

Popular Woodworking

DECEMBER 2024 | #281

Excedo Side Table

WITH AUSTIN WALDO

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T33256 ONLY \$235

\$19⁹⁵
SHIPPING
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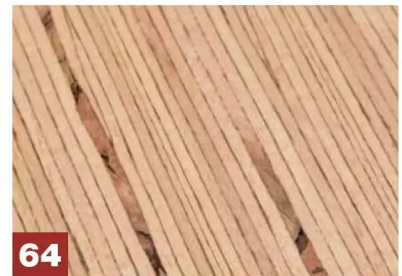
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FROM THE EDITOR

'Tis the Season.

By Logan Wittmer

It feels so odd, to be sitting here working on the December issue of PW, because it's the middle of August and in the mid-90's. But, alas, that's how far ahead the magazine world runs. As you're reading this, I'm guessing it's October or November, with the holiday season looming. The years that I've put together Christmas gifts for everyone are those of love/hate relationships. Most recently, I made a batch of twenty five end-grain cutting boards. I love the fact that I don't have to think about what we're getting for people. Bring a batch of cutting boards, and let everyone choose their own. I also enjoy that, to this day, everyone's still using theirs. I visit and see them sitting on the counter, with the gentle signs of wear. But you know what? I hate mass production. At the end of two weeks of making cutting boards, I would rather chug a bottle of glue than put together another cutting board. At the end of the day, however, the time investment was worth it. I hope you had a chance to put a few gifts together for this season. If you didn't, there's still time. At the end of the day, we can chug a bottle of glue together.

On another note, the shift in the seasons marks another cyclical time of the year—the time when the field mice start looking for somewhere warm to settle in for the winter. Most people's shops tend to be the ideal spot for them to sneak in and hunker down. There's piles of lumber, usually our shops are in a garage that may not be sealed super tight, etc. However, I'm ready this year. It took me years to convince upper management to allow me to hire another employee, but we finally added another name to the *Popular Woodworking* Masthead. Goose, the new shop manager, has made our shop his home. He's a skilled mouser, a rowdy little playmate, and a master of sneak attacking your feet as you walk by the workbench. But, I'll tell you what—it's fun having him racing around the shop, stealing packages of screws. Cheers!



Logan Wittmer

ABOUT THE AUTHORS



PAT CARROLL: *Textured Platter* –pg. 42

Pat Carroll is a turner from Ireland. In recent years, Pat has become one of the most in-demand demonstrators in woodturning, having been a keynote demonstrator at the national AAW symposium, as well as several state symposiums. His no-nonsense approach to turning combined with his artistic eye make his work something to behold. Pat runs monthly remote demonstrations and interviews with woodturners from across the world at PatCarrollWoodturning.com.



AUSTIN WALDO: *Excedo Side Table* –pg. 32

Austin Waldo's professional background is in creative digital marketing, operations, and management but his passion has always been woodworking. This led him to start several woodworking businesses including the Texas Woodworking Festival and the Austin School of Furniture. He also has his own custom furniture company, Waldo Furniture Co., where he creates one-of-kind furniture for clients in Austin and surrounding areas.

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WORKSHOP TIPS

No Trace Screw Removal

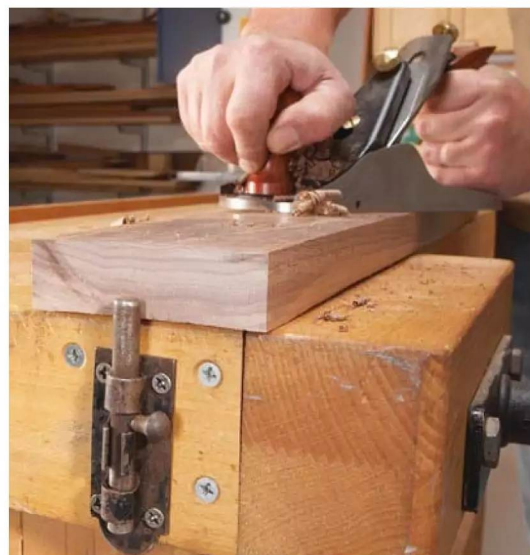
Last summer I built some outdoor furniture and used brass screws. Geeze it's a pain when those screws break off. After I snapped a couple I couldn't find my screw extractor so I had to get creative!

I've got a set of steel drill guides that I use to make custom drilling jigs for shelf pegs and dowel holes. I discovered that if I put the $\frac{3}{16}$ " drill guide into a block of wood and clamped this assembly over the broken screw, I was able to drill it out. Then I plugged the hole with a piece of wood and some glue. Once I inserted a new screw, the fix was invisible. I've tried this with brass and mild-steel type screws but it doesn't work with hard drywall-type screws.

– Ronald G. Early (Tacoma, WA)



PHOTO BY RAMEN MORENO



Deadbolt Bench Stop

For a quick and simple bench stop, I mounted a sliding bolt taken from an old door to the end of my workbench. In the locked position, the bolt stays put, and in the unlocked position it's completely out of the way. – Darryl Thomas

Dust Pipe Grounding

Wood dust speeding through ducts can quickly build up enough static electricity to cause a spark. To avoid this I stretched grounding wire down my collector ducts but the wire tended to snag shavings and cause a blockage. I recently discovered that stained glass shops sell rolls of adhesive-backed, bare copper tape. This tape lies flat inside the pipe, sticks to the metal walls, and guarantees obstruction-free flow. To attach a grounding wire to the tape, simply drive in a screw from outside the duct. – Alexander Galvin (Merrillville, IN)

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WORKSHOP TIPS

EZ-Grip Router Wrenches



I own several routers and they all have thin wrenches that are awkward to hold. To avoid frustration, I made the handles thicker by housing them in transparent plastic tubing from the hardware store. To keep the tubing in place, I wrapped the handles with athletic tape first. – *Serge Duclos*

Glue Caddy

Being an impatient sort, waiting for glue to reach the bottle's spout became a pet peeve of mine. To put an end to this, I made a stand with a hole in the top matching the diameter of the bottle's lid. It allows the bottle to stand upside down so the glue is

always ready to use. For stability, I made the base slightly larger than the top. – *Mark Thiel*



PHOTOS PROVIDED BY THE OTHER UNLESS OTHERWISE STATED

Cutting Multiple Parts

One day my wife asked me if I would make her 58 shields for awards at her school. Usually when I cut multiples on my scrollsaw I tape or screw the parts. This time I hot-melt glued them together. It not only worked great, but was much faster and easier. – *Wayne Johnson*



Multiple Plugs



DRAWING BY MELANIE POWELL

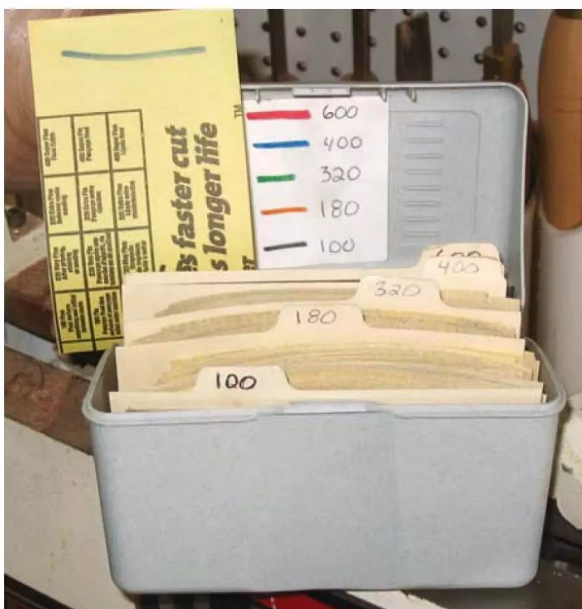
Faced with cutting hundreds of plugs for a big project, I came up with this idea: I cut the plugs a little deeper than needed. Then I ran strips of masking tape down the faces of the plugs. When I cut them free on the bandsaw they stayed stuck to the tape instead of scattering all over the floor.

– *Geoffrey Peake (Wyoming, Ohio)*

Sandpaper Index

When turning, I like to have all my supplies close at hand, ready for use. I use an index-card box to store and organize cut pieces of sandpaper. It has a lid and dividers, so everything is neat and orderly. When you cut a piece of sandpaper into sections, some pieces won't have the grit information on them, so I mark the back of each piece using a color coding system.

– *Jon Kaplan*



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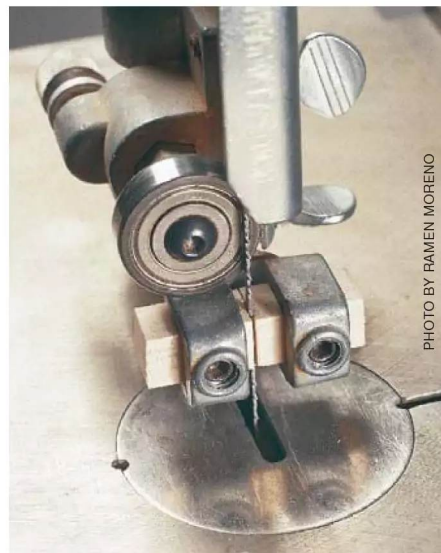
WORKSHOP TIPS

Disposable Guide Blocks

I've bandsawn hundreds of puzzle pieces using very small blades. I gave up on the steel guide blocks that came with my saw because when those little blades come in contact with the blocks, they'd dull right away. And, when I wanted to back out of a cut, the blade would pop out of the blocks.

Now I make my own guide blocks from scraps of hardwood. My blades last longer and don't pop out or wander because they're trapped between the wooden blocks. The blocks wear, but it's also so easy to just re-cut their ends or make new ones altogether.

With the bandsaw unplugged, I install the new blocks by pushing them toward the blade until they're lightly touching it. Then I lock the blocks in place and spin the upper blade wheel to make sure they don't drag on the blade. – *Kendrick Greene (Perry, FL)*



Brush End Grain First

Make a habit of applying finish to end grain first. Why? It's all about avoiding drip shadows.

Sounds creepy, doesn't it? Here's the deal: Let's say you're finishing a top. You're merrily brushing the first coat of finish back and forth on the top's surface, and some finish happens to drip down an edge, which you haven't gotten to yet. If this edge is end grain, the finish will soak into the wood quite fast. If you don't wipe off the drip right away, the finish that soaks in will darken that area. After you finish the entire edge, the original drip will still be visible as a dark shadow.

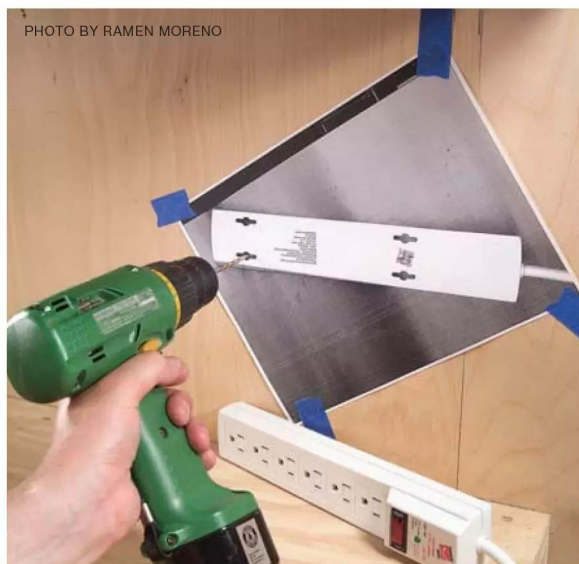
If you finish the end grain first, drips aren't a problem because they won't soak in.

Photocopy Template

I used to hate hanging objects, like power strips, that have hidden T-slots on the back. No matter how carefully I measured, I could never get the mounting screws in the right place on the wall.

Then I realized that I could make a perfect full-size copy of the pattern on standard 8 1/2" x 11" paper using my scanner and printer (a photocopy machine would work, too).

I taped the pattern where I wanted to mount the power strip, drilled the holes, and set the screws. Shazam! It worked perfectly. – *Lee Miller*



PHOTOS PROVIDED BY THE OTHER UNLESS OTHERWISE STATED

Dedicated Dust Collection

Many woodworkers don't have central dust collection. Instead, they repeatedly have to haul their shop vacuum between tools. This is a big hassle with a chop saw, because you usually only need it for a couple of cuts at a time. The solution? Buy an inexpensive extra vacuum and put it under the chop-saw bench permanently. Buy a tool-actuated switch so the vacuum comes on automatically when you start the chop saw. It's not the most elaborate system, but it works!

– Tom Caspar

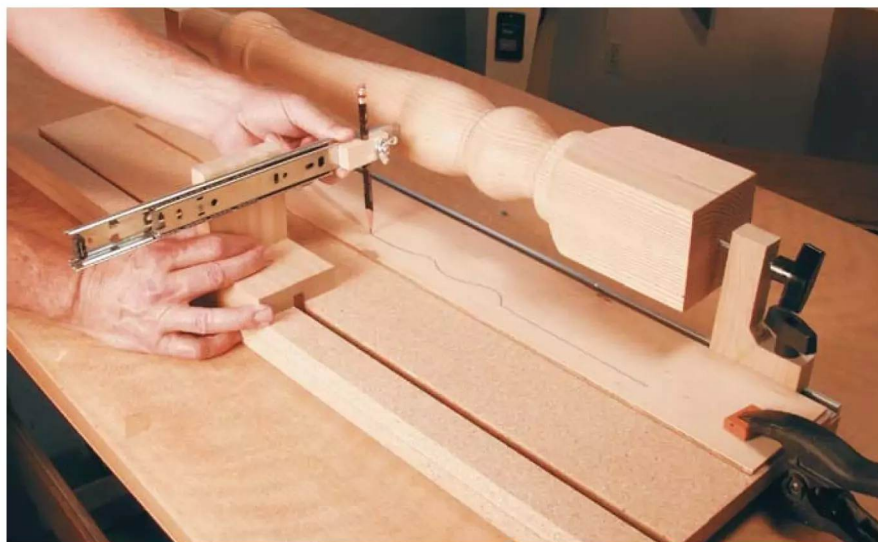


PHOTO BY RAMEN MORENO

Drawer Slide Tracing Jig

I recently needed a jig to trace lathe turnings. I tried a variety of designs but none produced the accuracy or ease of operation that I wanted.

While rummaging around my shop, I discovered an extra set of 10" ball bearing drawer slides left over from another project. I attached a single slide to a bracket and attached a pencil to the slide with a notched wood block and wing nut. The bracket fits in a dado in the jig's base. The lathe turning is held between a couple of sharpened machine screws. The right holder is attached to a T-track with a T-bolt and knob so I can move it for different part lengths. To use the jig, I move the slide in and out against the turning while I slide the bracket left or right. The pencil does the drawing and I end up with a very accurate tracing of the part. – Don Posto



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To celebrate the holiday season, *Popular Woodworking* and its sponsors are giving away a prize a day throughout the holiday season. To earn your chance, you must enter separately for each day's prize.

The *Popular Woodworking Magazine* and its sponsors will award one prize each day from November 28 through December 31. The prize pictured on each day in the calendar is the prize offered for that day. To register for a chance to win each prize, you must enter on the day the prize is offered. You may enter as many of the daily contests as you like, but are limited to one entry per day.

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NEW TOOLS



Red House Tool's EZ-Wings

A miter saw is a great tool to have in the shop and for home projects as well. The downfall of most miter saws, even when they're paired with a miter saw stand, is that they lack sufficient support for making accurate, repeatable cuts on long material. That's where the new EZ-Wings from Red House Tools really shines.

The EZ-Wings, as you see in the photo above, are a support system for miter saws. The universal base attaches to any miter saw, and a micro-adjust bracket allows you to fine-tune the height of the wings to match your miter saw. When not in use, the wings can be quickly removed from the base (lower right photo) and stored in a convenient travel bag.

Now, am I going to say that miter saw support wings are a new innovation? No. But what I will say is that I've never seen a set of

miter saw wings that match the quality of the ones from Red House Tools. These wings are machined out of solid aluminum, and you can tell that as soon as you pick them up. They're solid, sturdy, and meant to take a beating.

In addition to being extremely high quality, the team at Red House Tools is constantly designing accessories for the EZ-Wings. One of their accessories (a Multi-Angle Stop Block) is shown in the upper right photo, and they just released different color fences as well as a telescoping support leg. The EZ-Wings are available in various configurations to accommodate different lengths.

It's no surprise that Red House has made a big splash with the EZ-Wings, and I wouldn't be surprised if we see options for mounting EZ-Wings on other tools in the near future.— Logan Wittmer



EZ-Wings feature removable wings (below) and versatile stops and accessories (above).





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- ✓ No computer programming required
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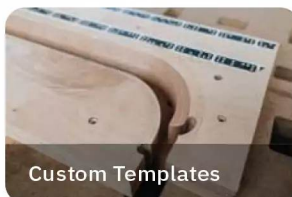
Shaper Origin brings best-in-class portability and precision to any job. Create tight fitting joinery, custom inlays, install hardware, make custom templates and more.



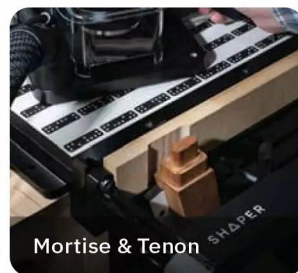
PRECISION CUTTING SIMPLIFIED



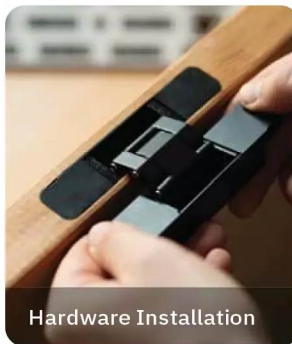
Precise Joinery



Custom Templates



Mortise & Tenon



Hardware Installation



Fine Furniture

NEW TOOLS

Metabo HPT 12" Dual Bevel Sliding Miter Saw

In my shop I have fairly high standards for a miter saw. It must be a dual bevel compound of course. And zero clearance is a must. I also like something that can be plugged in or run off battery power. And now I'm going to add to the list that it must be a 12" saw.

The 36V MultiVolt™ 12" Dual Bevel Sliding Miter Saw with Torque Boost Technology from Metabo HPT checks everything on the list I'm looking for in a well-designed package. It can run on any 18V/36V MultiVolt battery, or can be paired with a plug-in adapter you can purchase separately. Mine spends most of the time plugged in, but it's nice to run off a battery if I bring it inside for a home reno project, or outside to do some driveway woodworking.

I'm a stickler when it comes to how much flex I'll accept from a sliding saw. In fact, I'd prioritize rigidity over absolute smoothness if need be—at least I can fix that with some oil usually. Thankfully I didn't have to make a choice here. To be clear, all sliding saws have a



■ 12" DUAL BEVEL SLIDING MITER SAW (C3612DRAQ4)
Metabo HPT
Metabo-HPT.com
Price: \$629

small amount of flex, especially at full extension, but this one is on the lower end of the scale.

One final thing of note is the Torque Boost Technology, which is designed to automatically optimize the speed and torque needed for thicker materials, which is nice in a larger saw with this capacity.—Collin Knoff

Ultrashear Flat Top Blade

Several issues back, I introduced our readers to a new lineup of blades from Woodpeckers. Their Ultra-Shear blades are some of the best I've ever used. A few recent additions to the lineup are worthy of taking note of.

If you take a look at the blade to the right, you'll notice it has very large carbide teeth on it. That's because this is Woodpecker's 1/4" flat top grooving blade. Woodpecker's line of flat top blades include an 1/8", 3/16", and now a 1/4" version. It's important to note that these are all 10" blades, not an 8" dado blade.

As a SawStop owner, I have to tell you that it's a luxury to not have to change out cartridges when I need to cut an accurate 1/4" groove or dado. That's right—I've been using the flat top blade in cross-grain applications with almost no tearout. Will that change as the blade dulls? Maybe, but then it's time for me to have it sharpened anyways. If you take a look at the Miter Saw Station on page 52, all of the joinery for the drawer boxes (both dado, tongues, and drawer bottom groove) was done with this blade. Now, I'm not going to say that you need to buy every size of Woodpecker's Flat Top Grooving blade. But, I would seriously consider adding either an 1/8" or 1/4" to your shop.—Logan Wittmer



■ FLAT TOP BLADE
Woodpeckers
Woodpeckers.com
Price: \$129.00+

Venom Steel Gloves

In the previous issue, we reviewed gloves from Venom Steel. The price was incorrectly published as \$89.99. Menards retails the 50-ct Rip Resistant Nitrile Gloves at \$14.98.



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NEW TOOLS

Ryobi Compact Barrel Grip Jigsaw

A jigsaw is a great tool for all sorts of quick cuts in the shop. With that in mind, the ONE+ HP Compact Brushless Barrel Grip Jig Saw is just the right size to make it a go-to choice.

The saw features speeds up to 3,200 SPM, a 1" stroke length, and four orbital settings. *Ryobi* claims it's the most compact and lightest ONE+ jigsaw. Even among the many jigsaws I have, this is both the lightest and smallest overall.

The size factor doesn't compromise the functionality of the saw though. There's a cast base and non-marring shoe, and the saw can tilt 45° in either direction. I appreciated that there's an on/off switch



■ 18V ONE+ HP
COMPACT BRUSHLESS
BARREL GRIP JIG SAW
(PSBJS01B)

Ryobi
RyobiTools.com
Price: \$139

on both sides of the saw, which is handy for left-handed folks.

I will say that while this saw has the right chops to be a go-to option, it's not all perfect. I wish the saw could be rested upright on the battery. Right now with the

blade installed it has to be rested awkwardly on its side. And speaking of blades, the included one is absolutely lousy, even by the low standards I have for that type of thing. Thankfully that's an easy upgrade. — *Collin Knoff*

Deluxe Scriber

There are often times, where there's simply no substitute for the right tool. A good scriber is one of those tools. Whether its leveling chair legs, scribing a cabinet, or any number of tasks, a quality scribe earns its keep here.

Some of the best scribes I've found are from a company called *Tooley Park*, out of the UK. *Tooley Park* offers a variety of scribes for different applications. A few of the line can be seen below.

The scribes from *Tooley Park* are machined out of aluminum, with a Delrin utensil holder. Depending on the style, either a threaded knob pinches the utensil, or a clamp squeezes the marking device. I like the fact that when I lock down the knobs (both on the pencil, and the angle adjustment), they don't move. They're locked in place. Of



■ SCRIBER
Tooley Park
tooleypark.com
Price: £28+

the styles below, I'm partial to the SB style scriber, with its narrower body. Though, the FB (black Delrin) offers a wider base for a bit more stability. *Tooley Park* also has a range of optional accessories for their scriber line as well. Shipping is available to

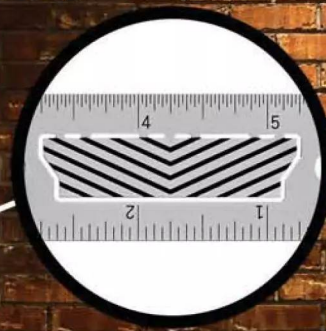
North America, and Australia.
— *Logan Wittmer*



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NEW TOOLS

Gen II Compact Brushless 1/2" Drill/Driver

I have to confess this review is coming from a fairly biased space—the first generation ONE+ HP Compact Drill is probably my favorite drill I've ever owned. It was lightweight, powerful, perfectly balanced, and affordable. So you'll have to trust me when I tell you the second gen model is just as good and then some.

The hat trick that *Ryobi* has pulled off here is that the new drill is lighter, smaller, *and* more powerful. Plus, the kit with two batteries only costs \$10 more than the last generation, which is especially nice when you consider inflation.

None of that seems to come at the expense of quality either—the switches and clutch all snap and click like they should, the chuck feels high quality (for the price point) and the ergonomics are perfect. Really for most people, this is a superior option to most 12v drills out there.

Which, to be fair, is sort of the catch; this isn't as



■ GEN II 18V ONE+ HP COMPACT BRUSHLESS DRILL/DRIVER (PSBDD02K2)

Ryobi

RyobiTools.com

Price: \$139 (includes drill, two 1.5AH batteries, & charger)

powerful as many of the full-sized 18V drills out there. But for 98% of tasks, this is going to do the job perfectly and with lower fatigue. Frankly, if you really need more power, you should be using an impact driver, or a drill press instead. Otherwise this fits the bill just fine. — *Collin Knoff*

Lignomat Mini-LIGNO DX/C

One of the hardest things for me to explain as a woodworking instructor is the importance of knowing the moisture content of the wood you're working with. As soon as you start working with rough-sawn material, or drying your own lumber, a quality moisture meter is a necessity. *Lignomat's* DX/C moisture meter is a high-quality moisture meter with pins to accurately measure moisture in a variety of species and materials.

The DX/C moisture meter can measure moisture from 5-65% using the attached pins. The pins get pressed (fully) into the wood to read the moisture. The DX/C has a total of 46 settings to read a variety of materials ranging from domestic and tropical hardwoods to wallboards and OSB panels. One of the things I appreciate about the *Lignomat* offering is that they cater to the professional as well. The slide hammer (shown here with the DX/C) allows you to use longer probes to reach the center of the material, and hook it right to the meter. *Lignomat* also offers probes that can be placed inside of a lumber stack so that you can accurately measure the entire load as it's drying in the kiln. — *Logan Wittmer*



■ DX/C

Lignomat

LignomatUSA.com

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■ In the Shop

Inlays with Origin

Origin, the hand-held CNC from Shaper Tools, makes creating inlays effortless.

By Logan Wittmer

Self admittedly, I'm becoming a grumpy old man. I know what I am comfortable with, and it's fairly hard for me to break out of that sense of comfort. But, with that said, I always try and have an open mind when it comes to new technology, techniques, designs, etc. I think in my position, you have to.

When I recently had an inlay project pop up, I knew it was exactly the type of project I could use a CNC for.... If only I knew how to use one (it's been the better part of 20 years since I've used a CNC). However, the one tool that I do know how to use is *Origin*, by *Shaper Tools*. Creating inlays with *Origin* is a straightforward, and cool process, so I figured I would show you the steps to create handsome inlay.

Origin

Before I dive into how this inlay is created, I'm going to assume that you've at least heard of *Origin*. If you haven't, here's the elevator speech: *Origin* is a hand-held CNC that uses strips of domino tape to know where the router is at. Scanning the tape (applied to your surface) creates a digital footprint of your area, and you can place artwork/designs/joinery on that. While you're manually moving the router to follow your design, the camera is tracking your movement, and making micro-adjustments to the motor's position to keep you on track. It sounds like voodoo, and it kind of is. But, it's the good kind. It works wonderfully well.

I also want to point out that, like everything in our magazine,



this is not sponsored content. We do not accept sponsored content, nor will ever. This article features *Origin* because I enjoy using it, and think there's value in showing its capabilities.

Not an Artist

The thing I appreciate about *Origin* is the fact that it doesn't need special coding or designs to operate. I can create designs in my standard graphics programs (like I use to make this magazine), and I can import it into *Origin*. Again—I'm not

saying learning a CNC is difficult. I just haven't done it, and *Origin* had very little learning curve for me.

Now, with that said, I did not design this inlay. Instead, I used one of *Shaper's* offerings called "*Shaper Hub*". *Shaper Hub* is a massive online library of free designs, uploaded from the *Shaper/Origin* community. Once you're signed in, you can instantly download the files from Hub to your *Origin*. I found a design and modified it a bit to fit how I wanted it to look. The original compass rose inlay

PHOTOS BY LOGAN WITTMER



Good Enough Is Not Enough

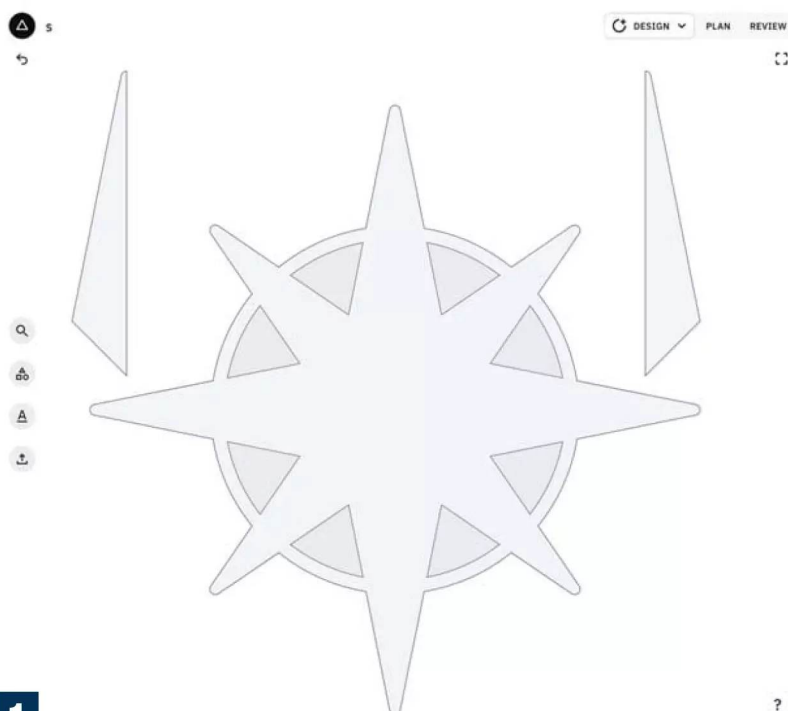
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1

1 There are three of the elements in this image. The large star in the center is the negative piece — it will be routed on the inside of the lines. The other two are positive pieces, and will be cut on the outside of the lines.

2 These four bits are the keys to creating this inlay.

was designed and uploaded by a user by the name of “Woodfriend.” Thanks Woodfriend.

Positives and Negatives

When working with *Origin*, and with inlays in particular, you need to think about your inlays as positive and negative pieces. The negative is the recess where your inlay is getting dropped into. The positive parts are the ones that are being placed *into* the negative.

After selecting my design (and making some edits to it in an art program), I uploaded it to the *Shaper Studio* — *Shaper*’s online design software. This software shows you what you’re getting when you export it to *Origin*. The screen shot of a few of the parts is shown above. This is as it appears in *Studio*.

For this inlay, there are several parts. To start off, there is one large negative part, which is the central star with the ring. The positive parts consist of Big Point Left (ebony), Big Point Right (curly maple), Little Point Left (ebony), Little Point Right (curly maple),

Ring Left (brass), and Ring Right (brass). Each one of these parts have a quantity of 4. That’s 24 parts to keep track of, before adding in the cardinal direction marks!

The good news is that, once you’ve got the files set up and saved how you’d like, it’s very quick to zip out parts. Just spend the time to make sure you label the parts appropriately.

The Right Bits

Much like any other form of routing, selecting the right bits for *Origin* is very important. The bits I used for this inlay are shown below. Basically, it’s the standard set of bits. The largest bit, a 16mm clearing bit, is used to do large removal anytime you’re using *Origin*. This is a beast of a bit and it eats. It does require the 8mm collet from Shaper to use it, FYI.

The other bits are standard 1/4" and 1/8" spiral up-cut bits. These do a bulk of my work, as you can tell by the roasted appearance of my 1/4" bit. For routing the brass, a shorter, O-flute bit would be better, however I found the 1/8" up-cut did just fine, as long as I went slow (more on that in a bit). Finally, the V-bit is used for doing detail work, such as engraving letters, lines, etc.

Positives First

So, where does the rubber meet the road? Well, it starts off by cutting the positive parts first. (More on why that is in a little bit). I cut these positive parts out

2



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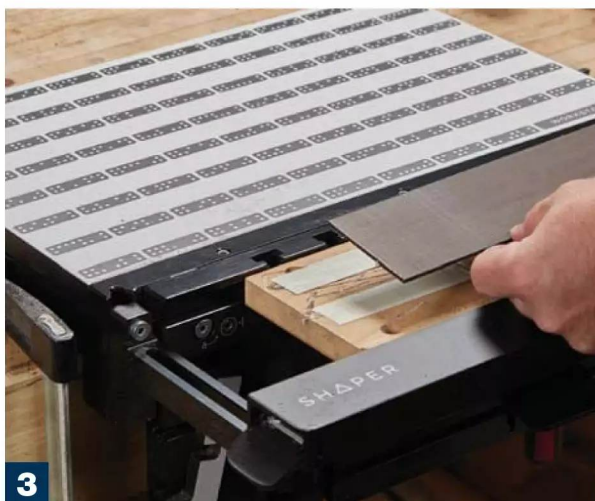
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3



4



5

3 Workstation has built-in dominoes and a shelf where you can secure blanks down.

4-5 Choose your design out of your files and rout around the part. The 1/8" bit cuts quickly and cleanly through the veneer.

6 The finished part can be pried off and another one cut.



6

of shop made veneer—about 1/8" thick. When I'm working on small pieces such as these, I like to use the *Shaper Workstation* (Photo 3). It allows me to use double-sided tape to hold the parts down, and the workstation's domino surface gives the *Origin* something to read. No messing about with domino tape on these little parts.

Once the veneer is stuck down, it's a simple matter of importing the design, setting the correct depth (0.13 to just cut through the 1/8" veneer), and routing around each part. This is a rinse and repeat for all 24 parts. With the blanks ready to go, I cut all 24 positive parts in about 30 minutes.

Negatives Now

With the positives cut, we can flip to the negative. The workspace is taped with domino tape (Photo 7), and after scanning, the negative artwork is placed (Photo 8).

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7



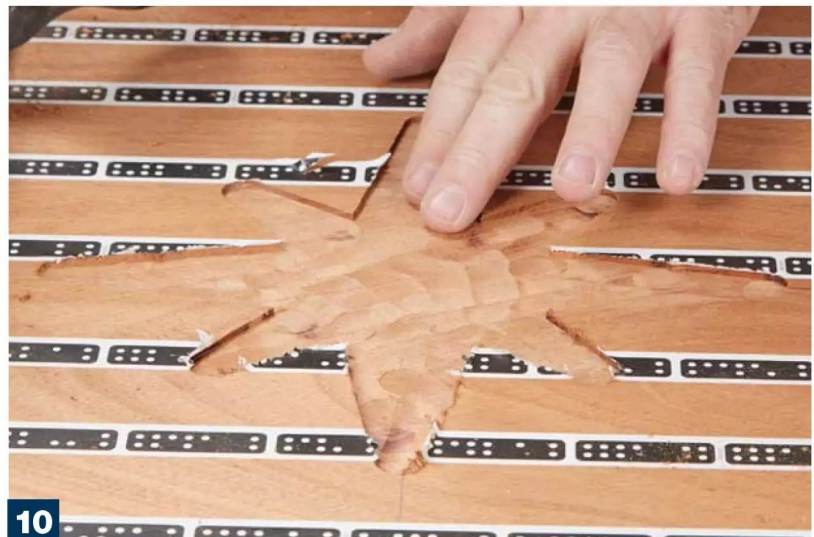
8

When routing a negative area, I start with my largest bit first. As you can see in Photo 9, the large bit won't fit into tight corners. That's okay. *Origin* knows that, and won't let you cut into those. This is just a hogging out stage using the "pocketing cut" setting. After routing as much as I can with the 16mm bit, I check my progress. If everything looks good (and I've checked my veneer thickness, and I'm okay with the depth), I swap over to a 1/4" bit.

This smaller bit will do the remainder of the negative cut. Also, this is where I'll switch over to an "inside cut" style in *Origin*. This means that *Origin* will guide the bit just on the inside of my artwork. You can make micro-adjustments here as well—the team at *Shaper* suggests offsetting the cut by -0.003". This makes the negative area just a hair bigger



9



10

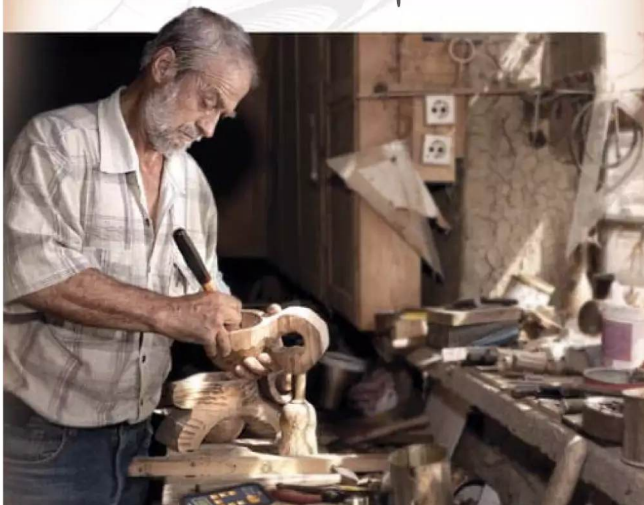
7 Apply tape to your surface to be inlaid. I use extra tape here, simply because of my photography lights.

8-9 Place the artwork and start routing. Follow the screen to see where you've routed.

10 Check the first roughing pass, and make sure the depth is where you'd like it.

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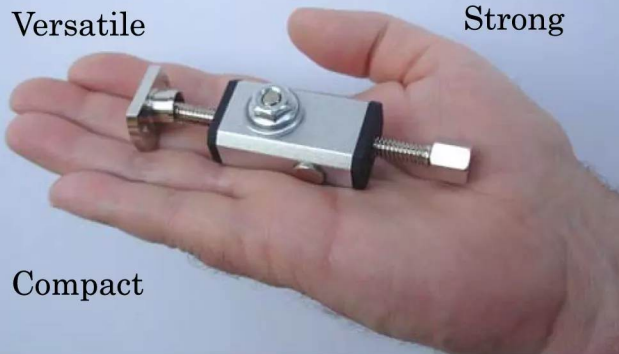
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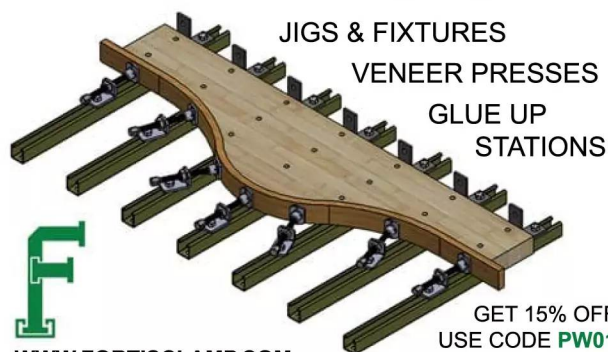
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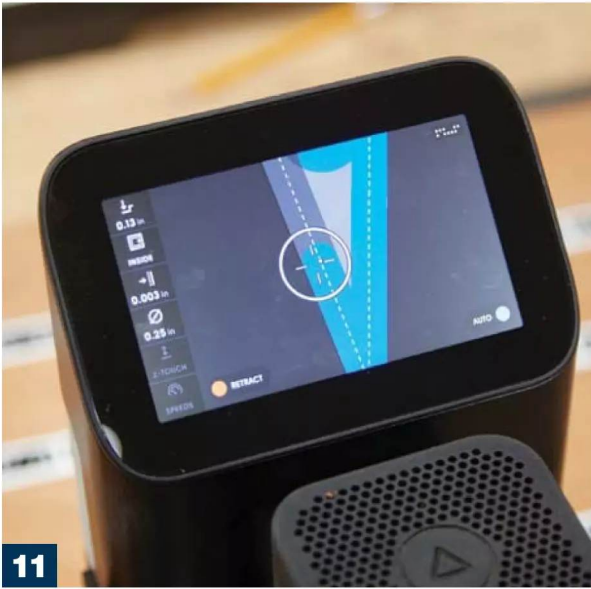
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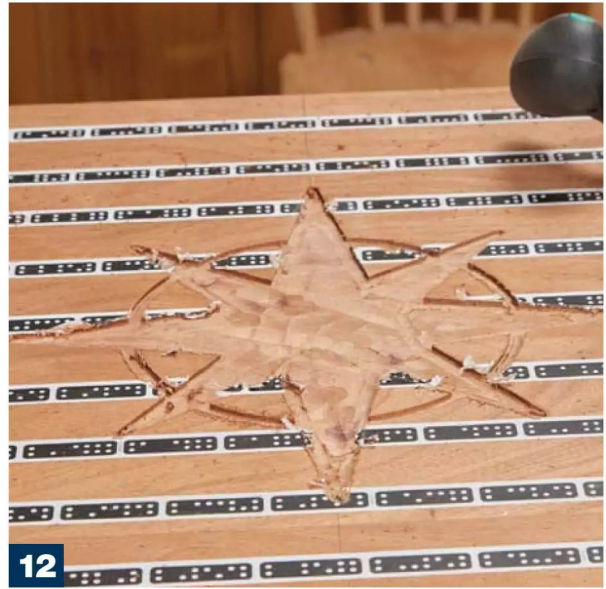


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11



12



13

11-12 An inside cut with the smaller bit defines the actual recess.

13 With a 0 offset, my parts fit, but were too snug. Recutting at a -0.003" offset gave just enough wiggle room.

14 The brass is engraved first, then cut out with a 1/8" bit.



14

than the positives. This is why the positive pieces are cut first. After you've cut your negative, you can test the positive piece's fit. If it's too tight, you can simply re-cut, adjusting the offset!

After cutting, the surface is always a little fuzzy. Sanding it down helps clean up the fuzz and you can test the pieces. Again, if they're too tight, adjust the negative pocket slightly. When they fit how you'd like, glue them in place.

For a little extra pizzazz on this nautical inlay, I did the ring and directions out of brass. Origin does brass well—you just have to cut in multiple passes (about 1mm deep at a time). These medallions were engraved with the V-bit first to form the letter. Finally, a three-pass process cut them to shape. **PW** - Logan Wittmer

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Tips for Using Thin Veneers



A



B

Shop-made veneers, such as I used on the previous pages are easy to work with—they're just thin hardwood. However, if you want something a bit fancier, or with color, thin commercial veneers can be used, but a different approach is needed.

First—I used a scrap of MDF with domino tape to make a platen. In this, I routed a recess the same depth and size as my veneer. The veneer is then held in place with temporary spray adhesive as you're routing. The spray adhesive gives you about 10 minutes before it sets up to be permanent, so do all your parts at once, and quickly.

After routing, a flexible pallet knife gets under the thin veneer and pull it up. Start on one end, and follow the grain to lift the veneer without splitting it.

Once you have all of your parts cut, I find it easiest to flip into “Traditional Veneer Mode” and tape and glue the veneers together before anything else. These thin veneers can fuzz, so you may need to sand them. The negative also gets routed much shallower with these. As a beginner, it is much easier to work with the thicker, shop made veneer.

A Rout a pocket the same depth as your veneer. Then, use spray adhesive to stick the veneer down. Use an adhesive that's labeled as “repositionable.”

B Rout the veneers. I use a lot of downward pressure to keep the veneer in place as I'm routing.

C Use a flexible pallet knife to pry the cut veneer up.

D Using veneer tape to hold the parts together is about the only way to wrangle these thin veneers.



C



D

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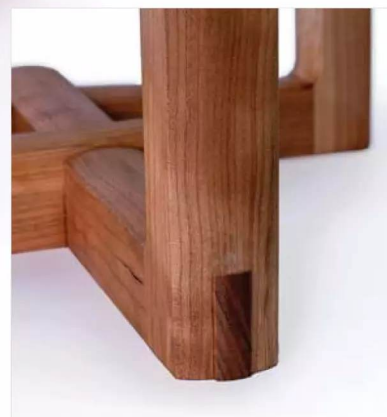
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PROJECT #2418

Skill Level:
Intermediate
Time: 3 Days
Cost: \$250



Excedo Side Table

With one board, you can put together this side table that packs in a bunch of great woodworking techniques. **By Austin Waldo**

PHOTOS BY LOGAN WITTMER

I enjoy a good scrap wood project as much as the next woodworker but you can only make so many cutting boards. Surprisingly, the Excedo Table was originally designed to utilize many of the less desirable offcuts leftover from other larger furniture projects. I tend to choose straight rift sawn parts for my furniture over flat sawn most of the time. I like this look but it can be very wasteful. So as we will discuss later, if you turn a flat sawn board on edge you now have a straight quarter sawn that works perfect for the table top.

The Excedo Table is a fun and simple project containing all kinds of great furniture making techniques and can be adjusted to meet your needs. This table works great as a single side table or can be part of a nesting set if you want to make a second. I recommend adjusting the leg height up or down by 2" so the tops can slip past each other slightly.

Prepare the Parts

This table can be made with mismatched parts you have laying around the shop or extra time can be spent to grain match the legs to the feet. If you choose the latter, you will need one board that is 8/4 (2" thick) 9" - 10" wide and at least 82" long. Ideally, the board you choose will be clear, without knots and have a nice rift sawn edge on each side with flat sawn in the middle.

Start by roughly marking out the blanks. Each blank will contain a foot or leg on the outer edges and the inner material will be used for the top. Mark 19" for a foot section, then 21" for a leg section, then 19" for a foot section, then 21" for a leg section. Cut out the blanks on a chop saw taking care to mark each one and keep them in order.

Lightly joint and plane the faces of these blanks. Only take off what you need to get them flat and par-



- 1 Lay out your parts with a marker, lumber crayon, or carpenter pencil.
- 2 Cut the parts to rough length on the miter saw.
- 3 Flatten the rough blanks on the jointer.
- 4 Plane to thickness on the thickness planer.
- 5 Mark the end grain of each board to indicate their order and orientation.

allel. Go ahead and mark the end grain of the blanks with numbered lines so they are easy to identify and reassemble once ripped.

Head to the bandsaw to rough rip the individual parts. If your material thickness is still above 2" thick you can rip all the rough parts at $1\frac{3}{4}$ ". If your material thickness is below 2", you'll need to rip the rough feet parts at $2\frac{1}{8}$ ".

The material I used was below 2" so I started with the two 19" blanks and set the bandsaw fence to $2\frac{1}{8}$ ". Cut one part from each edge—these are the feet. Move the fence over to $1\frac{3}{4}$ " and rip all parts to rough width and thickness including the inner sections of the feet blanks. The outer edges of the 21" sections are the legs and the inner parts are for the top.

Glue Up the Top

On a large surface lay out the table parts in their original location and orientation—essentially reassembling the board. Label the parts well as you begin to separate them from the full board. The outer four $2\frac{1}{8}$ " x 19" blanks are the feet and the four $1\frac{3}{4}$ " x 21" blanks are the legs and can be set aside for now.

Gather the leftover inner sections that will become the top. You should still be looking at their original flat sawn surface. Roll each individual blank 90° to expose its quarter sawn side. Push all the blanks together and draw a triangle across the top. Since we already milled the top and have now rolled that surface to the side, the parts should fit together nicely without any gaps between them. The parts can be lightly milled if needed.

Glue the top parts together in two groups so that they can be run across the jointer after they have dried. The most important part is that the seams are tight with no gaps. The rough top and bottom do not matter at this time.

Allow the glue to dry and then join and plane the two blanks to-



6 Roughly rip the parts to width on the bandsaw.

7 Lay out all the parts as if they were still one board.

8 Separate the parts into legs, feet and table top.

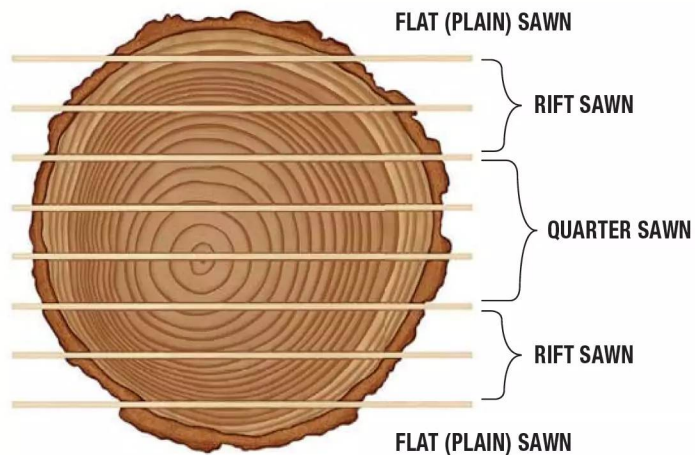
9 Gather all the table top parts with the flat sawn side still facing up.

10 Flip each part to the right so their quarter sawn face is up.





■ FLAT, QUARTER, & RIFT SAWN



Flat sawn material has growth rings that are almost parallel to the surface from 0-45°. Next, will be the rift sawn material, where the growth rings are 45-60° to the face of the board. Finally, the center cuts will be quarter sawn, and the growth rings will be at 60-90° to the face of the board.

11 Glue up the table top parts into 2 blanks.

12 Cut the table top into an 18" square.

13 Cut profile on the outside of legs on the router table.

gether to a thickness of 1 1/2". Glue the two blanks together taking care to ensure they are lined up vertically. An F-Style clamp on either side should help.

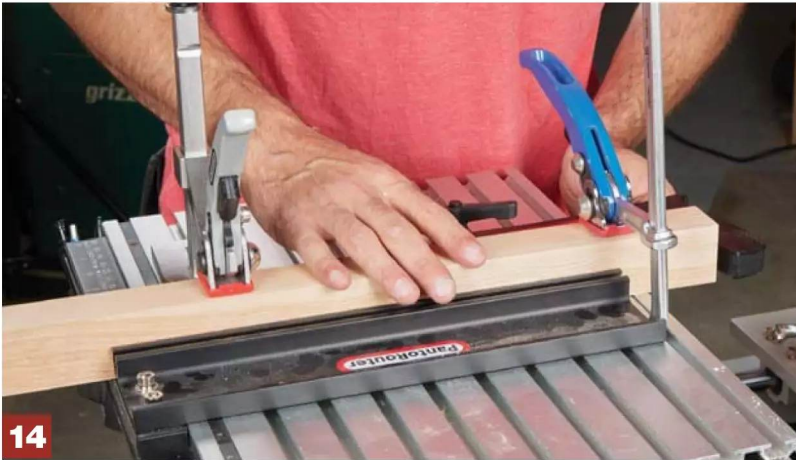
Once dried, scrape off any large chunks of glue so that it is smooth to the touch. The top can now be cut into a 18 1/8" x 18 1/8" square. Run one edge (not the end grain sides) across the jointer and rip on the table saw. Use a table saw sled to cut the remaining sides. Set the top aside until it is time to cut the joinery.

Mill and Shape the Legs

Mill the legs to 1 1/2" x 1 1/2" square and your desired length. The sample project legs are 20" long. Once milled, it's best to do any shaping to the outside of the legs before starting the joinery so as not to impede any router bits with a bearing. A fingernail bit is a great look.

Install the fingernail bearing bit in the router table and set the fence to be back a few inches from the bit. I used the Magnate 5869 with a bearing. Use push blocks or a jig to keep your fingers away from the bit. Do not shape the inside of the legs until after it is joined to the foot.

Next, cut the notches in the upper inside of the legs to receive the top. This can be cut by hand or with a dado blade on the table saw. The notch should be 1/2" deep by 1" long.



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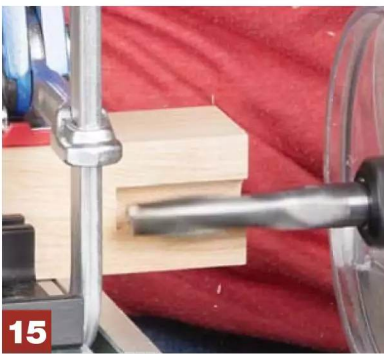
14 Set up bottom of leg to receive the bridge joint.

15 Lightly cut the outside of the legs to help prevent tear out.

16-17 Cut out the interior of the bridge joint.

18 Replace the leg with the foot and cut the opposing bridge joint tenon.

19 Test fit the joint once the machine is off and the bit has stopped spinning.



15



16



17

Cut the Bridge Joint

Like most things in woodworking there are several ways to do the same task. The bridge joint can be cut by hand, on the table saw with a dado blade and a straddle jig, a hollow-chisel mortiser or with a *PantoRouter*. If you have access to a *PantoRouter* it certainly makes it easy since you can cut both parts of the joint on the same machine with the same setup.

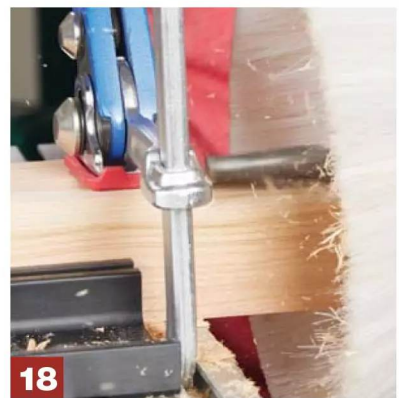
The bridge joint will be cut in the bottom of the leg and the end of the foot. They will meet at a right angle when joined. The notch in the leg is in the exact center and is $\frac{1}{2}$ " wide by $1\frac{1}{2}$ " tall. The foot that receives the tenon is $\frac{1}{2}$ " thick by 1" long.

Follow the provided *PantoRouter* manual to properly set up the machine with a 3" horizontal template and the thickness set to the $1\frac{1}{2}$ " leg. Using the fence, clamp the leg in the center so its rounded outer

edge is facing you. Use the swing stop to make finding the same leg location more repeatable. Make sure there is at least 2" overhanging the table and then clamp the leg securely. Set the depth of cut to be $1\frac{1}{2}$ ".

Starting with the 10mm bearing on the inside of the 3" template, cut a slot all the way through the end of the leg. I found it best to take small incremental cuts starting on the rounded outer edge so any blow out is on the back side. Move on to the feet once all four legs are cut.

Swap out the 10mm bearing for the 22mm bearing and place it on the outside of the template. Move the fence slightly to accommodate the 2" tall foot. Clamp it in place and slowly remove material to reveal the $\frac{1}{2}$ " tenon. Test fit the first foot, moving the bearing down the tapered template until you have a perfect fit.

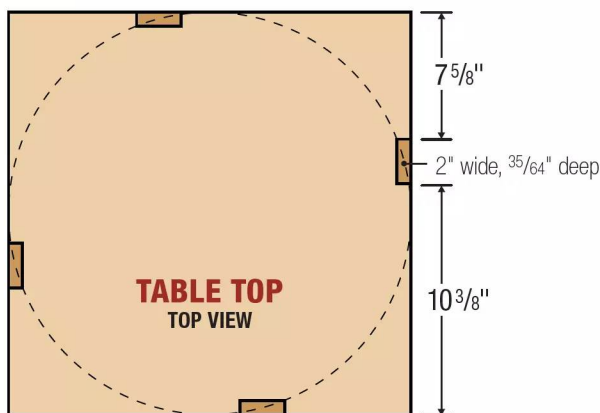
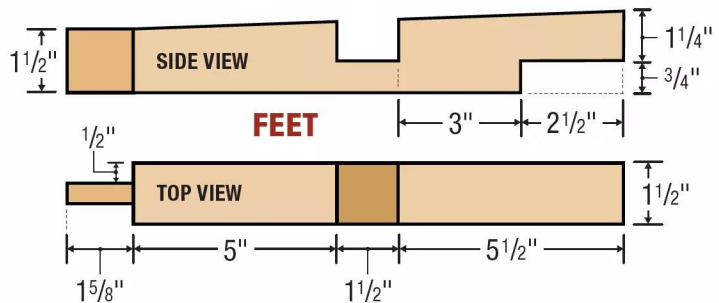
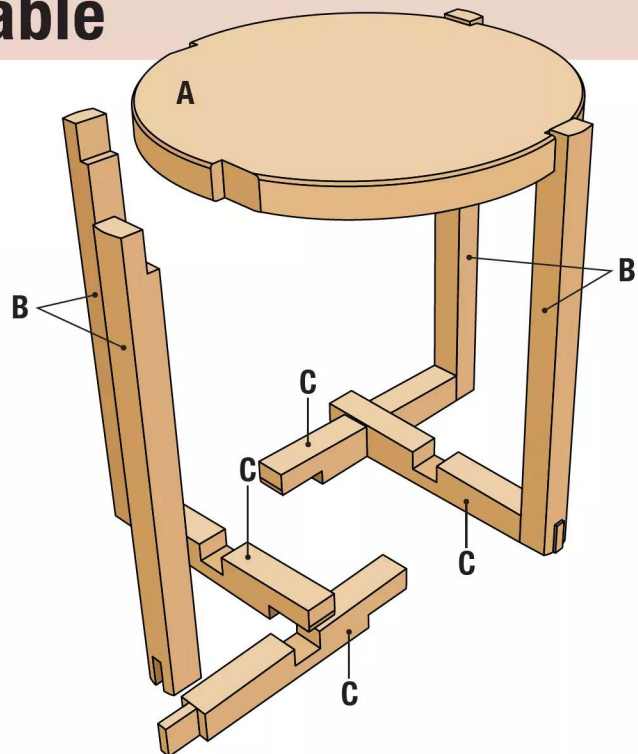
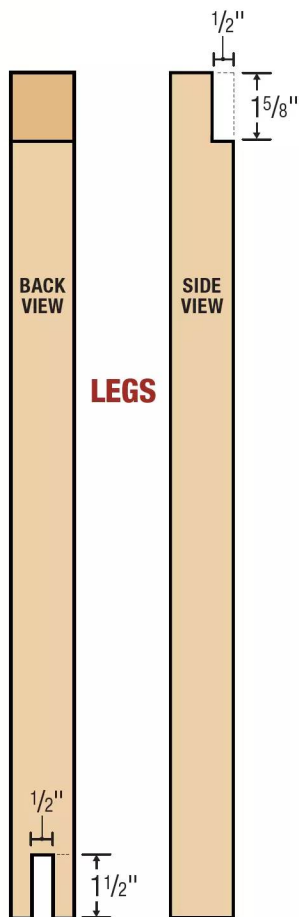


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Excedo Side Table



Cutlist

No.	Items	Dimensions (in.)		
		T	W	L
1	A Top	$1\frac{1}{2}$	$18\frac{1}{8}$	$18\frac{1}{8}$
4	B Legs	$1\frac{1}{2}$	$1\frac{1}{2}$	20
4	C Feet	$1\frac{1}{2}$	2	$13\frac{5}{8}$



20



21

Cut the Half-Laps in the Feet

To cut the half-laps in the feet you will need a $\frac{3}{4}$ " dado blade on the table saw and a dado crosscut sled. Spend some time marking out the first foot according to the drawings so you can use it to set up your stops. It is helpful to use the tenon shoulder and the bottom of the foot as your reference faces and to pull all measures from those two surfaces.

The first notch will be cut on the top side of the foot closest to the tenon. It is 5" from the tenon shoulder and is $1\frac{1}{2}$ " wide by $1\frac{1}{16}$ " deep. You will need to take multiple passes on the dado blade to achieve this width.

The second notch is on the opposing side of the foot and is $9\frac{1}{2}$ " from the tenon shoulder. This notch is $\frac{15}{16}$ " deep and runs out the end of the foot. The half laps should be snug but not difficult to get apart. Make sure the half laps can fully seat and do not contact each other prematurely. Leave the dado blade set up on the table saw for the top joinery.

Taper Feet

Next, taper the top side of the feet. This can be done on the bandsaw or on the table saw with a tapering jig. The taper should start at 2" at tip and go down to $1\frac{1}{2}$ " on the tenon side. I recommend leaving this a little big and fine tuning with a handplane.

20 Cut the first lap joint in the foot using a sled and dado blade.

21 Cut the second lap joint at the end of the foot.



22

22 Taper the top of the foot.

23 Cut the tenon straight.

The tapered tenon will now need to be cut straight so it fits perfectly in the bridge joint. Set the fence on the bandsaw at just a hair over $1\frac{1}{2}$ ". Cut off the top portion of the shoulder with a handsaw so it is inline with the shoulders on the sides of the tenon. Fine tune by hand with a chisel.



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24-26 Clean up the tenon with a sharp chisel.

27 Dry fit each bridle joint.

28 Glue the foot to the leg without getting glue on the last 1/8" on the tenon.

29 Clamp securely and clean squeeze out. Let it dry.

30 Cut profile on the interior of the leg and top of the foot.

Glue the Legs and the Feet

Glue the bridle joint by spreading glue on the inside of the bridle and outside of the tenon. Don't put glue on the last 1/8" of the tenon. Clamp the bridle and make sure the joint is tight.

Once the glue is dry, the inside of the leg and the top of the foot can be shaped with the Magnate 5869 fingernail bit.



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Top Joinery

The top will be stood up on edge against the dado crosscut sled with a stop set up to one side. Make sure your sled fence has a zero clearance sacrificial board installed to avoid blow out. Install the $\frac{3}{4}$ " dado blade if it is not still set up from the previous operation. Set the blade height at $\frac{35}{64}$ ". Start by marking out the first notch $6\frac{3}{16}$ " from the left edge of the top. Make a second mark $1\frac{1}{2}$ " from the mark you just made.

Line the blade up to the inside of the 2nd mark and set the stop. Make a series of cuts until you

reach the first mark. Repeat this step on all sides.

Cut the Top into a Circle

Find the center of your top by drawing two diagonal lines from corner to corner (on the bottom). Drill a small pilot hole in the center of the "x". Using that hole, you can now cut the top into an 18" circle by either using a circle cutting jig for the plunge router or a circle cutting jig for the bandsaw.

If you use the bandsaw you will also need a way to clean up the edge to remove the bandsaw marks. This can be done with lots of sanding or with an 18" MDF cir-

cle template. Set up your bandsaw circle cutting jig with square top attached with a small screw in the center hole. Move the top into the blade slowly rotating as you go. Continue to rotate until a perfect circle is formed.

Remove the top from the jig and attach a $\frac{1}{4}$ " x 18" x 18" piece of MDF to the same circle cutting jig. Cut the MDF into a circle and then sand smooth. Attach the $\frac{1}{4}$ " MDF template to the top with double sided tape. Use a flush trim bit with a top bearing to route the top smooth. Be sure to use push paddles to keep your fingers away from the bit.



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31 Use the dado blade to cut a notch in the square top.



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32 Cut the top into an 18" circle.

33 Flush trim on the router table or sand smooth.

34 Round over the edges of the top if desired.



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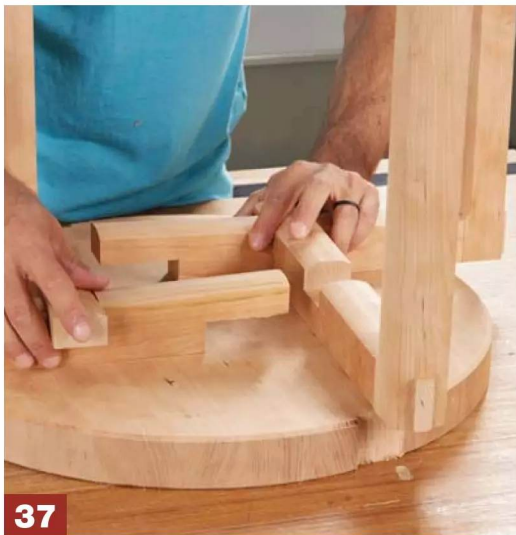
35 Shape and sand the bottom of the foot.

36 Use a block plane to chamfer or round over the joint tenon.

37 Dry fit all lap joints.

38 Glue the feet lap joints in two stages.

39 Drop in the top.



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38



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Final Touches

The final few steps are to put a small roundover around the top and bottom of the top using a trim router. Knock down any sharp edges with sandpaper or a block plane. Sand down the surface of all parts to your desired smoothness.

Glue up the Base

There is a wrong way to glue up the base so make sure to do a full dry fit with the top before gluing. Glue up two sets of two feet at a time before bringing them all together. Place the top in the top of the legs to make sure they don't move out of place. Clamp the half-laps down while also clamping across the base to pull it in tight. Once done, apply your favorite finish and you are all done. **PW** – Austin Waldo

Square Platter with Textured Rim

Adding a bit of texture and colour to a square platter is a great way to dress up a simple design.

By Pat Carroll



PROJECT #2419

Skill Level:
Intermediate
Time: 1 Day
Cost: \$40

Sometimes, it takes experimentation to come up with something fun and unique. Take this platter for example. A bit of power carving around the rim, and some application of paint and colored waxes presents a unique look.

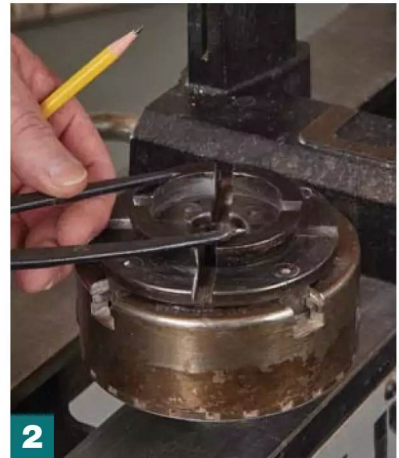
Getting Started

The first step is to ensure all equipment is working correctly and all PPE, (Personal Protection Equipment), is clean and in good working order. Next, make sure the chuck is sized with the dividers to get the correct diameter for maximum gripping power. In this case, 2" is the required size. Lastly, secure your 12" square by 2" thick cherry blank to the lathe with a 4" faceplate. The centre of the blank is located by drawing a diagonal line from corner to corner.

With the piece secured on the lathe, it is checked to be running true. Begin by making the 2" tenon. Next, a $\frac{3}{8}$ " bowl gouge is used to do the bulk removal of the wood. This is done by using the lower wing of the tool. To complete, a parting tool is used to true up the tenon. As the chuck has dovetail jaws, the dovetail is refined with a skew to achieve the correct angle. Lastly, the centre is marked for relocating the piece so as to true up the foot on completion of the rest of the piece.



1 Mount the blank on a screw chuck.



2 Measure the inside dimensions of your scroll chuck jaws.



3



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3 With the lathe turned on and the blank spinning, transfer the measurements from the dividers to the blank.

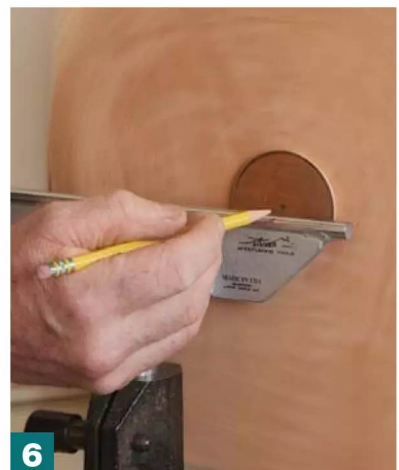
4 Face off the surface of the blank. Draw cuts and a fast speed are keys to cutting cleanly.

5 Sneak up on the layout line from the dividers. This tenon needs to be accurate for a solid hold.

6 Mark the center of the blank for reference later (if needed).



5



6

Turn the Bowl

Mark out the bowl portion of the platter. Try different sizes until you get a proportion you are happy with. Once again, using the lower wing of the tool, the bulk is further removed. Great care has to be taken where to tool is cutting air between the corners

Before too much is removed, I like to establish the underside of the rim. The rest is then removed up to the line keep the rim straight. At this point, the bowl portion is roughly shaped using the $\frac{3}{8}$ " gouge.

7-8 Use a pencil to layout the area for the bottom. Try a few sizes until you decide it looks right. Then, start removing material.

9 Once you've started to define the rim, scribe a line to give you a targeted rim thickness.



10 Because the wings of the rim are hitting and missing, it's easiest to make step cuts. Lay the gouge on its side, and push into the blank, toward the head stock.

11-12 Once the majority of the material is removed, make a draw cut to smooth out the wing. Continue to work towards your targeted bottom mark.



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Textured Rim

Raise the tool rest to the centre height and use it as a guide to mark out the lines for you to follow for the texture. To add texture, you will use the ArborTech Mini Carver. Before beginning, it is important to note the rotation of the cutter. Let me explain why. The cutter is used by tipping it off the surface gently in a random pattern but following the lines. The important of the rotation of the cutter is to work from the outside towards the centre. This minimizes breakout on the edges. Also a starting point is indicated by an arrow so as to keep the pattern somewhat uniformed.

This texturing technique is done in three passes over the surface. The first pass is completed using the Mini Carver. Remember to work from the outside in. Also note, the base wasn't finished prior to the texturing as the tool cuts into the base and the marks cannot be removed from a finished surface. Before beginning the second pass, a sharpie is used to highlight any flat areas that

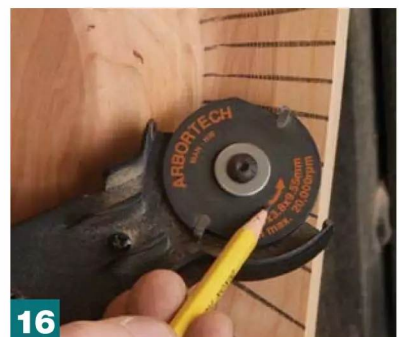


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13 Once the wings are flat, round over the bottom of the platter.

14-15 Lay out radial marks on the bottom of the rim. These marks will help keep the carving in a uniform direction.

16 The Mini Carver uses a small, two-cutter disc.



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need further attention. Complete another pass focusing on these areas. The third and final pass is done with a small burr. It is used to further texture the area between the bowl and flat rim. Once the texture is complete, a wire brush is used to clean up any remaining fibres.

Reverse the piece and secure into the chuck. The rim is textured now working away from the finished portion. Any breakout will be removed when the rim is refined.

Lastly, the top of the piece is trued up with a freshly sharpened $\frac{3}{8}$ " bowl gouge in preparation for texturing. As the bowl projects through the rim, I line up the pencil with the underside and draw a reference line on the

17 Mark a start point, and start adding texture.

18 As you work, continue to keep the cutting action in the direction of your layout lines.

19 Colour flat spots with a marker, then focus on those.



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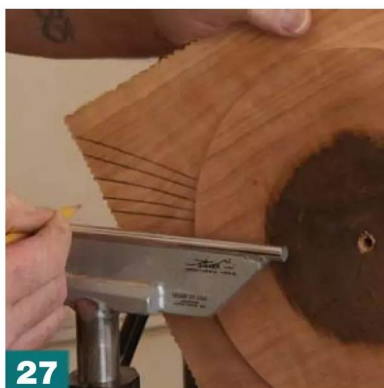
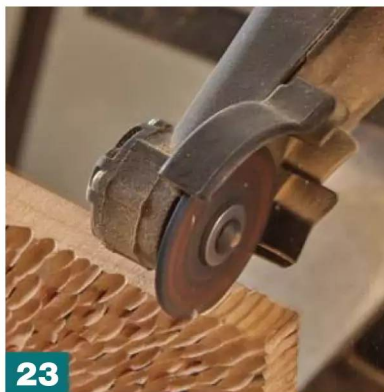
20-21 Reach into the corner with the Mini Carver (as much as you can) before switching to a handheld unit, like a Foredom.

22 Once the texture is added, use a stiff brass or wire brush to remove any excess fuzz.

top. The texture is marked out the same way as the underside including the starting point for a reference mark. Note the bowl portion protruding through the rim. Once again, the texture is done in stages. Remember to work from the outside in. Next, any remaining flat areas are highlighted and further refined with the texture. Lastly, the transition of the bowl and flat rim are refined with the burr.

23 Repeat the same process on the outside edge of the rim.

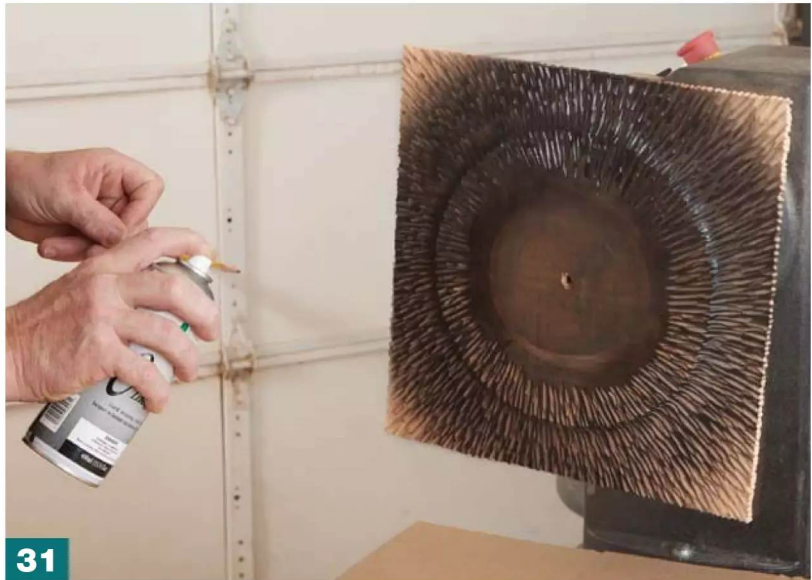
24-25 Chuck the blank in your scroll chuck, and flatten the face. Then, use a pencil to mark the “dish” location.



26-30 Leave the top of the dish a bit proud, and lower the rim slightly. Now, the process is the same as before. Use layout lines and add texture. Concentrate on removing all flat spots from the rim. A little extra time colouring in flat spots, nibbling them down with the carver, then sanding will make the difference between a deliberately textured surface, or one that looks like the texture was an afterthought.

Ready for Paint

Once the fibres are cleaned and dust removed, the piece is now ready for paint. Wearing respiratory protection, several coats are applied to the surface and underside of the piece. I prefer to use a fast drying, black paint or black tinted lacquer. Now, add colour via a coloured wax. The nice thing about wax is that you can continue to add more and change the tone. By using a minimal amount on the brush and making fast, sweeping strokes, the colour will only be picked up on the top ridges of the texture. There's no right or wrong here — apply colour until you think it looks good.



31

Further Refine the Bowl

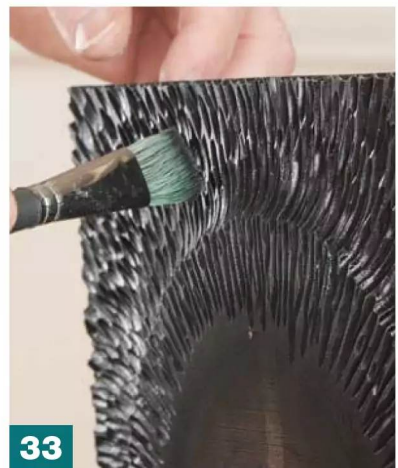
A recess is marked out on the top of the piece. Using the parting tool, cut the recess and refine it with the skew to accept the dovetail jaws.

31 Spray the textured area with the black paint or lacquer.

32-33 Dry brushing tinted waxes give a gentle splash of colour. Using a variety of colours and metallics will yield a different and unique result.



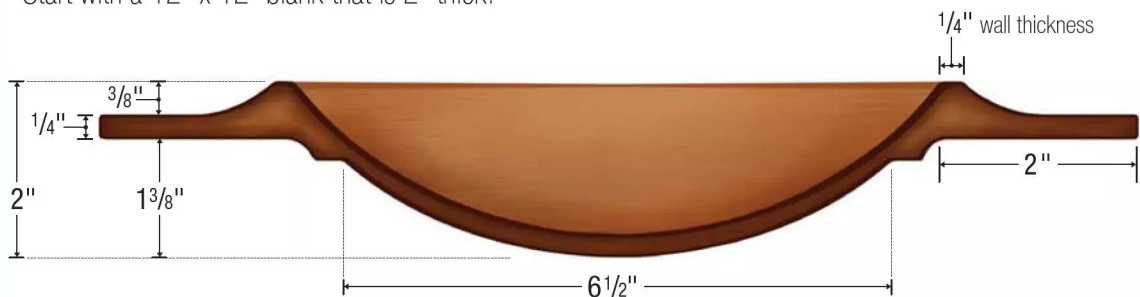
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Square Platter with Textured Rim

Start with a 12" x 12" blank that is 2" thick.





34-35 Transfer the chuck measurement to the front of the dish and make a recess for chucking.

36 Shape the bottom of the dish, from the centre out.

37 Leave the tenon in place so that you may hollow the inside.

38 A parting tool or detail spindle gouge can be used to create a fillet along the edge of the rim. This makes it appear that the clean shape of the dish is emerging from the textured plane.

Flip and secure the bowl. The bottom of the bowl is shaped next, working from the smallest diameter to the largest. Care has to be taken to refine the area between the bowl and rim. Proportions of the textured band are key to the visual of the piece. I left $\frac{5}{8}$ " as I thought it looked correct. Sand the bottom with 120, 180, 240, 320, and 400 sandpaper.

The piece is flipped, secured in the chuck, and the hollowing of the bowl portion commences. The last cuts are always best taken with a freshly sharpened gouge to try to achieve a good finish. Be sure to check the wall thickness frequently with calipers while taking the final cuts.





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39-40 Hollow the inside of the dish using whatever tools work for you. An Irish grind bowl gouge does most of my removal work.

41 Check the wall thickness using calipers. You're aiming for about 6mm here.

42 Sand the inside and apply a coat of spray lacquer.

43-44 Mount the platter in Cole jaws. Remember that centre mark we made? Put the tailstock live centre right on that for support, and nibble away the tenon.

Final Touches

Lastly, we need to refine the base using Cole jaws. The centre marked previously helps ensure it's correctly located. Once the foot is turned away, the sanding is carried out. The tail stock is only removed for the very small bit left in the centre. A little hand sanding refines the centre. Once the piece is clean and dust-free, several light coats of satin lacquer are applied. A minimal amount is applied to the rim as it is over a wax. The turned platter looks great sitting on a shelf, and begs to have people feel the texture. **PW**—Pat Carroll

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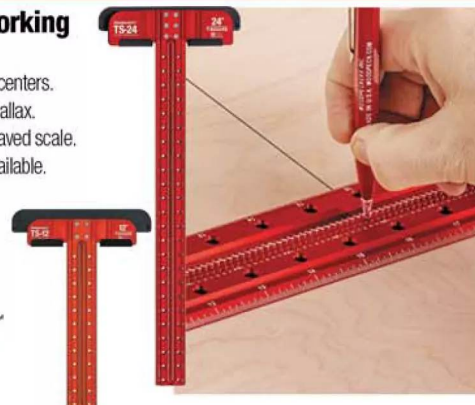
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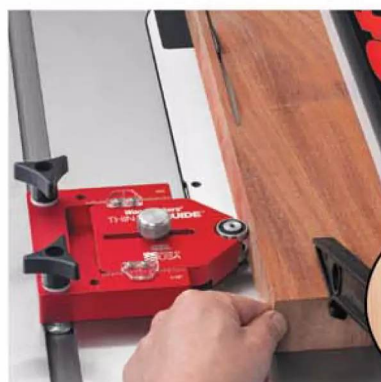
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Turn your miter saw into a precision cutting tool by building this storage-packed miter saw station.

By Logan Wittmer

■ Miter Saw Station

Over the years, I've found two opposing mindsets when it comes to miter saws. One group believes that, while miter saws are okay for trimming a house, they're best reserved to whacking a board to shorter lengths before finish cutting it to size at

the table saw. The other group, of which I'm a proud member, believes that a miter saw can be a precision cutting tool, if you take the time to set it up correctly, calibrate it, and take care in its use. Of course, this becomes a lot harder if you're using a portable

miter saw stand that gets set up and taken down every time you need to use it.

With this in mind, as we started to plan our shop space, I knew that I wanted to set aside space specifically for a miter saw station. The design I came up with



PHOTOS BY LOGAN WITTMER

PROJECT #2420

Skill Level:
Intermediate
Time: 3 Days
Cost: \$600

is what you see here. It features a wide surface that will easily support full-length boards, has recessed fences with stop blocks for accurate, repeatable cuts, and has a ton of storage, which is always a valuable commodity in the shop. Now, the design here is meant to hold the *Festool* Kapex at a comfortable height (and a dust extractor under the saw), but you can certainly change the height to accommodate your saw.





- 1** Mark the top and face of the joint where the joinery will be located.
- 2** With a Domino, I cut the vertical and horizontal mortises.
- 3** Clamp the frames together and rout a groove inside the parts.
- 4** Glue the frames together. Insert the MDF panel in place.
- 5** Mortise the inside of the frames for the connecting rails.

Large Frame and Panels

The building blocks of this miter saw station are frame and panels at the ends and the middle of each cabinet. As you look at the photos on the next few pages, and the photo above, you'll see that the panels are all painted. I decided to use poplar to build the frames, as it paints well and is cheap. However, I sized the frame pieces to be the same size as two-by-fours, so you could use material from the lumber yard.

The frames themselves consist of a pair of rails and stiles. The rails are connected to the stiles

with a pair of loose tenons. To put a brand name with it—I used the *Festool* Domino to connect the parts. However, any number of different connectors can be used. Pocket screws, dowels, etc. could all accomplish the same results.

Looking at Photo 1 on the next page, you'll see how I laid out the parts to mark the joints. After sizing my stock (jointer, planer, then table saw), I laid out the frames and loosely clamped them together. Then, I marked a line where I wanted to center each Domino. I decided to use two Dominoes in opposing orientations. Photos 2

and 3 show the orientation of the mortises in the parts.

Once the mortises are complete, clamp the frames together. I routed a groove around the inside of the assembled frame. This will fit an MDF panel. The left and right cabinets each have three frames. The two end frames of each have MDF panels. I did not put a panel in the interior panel. You certainly could, but I didn't think it was necessary.

With the frames and panels glued up, it's time to connect them with the connecting rails. These get mortised like the frames. For the frames without a reference face, I



6

6 Clamping the entire cabinet can be tricky. A two-part glue-up can be more manageable.

7-8 Level the base using shims. Once it's leveled, you can drop the cabinet in place.



7

used a handscrew as a reference point. You can see this in Photo 5. The number of connecting rails will vary, depending on what you want your layout to be. For mine, I had 9 rails on the left cabinet, forming one drawer, and two door cubbies. The right hand cabinet has 12 connecting rails (5 drawers, one door cubby).

Assembly and Setting

Once you have your layout set up, and mortise cut, you can work on the assembly. The trick here is making sure you have clamps long enough, or gluing up the cabinets in sections. I chose the section approach, like you see in photo 6. I glued up one section, let it cure, before adding the next section of connecting rails. In Photo 6 you can clearly see the layout of the frames. The end panels each had MDF panels, while the middle one does not.

With the cabinets drying, I built a pair of bases. These bases are simply butt joints screwed together. Building the base separate allows you to level the it before putting the cabinet on top. As you can see in Photo 7, I put the base in place, and used shims to level it out, both left-to-right and front-to-back.

After the cabinet has cured, I put everything together to see how it looked (at least, the left cabinet). Photo 8 shows the final look. Once I was happy with everything “woodworking-wise,” it was time for paint.



8

Tips for Perfect Paint

Now, let me be clear —getting a perfect painted finish is a robust

topic. But, I'll give you a few tips that I've found help when I'm doing "cabinet-style" paint jobs.

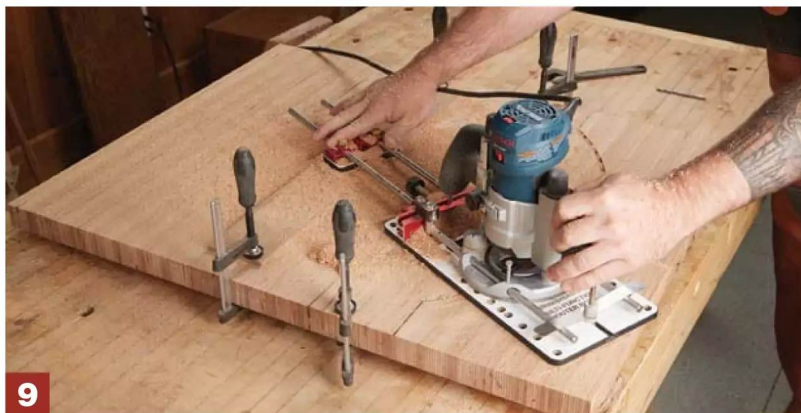
First, surface prep is key. A ding will show up through paint. Saw marks will probably show up through paint. Sand down to about 150-grit. Then, use some form of filler. I like *Durhams Water Putty*. Fill screw holes, and pack any exposed endgrain (such as on the ends of the base). Inspect all of the joints, and if needed apply filler anywhere you have a little gap.

I like to start with a high-hide (or high-build) primer. I always spray it on, concentrating on show surfaces. Then, follow that with some light sanding with 320-grit. For the final top coat, I prefer a high-quality, acrylic enamel. Again, I concentrate on the show surfaces. If you want to see a video where I talk a bit more about surface prep, visit our YouTube channel and look for "A Perfect Painted Finish."

A Quality Top

Do you ever start a project with one giant question from the get-go? For me, it was the top of this miter saw station. My original plan was to build it from plywood. However, the sizes of the tops would require four sheets of plywood, which was a bit rich for my blood. Instead, I found a material from our lumber supplier called BauBuche. It was an interesting material, and I have to say I quite enjoyed using it. You can read a bit more about it on Page 64.

The left and right tops are simply cut to size. The center section? Here, I decided to pizzazz up a bit. To angle the miter saw, the handle swings in an arc. I decided to shape the center top in a matching arch. To shape the arch, you can see my process in Photos 9 and 10. I laid out the arc with a marker, and used a router trammel with my palm router to rout the arc. The arc was done in several passes, each a bit deeper than the



9-10 A router trammel is the perfect tool to cut circles or arches. A straight bit and small passes make a smooth, clean arch in the thick top.

11 Slots in the cabinet allow the top to expand if it needs to.

last. The arc starts and stops at a straight section — just make sure to not rout into it. Once the arc is cut through, the straight ends can be nipped with a hand saw.

After a bit of sanding, I routed a chamfer along all of the "exposed" edges of the top. Because the miter saw surface is going to take a beating, I wanted a tough finish. I tried a new product (to me) called *KBS Diamond Clear*. The application was tricky, but after I figured it out, I've been happy

with it. I'll cover it a bit more in the next issue (after I see how it wears a bit). A conversion varnish, or thick polyurethane would work as well.

I'll be honest — because this is the first time I've used BauBuche, I don't know how much it's going to expand and contract. I don't think it will expand a whole lot, as it's essentially quartersawn, but just to be safe, I mounted the top with screws in slots in the cabinet (see Photo 11).



12



13



14

12 A laser is a great way to align the fences to each other, and the miter saw.

13-15 Use a dado clean-out bit in a router to start to form the groove. The groove needs to be the same depth of the miter saw fence, which will probably require several passes. You can remove the fences after the first pass to deepen the groove. Clean up the corners of the groove with a chisel.

16-17 The fences are installed using bolts in the t-track, passed through the top of the miter saw station. Washers and nuts on the bottom will tighten everything in place.



15



16



17

The Fence

There are a lot of miter saw fences available. You read about one at the beginning of the magazine. The one I chose for this is a low-profile, recessed fence from *Woodpeckers*. The StealthStop miter fence recesses in the top, and can be used with or without the back fence. Personally, I like having a fence to push my work against, so I went for the two-track configuration.

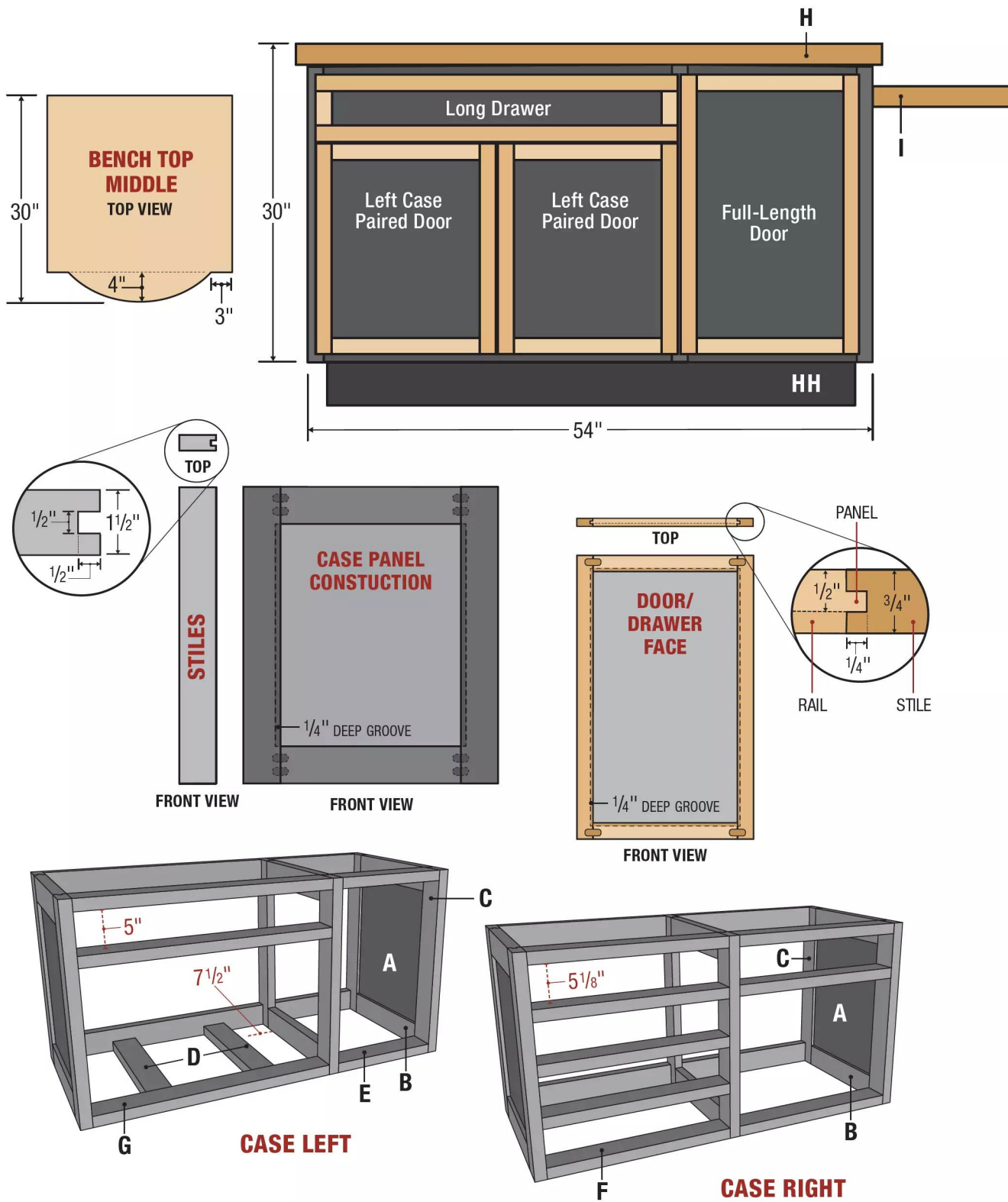
Setting up any fence in line with a saw can be tricky. I started by using a laser guide to square up the saw to the top. Then, without moving the laser, I positioned the fences to the left and the right of the saw. Minor taps move the fence to where it needs to be. I'm looking for the laser to just tickle the edge of the fence the entire

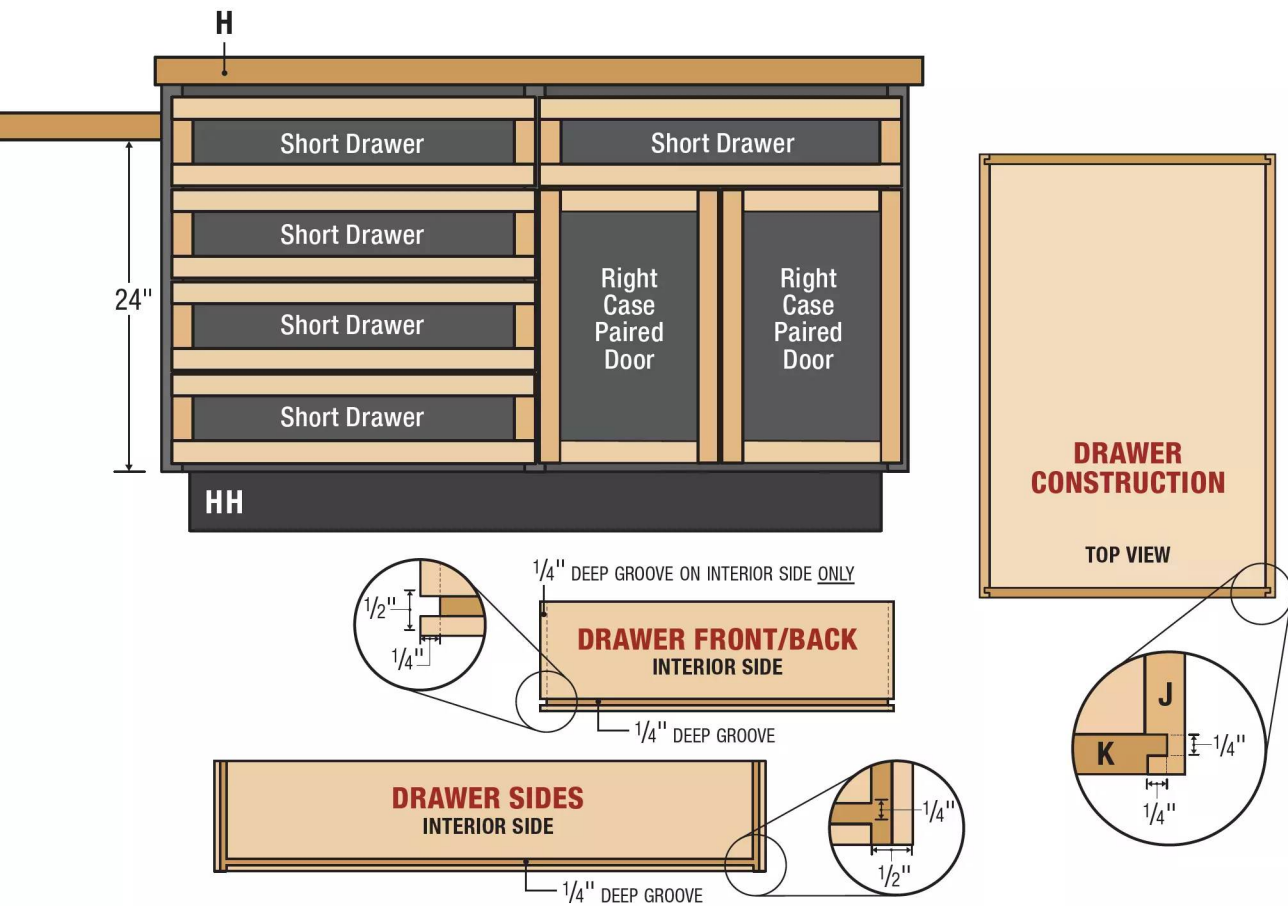
length of it—check out photo 12. Now that the fences are in place, they need to be recessed.

As you can see in Photo 13, I used a pair of hardboard fences with double-sided tape. Butt them tight up against the fence and press down firmly. With the fence removed, you're left with perfect guides where the edge of the fence sits. All that you need to do now is to use a dado clean-out bit to rout a wide groove in the top.

Depending on your fence style, you may just screw it down to the top. The *Woodpecker's* fence needs to have bolts passed through the top into the cabinet. The spacing of these aren't super important—I just spaced out 5 of them on each fence, and popped a hole through the groove into the cabinet. Then,

Miter Saw Station





Cutlist

No.	Items	Dimensions (in.)		
		T	W	L
CASEWORK				
4	A Side panels	1/2	18	22
12	B Side panel rails	1 1/2	3 1/2	17
12	C Side panel stiles	1 1/2	3 1/2	28
2	D Braces	1 1/2	3 1/2	19
4	E Short rails	1 1/2	3 1/2	16
12	F Medium rails	1 1/2	3 1/2	24 3/4
5	G Large rails	1	3 1/2	33
BENCH TOPS				
2	H Sides	2	55 1/2	26
1	I Middle	2	25 1/8	30
DRAWERS				
18	J Drawer sides	1/2	22 1/2	4 1/2
2	K Small drawer front/back	1/2	14 1/2	4 1/2
1	L Small drawer bottom	1/4	14 1/2	22
12	M Medium fronts/back	1/2	23 1/4	4 1/2
5	N Medium thin bottoms	1/4	23 1/4	22
1	O Medium thick bottom*	1/2	23 1/4	22
4	P Large fronts/back	1/2	31 1/2	4 1/2
1	Q Large thin bottom	1/4	31 1/2	22
1	R Large thick bottom*	1/2	31 1/2	22

No.	Items	Dimensions (in.)		
		T	W	L
DOOR/DRAWER FRONTS				
2	S Long drawer rails	3/4	34 1/4	1 1/2
2	T Long drawer stiles	3/4	1 1/2	4 1/4
1	U Long drawer panel	1/2	32 1/4	4 1/4
4	V Left case paired door rails	3/4	13 5/8	1 1/2
4	W Left case paired door stiles	3/4	1 1/2	20
2	X Left case paired door panels	1/2	13 5/8	18
2	Y Full-length door rails	3/4	13 1/2	1 1/2
2	Z Full-length door stiles	3/4	1 1/2	26 1/2
1	AA Full-length door panel	1/2	13 1/2	24 1/2
10	BB Short drawer rails	3/4	26 1/4	1 1/2
10	CC Short drawer stiles	3/4	1 1/2	4 1/4
5	DD Short drawer panels	1/2	24 1/4	4 1/4
4	EE Right case paired drawer rails	3/4	10 1/2	1 1/2
4	FF Right case paired drawer stiles	3/4	1 1/2	19 3/4
2	GG Right case paired drawer panels	1/2	10 1/2	17 3/4
CASE BASES				
4	HH Base front/back	1 1/2	46 1/2	4
4	II Base sides	1 1/2	17	4

* Left case paired doors and right case paired drawers receive the thicker bottom drawers as they will most likely hold more weight.



the bolt slides through the top and gets cinched down with nylon nuts from the bottom side.

Now is the time to really check the fence settings. Using a freshly jointed board, lay it along the fences. It should lay flat along the left and right fences, as well as the face of the miter saw. Yes, I am aware that some people prefer to have the fences set back a bit from the saw. Not I.

Now the Guts

The inside of the miter saw cabinet is full of storage. How you fill it out is up to you. Because of the depth, even the door-covered cubbies have pullout drawers. I've found shelves just have a tendency to get filled up and you lose what's in the back.

The drawers are all tongue and dado joinery. You can see this in Photos 18 and 19. The smaller drawers have 1/4" MDF as the bottom. The drawers that will have heavier weight get 1/2" MDF bottoms. After glue up, the drawers are installed on full-extension drawer slides. The slides mount to the front and back stiles within the case. You may need to pop an additional hole in the drawer slide to mount it.

Door & Drawer Fronts

The door and drawer fronts mimic the frame and panel ends. The parts are cherry, and are cut to size before being joined

18-19 The drawer boxes are made with a tongue and dado joint. The joinery is all cut with a wide-kerf, flap top ground blade.

20 The drawer boxes are installed on full-extension drawer slides.



21 Lay out the door and drawer frame pieces and mark the joints.

22 Rout a groove for the MDF panels.

23 Pre-glue opposing corners to easily hang and spray parts before final assembly with the painted panel in place.



together with the domino. You can see this in Photos 21 and 22. The panels for the door and drawer fronts are $\frac{1}{2}$ " MDF that is rabbeted—this means the back of the drawer face will sit flush on the drawer box. Rout the groove on the inside of the frame parts at the router table (Photo 22). The stiles will need to have a stopped groove—simply drop the part over the spinning bit, and lift it up before you pop through the other end.

Prefinish all of the door and drawer face parts. The cherry gets spray lacquer (taping off the mortises). The panel gets painted the same way as the cabinet. The doors are installed using 155° European style cup hinges. This style of hinge allows a lot of adjustment after it's hung. The

24 Glue up the drawer and door faces. The pre-painted panel and lacquered frames give a clean look.

25-27 The drawer faces are installed first with double-sided tape and shims between for an even reveal. Finally, a pair of clamps are added before driving screws from the inside.

28 Use a template to quickly and accurately install the handles.

drawer fronts need to be installed a bit more accurately.

False Front Install

Installing the drawer fronts is a two-part process. First, apply double-sided tape on the drawer box (Photo 25). Then, use a spacer to space out the front from the doors (or other drawers). Stick the drawer front in place, and then drive a couple of screws from the inside.

The final thing is to install hardware. I just picked out some sim-

ple black pulls from the hardware store. I like to make a story stick for installing pulls out of MDF.

Now, I designed the sizes of the drawers and doors to house a lot of my larger power tools that are stored in Systainers. If you decide to build one of these for your miter saw (or heck, even just for a little extra storage in your shop), I invite you to customize your layout to what will work for you. And if you do that, please shoot me some pictures so I can see your take on this project. **PW**—Logan Wittmer

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■ End Grain

BauBuche

By Logan Wittmer

This laminated material comes from Germany, and is made of hundreds of layers of European beech.

As woodworkers, we have an affinity for hardwood. Cherry, walnut, maple, poplar and oak. Those species are what built America, and they hold a special place in our hearts. However, there's a time and a place where it makes sense to bring in another material. Plywood is the most common. The laminated layers are stable, stay flat, and are cost effective when you have large parts.

When I was searching for a solution to build the top of the Miter Saw Station (Page 52), my initial thought was plywood. However, when I made a call to my local lumber yard (*Liberty Hardwood*), they suggested a material called BauBuche. This product, of German make, is an interesting product with a lot of potential, so I thought I would share a bit of info about it.

BauBuche is a product produced by *Pollmeier* out of Creuzburg. The product is designed for use in a variety of applications, ranging from interior design, to highly polished, architect-designed structures. What makes BauBuche unique is that the material is significantly stronger than a similar softwood product. This means that it can be used as structural timbers, far and above the limits of what traditional softwood building material would be.

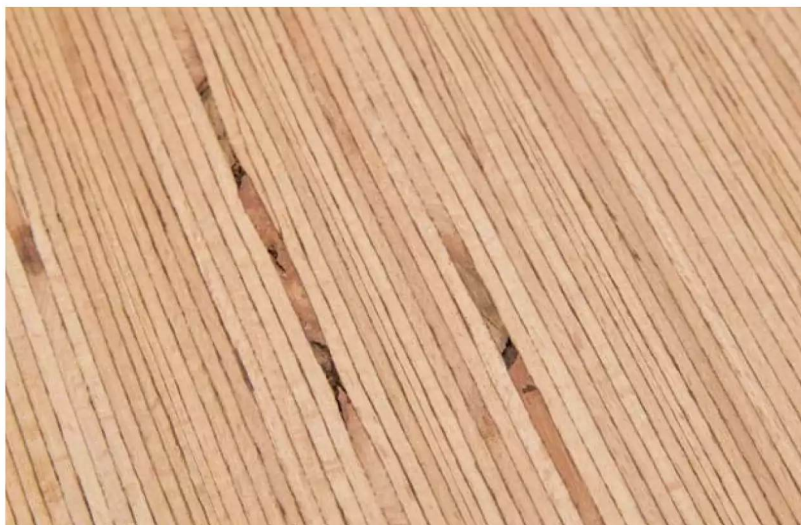
BauBuche is manufactured out of hundreds of strips of European beech that have been glued together. Because of its construction, it's flat, stable, and strong. Beams made from BauBuche have 66% less dead weight than rein-

forced concrete, match the compressive strength of 50/60 concrete, and is a sustainable and ecological alternative for green building initiatives.

Now, that's all fine and dandy, but how does it work in the shop? Surprisingly well, actually. Now — because there's a lot of layers of changing grain direction, you can get a little blow out (see the corner in the photo above). You'll also find a uniform look, with occasional knots, as you see below. Not that big of deal, but be aware that it's not a glassy smooth surface.

BauBuche is available in several different sizes and shapes. What I bought is what they call a panel — 35mm x 640mm x 3000mm. The total for that (approximately) 25'x 10' piece was \$250 at the time of publication. That equates to almost \$8.90/bdft in hardwood terms. *Pollmeier* also makes BauBuche beams and boards. As I mentioned, *Liberty Hardwoods* (Iowa, Missouri, Nebraska) carries this product, but the company offers a dealer locator on their website, *Pollmeier.com*.

PW - Logan Wittmer



Manufactured from natural beech, BauBuche has occasional knots, voids, and defects, but they don't effect the overall structure.

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