps of special wood you've been hoarding. If you like, Woodcraft offers a variety of woods in the form of 2 × 2 × 12" turning blanks, which work perfectly for the trivet supports. The hardwood dowels needed are also available in different woods if you want to mix things up. Except for the dowels, all of the parts are cut long and trimmed to final length only after they've been drilled to accept dowels and the trivet can be partially assembled.

Making this project is a fun challenge because, for the pieces to slide properly, the holes in the supports need to be located and drilled very accurately. To ensure that, you'll need to first make the hole-drilling jig shown. It's a good investment in time, since it also makes production of multiples a lot quicker and easier, as does the pattern-routing template for the handles. That's important because you may be surprised by how many folks request one of these. To paraphrase the old pistachio commercial: "Bet you can't make just one!"

Order of Work:

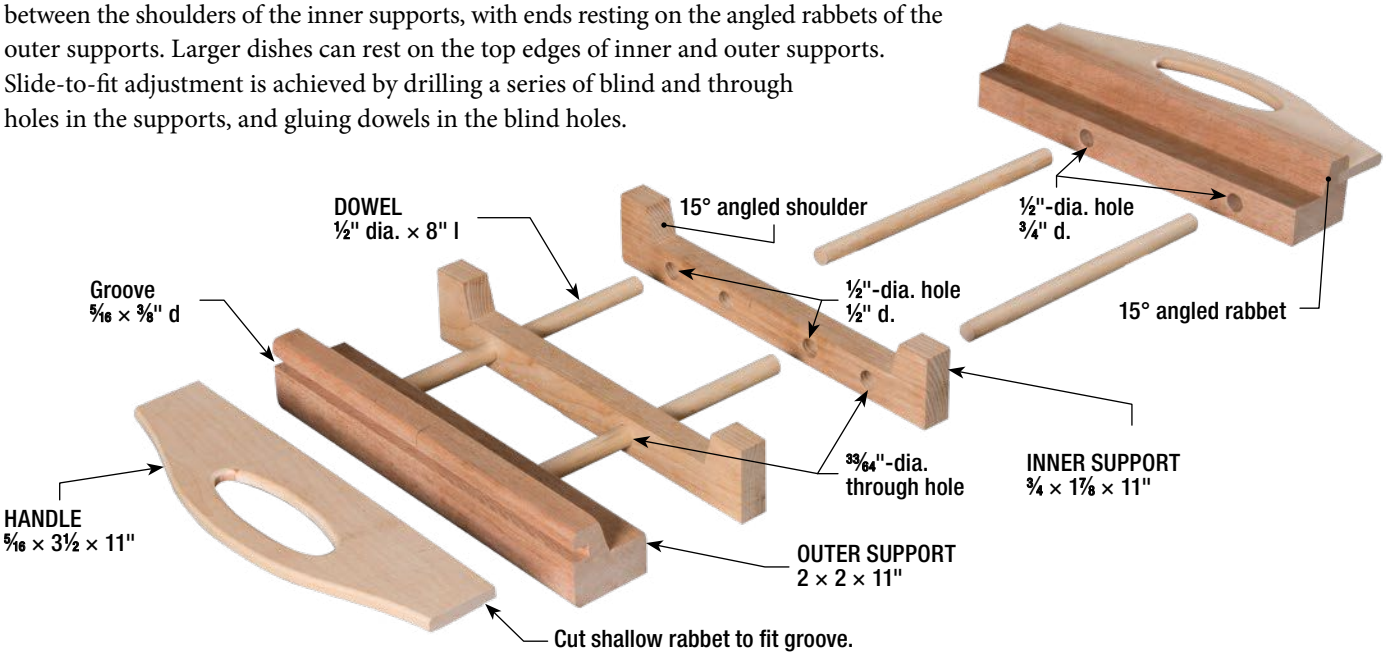
- Make the inner and outer supports.
- Make the handles.
- Trim to final width.
- Prefinish parts, then assemble the trivet.

onlineEXTRA

- Full-sized handle pattern
- Full-sized hole-drilling jig chart
- Resawing at the tablesaw article (from issue #73)

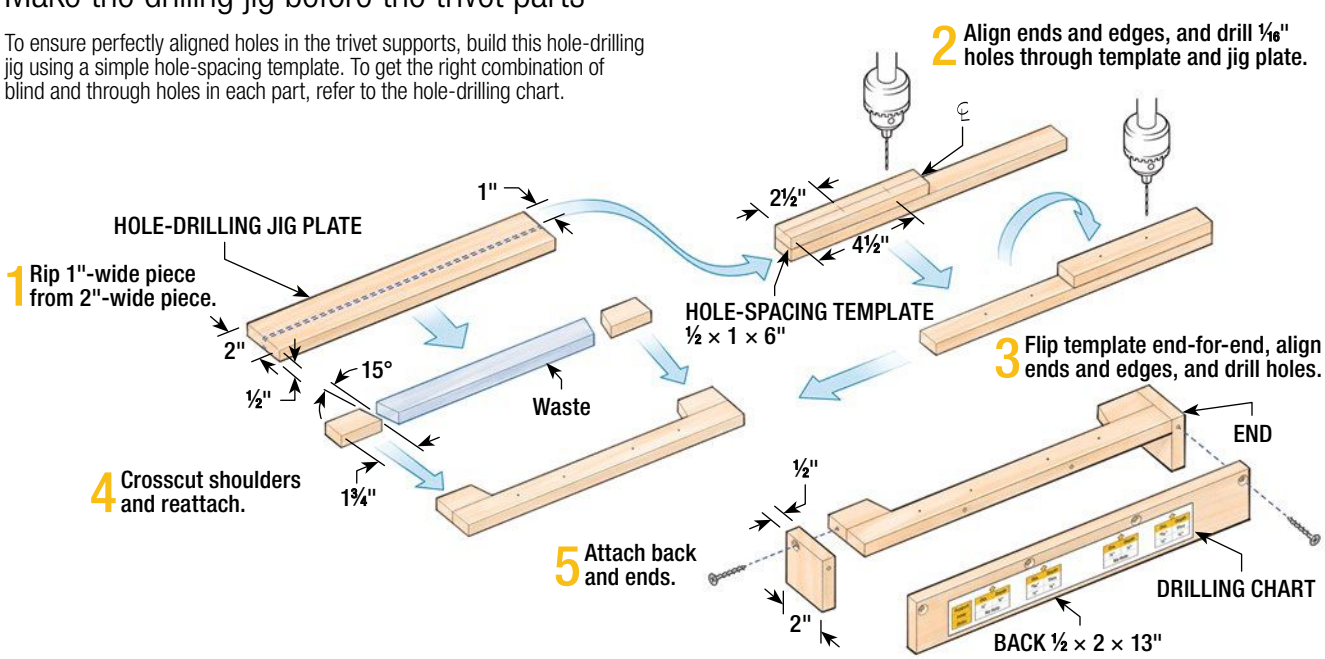
Handles, dowels and sliding supports

The trivet is designed to accommodate casserole dishes of all sizes. Smaller dishes can nest between the shoulders of the inner supports, with ends resting on the angled rabbets of the outer supports. Larger dishes can rest on the top edges of inner and outer supports. Slide-to-fit adjustment is achieved by drilling a series of blind and through holes in the supports, and gluing dowels in the blind holes.



Make the drilling jig before the trivet parts

To ensure perfectly aligned holes in the trivet supports, build this hole-drilling jig using a simple hole-spacing template. To get the right combination of blind and through holes in each part, refer to the hole-drilling chart.



Hole-drilling Chart

To avoid confusion when drilling the various trivet holes, affix this chart to the back of the drilling jig, aligning the arrows with the holes in the top of the jig. For proper scaling, ensure the outermost pairs of arrows are 2" apart.

Support	Dia.	Depth	Dia.	Depth	Dia.	Depth	Dia.	Depth
Inner	½"	½"	33/64"	Thru	½"	½"	33/64"	Thru
Outer	No Hole		½"	¾"	No Hole		½"	¾"

Enlarge chart 133%

Opening photo: Morehead Photography; Illustrations: John Hartman

Make the inner supports first

All four supports start out as 2 × 2 × 12" blanks. Make sure your stock is dead square and sanded smooth before any cuts are made. Each inner support has a pair of through holes, a pair of blind holes, and a pair of angled shoulders.

The construction sequence is fairly simple. Rip a 1"-thick workpiece from your 2 × 2 × 12" blank, then use the drilling jig to lay out the two angled shoulder pieces. Cut them free, then glue them back onto the workpiece. When the glue dries, use the jig again to bore pilot holes that pinpoint the locations of the blind and through holes.

Next, dismount the jig and refer to its drilling chart to bore 33/64"-dia. through holes at their designated locations and ½"-dia. holes ½" deep at the blind hole locations. Now, rip the blank into two ¾"-wide pieces, and then drill the remaining two blind holes.

Rip off the bottom. With the end of the inner support blank marked for orientation, and its bottom edge placed against your saw fence, make a 1"-wide rip. For aesthetics, I orient the primary direction of the annular rings from top to bottom.

Mark the shoulders. Place both ripped sections of the blank in the hole-drilling jig in their original orientation, and mark the location of each angled shoulder.

Reattach the shoulders. Glue the shoulder sections back onto the bottom section of the blank in their original orientation. After the glue dries, joint the glue-line faces to clean them up.

Drill the pilot holes. Clamp the support blank in the hole-drilling jig, and chuck a 1/16"-dia. bit in your drill press, extending the bit as much as securely possible. Drill pilot holes as deep as possible at all hole locations, then remove the blank and finish drilling its holes completely through.

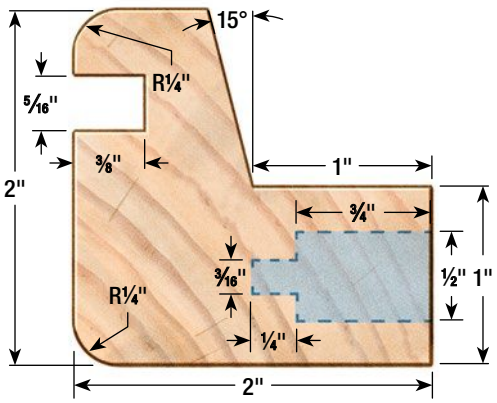
Separate the blank into 2 pieces. With the support blank oriented with its blind holes against the fence for the first cut, rip it into two ¾"-thick pieces.

Outer supports: cut the angled rabbet, then drill

Each outer support requires a single 2 × 2 × 12" blank. The final form you're aiming for is shown in the drawing at right, and includes radiused corners, an angled rabbet, two ½"-dia. blind holes, and a groove that will hold the handle.

Before making the cuts shown below, check each blank to make sure it fits snugly in your hole-drilling jig, which ensures that your pilot holes are perfectly placed. After boring the ½"-dia. blind dowel holes, it's smart to drill shallow easement holes to ensure smooth glue-up later. Finally, round over the outer corners, and saw or rout the handle groove.

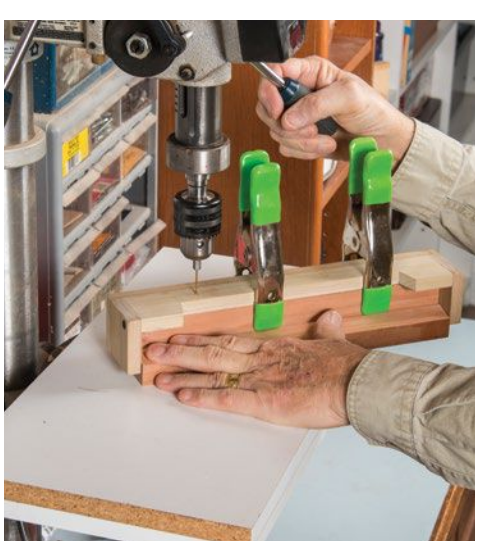
Outer support profile and hole details



Angled shoulder first. Set your tablesaw for a 15° bevel cut, and saw the angled shoulder on each blank in turn. Use a featherboard to ensure the cleanest cut.

Seat cut. After returning the blade to 90°, set your rip fence for a 1" cut, and raise the blade to cleanly intersect the angled shoulder cut. Err on the side of undercutting, as cleanup with a chisel is quick and easy. Then cut the seat on each piece.

Drill the holes. Clamp each blank in turn in the hole-drilling jig and, referring to the drilling chart, bore 1⁄16"-dia. pilot holes at the locations for the 2 blind holes, as shown. As insurance against drilling errors, place the clamps over the two hole locations not to be used. Afterward, dismount the jig and drill ½"-dia. holes ¾" deep at the pilot hole locations.



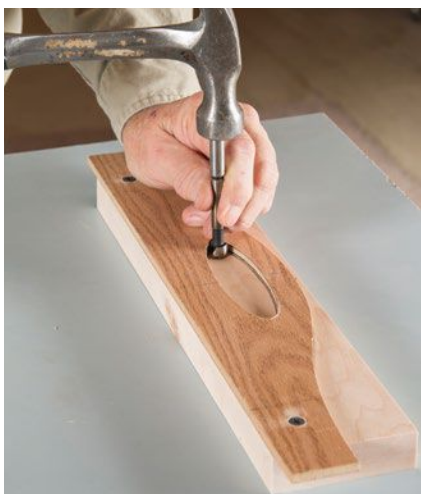
Easement holes. Follow up by drilling a 3⁄16"-dia. hole ¼" deep in the bottom of each blind hole. These glue- and air-escapement holes will ease dowel insertion during the final trivet assembly.

Project photos: Paul Anthony

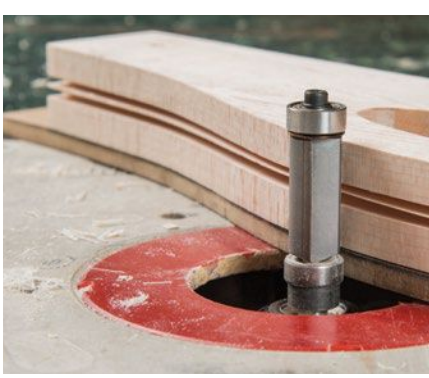
Make two handles from one thick blank

Resawing the handles from a single blank conserves material, results in book-matched grain, and makes for efficient sawing and drilling. Begin with a 3¼ × 12" blank that's at least 13⁄16" thick. Screw the handle template to the blank, trace its shape, and then locate the centers of the cutout starter holes as shown. Remove the template and bore the starter holes at the drill press.

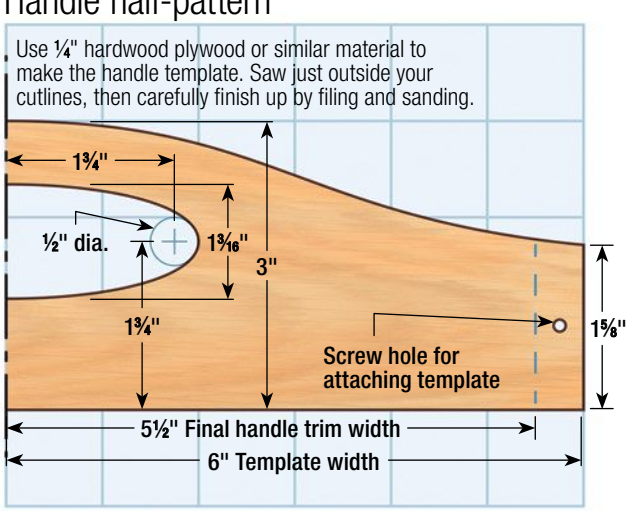
Next, as the initial step in creating the two handles, resaw most of the way through the blank with the curved side down. Then shape the partially resawn blank using a jigsaw to cut out the handle hole, and a bandsaw to cut the curved profile lines. In both cases, stay slightly outside your cutlines. To finish the shaping, reattach the template and use a flush-trim bit to finalize the shape. Afterward, return to the tablesaw and, with the curved side of the blank up this time, complete the resaw operation to fully separate the two handles. Then rout all the curved profiles with a ⅛" round-over bit. Finally, fit each handle to its outer support groove as shown.



Locate the starter holes. Nestle a ½" Forstner or brad-point bit into each end of the handle cutout, and tap it with a hammer to provide a precise center mark for drilling. Then drill the ½"-dia. starter holes.



Handle half-pattern



Half-size; 1 square = 1"; Enlarge 200%

Trim the trivet, then apply finish before the final glue-up

It's much easier to apply finish to the trivet before final assembly, so here's my approach to wrapping things up: First, cut four 8" lengths of ½"-dia. dowel, and sand, scrape, or file the ends if necessary to fit snugly into the blind holes in the inner and outer supports. Now dry-assemble the trivet, and twist any imperfectly straight dowels in their blind holes to create the best possible sliding action. For reorientation later, mark the top of each dowel just where it enters its outer support hole. Also sand or scrape any dowels where needed to improve the sliding action. Then glue the properly reoriented dowels into their blind holes in the outer supports. Don't glue the dowels to the inner supports yet, but do match-mark one dowel and its blind hole in an inner support for later.

With the parts together, measure outwards 5½" from the center of the assembly to mark the final width of the trivet. Then trim the package to width using a tablesaw sled. In preparation for applying a finish, touch-up sand everything, and mask off the ends of the dowels at the outer supports. Apply several coats of your favorite finish (I use tung oil), avoiding the dowels and the glue surfaces on the handles. After the finish dries, complete the glue-up. After the glue dries, check the sliding action, and sand any dowel areas that bind. The final step is to fine-sand the dowels and apply wax to them.

Initial resaw step. With the rip fence set for an 11/32" cut, and the blade raised about 2", make the first pass with one face of the inverted blank against the fence, and then with the other face against the fence to halfway separate the two handles.

Template rout the profile. Using an over-under flush-trim bit prevents tearout. Simply readjust the bearing height and flip the work over as necessary to allow cutting in the direction of the grain.

Fitting the groove. Saw a shallow rabbet in the underside of each handle to create a snug fit in its outer support groove.

Trim to width. With only the dowels glued into the outer supports, place the otherwise dry-assembled trivet on a crosscut sled, and trim both ends flush. (Save an offcut from the outer supports to use as a profile layout pattern for future trivets.)

Final assembly. Glue and clamp the inner supports to their dowels, and the handles to their outer supports, making sure the entire assembly is square under clamp pressure.

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 that 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 grain.

This article is the first in a two-part series that explains how I build a classic spice box from start to finish. Associated articles are also part of this ambitious project—to cover special jigs 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 lockset, and then hang the door.
6. Make and install the back, then sand and finish


Dovetailed base


Lap-jointed poplar back

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


Half-blind dovetailed drawers


Bird's-eye maple door panel

Track your progress!
The Project Tracking Icon provides an easy way to see where you are in the overall construction process.

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Photos: Larry Hamel-Lambert; Illustrations: Christopher Mills

Classic details & complex joinery

Though small in size, a spice box contains a large number of parts and a challenging variety of joinery details. The construction sequence corresponds fairly closely to the different assemblies described below:

Case (bottom, top, two sides, back paneling). The right side of the case is narrower to accommodate the door, which is hinged at its front edge. Both sides have rabbeted back edges to hold lap-jointed back panels. The case bottom contains the most complicated joinery: rabbets and dovetails.

Cornice (three pieces, mitered at case corners). The completed cornice molding is made up of 3 separate pieces that are profiled with ¼" and ½" round-over bits.

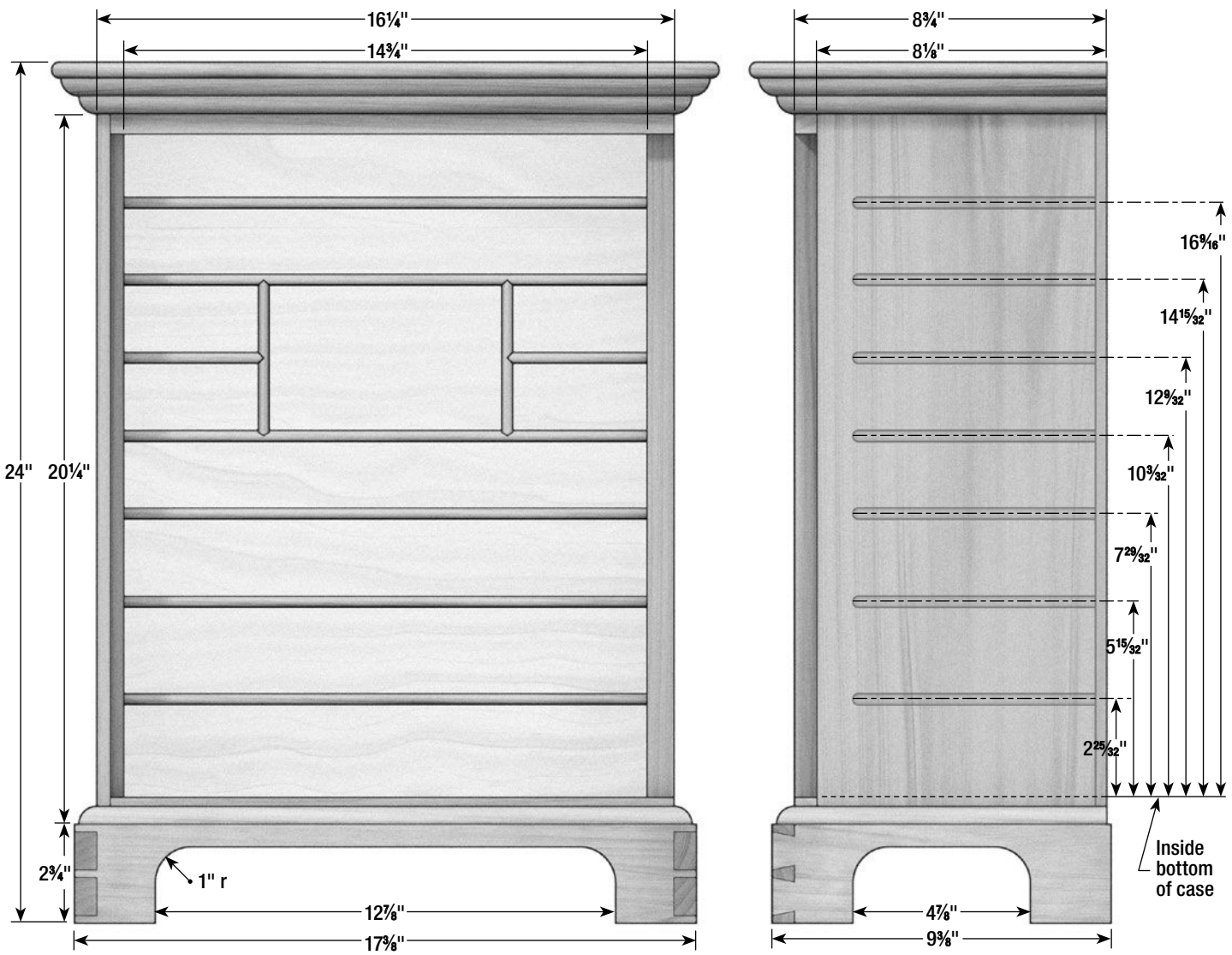
Base (three pieces, with through-dovetail joints at front corners). Quarter-round molding forms the transition between base and case.

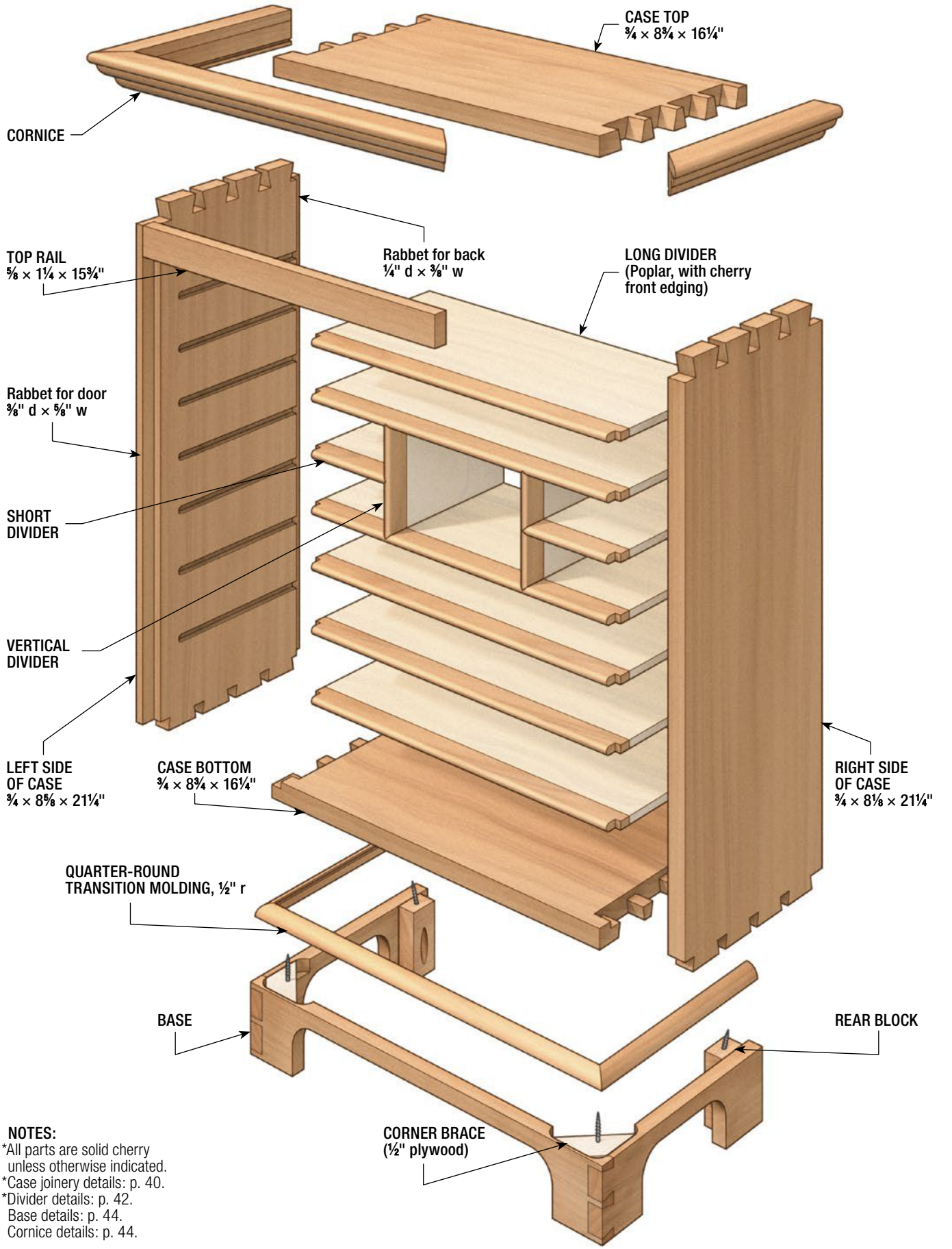
Interior dividers (six main horizontal dividers, two vertical dividers, two short horizontal dividers). Each divider has a front edge of solid cherry glued to a main section made from poplar. Horizontal dividers fit in dadoes in case sides.

Drawers (Not shown in drawings; drawer construction will be covered in Part 2).

Door (Not shown in drawings; door construction will be covered in Part 2). The door is hinged to the right case side. It closes with a partial overlay on the case top rail and the rabbeted left side of the case.

Measurement and cut list details. Although measurements for parts are given in drawings, proper construction calls for most parts to be cut to fit once the case is assembled. Understanding the difference between "key dimensions" and "relative dimensions" can help you develop a cut list for this project and avoid errors in cutting material to rough and final sizes. See the Cut List article on p. 49 for more details.

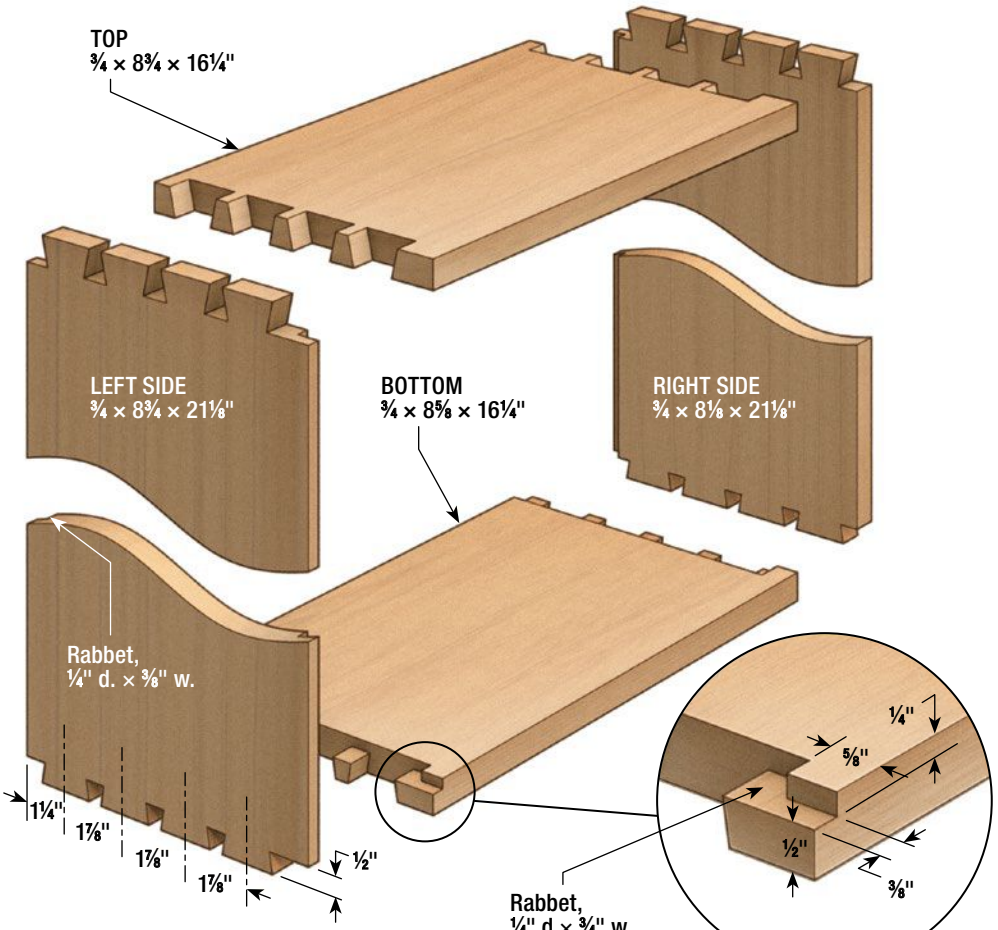




NOTES:
*All parts are solid cherry unless otherwise indicated.
*Case joinery details: p. 40.
*Divider details: p. 42.
Base details: p. 44.
Cornice details: p. 44.

Case joinery consists of dovetails & rabbets

Dovetail joints hold the case together. Through and stopped rabbet joints are required to accommodate the door, back panels, and to conceal the lower dovetails behind quarter-round transition molding. I lay out case dovetails with the on-center spacing shown, measuring from the back of the case. As shown below, my dovetailing technique combines machine-made cuts with some cutting and paring by hand.



Dovetails for top are ¾" long.
Dovetails for the bottom are ½" long.

A sled for the tails. After laying out dovetails in the sides, I make the tail cuts using the sled featured on p. 46. I tilt the blade to 14° and line up each cut carefully by eye.

Top tails. I concentrate on the joinery at the top corners of the case first. After removing waste between tails on the scrollsaw, I pare to the base line with chisels.

Use tails to scribe pins. Make sure case pieces are oriented properly before beginning to scribe. Here I've got the left case side positioned over the top to lay out exact cuts to create matching pins.

Rabbets on the saw. With the stack dado in my table saw, I use the completed right side of the case to position the rip fence for rabbeting the front edge of the left case side.

Rabbet the bottom of the case. I clamp a straightedge guide to the case bottom to rout the stopped rabbet along each end. Refer to the detail drawing on the facing page to finish off the left front corner.

Cut the pins. I use a dovetail saw to cut just outside the lines in the case top and bottom (shown here). Then I remove waste between pins on the bandsaw, and pare for final fit.

Test fit first, then assemble

Case assembly is always a two-step process. The first step is a dry run to test-fit of the joinery and make sure the case is square. Now is also the time to work out any kinks in the order of assembly so that once the glue is applied things go smoothly. Once you're sure that everything fits as it should, brush glue on all mating surfaces, drive the joints together, and apply clamps as needed.

Snug, but not forced. A well-fitting dovetail joint like this should go together with light mallet blows. Pare as necessary to alleviate forced fits.

Glue it square. As you tighten clamps to draw joints tight, check for square corners. The small size of the drawers requires a case interior that's perfectly square.

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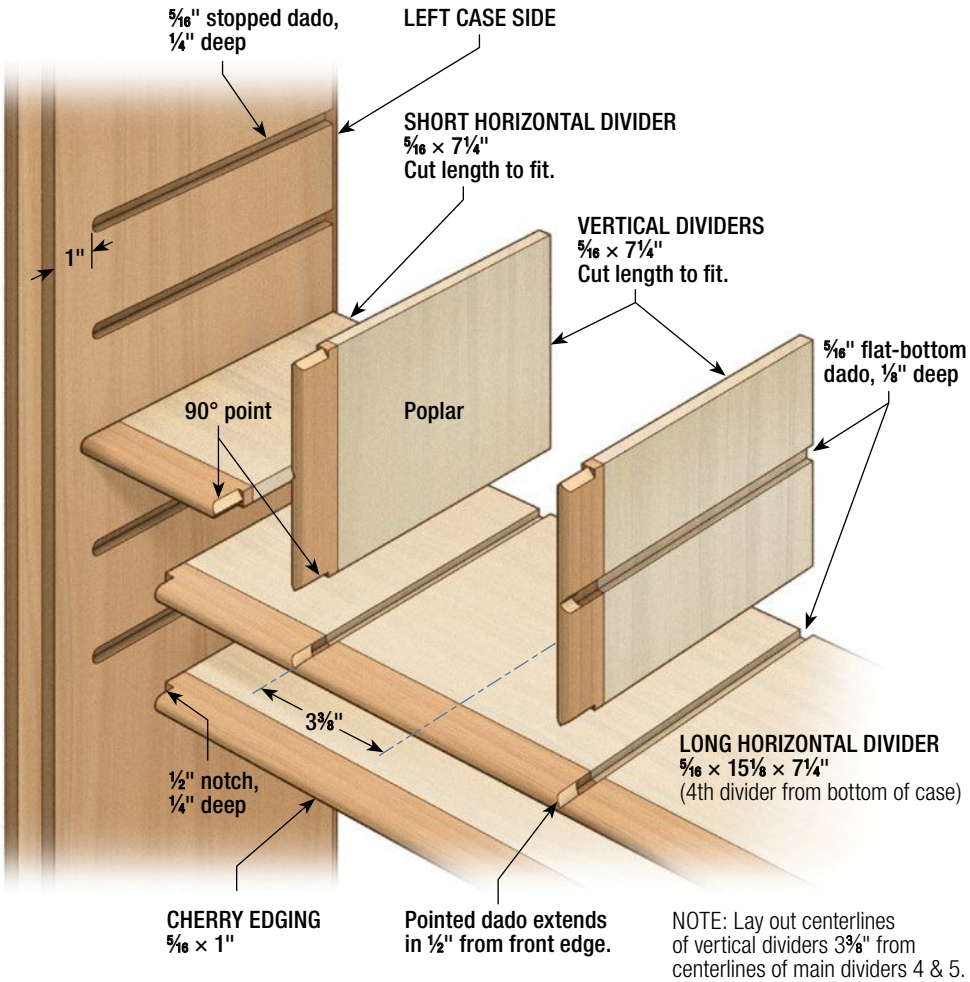
The trickiest part of the project: horizontal & vertical dividers

It helps to be well-rested before tackling this part of the project, and primed with a fresh cup of coffee. Dividing up the interior of the box requires some very precise work. The plywood strips I use to guide the base of my trim router ensure that the dadoes in my case sides will be perfectly aligned. To calculate the width of these strips, refer to the on-center spacing of the case dadoes (p. 38), and subtract the distance between the edge of your router base and the center of the bit.

Check out the drawing at right before you begin, and follow the Order of Work (below). Getting the pointed dividers to fit correctly in their V-grooved dadoes requires two conditions: 1) The bottom of the V-groove must be at the same depth as the flat-bottomed dado it joins. 2) The point of the divider must be even with the flat edge that it joins. Prepare some extra divider stock so that you can test your router setups in case small adjustments need to be made.



NOTE: Lay out centerlines of vertical dividers 3⅜" from centerlines of main dividers 4 & 5.

Order of Work

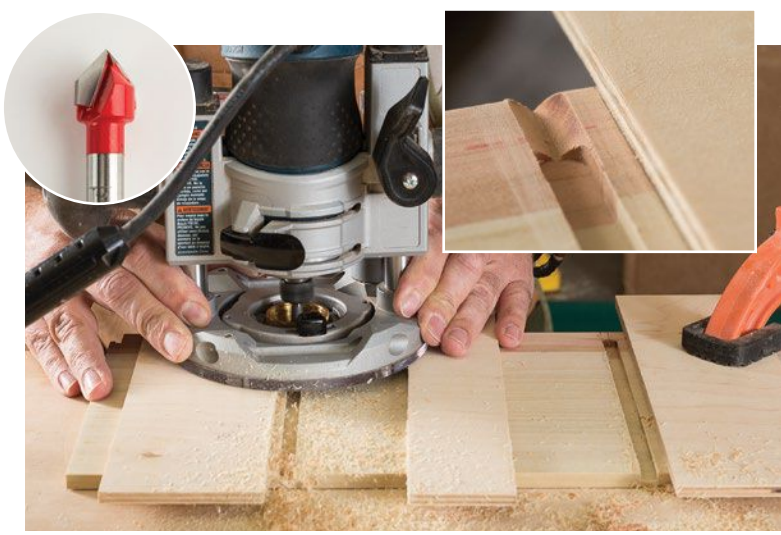
1. Rout stopped dadoes in case sides for all horizontal dividers.
2. Make dividers by gluing cherry strips to poplar divider stock. Plane dividers to fit snugly in dadoes. Round over leading edges of dividers with ⅛"-radius round-over bit.
3. Notch all horizontal dividers at front corners to extend beyond stopped dadoes. Dry-fit horizontal dividers, then lay out dadoes for vertical dividers.
4. Rout a stopped dado for a vertical divider, then finish the last ½" of the dado with 90° V-groove bit (see drawing). Repeat for all dadoes that will hold a vertical divider.
5. Cut vertical dividers to fit, then rout a pointed profile about ¾" long at front corners, using V-groove bit.
6. Follow the same procedure to lay out, cut and install the 2 short horizontal dividers.

1 Stopped dadoes. For foolproof dado alignment, I cut a series of plywood strips (see photo right) to insert in the case and guide the base of my trim router. Stop all dadoes 1" from the case front edges.

2 Scribed notches. With a divider in place, I use a chisel to mark where the divider's front edge will be notched.

3 Vertical divider layout. With horizontal dividers dry-fit in the case, I use a pair of squares to lay out the dadoes for vertical dividers.

4 Bushing-guided dado. Double-stick tape secures plywood strips across the horizontal divider. One strip guides the bushing that surrounds a 5/16" straight bit; the other strip supports the router base. A feeler gauge enables me to duplicate depth settings for the 2-part dado.



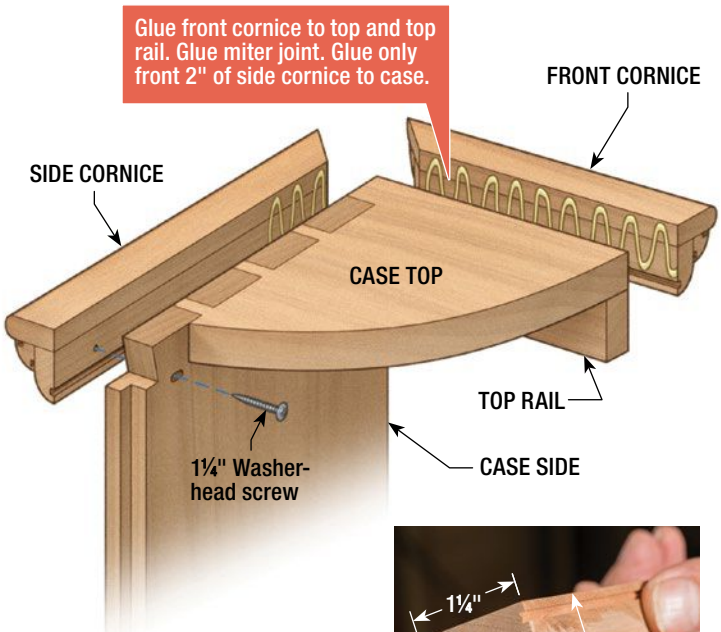
5 Straight, then V-groove. The 2-part dado begins with a stopped dado made with a straight bit. Complete the last ½" of the dado with a 90° V-groove bit (inset).

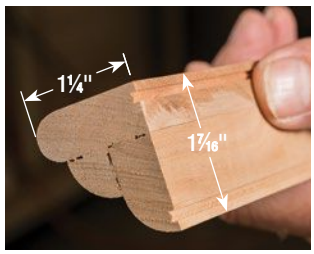
6 Make the point. With the V-groove bit in the router table, create a symmetrical point that extends about ¾" from the front of the vertical divider.

progressTRACKER

Add the cornice...

I built up my cornice profile from three separate pieces, creating curves with two round-over bits (¼" and ½"). By ripping shallow kerfs on the back of each piece, as I've done here, you can eliminate glue squeezeout when assembling the molding. Install the mitered side pieces first, gluing only the front inch of the molding to the case side. Secure the back end of the cornice as shown in the drawing. This allows the case to expand and contract independently of the molding.



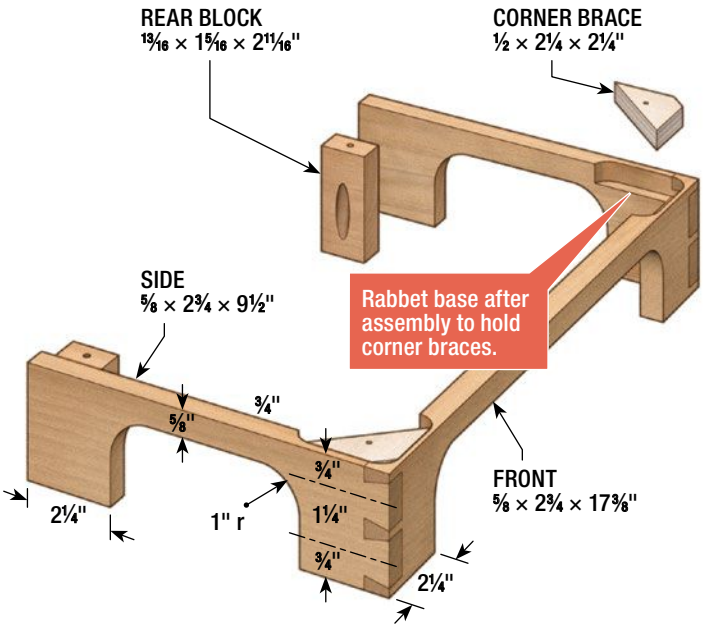


3 into 1. Curves made with two round-over bits create three separate pieces to assemble the cornice molding.

Sides first. I want wood movement in case sides to show up at the back of the case and not where cornice molding is mitered at the front. So I glue only the front portion of each cornice side piece to the case, securing the glue joint with a couple of pin nails. Glue the front cornice piece in place last, along its full length and at each miter joint.

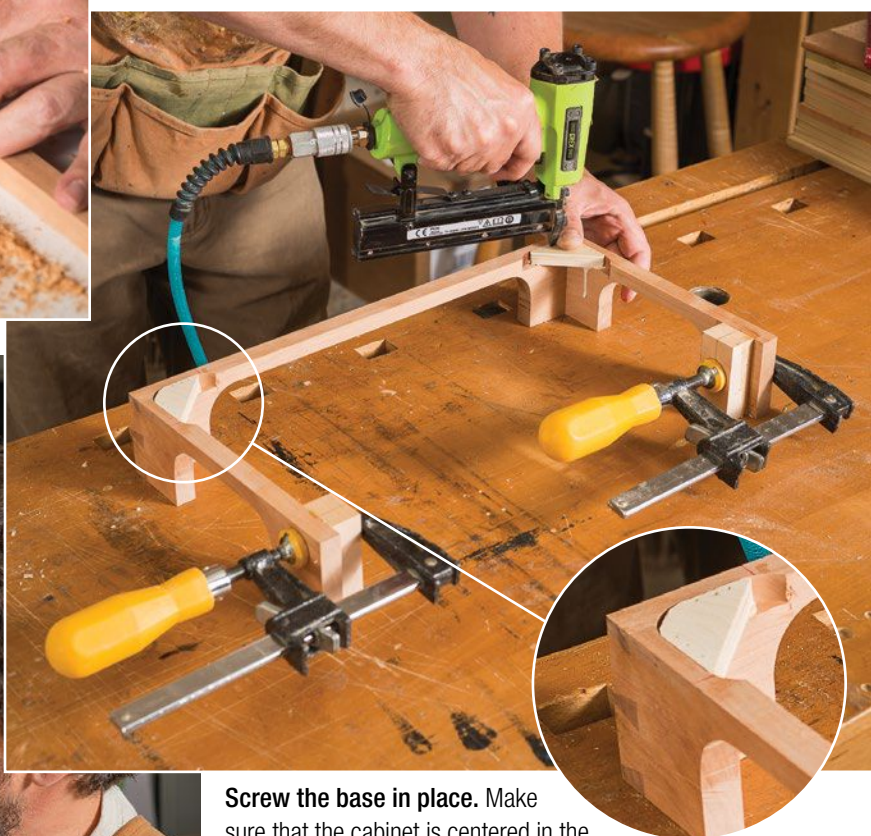
...then the base

Make base sides ⅝" longer than the width of the case bottom. The base front should be 1¼" longer than case width. I complete the dovetailed corners of the base before making the curved cutouts. After gluing the base together, install front and rear blocking so you can screw the base to the case. Make sure the pocket hole in each rear block extends all the way through the block. This predrilled hole will provide a measure of clearance around the pocket hole screw to allow for wood movement.



Joints before curves. I use a ¼"×20 tpi blade to create the cutouts in the three base pieces. Follow the lines as closely as possible and use spokeshaves and/or a spindle sander to clean things up.

Rabbet with a pin. A plastic starting pin in my router table helps me control the glued-up base when rabbeting the front corners for triangular plywood inserts. The length of the rabbets isn't critical but rabbet depth should equal plywood thickness. Glue pocket hole blocks to base back corners, then install front inserts with glue and pin nails.



Screw the base in place. Make sure that the cabinet is centered in the base opening, and install it with four screws. Once this is done, you can flip the project upright and install the quarter-round transition molding between base and case. Use miter joints at the front corners, and make the assembly with glue and pin nails. But avoid gluing the side molding pieces to the case because of cross-grain wood movement.

Halfway there!
Take a well deserved break, and check out Spice Box Part 2 in our upcoming April/May issue.

progressTRACKER

Tablesaw DOVETAIL JIG

Achieve the look of hand-cut joinery with a machine-made start

By Chris Hedges

No paring necessary.
This sled-type jig enables you to make angled tail cuts precisely.

Dovetail joinery is an important feature on many of my projects. I like the look of hand-cut dovetails, but the time required to make them is a luxury I often can't afford. With the dovetail jig shown here, I can duplicate the proportions of hand-cut dovetails with some time-saving help from my tablesaw.

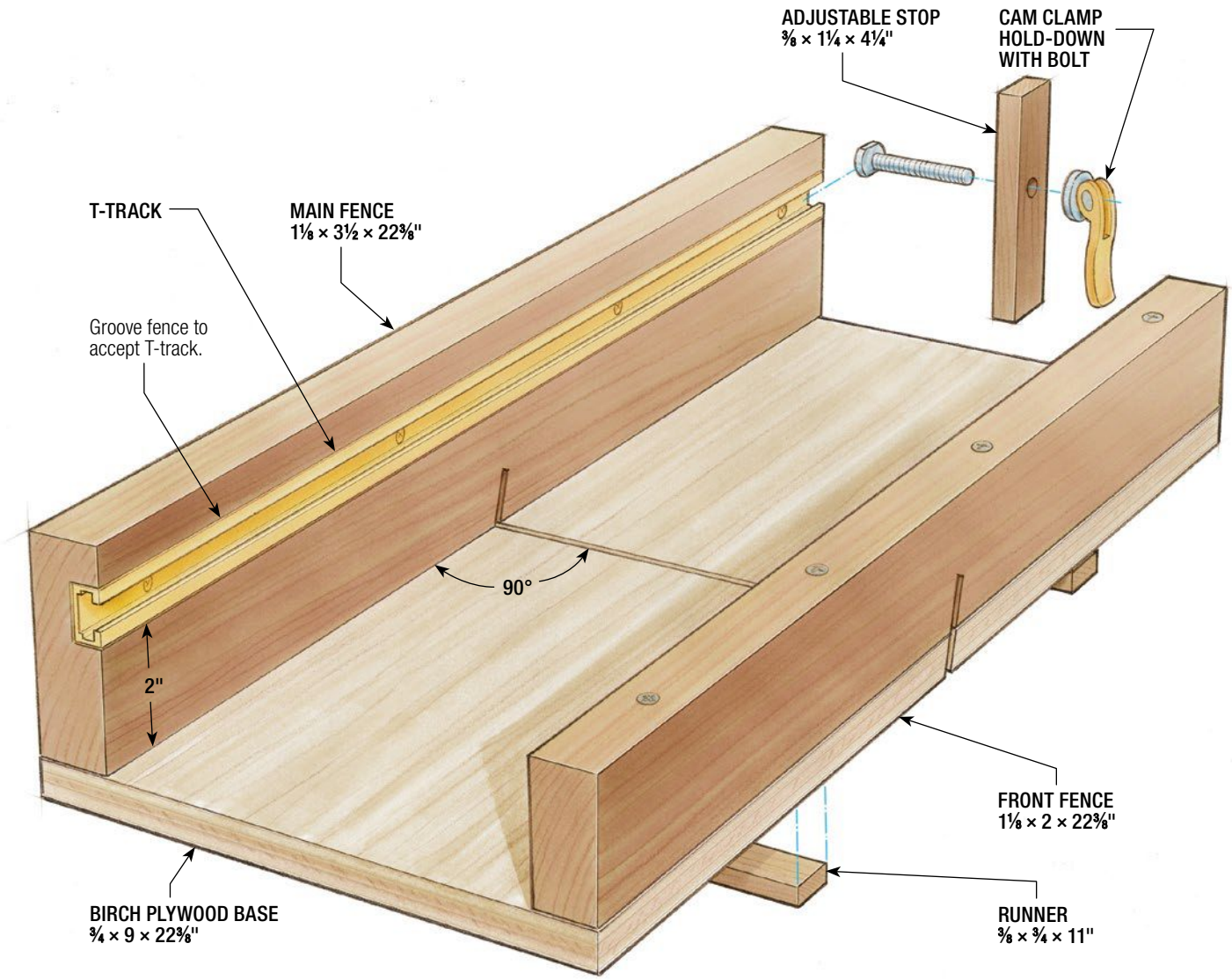
I always cut the tails first, then use my tail board to lay out the pins. This jig gets the joinery off to a good start, enabling me to make perfect tail cuts. I usually remove the waste between tails using my scrollsaw to cut just outside the base line. Then I pare to the line with a chisel.

You'll notice that the jig's fence includes a T-track with an adjustable stop. If the layout happens to be symmetrical, I set the stop and simply flip the tail board to make my matched cuts. The stop also comes in handy when identical tail boards need to be cut.

Consider a custom-ground blade.
To make the most of your dovetail jig, a ripping blade can be ground to leave a flat-bottomed kerf when tilted to make tail cuts with your jig (see Buyer's Guide, p. 66).

A sled that slides on two runners

My jig has many of the characteristics found on tablesaw crosscut sleds: a pair of runners that slide in the top grooves, a fence set at 90° to the cut line, and a T-track that holds an adjustable stop. To make your own version of this jig, you can stick close to the dimensions given in the drawing, or opt for a broader base and fence to handle larger projects. You'll have to decide on a tail angle and stick with it, because changing the tilt of the blade will create a wide opening in the base that complicates cut alignment.



Order of Work

- Cut parts to finished size. Make sure runners slide smoothly in table grooves, but without slop.
- Groove main fence for T-track and install the track.
- Align base over runners and tack base to runners. If base slides smoothly across table, screw runners to base.
- Screw front fence to base. With saw blade tilted to planned tail cut angle, cut through base from front to back.
- Fasten main fence to base with only two screws, using a square to set the fence square to the cutline. Make test cuts and fine-tune main fence position if necessary.
- When main fence position is square to cutline, attach fence permanently with at least four screws.

Photos: Larry Hamel-Lambert; Illustration: Dan Thornton

A Pro's Guide to CUT LISTS

This list of parts and sizes can hinder or help you, depending on the information you put into it

By Paul Anthony

It's a classic beginner blunder: you follow a published cut list for a project, carefully sizing all the parts as stated. Then, when you go to assemble them, you find that a lot of them don't fit. This can be an expensive mistake if you've miscut premium lumber, and it's a perfect example of how cut lists can be misused. The first rule about cut lists is simple but critical: no matter how precise you try to be, discrepancies creep in during a build, and adjacent parts need to be fitted to suit as you go along. Welcome to woodworking.

Used correctly, a cut list can be a great aid in part layout, confirming key dimensions, and estimating lumber needs. It can also indicate the order of construction, and serve as a record of the build (including corrections), should you decide to make the project again. If you have a complicated piece of furniture in the works that you have to set aside for periods of time, a cut list can be invaluable at reorienting you when you finally step back into the shop.

Here, I'll explain my approach to making and using cut lists, including the concept of "relative dimensioning." Once you understand cut list basics, you'll be able to customize an approach to suit your own working habits, which will improve as you start moving out of the beginner's circle.

Photos: Paul Anthony; Illustrations: Greg Maxson

Cut list and drawings work together

In the journey of building something, a drawing is the map that will get you there, and it works hand-in-hand with a cut list. A drawing doesn't have to be fancy, but it needs to show the parts and provide the key dimensions that determine the overall size of the project. Whether you make the drawing yourself or use a published plan, it's important to double-check the measurements as you feed them into a cut list.

When configuring your cut list, arrange the parts in a sequence that makes sense to you. I list all solid wood parts first, followed by sheet good materials. Each part gets a code (which I write on the boards to identify the parts there), on the cut list noting the quantity of each piece. Then list the finished thickness, width, and length of each piece, based on your drawing. Make sure to include tenons or other integral part extensions. Some woodworkers include a column for "rough" sizes, adding a certain amount to each dimension for initial layout. I don't bother; I just add the extra allowance when laying out the rough pieces. Following the dimensions column, note the type of wood for every piece in the "materials" column.

My cut lists include 2 check mark

9 columns of critical project information

Project: LIQUOR CABINET

Part (code)	Qty.	T	W	L	Mat'l	Rgh.	Fin.	Notes
TOP (T)	1	3/4	17	46	CH	√		EDGE-JOIN 2 BOARDS
GALLERY RAIL (GR)	1	3/4	5/8	41 1/2	CH	√		
LEGS (L)	4	1 3/4	1 3/4	35 1/4	CH	√ IIII		KEY PARTS / USE RIFT-SAWN STOCK
SIDE TOP RAIL (STR)	2	1	2 1/2	14 1/2	CH	√		KEY PARTS
SIDE BOTTOM RAIL (SBR)	2	1	5 1/4	14 1/2	CH	√		KEY PARTS
SIDE PANEL (SP)	2	3/4	13 1/4	26 1/2	CH			BOOKMATCH FROM 8/4 STOCK
DOOR OUTER STILE (DOS)	2	3/4	2 1/4	30	CH			

Finished dimensions

Check off parts laid out.

Code (to be noted on cut parts)

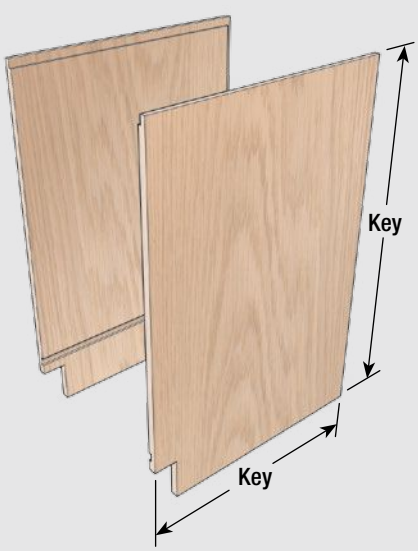
Include material key on cut list: e.g. CH=cherry; BP=birch plywood; etc.

Hash marks keep track of multiples as you lay them out.

onlineEXTRA
Go to *woodcraftmagazine.com* to download a blank cut list form.

Relative dimensioning: sizing parts to suit previous cuts

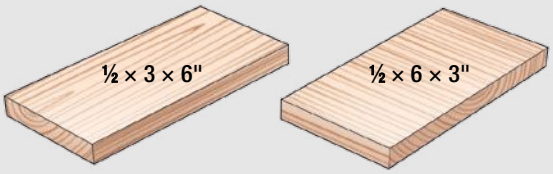
When you're ready to cut parts to their final sizes, it's important to establish the order of work because only "key" parts are initially cut to the finished sizes shown. Other "relative" parts will be fitted as you build, sizing them to suit particular dimensions of previously constructed adjacent parts. It's good to puzzle all this out before starting a project build. If it helps, you can list the key parts in the "notes" section of the cut list as a reminder that you can immediately dress them to their final sizes.



With this simple base cabinet, the sides are "key parts," which can be made to their stated cut list size, since they establish the case height and depth, and don't need to be fitted to anything else.

columns. I use these to mark my progress during layout of both the rough and finished pieces in turn. Finally, the "Notes" column provides a place to record specific layout directions or other comments. Here, for example, you can note to lay out legs on riftsawn stock (for straight grain on adjacent faces), to use the prettiest stock for prominent parts like tops or case sides, or to resaw thick stock to yield multiple pieces.

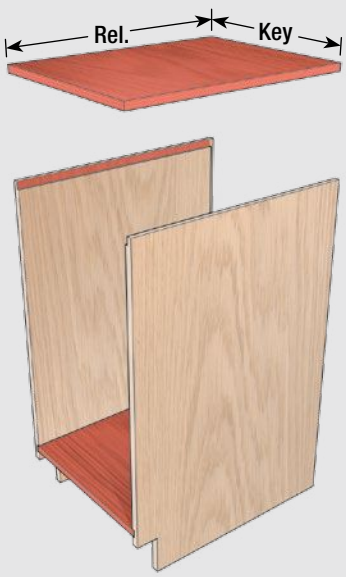
Width vs. length: it's in the grain.



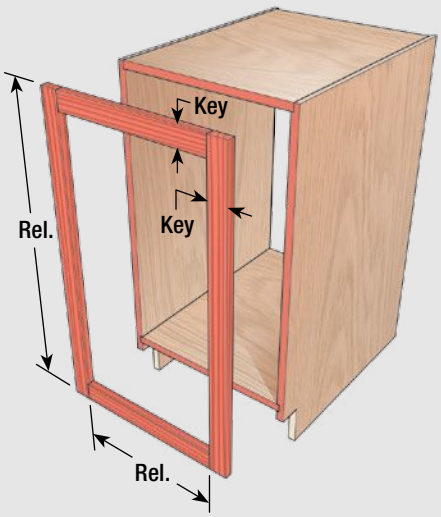
Convention dictates that part dimensions be listed in the order of thickness × width × length. If you're confused between width and length, follow the grain; its direction indicates the length of the piece. With plywood, use the grain direction of the face veneer as your cue.

Layout tips

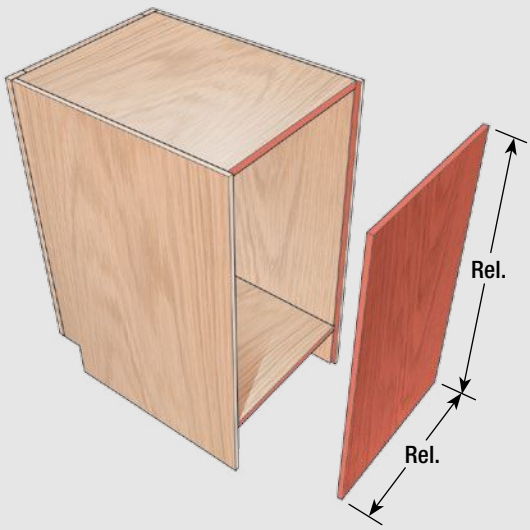
- As you lay out your parts to rough size, mark them with the cut list part code, drawn with chalk or a lumber crayon.
- When appropriate, note on the lumber if a piece is meant to yield multiple parts, for example, from resawing.
- Check off laid out parts on the cut list. (For multiples, use hash marks to record individual parts as you tick them off.)
- To avoid confusion later, mark any waste or excess stock as such.
- Using your cut list along with an accompanying drawing, initially lay out your project parts at least 1" longer and ¼" wider than their finished sizes. Then let the parts sit stickered for at least a few days before you start milling them to their final sizes.



The length of the top and bottom is a "key dimension" because it establishes the case width and isn't dependent on any other dimension. The width of the two parts, however, is relative to the length of the rabbet at the top and the dado at the bottom.



The width of the face frame rails and stiles can be considered a key dimension, but the parts should ultimately be cut to a length that's relative to the width and height of the projecting face of the case.



The case back width is relative to the distance between the rabbets in the case sides, and the height is relative to the distance from the top of the case to the underside of the case bottom.

The Square Deal

By Tim Snyder

Achieving perfect angles is a common pursuit in woodworking—especially 90° angles. But there's no such thing as the perfect layout tool to check for square. That's because the square relationships that occur in woodworking are surprisingly variable. One moment you're squaring a bandsaw's blade to its table; the next, you're squaring a line across a full sheet of plywood or testing the corners of a frame-and-panel assembly. Handling these layout, assembly, and alignment tasks with accuracy and efficiency has spawned an amazing variety of tools. The selection featured here is far from complete, but there's a good chance you'll find a tool or two that deserves to be added to your arsenal.

Having a good selection of squares is only part of the square deal. It's also important to store these tools correctly—so that they're protected but easily accessible. Jim Downing designed and built the beautiful case shown here.

Make the case. See p. 56 for directions on making your own custom tool cabinet.

A Starrett 4" double square ($84.50)
Here's a pocket-sized square that gets plenty of use because of its accuracy and easy adjustability. Unlike cheap versions, this one is calibrated down to 64ths of an inch.

Get the right angle on equipping your workshop with these important layout tools

B Starrett protractor head ($122.99)
When combined with a Starrett steel rule, this tool provides exceptional precision for measuring and transferring angles. The built-in level adds even more functionality.

C Marking knife ($25.99)
This Swiss-made, double-bevel knife is designed for precise marking in either direction.

D Mechanical pencils ($7.00 - $10.00)
These marvelous markers never need sharpening and always lay down a uniform line. Office supply stores stock .05, .07, and .09 lead sizes.

E 6" steel rules (steel rule $31.99; hook rule $33.99)
A 6" rule is perfect for your pocket. Starrett's "plain" steel rule features quick-reading 32nds and 64ths, plus decimal equivalents along the opposite scale. The hooked version is also graduated to 64ths, and has a reversible hook to make measurements quickly and precisely. You may not need both, but it's smart to have at least one.

F Shinwa combination square ($31.00)
The Japanese version of the combo square doesn't have an adjustable rule like its Western counterpart, but it's still a rugged, reliable performer for setting saw blades and doing layout work involving 90° and 45° angles.

G FastCap 25' tape measure ($12.25)
The high-contrast scale is easy to read, and the erasable notepad means you don't have to memorize measurements.

H BORA 8" multi-angle square ($35.00)
This nicely made tool does what its name suggests, locking into 7 commonly used angles in addition to 90°. When folded flat, the BORA is small enough to carry in a pocket or tool belt.

I 6" Incra professional T-rule ($26.59)
Paired with a 0.5mm lead mechanical pencil, this funny-looking rule enables you to mark lines parallel to an edge with amazing precision. The secret lies in the hundreds of tiny holes that correspond to distances calibrated to 64ths of an inch.

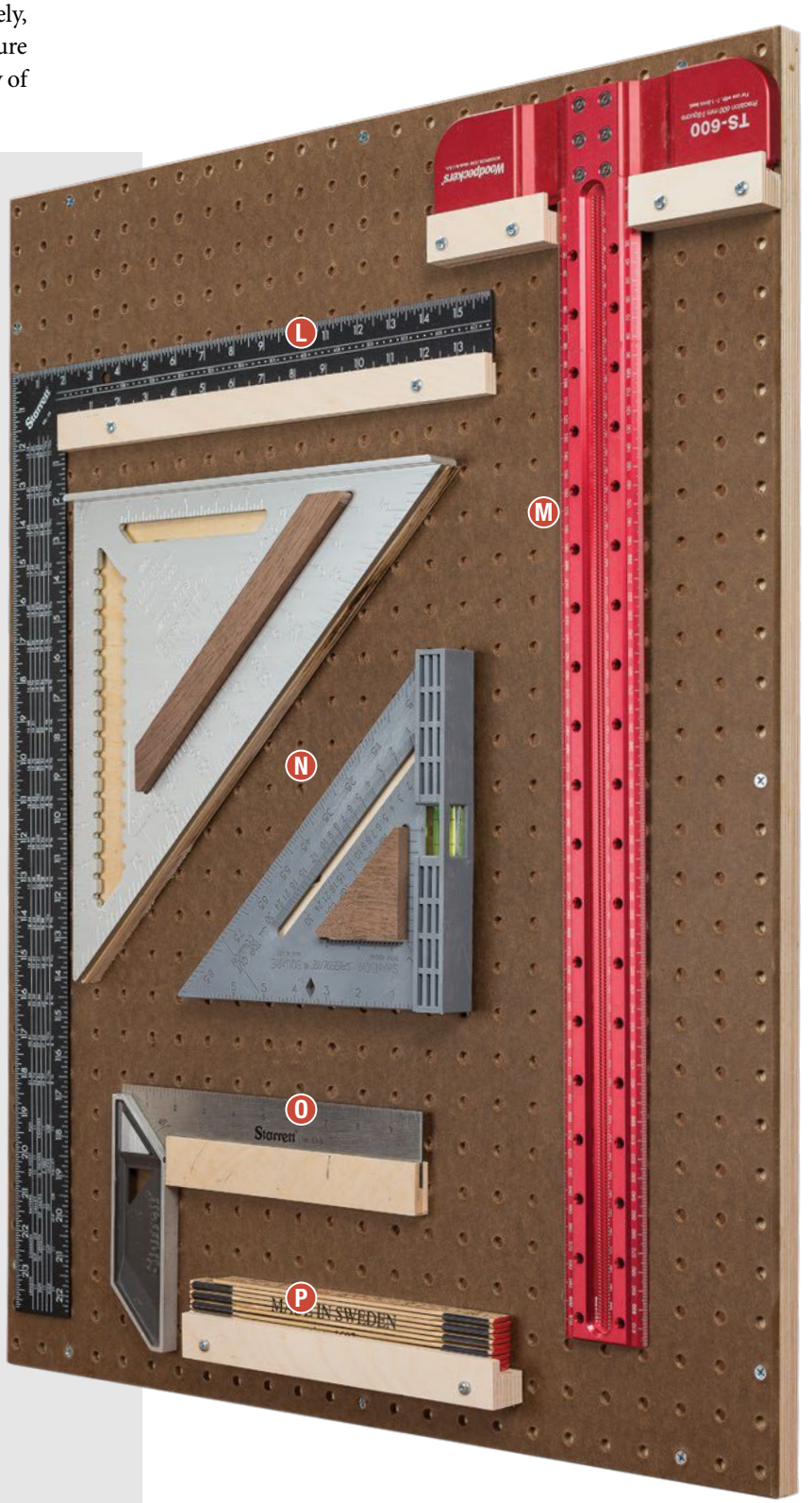
J Engineer's squares (4" square $24.99; magnetized micro square $23.00)
Here are the tools to reach for when squaring a blade or fence to a table surface. FastCap's micro square is especially useful because its magnetized base holds the square firmly in place on a cast-iron top.

K Starrett combination squares (12" $108.99; 6" $97.50)
This tool comes closest to being an all-purpose square for workshop use. While you can get by with a single 12" combo square, a 6" model is much easier to use for small-scale tasks. Laroy Starrett invented the combination square in 1877, and Starrett still makes the best combination square available today—thanks to excellent machining and exceptional quality control.

Photos: Larry Hamel-Lambert

Carpenter's squares earn high marks for durability and versatility

The squares we depend on in the workshop don't necessarily do well in the rough-and-tumble world of carpentry and home improvement. Fortunately, the square deal includes tools that can easily endure rough jobsite treatment, while providing plenty of right angle capabilities.



L Starrett tempered steel rafter square ($14.50)
More commonly referred to as a framing square, this big square is your go-to tool for squaring case assemblies, doors and other large items. If you need to step out of the shop and put on your carpentry cap, the "rafter square" label comes into play. Tables printed on the square enable you to lay out rafters of any size, pitch or type. Laying out stair stringers is another common carpentry use.

M Woodpeckers 600mm T-square ($114.99)
Grab this aluminum square when you need to divide a sheet of plywood into smaller panels. Thanks to precisely machined 1mm holes drilled every 1/16", you'll have no trouble marking parallel lines precisely across a broad area.

N Triangle squares (small $7.00; large $18.00)
Since Albert Swanson invented the Speed Square® in 1925, many versions of this trusty tool have come to market. Plastic and aluminum models are equally indestructible. These squares make quick work of checking right and 45° angles. Calibrations make it possible to lay out other angles too. As a bonus, these thick-bodied squares will guide the edge of a circular saw for straight cuts.

O Starrett try square ($20.00)
This tool is ruggedly made, with a stainless steel blade. Angled edges enable you to lay out 45° angles.

P Folding rule ($8.28)
It's not a square, but it sure fits nicely in this tool collection. This Swedish-made Kikkerland rule extends to 78". It's compact and finely constructed.

Layout Tool Cabinet

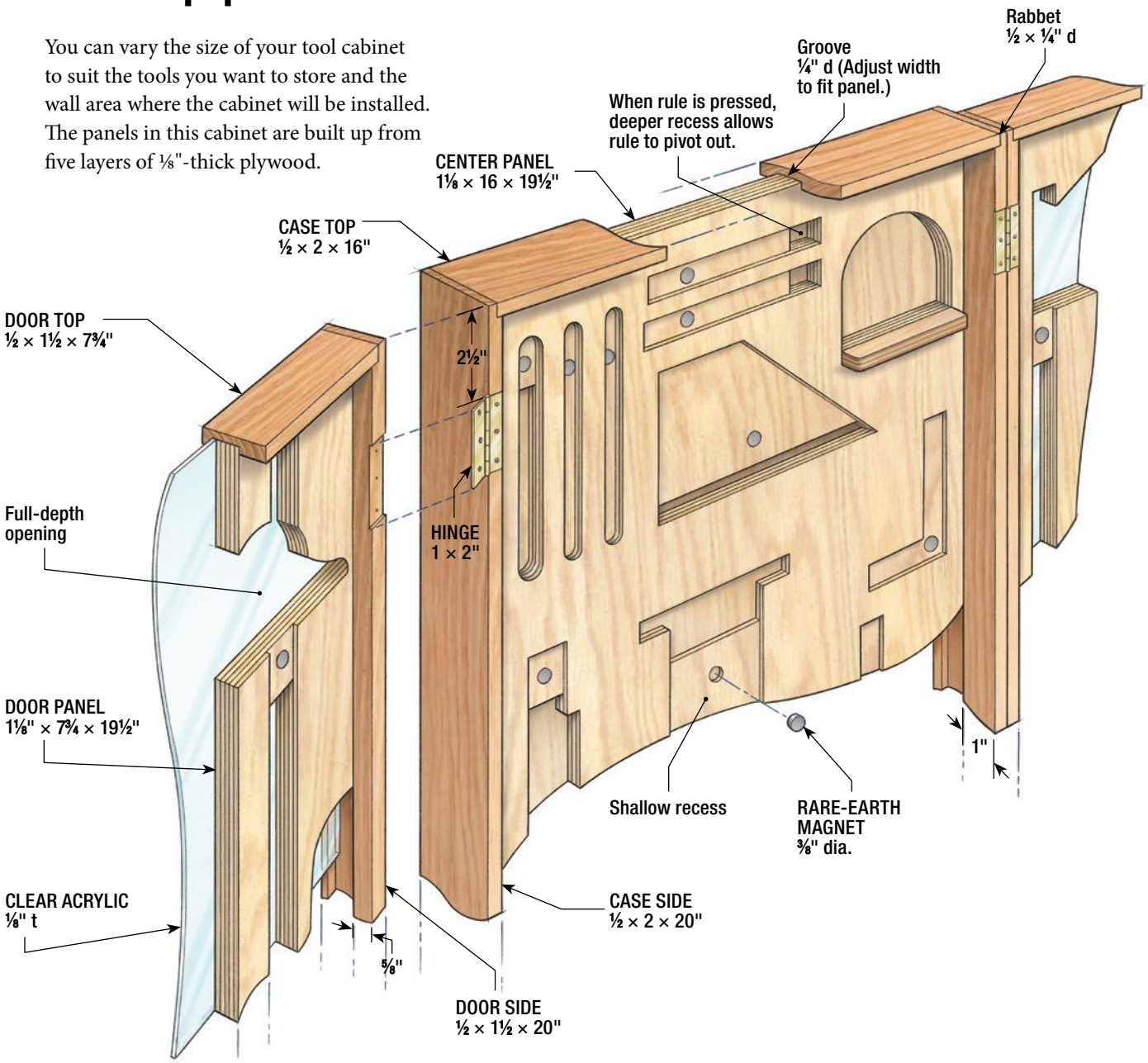
Treasured hand tools deserve a custom-made case. Use these tips to build your own version.

By Jim Downing

The technique I used to build the tool case shown on p. 52 can be adapted for a wide range of other small hand tools—like calipers, bevel gauges, straightedges, and so on. Just follow the directions on the facing page. See the Buyer's Guide (p. 66) for materials.

Built-up panels inside rabbeted frames

You can vary the size of your tool cabinet to suit the tools you want to store and the wall area where the cabinet will be installed. The panels in this cabinet are built up from five layers of ⅛"-thick plywood.



1. Arrange your tools on a flat surface to determine the best layout.
2. Gather your materials.
3. Cut the required number of ⅛" plywood panels about 2" larger than the finished size of your built-up panels.
4. Number and stack the plywood panels flush on all sides. Clamp the stack together, then drill ¼"-dia. alignment holes through your stack in opposite corners. Place dowels in holes to keep panels aligned throughout your marking and cutout process.
5. Lay out the tools on the top panel, and trace completely around each tool. Then use a jigsaw fitted with a thin, fine-toothed blade to cut an opening for each tool in the topmost panel.
6. Reassemble your plywood stack, and mark the second panel to accommodate the thicker portion of each tool. Then make the required cutouts in the second panel.
7. Continue to make cutouts until each tool is fully housed. Incorporate finger-hole cutouts or recessed sections that enable you to reach behind a tool or push in a blade to free the tool from its cutout.
8. Sand all panels smooth to eliminate rough edges on cutout areas. With the alignment dowels in place, glue and clamp panels together. When the glue dries, cut the panels to finished size.
9. Drill recesses for the circular magnets. Then glue the magnets in place with epoxy.
10. Cut the frame pieces to make the cabinet back and doors. Incorporate the clear panels as shown in the drawing, and install the hinges.

Photo: Larry Hamel-Lambert; Illustration: Don Mannes

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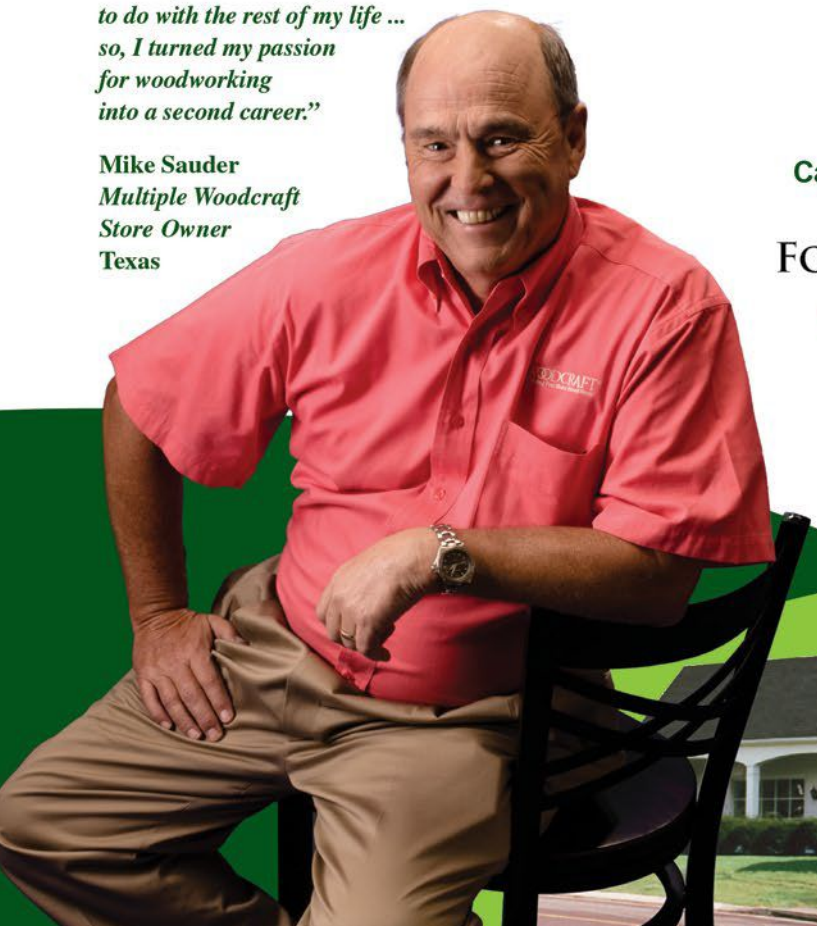

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F17WD03P

Freestanding LUMBER RACK

A modular solution for storing boards and panels anywhere

By Paul Anthony

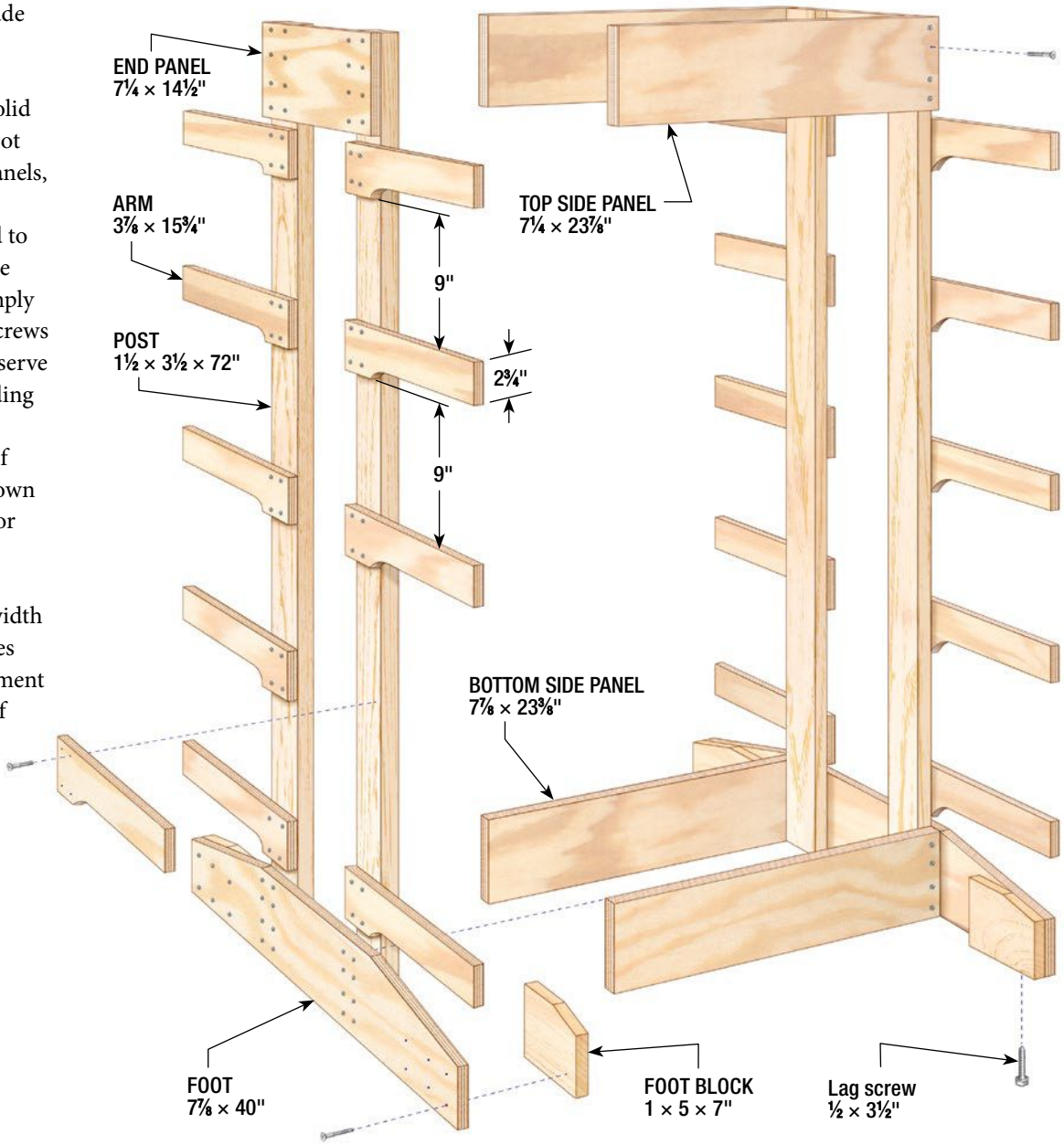
These free-standing racks hold both lumber and sheet goods without tying into your shop structure. Being modular, they'll hold whatever lengths of lumber you commonly use, with the center section accommodating full-sized sheet goods.

Each 6'-high × 2'-wide module includes a 7½"-wide space in the center for 4 × 8' (or longer) panels. Two modules placed 2' apart positions an arm every two feet with only a foot of overhang at each end, which is plenty support to keep boards from sagging. (A strip of plywood placed across a set of arms creates a shelf for short offcuts.) You can store lumber on both sides of the rack; even if one side is placed against a wall, you can still slide long boards in and out from the end. Two modules fully loaded with 8'-long boards will hold more than 1,500 board feet of lumber. Lag screws in the feet allow for perfect leveling.

The hardwood plywood arms extend 12¼", although you could make them longer. They're terrifically strong when glued and screwed to their posts, which I made from 6/4 poplar. If you decide to use construction 2 × 4s for the posts, make sure they're straight and dry, or your racks may tweak out of shape, as an early set of mine did.

Modular freestanding rack

This module is made from hardwood plywood, with the exception of the solid wood posts and foot blocks. The end panels, arms, and feet are glued and screwed to the posts, while the side panels are simply screwed on. Lag screws in the foot blocks serve as levelers. If building with full sheets of plywood instead of scrap, the sizes shown maximize yield. For example, adding a ⅛"-wide saw kerf allowance to the width of a 3⅞" arm makes 4"—an even increment across the width of a 48"-wide sheet.



Construction Tips

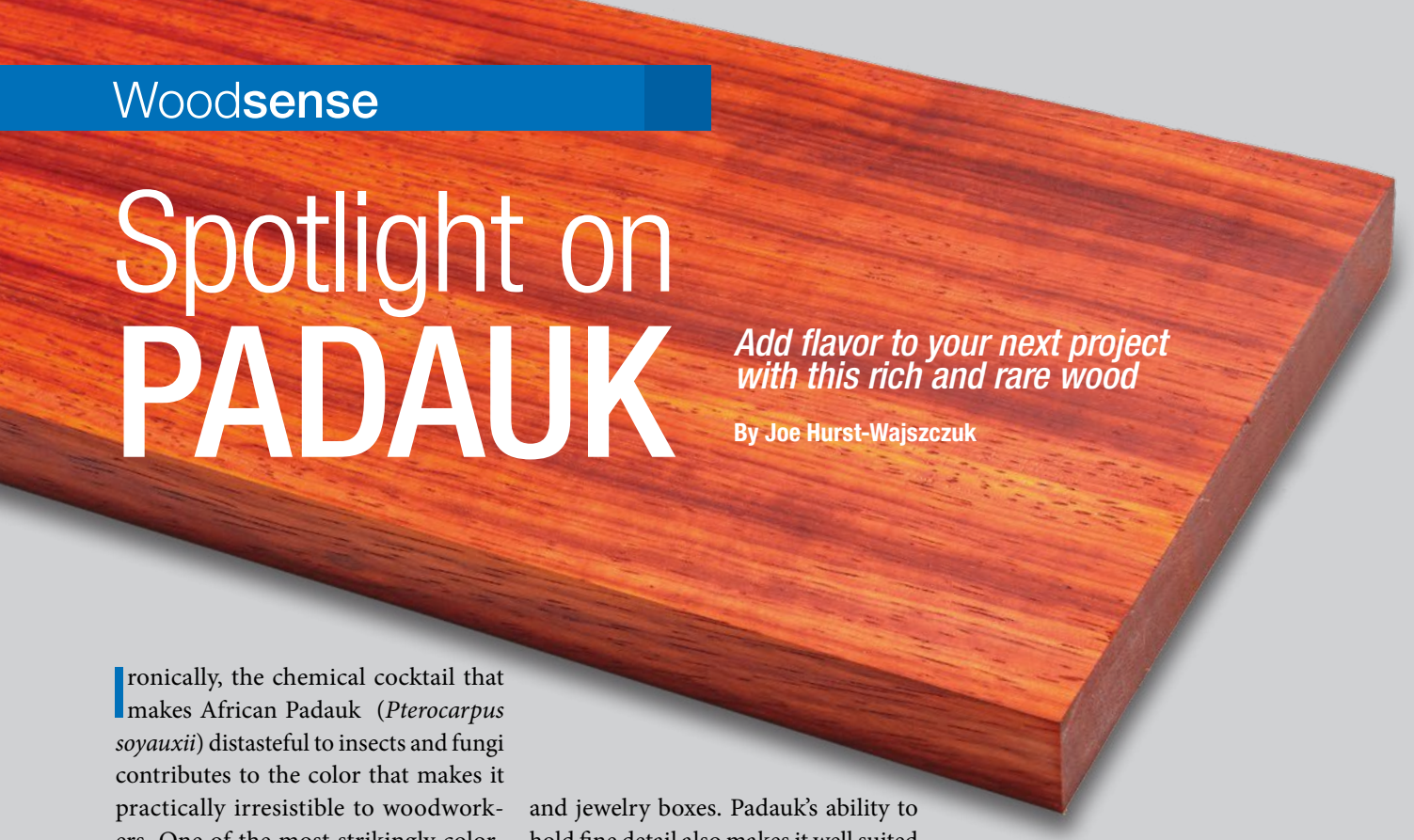
- Plane, joint, or sand the outer faces of the posts to ensure a good glue bond with the arms.
- Stack-cut the underside of the arms with a bandsaw for efficiency. (The cut-away allows more stacking capacity.)
- Lay the posts side by side, and mark out the arm spacing using a framing square.
- Build the end assemblies, gluing and screwing the arms, end panel, and foot to each pair of posts.
- Screw the side panels to the end assemblies. (I don't glue these because I've occasionally had to detach the end assemblies for moving or temporary storage.)
- To make the foot blocks, place each block in position, then trace onto it the slope of the plywood foot. Cut the sloped edge with the bandsaw or jigsaw, then glue the blocks to the feet.
- Drill pilot holes for the ½ × 3½" lag screws, and install them.
- Place the racks, level them, and load 'em up.

Photo: Paul Anthony; Illustration: Melanie Powell

Spotlight on PADAUK

Add flavor to your next project with this rich and rare wood

By Joe Hurst-Wajszczuk



Ironically, the chemical cocktail that makes African Padauk (*Pterocarpus soyauxii*) distasteful to insects and fungi contributes to the color that makes it practically irresistible to woodworkers. One of the most strikingly colorful woods, padauk is widely esteemed for its bold red-and-orange heartwood. Although these vibrant hues eventually mellow to a rich reddish brown, purple, or even near-black, padauk's enduring stability and workability remain intact, contributing to this affordable wood's popularity.

Although famous for the color hidden within the trunk, the tree was named for its fruit. All trees in this genus bear round, inedible fruit banded by a flat wing, giving it a flying saucer-like appearance. (Pterocarpus means "winged fruit.")

Where the wood comes from

Padauk trees thrive in tropical climates including India, Indochina, the South Pacific, and even southern Florida. However, most commercially available stock comes from Africa.

History in woodworking

Centuries ago, padauk was reserved for royalty, but today hobby and commercial shops regularly employ it as an accent wood in inlay or intarsia, or as a primary wood for small projects like knife scales and jewelry boxes. Padauk's ability to hold fine detail also makes it well suited for delicate turnings and carvings.

The availability of wide, straight-grained boards makes it ideal for furniture and cabinetry, as well as paneling, flooring, and other architectural woodwork. Additionally, many luthiers consider African Padauk to be a suitable and ecologically responsible substitute for endangered rosewood, although the former's bold color makes it less popular. On its home turf, this stable, rot resistant wood is sometimes used for boat frames.

How to select the best stock

Wide, straight-grained boards sawn from large trees can be kiln-dried without difficulty, so good padauk lumber is generally easy to find at hardwood dealers. Once dry, the lumber is exceptionally stable.

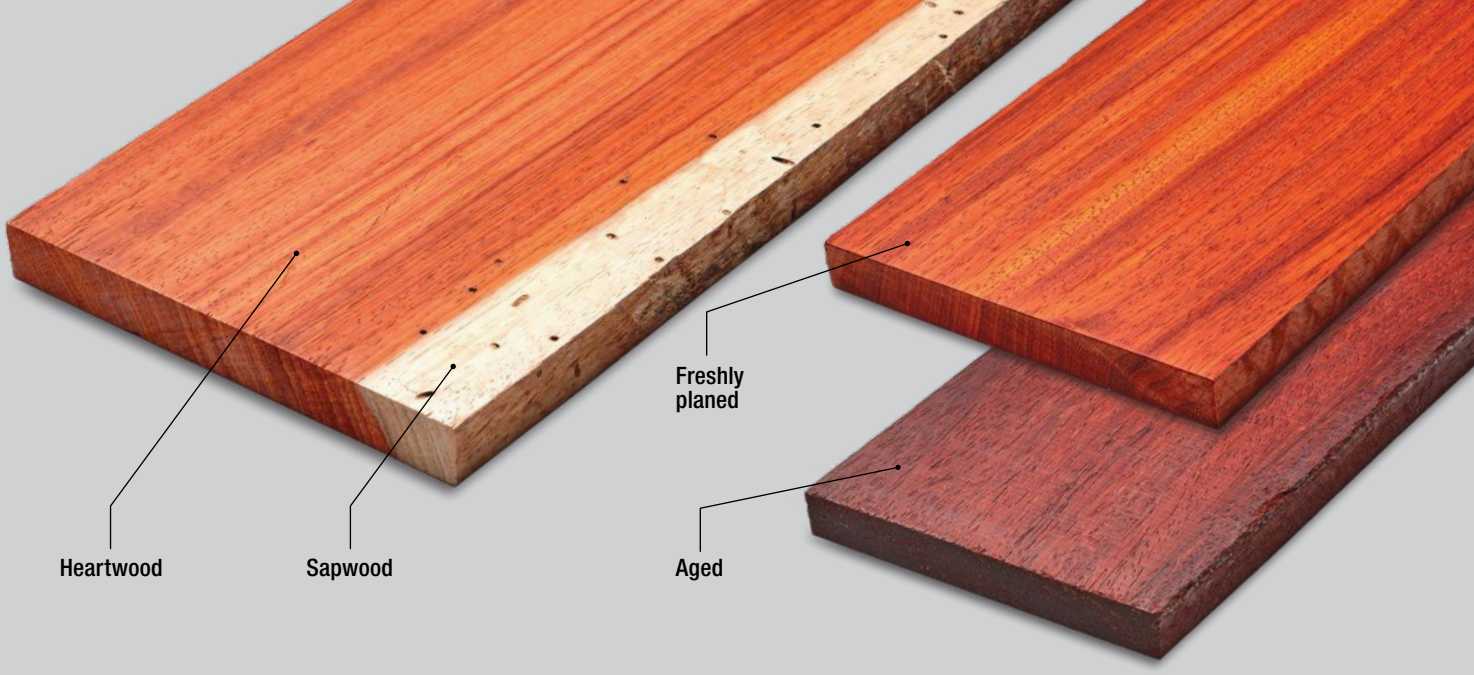
Board and turning blank prices vary depending on supplier and quantity purchased, but 4/4 and 8/4 stock typically costs around $10 per board foot—roughly the same as walnut. Curly, quilted, and other figured stock is sometimes available, but for a premium price.

Padauk's pale sapwood contrasts sharply with its rich heartwood (see photo, top left on facing page. On freshly cut boards, the sapwood is white, but in time it will turn yellow or greyish brown. Fortunately, because sapwood is usually considered a defect, it's normally cut away during commercial processing.

Working padauk in the shop

Although slightly harder than red oak, African Padauk is still a nice wood to work with using hand and power tools, although you can expect a slight blunting effect on cutting edges. When turning,

Padauk Quick Take	
DENSITY	62 lbs./ft^3
HARDNESS	Hard
STABILITY	High
ROT/INSECT RESISTANCE	High
TEXTURE	Moderately coarse
TOXICITY	Moderate
USES	Furniture, boxes, turnings, handles, instruments, veneer, dye



it's possible to get a fine finish straight off the tool, requiring very little sanding. Interlocking grain can cause some tearout, but in those instances, you'll find that the wood scrapes well. Padauk accepts glue without difficulty, but it tends to split when nailing or screwing, so pre-boring is advisable.

One problem working this wood is the fine, peppery, oily dust that tends to stick to everything it touches. In addition to staining clothes and skin, the dust can cause health problems for some folks, including swelling of the eyelids and itchy skin. Good dust collection can help prevent some of the mess and minimize allergic distress, but to be safe, wear a NIOSH-approved dust mask, and toss your dusty clothes in the wash as soon as possible.

To prevent color contamination of lighter-colored woods, vacuum away dust after finish sanding or, better yet, outfit your sander with a vacuum system. If the dust stains an adjacent lighter wood, you can undo the damage with a few swipes from a well-tuned scraper.

Finishing

Because padauk's pigment is alcohol-soluble, brushing or wiping on shellac can cause the color to bleed or smear onto adjacent lighter woods. To avoid problems, spray on a few light coats of shellac to seal the color before using a brush or rag to apply subsequent shellac coats. Alternatively, use lacquer or varnish.

The wood's natural oils have been known to retard the drying times of oil-based varnishes, but don't seem to affect water-based finishes. (Wiping the wood with acetone can help by removing some of the surface oils, but test the wood before you commit to a particular finish.) Oil-based penetrating oils or wiping varnishes are generally a good choice, although they tend to darken the wood more than water-based finishes.

Retaining padauk's vibrant red color remains one of woodworking's holy grails. A surface finish with a UV inhibitor (some woodworkers have even incorporated sunscreen) can slow down color loss, but eventually Mother Nature will win (see photos, top right). ■

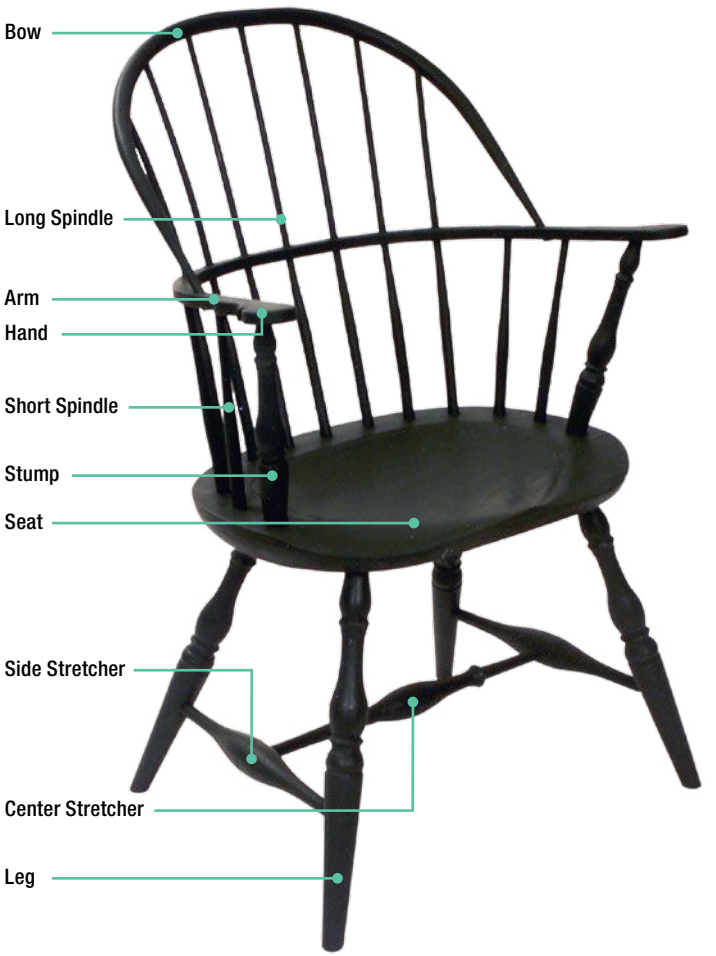
Padauk Music Box

This Sweetheart Music Box first appeared in Issue #21 (Feb/Mar 2008). Originally a rich ruby red, over nine Valentine's Days, the project has mellowed to a darker brown. If you're interested in building this project for a special someone, the plans can be downloaded by going to *woodcraftmagazine.com* and clicking on onlineEXTRAS.

Wood sample photos: Ralph Lee Anderson; Music box photo: Larry Hamel-Lambert

Sack Back Windsor Chair

By Mike Dunbar



Hand and eye. Power tools haven't had much impact on Windsor chairmaking. Hand tools and visually aligned construction still rule.

fastFACTS

The wood used to make Windsor chairs depends largely on the requirements of the parts being made. Ash, hickory and oak are commonly used for riven and steam-bent parts like spindles and curved arms. Turned parts (legs and stretchers) are often made from hard maple. Seats are typically made from pine or poplar.

Circa 1700 an anonymous English chairmaker came up with a novel idea—to build a chair with a solid wooden seat. Early on the name Windsor was attached, but in spite of fanciful explanations, we don't know why. By 1740 these new chairs were being made in Philadelphia. By the Revolution, the craft had spread through the northern colonies and Windsors became the new Republic's most popular seating. The Constitution was written by delegates sitting in Windsors.

Creative American chairmakers developed 6 different types, but their variety defies description as Windsors were available as arm and side chairs, and settees. Using interchangeable parts and a division of labor, Windsor chairmakers pioneered the Industrial Revolution, producing chairs with amazing speed and in prodigious numbers, and shipping them around the world. Windsors are amazingly strong; antique examples remain tight after 250 years. Here's why: Windsor joints rely on mechanical features, not glue, to hold parts together. Spindles are locked in place with wedges and the center stretcher is sized to force legs apart rather than pull them together. A true Windsor appears delicate but is anything but. Made of riven wood split from the tree, the parts are woven into a tough, flexible structure—the same concept as a suspension bridge. Like a partially compressed spring, a Windsor absorbs your weight instead of resisting it.

The sack back is the most recognized Windsor. It is the form I chose when developing my introductory chairmaking class. It is a challenging project for a beginner, but not overwhelming. ***Note: See p. 4 for more on Mike Dunbar, including his new book.***

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Hot New Tools (p. 14)

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2. Titebond Quick & Thick Glue, 8 oz. ..... #162166, **$4.99**

Handmade Block Plane (p. 21)

1. Thermally modified, "honey-roasted" figured maple, 2" × 2" × 6" .....#159427, **$9.69**
2. WoodRiver Replacement Blade for Standard and Low Angle Block Planes ...#153916, **$13.99**
3. Maple Dowel, ⅜" Round ..... #158593, **$2.50**
4. Maple Dowel, ½" Round ..... #158594, **$3.69**
5. General Tools Square Head Protractor ..... #85045, **$20.99**
6. Gröz Outside Caliper 8" ..... #141595, **$29.99**

Distress Done Right (p. 25)

1. Black Dog Salvage Furniture Paints
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   Quart **$32.99**
   To see the 16 color options, visit your local Woodcraft store, or go online to *woodcraft.com*.
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3. Guard Dog Topcoat Paint Protector (Available in Matte and Satin.)
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   Quart **$32.99**
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Adjustable Trivet (p. 30)

1. Whiteside 2702 Over-Under Flush Trim Router Bit
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Tablesaw Dovetail Jig (p. 46)

1. WoodRiver 24" Standard ¼" T-Track ..... #159894, **$10.99**
2. WoodRiver Cam Action Hold Down ..... #145630, **$7.99**

Build a Classic Spice Box (p. 36)

1. Whiteside RU3100 UpCut Spiral Router Bit
   $^{5}/_{16}$" D, 1" CL, $^{5}/_{16}$" SH ..... #821895, **$34.49**
2. Freud 20-104 90° V-Groove Router Bit
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The Square Deal (p. 52)

1. Starrett 12" Combination Square ..... #06R12, **$108.99**
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18. Kikkerland Wooden Swedish Folding Rule ..... *amazon.com*, **$7.99**
19. Other triangle squares are available at home centers, with prices as low as **$6.00**

Layout Tool Cabinet (p. 56)

1. Stanley Solid Brass Miniature Medium Hinges, 2" Long × $1^{3}/_{16}$" open, with screws (pair) (2 req.) ..... #149742, **$5.50**
2. Rare-Earth Magnets, $^{3}/_{8}$ × $^{1}/_{10}$" (10-pack) ..... #150950, **$6.49**

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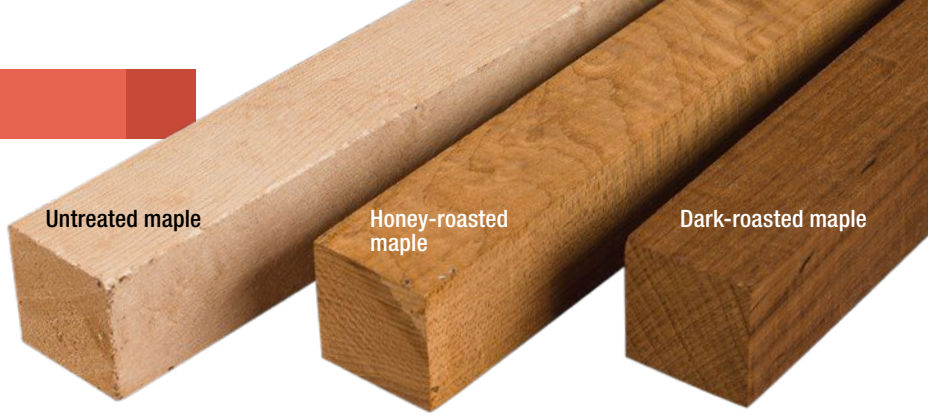
Roasted wood?



Q *What is meant by "roasted" wood, and why would I want to use this material in a woodworking project?*

A Technically known as "torrefaction," this treatment has long been used in Scandinavian countries to improve the durability and stability of lumber. "Roasting" is a suitable description because the wood is exposed to high temperatures that cause moisture, sugars, and resins to be cooked off. Light-toned woods darken after roasting, with higher temperatures causing greater darkening (see photo above).

Roasted wood definitely performs differently. It is lighter but stronger, and much more dimensionally stable when exposed to changes in temperature and humidity. Some turners favor these characteristics; they're also useful if you're making a wooden hand plane like the one featured in this issue (see p. 21). Woodworkers who make musical instruments (especially luthiers) are among the largest consumers of roasted wood. The sound-transmission qualities of super-dry "tonewoods" are noticeably superior to those of normally processed wood.

—Jerry Pibbles, sales & marketing director, American Specialty Hardwoods

Safety in skewing a tablesaw fence?

Q *In the process of tuning my tablesaw, I came across advice in the owner's manual that suggests skewing the rear end of the fence 1/16" farther away from the blade than at the front of my saw. The manual says that this step reduces the danger of kickback, but does it work?*

A Skewing the far end of the rip fence a bit away from the blade is an old trick and does provide some small measure of safety in preventing kickback on saws without a splitter. The theory is that it helps prevent the workpiece from contacting the rising rear teeth, which can pick up the board and throw it back at you.

I suppose there's nothing wrong with skewing the fence a bit, but you shouldn't kid yourself that this will prevent kickback. As we all know, a workpiece can slip away from the fence or crook inward toward those mean rear teeth in the process of cutting. Using a properly aligned splitter is the only sure way to prevent kickback because the splitter denies the workpiece access to the rear teeth. When aligning a splitter, make sure that the side of the splitter that faces the fence is in perfect alignment with the sides of the teeth closest to the fence.

—Paul Anthony, senior editor

Self-leveling furniture paint?

Q *I've painted the base of the Entry Bench (Issue 67), using a flat, water-base enamel advertised as "self-leveling." But the coat came out uneven, and the paint seemed to dry before it had a chance to level out. What did I do wrong?*

A Several factors can compromise paint's ability to level out and dry to a smooth, uniform surface. First, consider the substrate. Harder, non-porous surfaces allow better flow-out and levelling because the paint sits on the surface and stays wet longer—increased wet time typically means better leveling. Because they absorb more, porous substrates reduce the drying time and the paint's ability to level out. Here, pre-treating the project with a primer/sealer can help.

Humidity can also be a factor. If you're painting during hot, dry weather, it's smart to mix an extender, like Floetrol® or General Finishes Extender into your paint to prevent premature drying and give your finish more time to level out. ■

—Kent Harpool, paint & finishes product manager, Woodcraft

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Photo: Larry Hamel-Lambert

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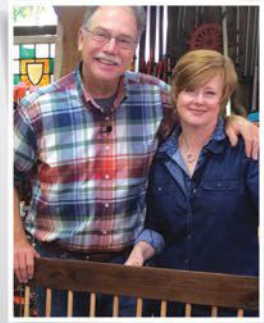

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