

# Popular Woodworking

APRIL 2025 | #283

## Benchtop Router Table Review



### PATINA FINISHES

David Marks Shows His Patina Finishing Techniques

### WINGED BOX

Jimmy Clewes's Turning Project Requires High Speeds and a Steady Hand

### DUST COLLECTION FENCE

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BY WILLIE SANDRY

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This winged box is turned fast, and the end result will leave people asking how you made it.

BY JIMMY CLEWES

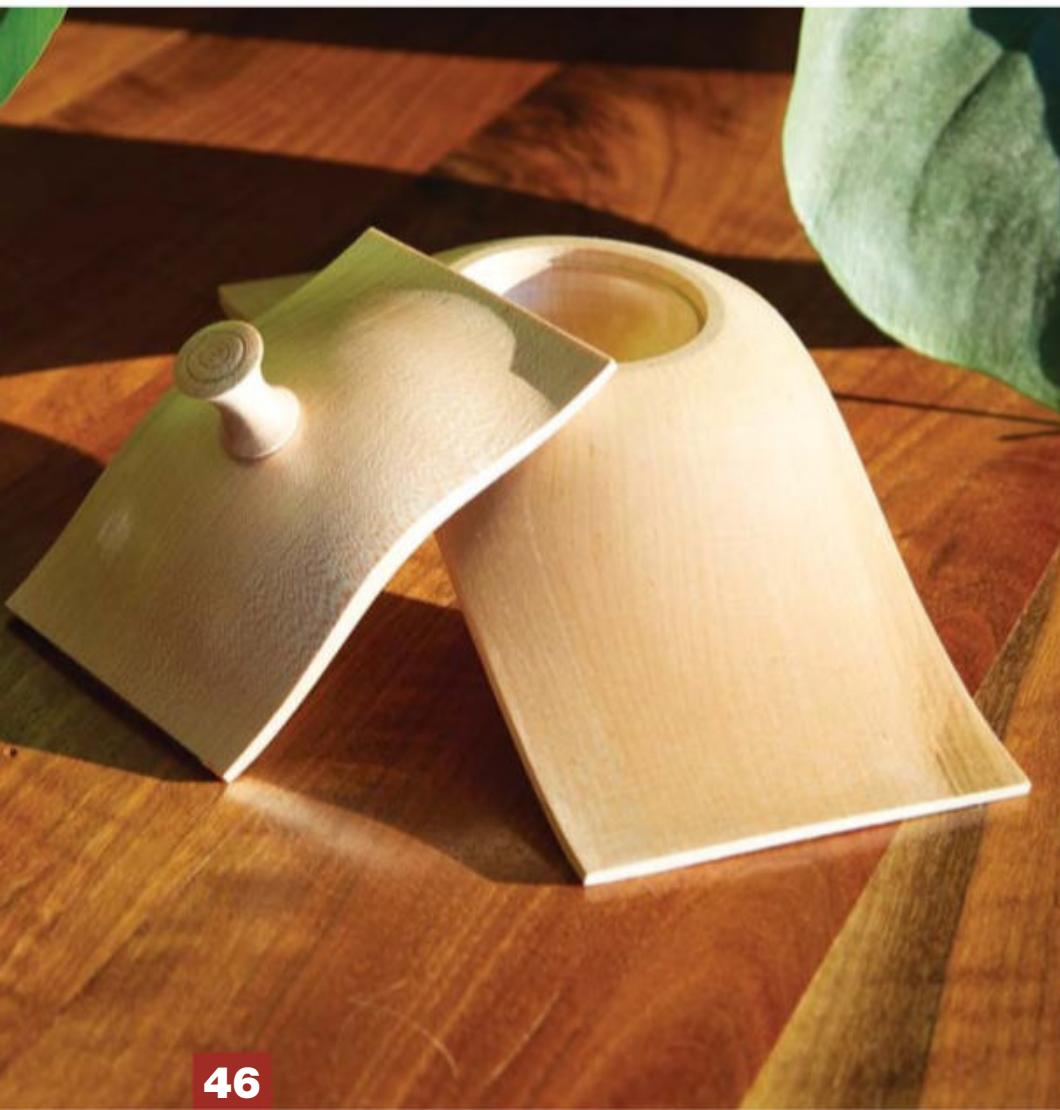
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This fence is designed to be used at a drill press or router table, and features built-in dust collection for keeping dust at bay.

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BY LOGAN WITTMER



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## ■ FROM THE EDITOR

## Quercus Maeroearpa

By Logan Wittmer

As a sawyer, I find my lumber stash sometimes gets out of hand. I saw a bunch of material and dry it, then end up with a ton of stock in my lumber rack. It works out great—I always have material available for projects, but I should put a little more effort into selling more than I do (I'm going to blame my day job on not having time to sell it).

One of the species that I have been milling and using more often is *Quercus Maeroearpa*—the Bur Oak. It's an interesting wood. The state tree of Iowa, the USDA Forestry Service classifies it as a white oak. Therefore, it can be marketed and sold as such. However, it's different enough from true white oak that barrel manufacturers won't use it for whiskey or wine barrels (I guess it leaks after several years—odd, huh?).

In appearance, it has a lovely color—sometimes with a similar color to standard white oak, but I find that it usually has a much more nutty color



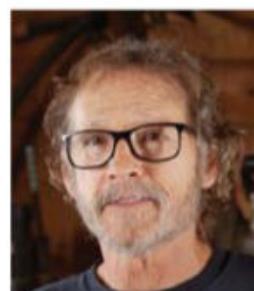
to it with darker brown sections in the lumber. The color can also vary drastically from tree to tree. Being a tree that is often found in the prairie, it branches rather low, and will be filled with knots and other defects. It is, however, quickly becoming one of my favorite woods—be on the lookout for it in upcoming projects. Cheers!

## ■ ABOUT THE AUTHORS



### JIMMY CLEWES: *Winged Box*—pg. 46

Hailing from England, Jimmy Clewes now resides in Las Vegas with his wife Mary and dog Seamus. Jimmy has spent the last thirty-five years traveling the world teaching and demonstrating woodturning. His quick wit and straightforward approach have made him a favorite of students from across the globe. When not hosting students at his home in Las Vegas, Jimmy's often found with a gold pan in hand, prospecting in the Vegas desert.



### DAVID J. MARKS: *Patina Finishes*—pg. 16

David J. Marks is recognized internationally as a master craftsman of fine furniture, turner, sculptor, and host of the television show "WoodWorks". David hosted 91 episodes of the show which debuted on both HGTV and the DIY Networks, starting in 2002. Recently, David has started to release the episodes of WoodWorks on his YouTube channel, David J Marks. David resides in Santa Rosa California with his wife, Victoria.



### WILLIE SANDRY: *Router Table Review*—pg. 30

Living in the Pacific Northwest, Willie Sandry is a longtime fan of Arts & Crafts furniture. He enjoys taking inspiration for his projects from antique furniture exhibitions as well as "old barn finds." Never one to do a job partway, Willie has developed a vast skill set to elevate his projects. From sawing lumber and kiln drying it to finishing a chair with top-notch upholstery, Willie sees a project through from the start until the finish. YouTube: *The Thoughtful Woodworker*.

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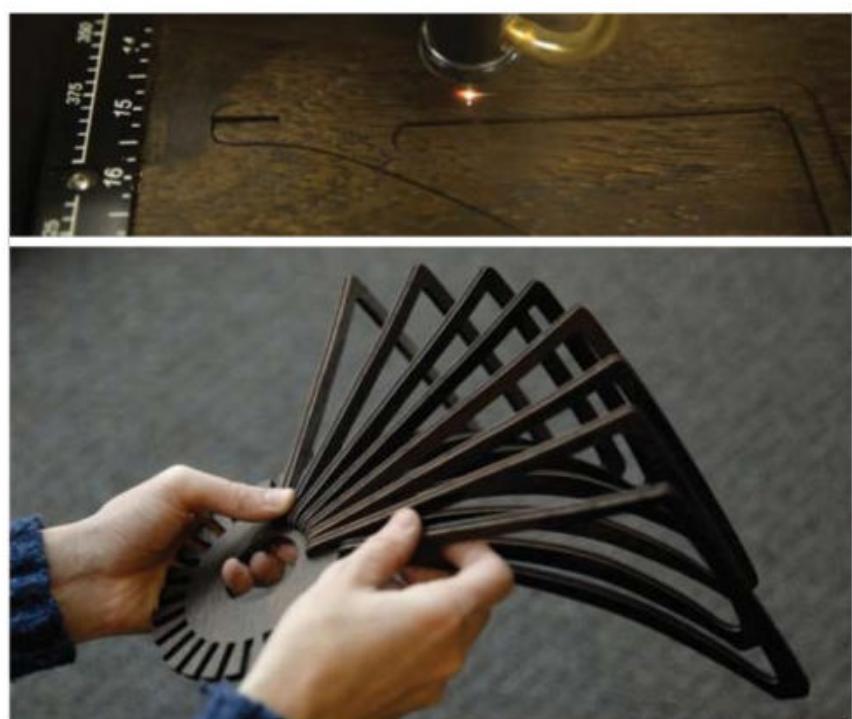
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# Connect

## WORKSHOP TIPS

### Cauls Distribute Pressure

It's not easy to get enough squeeze in the middle of a big box to force home dado or biscuit joints. Big cauls are the answer.

A caul is simply a thick, straight board. I make my cauls from stiff wood, such as hard maple, but any wood will do. The wider and thicker the caul, the less it flexes and the better it delivers pressure far from the clamps. I made a set of eight, each measuring  $1\frac{3}{4}'' \times 3'' \times 24''$ , to have around the shop whenever I need them.

Stout cauls like these should provide plenty of pressure, but you can get extra pressure in the middle by inserting one or more shims (I use playing cards). You can also round or taper one of the caul's edges from the middle to each end to create a crown. I do a dry run with cauls top and bottom, without shims, and place a straightedge on the cabinet to see whether the sides are flat. If one side bulges and needs more pressure in the center, I loosen the clamps, insert shims and re-tighten.



PHOTO BY MIKE KRIVI



### Save Those Laminate Samples

Old laminate samples never die, they just live on as handy helpers in the shop. They're great for spreading glue, setting the gap around doors, as clamping guards, and nailing shields. You can pick up a few samples at a home center. Ask them for discontinued samples—a handful will last forever.

—Tom Casper

### 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 drop 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.—Jason Zenter



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# ■ Connect

## ■ NEW TOOLS

### Woodpeckers Drill Press Protractor

Over the last several years, I've started to become interested in machinist tools and practices. One of the things that fascinates me is the precision that is required in many machining operations. I've started to apply those principles to my woodworking, and have seen a noticeable difference in the quality of my work. The new Drill Press Protractor from *Woodpeckers* takes the machinist concept of trammimg a tool and simplifies the process for use at your drill press.

The Drill Press Protractor has a stem that mounts in the chuck of your drill press. After loosening the knob on the front of the protractor, you lower the chuck so that the protractor contacts the table. The pivot design of the Drill Press Protractor will conform to the angle of the table, and allow you to dial your drill press to whatever degree you'd like. Not only can you dial the drill press angle in left-to-right, but you can also verify the angle front-to-back. The

#### ■ DRILL PRESS PROTRACTOR

**Woodpeckers**  
[Woodpeckers.com](http://Woodpeckers.com)

Price: \$69.99



vernier scale on the protractor offers the ability to dial in the angle within 5 minutes (0.083) of a degree. Now, just because *Woodpeckers* calls this a Drill Press Protractor, doesn't mean it's limited to just that tool. You can set other tools such as miter gauges, bandsaws, and more. —*Logan Wittmer*

### 3M Worktunes Connect + Solar Hearing Protection

Woodworkers all know the importance of PPE in the shop. Hearing protection has probably made the biggest advancements over the last several years. The addition of radios, Bluetooth, and connectivity into hearing protection has added a level of comfort in wearing them for hours on end. My one gripe with these types of headphones are that they either require batteries, or need to be charged every few days of use. 3M has recently released a new set of headphones that may be the ultimate pair on the market—the 3M Worktunes Connect + Solar.

The big advancement in these headphones are the addition of small solar panels to keep the headset charged. As you can see in the photo to the right, the headband is cushioned and is outfitted with small solar panels on top of it. The solar panel charges the headphones off both sunlight and artificial light in your shop.

Now, for some of the technical specs on these. The headphones offer a noise reduction rating of 26 dB. The Worktunes Connect + Solar also offers smart noise cancellation, which helps Bluetooth calls be ultra clear when you're talking on the phone in a noisy

#### ■ WORKTUNES SOLAR HEARING PROTECTION

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Price: \$169.00



shop. The Worktunes have a USB-C port for charging, but while wearing these outside running my sawmill, I haven't needed to charge them in weeks of use. The 3M Worktunes Connect + Solar offer Bluetooth for pairing with a phone, but no option for AM/FM reception.—*Bob Reynolds*

# Connect

## WORKSHOP TIPS



### Quick-Release Hose Clamp

I have a couple tools from which I frequently remove the dust collector hoses. I got tired of getting out my screwdriver and cranking out the adjustment bolt every time. After a bit of experimenting I came up with this quick-release solution that uses a wire hose clamp and a plastic spring clamp with removable jaws.

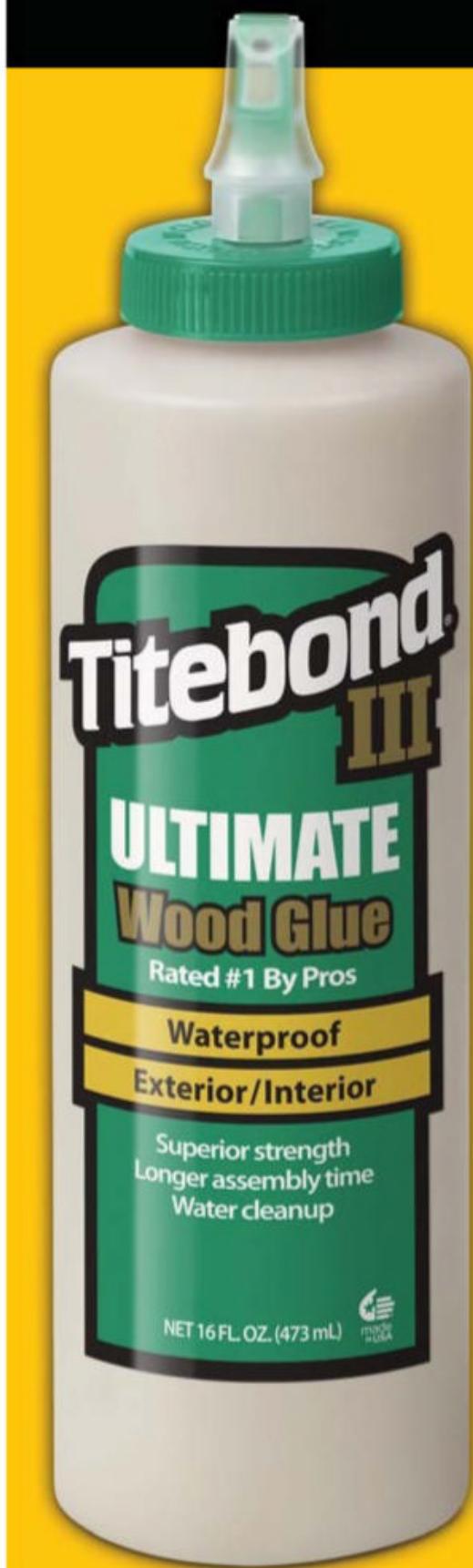
First, remove the adjustment bolt from the wire clamp. Then cut about 1" from each clamp wire. Next, bend the end of the clamp wires into hook shapes. Drive out the jaw pins from the spring clamp and discard the jaws. Put the pins back into the spring clamp and attach the hooked end of the clamp wires to the pins. Bend the hooks down tight to secure them to the pins. – Jeff Streba



### Small Parts Drying Rack

I made this rack so the finish on my small projects would dry without leaving marks. I cut strips off of a 3/4" board with my table saw's blade tilted 30°. For each new strip, I just flipped the board and moved the fence over 1/2". Then I glued the strips on a piece of plywood, varying the spacing to support different sized items. – Jay McClellan

# STRONGER



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# ■ Connect

## ■ NEW TOOLS

### KBS Diamond Clear Finish

It's not often that a new type of finish is brought to the woodworking market. Recently, KBS Coatings, a company specializing in industrial coatings, started to make a push to bring their Diamond Clear finish to the home hobby woodworking market. I got in a few cans to try it out on the top of the miter saw project we built a few issues back. So far, I've been impressed with the performance of it, but the application took a bit of work to understand.

The closest coating or finish that I can compare KBS Diamond Clear to is a layer of bar-top epoxy. Once it's cured, it stays flexible so the wood can move. It also is crystal clear, as the name implies, and the finish seems to be as tough as nails. The bait-making industry has been using Diamond Clear as finish on crank-baits for years.

Being a moisture-cured urethane, it took me a bit to understand the curing process. Diamond clear needs moisture to cure, and that's important. I first



#### ■ DIAMOND CLEAR

KBS

[KBS-Coatings.com](http://KBS-Coatings.com)

Price: \$25.00+

tried to apply it in the shop with air conditioners and dehumidifiers running—because there was very little moisture in the air, it took several days for the finish to not be tacky. Once I opened the windows and let the humid air in, it cured within a day or so. Diamond clear is available in cans for brushing (I found a low-knapp roller the best tool for applying it), and it's also available in spray cans. Diamond clear can be applied directly over raw wood, or over various other finishes such as paint.—*Logan Wittmer*

### Bosch Colt Cordless Router

There is probably not a name more synonymous with compact routers than the *Bosch* Colt. For twenty years now, Bosch has been releasing compact routers under that moniker, but this model represents the biggest change yet—the Colt has gone cordless.

More than just being a name (and the only named router I can think of since the long-gone Speedmatic) Colt routers have always been well-engineered and designed. This new model continues that trend. Take the dead-simple and easy to use spindle lock mechanism for example; flip the switch at the bottom of the motor to the locked position and it will

stay there until you switch it off. No struggling to hold a button down or fighting with a second wrench to swap out bits.

The well-executed details don't stop there. The on-off switch is dust sealed, the ergonomics are top notch (rubberized grips on the body and base for comfort), and the depth mechanism can easily make fine or rough adjustments. Even the lever to install and remove the base is made out of metal instead of plastic.

Speaking of bases, the cordless Colt comes with a plunge base and a handful of dust collection accessories, as well as a router fence. The whole kit can be stored in the included L-Box (be warned though, the corner of mine showed up damaged.)

With 1.39 peak horsepower and class-leading power-to-size ratio, the new *Bosch* Colt is an easy recommendation for anyone shopping for a new compact router.—*Collin Knoff*



#### ■ GKF18V-25PL14

Bosch

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Price: \$399 (router, fixed base, plunge base, 4ah battery and charger, accessories, and carrying case)

# Connect

## WORKSHOP TIPS

### Power Drill Station

My drills, charger, and all their wires took up too much previous bench space. This wall-hung drill station really cleared the clutter. Now all my drilling needs are within easy reach in one location. With the power strip, I only use one outlet for all my chargers and I don't have to mess with an extension cord when I'm using power tools at my bench.

—Pat Grant (Spring Valley, WI)



### Quick Cure for Sand-Through Woes

Aaaargh! It's so easy to sand through the finish on an edge and it always seems to happen when I'm ready for the last coat of varnish. Here's a quick and easy fix. Grab a touch-up marker and run it along the sand through. It'll make your mistake virtually invisible. The marker dries instantly so you can put that final coat on right away. Available in a wide variety of shades and colors, these markers are designed to blend scratches and minor sand through into the finish. —David Radtke

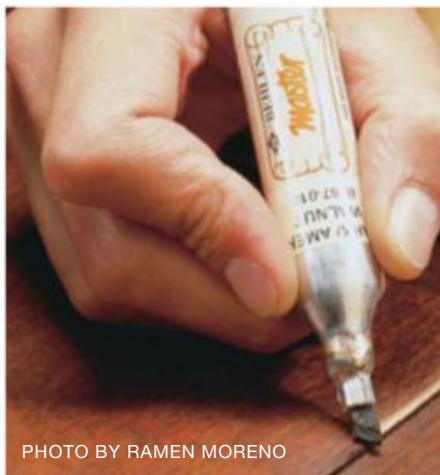


PHOTO BY RAMEN MORENO



PHOTOS PROVIDED BY THE AUTHOR

### Faster Cleaning

Here's a quick way to get all the dust out of your machine's nooks and crannies. Most shop vacuums have one port for vacuuming and a second port for blowing. Hook up a hose to each port, then blow and vacuum at the same time.

—Chad Stanton

# FASTER



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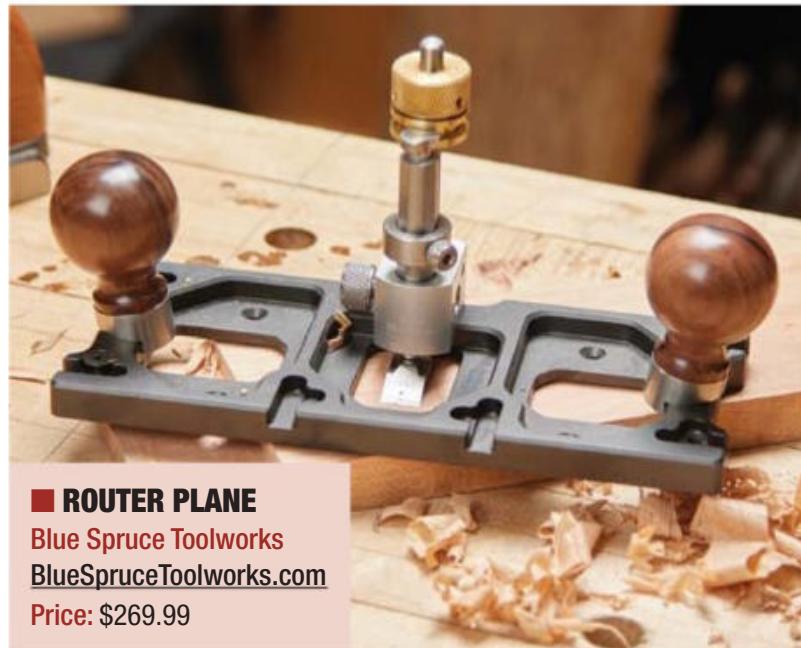
## ■ NEW TOOLS

### Blue Spruce Router Plane

One of the benefits of being in my position, is that I sometimes get to see tools that are in the works before they get released to the public. I've watched the development of the *Blue Spruce Toolworks* router plane for a while now, anxiously waiting for its release.

The *Blue Spruce* router plane shares similarities with vintage planes made by Preston. Now, it's no secret that I'm a *Blue Spruce Toolworks* fan. With that said, I think there are several features of this style of router plane that make it superior to the more common "Stanley" router planes. First, the *Blue Spruce* plane has a much larger sole. This means that it has a lot more surface area to reference off of the work. (The sole is machined from ductile iron and coated in low-friction black nitride). The large sole also allows a lot of real estate to change around the position of the cutter post, as well as the knobs.

In the standard configuration shown here, the blade is positioned in the center of the plane. However, you can position the blade at the end, to the outside, or



#### ■ ROUTER PLANE

**Blue Spruce Toolworks**

[BluespruceToolworks.com](http://BluespruceToolworks.com)

**Price:** \$269.99

in various other configurations. As you'd expect with all *Blue Spruce* tools, the depth mechanism is flawless. The blade adjusts with zero backlash, and it locks down tightly. The Router plane is available with a fence, and the sole of the plane is drilled, tapped, and countersunk for you to add additional fences, guides or soles. The *Blue Spruce* router plane is available with both straight and spearpoint cutters.—*Logan Wittmer*

### Milwaukee 7 1/4" Circular Saw Kit

Don't feel alarmed if you're feeling a bit of *deja vu*; back in October I reviewed the new *Milwaukee® FUEL™* 6 1/2" circular saw, and now that I have my hands on its big brother, I wanted to share my thoughts here as well. If you think of the 6 1/2" saw as a sheet good saw that is happy to tackle lumber, the 7 1/4" is a framing saw that is built to cut... well any type of wood.

Just start with the new REDLITHIUM® FORGE HD 12.0 battery included in the kit. Offering 50% more power than the older HIGH OUTPUT 12.0, the new design features advanced high-speed cooling technology, the ability to achieve an 80% charge in just 35 minutes, and the longest life vs. REDLITHIUM batteries. Oh, and the battery is also resistant to oils, greases, and solvents.

This leap forward in battery power and technology allows *Milwaukee* to push the boundaries of what it does with their cordless motors. The Powerstate Brushless Motor can deliver 6,000 RPM and features Redlink Plus, which can adjust performance to prevent damaging the motor or battery depending on the situation. So if you decide to tackle some hard maple with a 4ah battery



installed for example, the saw will work to prevent overheating and over-discharging of that battery.

Additional features include an electric blade brake, LED work light, rafter hook, and cast magnesium guards and shoes.—*Collin Knoff*

#### ■ 7 1/4" Circular Saw Kit 2834-21HD

**Milwaukee**

[MilwaukeeTool.com](http://MilwaukeeTool.com)

**Price:** \$449 (tool, 12ah battery and charger, framing blade, and bag)

# Connect

## WORKSHOP TIPS



PHOTOS PROVIDED BY THE AUTHOR

### Shop Vac Pre-Filter

For years, my shop vac's best friend has been a discarded pair of pantyhose. I cut a section from the wider part of the leg and slip it over the vac's pleated filter. The pantyhose acts as a pre-filter, keeping out larger particles that can quickly clog the pleated filter. A shop vac stops working when the filter is clogged, even if the canister is half-empty. My pantyhose pre-filter works so well that when the machine quits sucking up debris, I know the cannister is full. – Chuck Kubin

### Make More Room in the Mortise

I well remember the day when I couldn't get a mortise-and-tenon joint to come together no matter how hard I tightened the clamp. I had ignored a fundamental rule: Always make mortises  $1/16"$  to  $1/8"$  deeper than the tenons.

There are two reasons for doing this. First, you don't have to obsess about marking a perfectly smooth bottom in the mortise, which saves time. Second, space is needed for excess glue. This was the reason my joint didn't go home. The tenon had a tight fit on all four sides. Too tight, really. It had pushed all the glue to the bottom of the mortise. A deeper mortise would have given the glue space to pool and allowed the tenon to go home.



PHOTO BY MIKE KRIVI

### Weighing Shellac

To mix various cuts of shellac flakes you need to be able to weigh small quantities accurately. I find a postal scale ideal for this purpose. Such scales are widely available at office supply stores. They're cheap and graduated in half-ounce increments up to one pound. Metric scales are also available. – Jeff Jewitt (North Royalton, Ohio)

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## ■ NEW TOOLS



■ JJ8 JOINTER

Jet

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## Jet Black Series Jointer

The company JPW (*Jet, Powermatic, Wilton*) has a long, rich history of offering quality, well-built power tools. (Note the side of my vintage *Powermatic* Planer in the photo above—circa early 1980's, still running like the day it was new). Jet recently released a new line of tools with a low-friction coating, which they're referring to as their "*Jet Black*" line.

The *Jet Black* tools follow the same line as the *Powermatic* Armor Glide that's been met with nothing but praise. The coating has several different benefits. First, it's low-friction. JPW claims that the coating reduces friction by about 50%. After using the jointer for several months (I've ran several hundred feet of white oak over it for an upcoming project), I agree that it is certainly easier to run material across than cast iron. It becomes really noticeable during a long day of milling lumber.

The next benefit is that the coating virtually eliminates table maintenance. As a fan of vintage cast iron tools, I can tell you that they're needy. The tables need to be kept dry, waxed, and clean. Not so with the *Jet Black* series of tools. The coating protects the cast iron underneath and keeps the surface rust free. The surface also offers a bit better visibility, as the black is a very low-glare surface. Finally, the coating

is tough. After running several thousand (linear) feet of lumber across the surface of the *Jet Black* jointer, it shows no signs of getting "thin" or coming off. You can see that it's not a "fresh surface" anymore, but I'd simply call it "getting broken-in." Jet has tested the surface for over 250,000 passes. Currently, the *Jet Black* coating is offered in their 8" jointer, 14" bandsaw, edge sander, and their 20" helical head planer. The *Jet Black* tools are backed by a 5 year warranty.—  
*Logan Wittmer*





???



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# How to Create Patina Finishes

By combining paint, metal leaf, and some chemical reactions, you can create interesting effects on a variety of surfaces.

By David J. Marks



**TOP TO BOTTOM:**

- A** Paint color: black; foil: silver
- B** Method A was oxidized using Sulfurated Potash
- C** Paint color: red; foil: copper placed onto top of netting then removed. Gold fold added to create an additional effect when oxidized
- D** Method C was oxidized with Barium Sulfide

**Creating a Patina finish** can transform any object into a work of art. I have used these methods for over 3 decades with excellent results. My art pieces have sold for thousands of dollars and won awards using the very same techniques that I'm sharing with you here.

## Surface Preparation

I begin with surface preparation. Sealing the surface, be it wood, plastic, metal, ceramic, or even vegetables like gourds, can be easily done with shellac. Sometimes I mix my own, but I find it easier to purchase it already mixed.

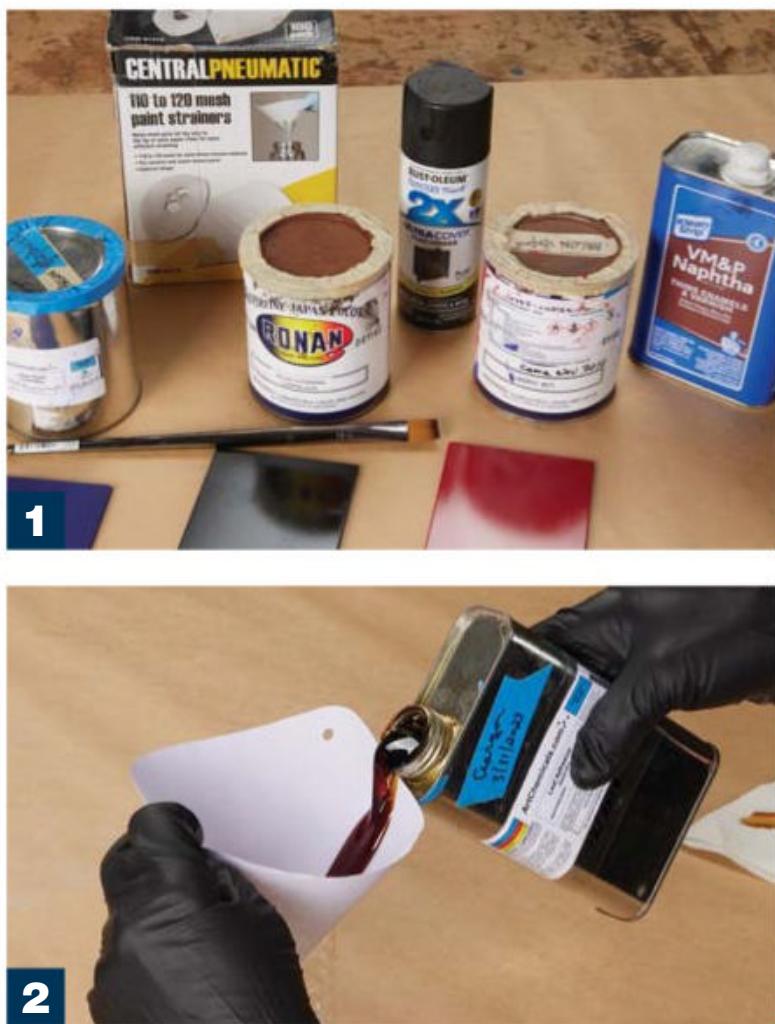
My work involves multiple layers and color is a big part of the process. I like the Zinsser BIN primer which is alcohol-based and dries fast. The white color gives a perfect background for the other layers of color.

I like to spray finishes, when possible, for speed and lack of brush marks. Shellac bonds well to just about any surface. I apply a couple of coats and sand it smooth between coats with 220 grit sandpaper.

## Color & Size Preparation

The next step is to apply some color. I like to use Japan paints because of their rich colors. I thin them with Naphtha, although paint thinner works too. It's just slower drying. I pour it through a paint filter and spray it on. An inexpensive spray gun works fine as long as you add enough solvent to make it flow.

The Japan paints are still porous when dry, so they need to be sealed before applying the oil-based size, which is also known as leaf adhesive. To do so, I



apply a layer of oil-based size to seal the surface. I like to pour it through a paint filter first. This will remove any dried flex or resin or dust or anything else that gets in there. Lastly, I use a soft square-edge, inexpensive synthetic brush to apply the size.

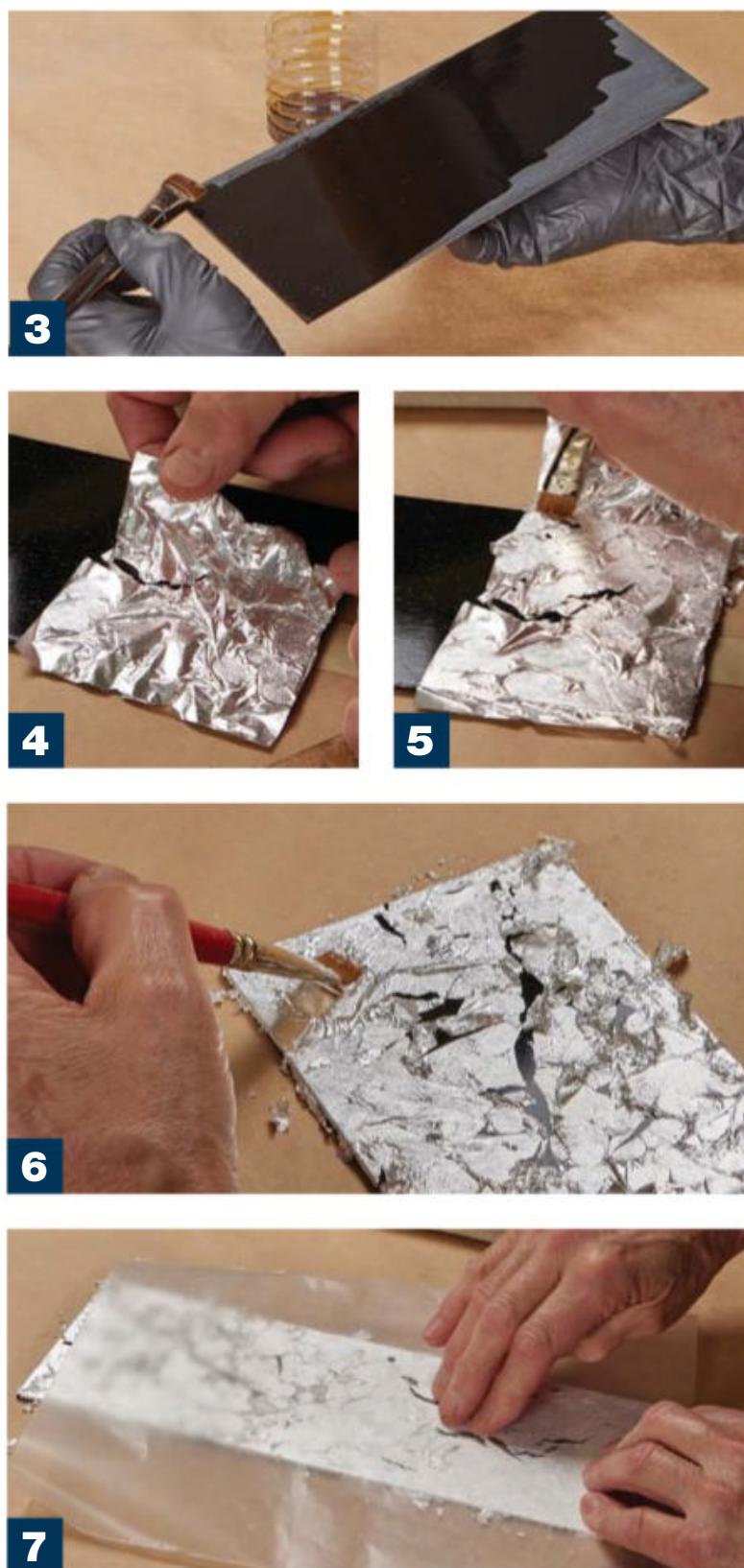
Once the size has dried overnight, I sand it smooth with 320 grit sandpaper or higher.

### Adding Metal Leaf

Now that the surface has been sealed, I can brush on another coat of size, which will act as the glue that bonds the metal leaf. As I mentioned, I'm using an oil-based quick dry size which tacks up in about an hour and stays open for about an hour or two (this is the working time you have to apply the metal leaf). It's important to wait until the surface has a dry tack, similar to masking tape. You can lightly touch your knuckle to the surface to see if it feels like masking tape. If it's too wet, it will go right through the thin metal and ruin it. If it's too dry, the metal leaf will not bond.

I like to have some of the background color show

### METHOD A



## ■ Patina Finishes

through, so I intentionally tear the silver leaf as I'm laying it down to create cracks in the surface much like marble or granite. Once the entire surface is covered, I place a piece of wax paper over it and hold it still with one hand while I use my other hand to lightly rub the metal into the size for a good bond.

Sometimes I like to use a resist material such as the vegetable net bags that you see in photos 8-10. They are made of plastic so they will temporarily stick to the varnish (a.k.a size), but they will also release. This allows me to place the metal leaf on top and then tamp down with a soft brush, pushing it through the netting.

The end result is a sort of organic flowing surface with some negative spaces that allows the background Japan paints to show through.

Once I clean away the loose pieces of metal leaf (called skewings), I can add more metal because the size is still tacky. In photo 12, I've added a little bit of 22 karat genuine gold leaf for some accents and highlights.

Let the metal leaf and size dry overnight. The next day I come back and buff it smooth with a soft organic cotton ball. I do warn you that the synthetic cotton could have coarse fibers in it that can potentially scratch the metal.

## METHOD B



8



9



10



11



12

**8** Using plastic netting from an onion bag has an organic texture that makes an interesting pattern.

**9-10** Use a paintbrush to stipple and dab the leaf through the netting onto the size.

**11** Carefully peel up the netting from the surface. The netting will remove leaf with it and offer a pattern on the surface.

**12** Using different leaf types, such as 22k gold, will cause a variety of colors across the surface once the chemicals have had a chance to react.

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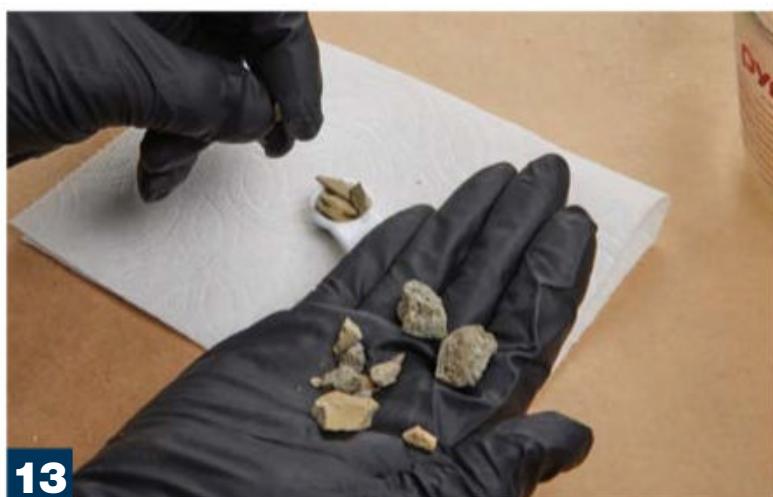
### Oxidize with Potash Sulfurated

Some people prefer to leave the metal just as it is. My preference is to oxidize the metal and create various colors.

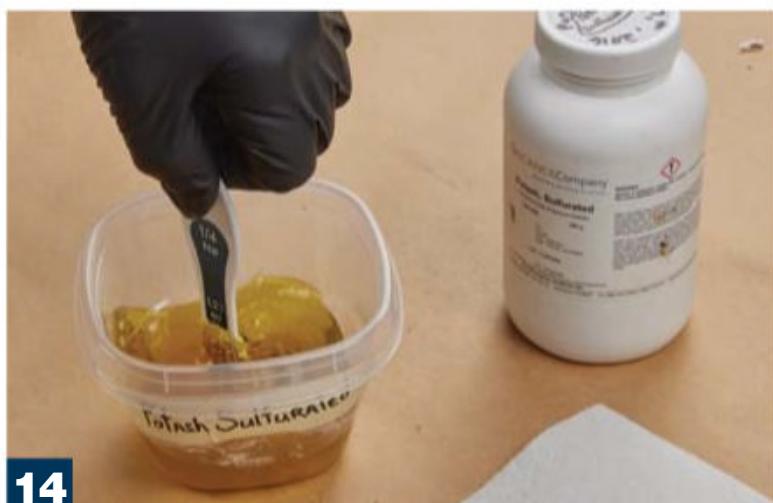
My favorite chemical for silver is Potash Sulfurated, which is also referred to as Liver of Sulfur. This chemical can create a rich blue color on the silver as well as golds and reddish tones. It works especially well if you can apply this outside in the sun. At first you will see the metal turn a golden color, then it progresses into a reddish color which will darken into a beautiful blue color.

When you purchase Potash Sulfurated or Sulfurated Potash, you'll find that it looks like a series of small, yellow grayish rocks. You can break them up with a hammer after placing some in a plastic bag. Then they will readily dissolve in warm water.

Begin by pouring a  $\frac{1}{2}$  cup of water into a plastic or glass container and then add a  $\frac{1}{4}$  teaspoon of the chemical to the water. The general rule of chemistry is to always add the dry chemical to the water. Never put the dry chemical in the container first and then add water because it could cause a reaction. I have to say that over the last several decades, there have been times when I have accidentally reversed this, but I've never had any problems with it. That's because all of the chemical that I use are really mild acids.



13



14



15



16



17

**13-14** Sulfurated Potash appears as soft pieces of rock. Once you dissolve them in water, it will have a yellow color with a rotten egg smell.

**15** Layer the surface with a dry piece of cheese cloth, stretching it out to a random pattern.

**16** Cover the piece with a thin piece of tissue paper that's been wrinkled.

**17** You can use a spray bottle of water to dampen areas of the tissue paper, which will cause the chemicals to bleed and blend.

**18** Flatten down the surface with wax paper and a roller.

**19** Gently dab on the chemicals, trying to be random with your pattern.



**18**



**19**

Once you've prepared the chemical mixture, you're ready to introduce the acids to the metals. The lesson to be learned with patinas is that the vehicle you use to introduce the acids to the metals will determine the pattern generated. In other words, if you put the chemical solution in a spray bottle and spray it on, you'll get a spray pattern. If you dip a paintbrush in the solution and brush it on, you'll see the pattern of the paintbrush.

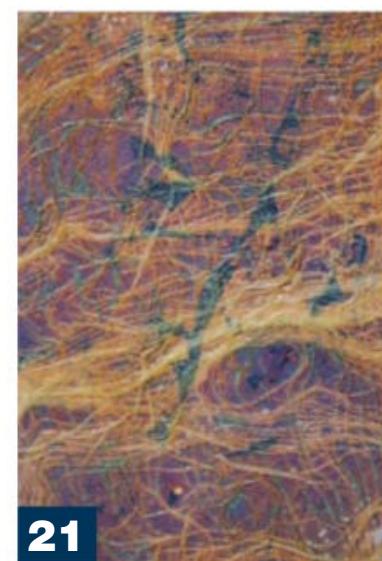
I like to create an organic, random looking surface, similar to what you see in rocks or marble. In order to achieve this look, I've tried sawdust, pieces of cloth, fuming, and other creative ideas but one of my favorite methods is to use dry cheese cloth and tissue paper.

I set up all my materials outside, so I am prepped and ready to go. I begin with a piece of dry cheese cloth and pull on it to create a random pattern. Then lay that down on top of the surface followed

by a piece of twisted up tissue paper. The tissue paper will create wrinkles. Next, I'll use an acid brush, which is essentially a disposable brush with a metal handle and begin to brush the chemicals on top of the tissue paper. Since the chemicals are water soluble, they will begin to spread through the tissue paper and down into the cheesecloth by capillary action. Keep an eye on it and once you start to see the beginning of the blue colors, wait for a few minutes, and then remove the tissue paper and cheesecloth. Be aware that the colors will continue to progress even after you remove the tissue paper. Once you get to this step, it's important to take it out of the sun and put it inside to allow the surface to dry. I like to let it dry overnight before sealing it.



**20**



**21**



**22**

**20-22** After applying the chemical, let the piece sit in the daylight. Keep an eye on the surface. You'll see the Potash starting to react with the silver leaf. When you feel as though the surface has reached the look that you want, remove the cheese cloth and tissue paper and bring the piece inside and out of the sun to stop the reaction.

### Oxidize with Barium Sulfide

Another option is barium sulfide, which works really well on copper. The proportions are the same, 1/4 teaspoon of chemical to 1/2 cup of warm water. Be aware that the barium sulfide is a heavy metal, so you want to make sure to wear gloves and not get it on your skin! Copper is the most reactive of all of the metal leafs.

In this case, I crinkle up a piece of tissue paper and lay that down. Then take the liquid chemicals and brush it on the top. The reaction begins right away. You will see a dark purplish color and other random color in between. This should only take about five or ten minutes. At this point, remove the tissue paper. You can even blot it dry with a piece of tissue paper if desired. Like the Potash Sulfurated, be sure to bring it inside and let it dry overnight. The chemical reactions with barium sulfide will continue until the surface is completely dry so that's why I like to let it continue to dry overnight.



**23**



**24**

**23-24** Barium Sulfide is a heavy metal, so make sure to wear gloves and avoid skin contact. Dissolve it in water, and make sure not to splash it as you're stirring it.

**25** Once again, spray down the tissue paper with water to bring it down to the surface.

**26** Dab the Barium Sulfide mixture over the surface in a random pattern.

**27** The reaction with the copper makes it appear aged and worn by time.



**25**



**26**



**27**

### Sealing the Completed Piece

The next day, I'll seal it in order to protect the surface. I like to use lacquer because it diminishes the colors the least. Even a thin light coat of lacquer will protect the surface from further oxidation. I do want to put it out there that the adhesive (the size) that I use is oil-based and the solvent in the lacquer can react with the oil-based size if you size it on too thick or too heavy. Therefore it is best to spray a thin light coat and give it plenty of hours to dry.

Once the first coat has cured, you can apply subsequent coats and you could even build it up to a guitar-like mirror finish if you want. **PW—David Marks**



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In the Shop

# Setting Up Your Saw for Resawing

By Logan Wittmer

Set your bandsaw up for accurate resawing by following these simple setup tips.

**A bandsaw is a versatile** tool. In fact, I know many woodworkers that use a bandsaw as their primary saw in their shop. It can cut curves, joinery, rip parts to width. It's my belief however, that the bandsaw's most valuable and unique skill set is one of its least used—and that's resawing.

Resawing—splitting material into several thinner pieces, may be done for several reasons. First—you can stretch expensive material further. You can resaw your own veneers, resulting in a series of matched veneers for projects. And one often overlooked aspect is that, often times, it's faster to resaw material down rather than planing it away. No matter what way you cut it (har har), when you resaw, you're asking a lot out of your saw. Every little thing needs to be right for you to get the best possible results. Here, I'll walk you through the steps I take when I set up my bandsaw for resawing.

Before we jump in, I want to point out that every bandsaw can perform some level of resawing tasks. Bigger, more powerful saws will handle larger material. That's not to say you need a 2,000lb, 36" bandsaw for resawing like I have. If you want one though, who am I to stop you. Heck, I'll provide your significant other a doctor's note saying you need one.



1

1 My preferred blade is a wide, aggressive Resaw King with carbide teeth.

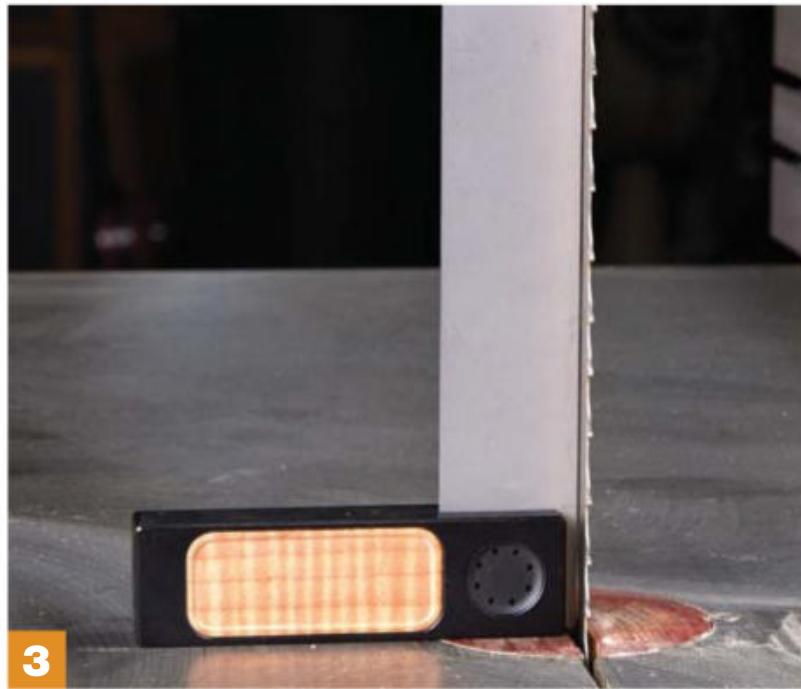
PHOTOS BY LOGAN WITTMER

## ■ Resawing Tune Up



2

- 2 Set tension by feel. I tension until the blade stops fluttering as the saw runs.
- 3 Make sure the blade is square to the table.
- 3 Set the blade guides close but not touching.



3

### Blade First

Choosing the right blade is one of the most critical aspects of having a good resawing experience. For resawing, the rule of thumb is that you want the widest blade with the most aggressive teeth that your saw will handle. Here, I've loaded my saw up with a *Laguna Resaw King*. It's carbide-tipped, 1" wide, and has variable teeth spacing. In my mind, it's the best resaw blade on the market. They're not cheap, but for most of us, one carbide-tipped blade will last a life-



4

time. They can also be re-sharpened, which is worth it. If it's too rich for your blood, the Woodslicer from *Highland* is a close second in performance.

I'm not going to go super in-depth on tuning up your bandsaw. But there are a few things that you need to make sure to get right. First, check that your blade tension is correct. Most modern saws have a tension gauge—just use this as a quick reference. I set my tension for resawing where I can *barely* deflect the blade about  $1/4"$  before my finger buckles. Make sure to move the guides out of the way when you're checking this. I will also *carefully* run the saw with the left and right blade guards off (between the wheels) to see if there's any blade flutter. If there is, I apply more tension. I won't suggest you do this, but it's what I do.

With the tension set, check the table for square. You'll want to use a square that you trust—we can dial it in a bit later after some test cuts, but start off on a good foot here. Make sure the throat plate in the saw is at or below the table surface as well, otherwise it can throw off your squareness.

Finally, while we're onto set up, check the blade guides. Your adjustments will be different depending if you had pads (like mine here) or ball bearings. But, the principle is the same. The idea is that the blade guides are like bumpers on a bowling alley—they're simply there to bump the blade back on course if it drifts a little. The blade should ride completely free of the blade guides as the saw runs. I like to use a folded piece of paper to space mine out. The same goes with the thrust bearing—it should be as close to the blade as possible without touching. Notice how my guides ride right behind the gullet—you want the guides to be as close as possible to the gullet without the possibility of the teeth being pinched between the guides. Doing this will cause the teeth to lose set (or break if they're carbide) and the blade won't cut well, if at all.

### Now the Fence

After the blade's chosen and set up, it's time to address the fence. Most modern saws come with a perfectly acceptable fence. My vintage Crescent saw has a stubby fence—and it's to the right of the blade. I actually love this—it's more natural for me to push material with my dominant (right) hand while holding it against the fence with my left. Whether right or left handed fences, the next step is the same.

For years, I've followed Alex Snodgrass's bandsaw setup, and have found that I agree with his teaching that drift doesn't need to be corrected on a correctly set up saw. With a well-tuned saw, the set of the teeth (however minor that may be) is



wide enough to let the tail of the blade do what it wants regardless of "blade drift". With that said, I haven't been able to get this *Crescent* as tuned up as I'd like. I think the wheels need a bit more crown ground in them, but that's a different problem. Here, I correct for a bit of bandsaw drift. You can see this in Photos 5 and 6 below. I start with a piece of scrap with a straight edge, and mark a line parallel to that edge. Then, being very diligent, I cut along the line the best I can. My goal here is to cut several inches, as straight as possible. Then, I stop the saw and position the blade centered within the kerf on my workpiece.

Now, bring the fence up along the straight edge of your workpiece. More than likely, it's not going to line up perfectly. Depending on the type of saw and fence that you have, you'll need to adjust the angle of the fence. For my crescent, it's a pair of bolts that hold the fence rail in place on the bottom of the table. I adjust the fence so that it follows the edge of the workpiece and tighten it down. On a saw like this *Crescent*, I also add an auxiliary fence. I like the extra length I get on this *Woodpeckers Auxiliary Rip Fence*. It's straight, and easy to remove if needed.

**5** To set drift, use a scrap piece with a straight edge. Mark a line parallel to the straight side and cut along it, making sure to stay on the line.

**6** Adjust the fence so that the fence angle matches the edge of the workpiece you just cut.

**7** Auxiliary fences can help guide long or tall pieces as you're resawing them.



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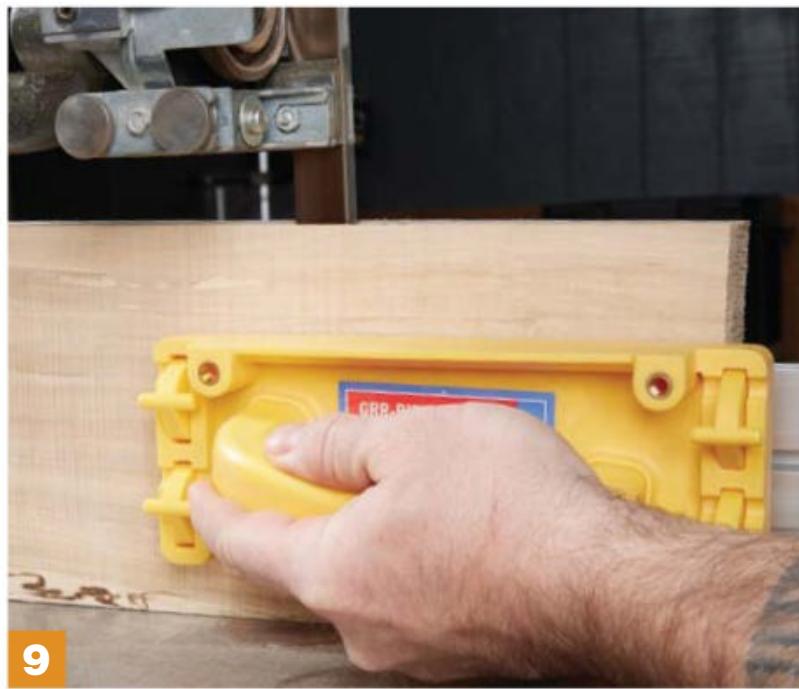
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## ■ Resawing Tune Up



8



9

- 8 Set the blade guide just above the workpiece.
- 9 Use a push pad to keep your fingers clear of the blade as you exit the cut.
- 10 While using a micrometer may seem silly, having the actual measurements tell the story of how the saw is cutting, and help you make adjustments.

## Testing The Cut

At this point, your saw is ready to make a few cuts to see if any further adjustments are necessary. No matter what you're resawing, start with a milled piece of lumber. The face against the fence and the edge against the table should be square to each other, so spend a minute at the jointer cleaning them up. Now, set the fence to your desired thickness. I have done it both ways—with my “good” face against the fence or with my good face peeling away from the blade. Either way works. For ultra-precise work, I’d probably set my good face against the fence.

Now, fire up the saw and start to cut. There’s a technique here. Use one hand to keep the jointed face flat up against the fence. The workpiece, as long as it’s square, should sit nicely along the fence. Then, your other hand is the gas that will drive the workpiece. Steady constant feed pressure will help ensure a smooth cut.

As I mentioned, resawing is a big task for a saw. But, it shouldn’t be a lot of work for either you or your saw. If you have to push really hard, something’s out of wack. Check the blade sharpness followed by the drift. Sometimes, the workpiece can create a wedging action against the fence if it’s out of wack. Likewise, if your saw is sounding like it’s bogging down, slow down your feed rate. You’re not racing through these cuts as fast as possible. The wider the piece, the slower you want

to go. I’ve found that a good way to judge if you’re feeding at the right rate is by the amount of dust escaping around the saw. Your blade’s gullet and dust collector should keep up with the sawing rate. If you notice excess dust coming out, you’re probably feeding too fast and not letting the saw gullet carry away the dust.

As you get to the end of the cut, make sure you have a push pad close at hand. I like to grab it for the last few inches. Ideally, your push pad will have a “heel” on it to grab the workpiece. If you’re doing thin veneers, you may be better off with a flat push pad. Now comes the inspection. How does the resawn piece look? It will have saw marks, but it should not have excessive chatter (this is where the carbide teeth of the Resaw King really shine). Is it a uniform thickness across the piece? Often, I’ll grab a set of micrometers to check and see how close I am (especially for super expensive material). As you can see in the photo on the next page, these are the measurements of each of the corners. Each corner is within a couple of thou of each other. I don’t think you could ask for much more when it comes to woodworking. However, they do tell a story. The top edge of my veneer is slightly thinner than the bottom—both on the lead edge as well as the tail. This means that the top needs to tilt toward the blade ever so slightly. For this 6" wide piece, I wouldn’t mess with it. However, on a taller piece it would become more noticeable.

Likewise, the tail end is a hair fat, and the fence could use adjusted slightly towards the blade. For small adjustments like this, I would just slightly loosen the appropriate knobs or bolts and tap the table and fence a bit with a dead-blow mallet. Then, make another test cut. It may seem like a tedious process, but once you have your saw dialed in, you’ll find that resawing may just become your favorite way to use your bandsaw. **PW**—*Logan Wittmer*



10



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# Comparing Portable Router Tables

Portable router tables are a great way to save space in your shop. We're taking a look at the different options available and laying out the differences between them.

By Willie Sandry

**Router tables** are a mainstay in any serious shop, and sooner or later in your woodworking journey, you'll need a way to mount a router in a table. However, if you don't have the floor space for a full-size router station, you might want to look at the current crop of portable router tables. They're full of space-saving innovations

that approach the performance of their larger counterparts. Plus—most of the portable router tables featured here can handle common accessories like featherboards, stock guides, and miter gauges to help control the cut. Some models even offer two dust ports for greatly improved dust collection. Beyond showcasing the features



1

1 Tables, fences, and insert plates were checked for flatness with a precision straightedge and feeler gauges. Face out-of-square was visually checked with a quality square and measured in tenths of a degree with a digital angle cube. Finally, weight of the entire router package as well as the fence-only weight was recorded.



of each table setup, our aim was to quantify the precision and build quality by measuring table, fence, and insert plate flatness. This was done with a precision straightedge and feeler gauges. However, measuring fence out-of-square with a feeler gauge tends to penalize models with taller fences, something we wanted to avoid. After

PHOTOS BY WILLIE SANDRY



all a relatively tall fence improves workpiece support and overall control. So instead, fences were visually checked for square and measured for out-of-square with a digital angle cube. The cube was simply zeroed on the table surface and the reference surface moved to the fence for measurements in several spots and recorded in

the table on page 32. Finally, the entire router table was weighed, along with fence-only reading, using a digital scale with remote readout. Weight is a good indicator of how portable it might be on the jobsite, but also offers clues about how well it's built.

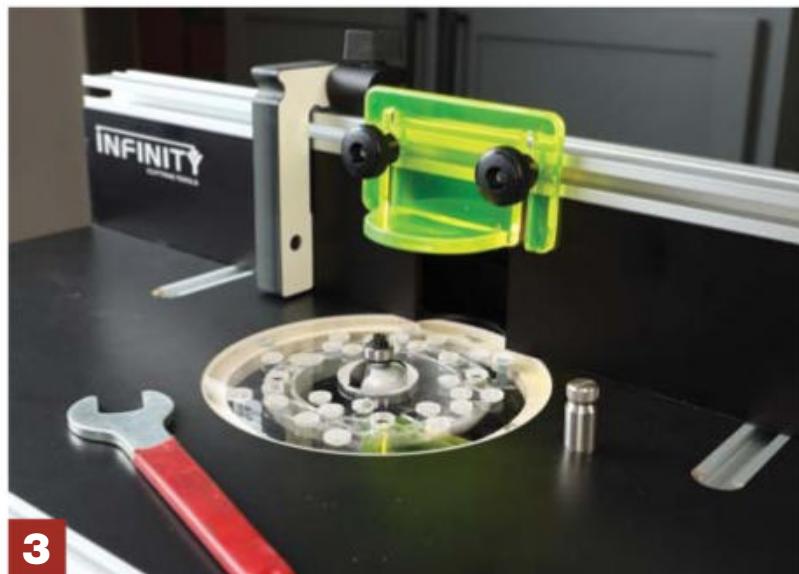
Knowing the table size and height, including fence dimensions, can

help you imagine how these tools might fit into your shop. Tuck it under the wing of the table saw? Or perhaps park it on a bench until you need it next. Most of these router tables, whether they have standard legs or cabinet style bases, are too tall to work on a standard workbench. So, I recommend buying an adjustable tool stand that sits 25-26"

## ■ Portable Router Tables



2



3

**2** Some routers have features that make them more suitable for table use, like height winder cranks, larger motors, and collets that extend high enough for easy bit changes

**3** Special consideration was given to included or available accessories such as sturdy flip-stops, machined starting pins, and high-vis bit guards (*Infinity PRTS-200*).

tall. Otherwise, you could build a multi-purpose rolling cart to handle a portable router table, as well as other benchtop tools.

The router plates may or may not be a standard size, but all models featured here include a way to mount a router. Some are best suited for a compact trim router and smaller bits, while other models can handle a mid-size router for bigger jobs. Some router plates come pre-

## PORTRABLE ROUTER TABLE STATS

	TOP SIZE (IN.)			TABLE HEIGHT (IN)	FENCE SIZE (IN.)			PLATE SIZE (IN.), MATERIAL	1 OR 2 D.C. PORTS	DEG. FENCE IS OUT-OF-SQUARE
	T	W	D		T	W	D			
<b>Bosch RA1181</b> Benchtop	1 1/2	27	18	14 5/8	4 15/16	25 1/8	4 15/16	11 1/2 x 9 1/8, Aluminum	1	0.2°
<b>Bosch RA1171</b> Cabinet Style	1 3/16	25 1/16	15 5/8	4 5/16	4 15/16	25 1/8	3 3/4	11 1/2 x 9 1/8, Aluminum	2	0.2°
<b>Bosch RA1141</b> Portable Benchtop	1	26 3/8	16 7/8	14	3 15/16	20 7/8	5 3/8	4 1/2 dia., Plastic ring	1	0.3°
<b>Grizzly® T28048</b> Portable Series	1	23 5/8	15 3/4	17 7/8	3 15/16	23 5/8	3 1/2	11 3/4 x 9 1/4, Aluminum	2	0.2°
<b>Grizzly® T31636</b> Benchtop	1	23 3/4	15 3/4	16 5/16	2 3/4	26 3/4	2 7/8	11 3/4 x 9 1/4, Phenolic	1	0.7°
<b>Infinity™ PRTS-200</b> Portable	3/4	23 1/4	15 1/4	14	3 3/4	23 1/4	2 1/16	5 7/8, Acrylic	2	0.0°
<b>Kreg® PRS2100</b> Precision Benchtop	1	23 13/16	15 13/16	15 1/2	3 15/16	24	3	11 3/4, 9 1/4	1	0.1°
<b>Rockler®</b> Convertible Benchtop	1	18 1/2	16 1/2	14 5/16	3	18	3	9 x 7 1/2, D-shape, Plastic/Acrylic	1	0.1°
<b>Trend® CRT/MK3 CraftPro</b>	1	24	16	16	3 1/2	23 5/8	3 1/2	12 x 9	1	0.0°
<b>Woodpeckers® Stabilmax™, RT</b>	15/16	23 1/2	15 1/2	10 1/2	3 1/16	23 3/4	5 1/4	9 1/2 x 6 3/8, D-shape, Phenolic	1	0.0°
<b>Woodcraft® WoodRiver® Bench</b>	1	24	16	16 5/8	2 5/16	24	2 3/4	11 3/4, 9 1/4, Phenolic	2	0.4°



4



5

drilled for common routers, which is convenient. However, if it's drilled for every router under the sun, you'll have the "Swiss Cheese" effect with a ridiculous number of holes.

Some manufacturers leave the router plate essentially blank, except for one or two threaded holes

for a starting pin. In that case, you'll need to mark and drill the holes required for your particular router. Check with the router manufacturer for a template or use your sub-base to locate the holes. Just be aware that the sub-base holes aren't always the same

**4** Insert rings often snap-in or attach with a twist-lock action with a wrench like this *Grizzly T31636*.

**5** If your new router plate isn't pre-drilled or does not happen to fit your router, you can drill it to fit. Use a template provided by the router manufacturer, or an existing router plate as shown here, to locate the mounting holes. Start with through holes to match the screw shank diameter and finish by countersinking for the screw heads. Make sure the hole pattern is centered over the plate opening.

BIT GUARD / FEATHERBOARD INCLUDED?	OVERALL WEIGHT	FENCE WEIGHT	TABLE FLATNESS (IN.)	FENCE FLATNESS (IN.)	PLATE FLATNESS (IN.)
YES / YES	27 lbs, 8 oz	6 lbs, 15 oz	0.002	0.002	0.002
YES / YES	39 lbs, 5 oz	7 lbs	0.013	0.005	0.001
YES / YES	26 lbs, 12 oz	4 lbs, 9 oz	0.004	0.005	0.002
YES / NO	36 lbs, 4 oz	6 lbs, 7 oz	0.022	0.012	0.008
YES / NO	28 lbs, 14 oz	6 lbs	0.008	0.002	0.010
YES / NO	27 lbs, 13 oz	5 lbs, 4 oz	0.002	0.001	0.005
YES / NO	24 lbs, 9 oz	4 lbs, 4 oz	0.002	0.001	0.006
YES / NO	16 lbs, 11 oz	3 lbs, 5 oz	0.008	0.001	0.002
YES / YES	27 lbs, 6 oz	6 lbs, 14 oz	0.001	0.002	0.002
NO / NO	24 lbs	9 lbs, 10 oz	0.002	0.006	0.007
YES / NO	38 lbs, 7 oz	4 lbs, 6 oz	0.004	0.004	0.006

as the table mounting holes on some models (like the *Bosch 1617*). One of the *Kreg* phenolic inserts was pre-drilled with a 3-hole pattern for common *Bosch* and *DeWalt* routers, so I used that as a template to drill out the blank plates. It would be wise to use a paper template to make a temporary MDF template. That way you could check the alignment against your router, before committing to the real deal. Pay attention to orientation of the controls as you locate these holes. You want easy access to the locking lever, height adjustment, and variable speed dial. If you plan to use a guide bushing in your router plate, it's critical to get the router perfectly centered as well.

**PW –Willie Sandry**

For more router table video resources, check out Willie's YouTube channel, *The Thoughtful Woodworker*.

## Bosch RA1181 Benchtop Router Table: *The Perennial Favorite*

This beefy router table sports a thick aluminum top for plenty of work area and a host of great features. The insert is a large aluminum plate with smart topside leveling and mounting screws. Eight Allen bolts provide ample leveling points, and the plate is secured to the table with four Phillips head screws. Having all the leveling screws accessible topside is an appreciated feature that makes setup quick and simple. Three snap-in trim rings are included with the kit and allow a wide range of bit sizes. The fence is heavy-duty and well-built and with that anodized finish, frankly beautiful. It has the typical split fence design that we've come to expect from larger router tables and secures with medium sized, well-placed knobs. Like most of the fences in this test, the RA1181 has a jointing feature, where  $1/16$ " thick spacer strips are built into the fence design. By removing the infeed spacer to slightly offset the fences, you can turn your router table into a jointer of sorts. While it does work for the intended purpose, I don't know any serious woodworkers using this feature much. If you don't have a jointer in your shop, a tapering sled for the table saw is often easier than this special feature on a router table. A built-in auxiliary switch and power strip let you fire the router and shop vac to life in one move. This works great, provided you have a 20-amp dedicated breaker that's not overloaded at startup. The pronged spacers on the included featherboards are fiddly and the bit guard is downright maddening to use to the point most users will toss it in a drawer. The spacers were designed to allow the split fence to operate even while the accessories are tightened down, and with that goal in mind, they do work. The tall plastic leg set with cord winder on one side and storage cubby on the other, round out this popular and well-appointed router table package.



1

### ROUTER TABLE DETAILS:

1 The Bosch RA1181 offers an excellent all-around package with sturdy aluminum fence, top, and insert plate. Yet with the feature-packed plastic leg set, it stays relatively lightweight and portable for working on the jobsite.



#### ROUTER TABLE DETAILS:

**1** Two featherboards are included with the RA1141 and a unique pivoting bit guard stays close to your workpiece for safety.

**2** Instead of a standard insert plate, the RA1141 is mounted to a steel quick mounting plate and clicks in place from underneath.

## Bosch RA1141 Portable Benchtop Router Table:

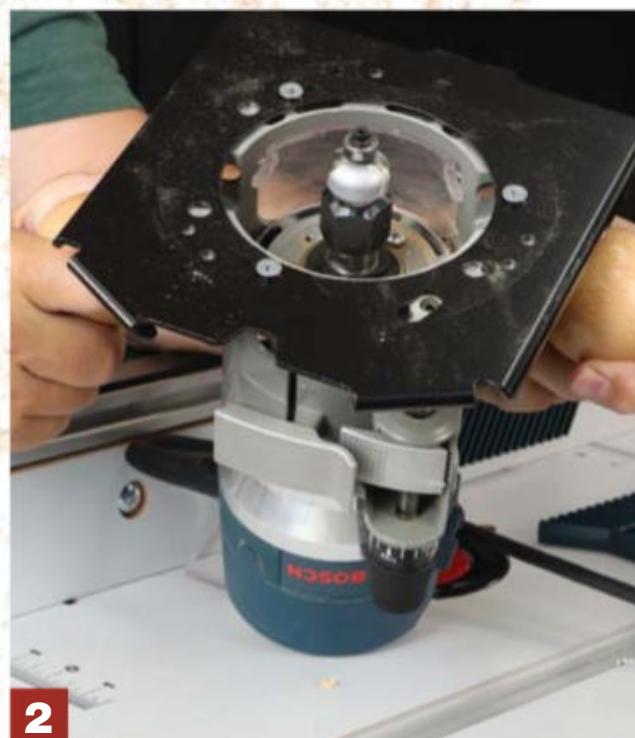
### *The Easily Portable Table*

If you need a light, compact, and portable router table, the RA1141 needs a closer look. The legs feature storage compartments and fold inward for a package that's easy to transport. Plus, metal tabs on the legs make it easy to clamp it to your work stand.

With that lightweight and portable frame come some compromises I suppose like a plastic fence assembly and less overall rigidity compared to heavier models. Instead of a traditional insert plate, there's a 4 1/2" plastic ring on top with 3 interchangeable snap-in insert rings. As far as mounting the router, that's accomplished by means of a steel quick mounting plate from under the table. This setup requires you to remove the router from the table for bit changes. Like its bigger siblings, the RA1141 has a jointing feature and dust collection port built into the fence and a light-duty miter track for your favorite accessories.



**1**

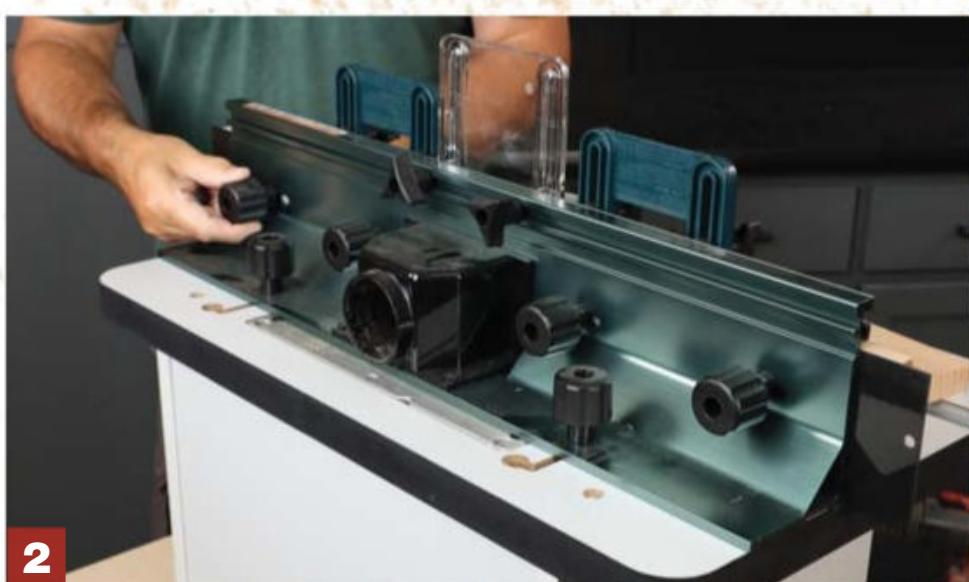


**2**

## Bosch RA1171 Cabinet-Style Router Table: *The Almost Full-Sized One*

With the same heavy-duty fence as the RA1181, the RA1171 adds an enclosed cabinet base, making this one feel almost like a full-sized router table. I personally like an enclosed base for increased dust collection efficiency and with this model you can actually attach two 2 1/4" shop vac hoses if you like. One attaches to the typical fence port and a second simply inserts into the back of the MDF cabinet. The cord access hole was smartly drilled at 2 1/4" diameter, with a slot to let the power cord slip out of the way once installed. The dust collection is excellent topside and moderately good inside the cabinet. However,

if you're too lazy to add the lower dust port, it's nice that it contains a lot more dust than an open base design. Whatever shop vac you have connected, it will come to life with your router, thanks to the included auxiliary switch and power strip. Ease of assembly is another criteria I looked at and the cabinet-style bases require a little more work up-front, but nothing too difficult. A dab of paste wax on the connector screws help ease assembly as well. I will say the hole in the access door on this model is a bit of a finger trap until you get to know it. One additional advantage of a cabinet-style base is how securely it clamps down to your bench. Once anchored to a heavy tool stand or cart, it feels really secure in use. At 39 lbs., 5 oz. it's pushing the limits of portability, but if it will mostly live in your shop, it's a nice choice.



2



1



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### ROUTER TABLE DETAILS:

**1** With the shop vac and router plugged into a concealed power strip, the single switch brings the RA1171 to life.

**2** With the same gorgeous fence as the RA1181, the RA1171 boasts features like medium-sized knobs that seem to be in just the right position and removable spacers for a jointing function.

**3** The RA1171's simple and clever second dust port was added to the back of the cabinet with a plastic dust fitting. First install the power cord, then slide it aside to access the second dust port.



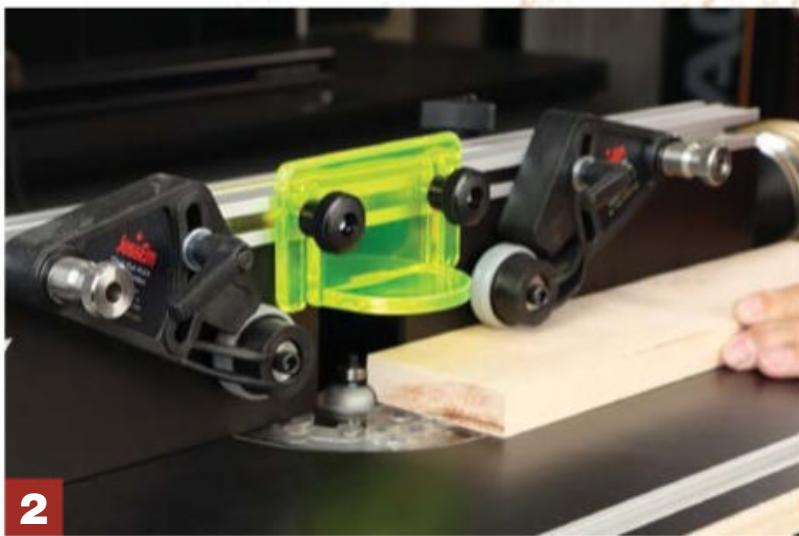
## Infinity™ PRTS-200 Portable Router Table: *The Dust Collection Beast*

The Infinity router table takes dust collection to another realm with its Dust Cube base. The steel enclosure was engineered for dust collection from the ground up and includes a Smart Baffle inside to optimize airflow. It can be connected to a 2½" hose, or common 2¼" shop vac fitting. Or get the optional 4" port as I did and simply connect your shop dust collector to the back of the base. From there, suction is directed into an included 2½" clear flex hose to the hollow aluminum fence extrusion.

Instead of collecting dust from the back of the fence, this system works with the mechanics of the router and collects it from the right side of the fence—where your router naturally throws it. The result is a spotless work area both topside and inside the cabinet. The fence design is different from the pack in other regards as well. Instead of a split fence and a jointing feature, Infinity prioritized a precision aluminum fence surface for accurate cuts. T-tracks on the top and front of the fence accept Infinity's flip stop, high-vis bit guard, and useful accessories like featherboards and stock guides. This router table is specifically for compact trim routers and the clear acrylic plate comes pre-drilled for common models. The plate is more tedious to adjust than most, because of concealed leveling screws, but this operation only needs to be done once at initial setup. There's no convenient way to clamp this router table to a bench, but the rubber feet made it feel stable with regular use. If excellent dust collection and a precision fence top your wish list, the PRTS-200 would be a great choice.

### ROUTER TABLE DETAILS:

- 1 Infinity's aluminum fence features T-tracks on the top and front to mount your favorite accessories like featherboards, the included high-vis bit guard, or aftermarket stock guides.
- 2 The included 2½" clear flex hose is routed from the Dust Cube to the hollow-corn aluminum fence for optimal dust collection from the right side.
- 3 Attach a single dust collection (2½" standard, or this operation 4" fitting) to the back of the Dust Cube and the router table takes care of the rest.



## Grizzly® T28048 Router Table from the Portable Series: *Enclosed Base - More Storage*

Router tables with enclosed bases have always been popular and this Grizzly model takes a unique approach. A 1 1/4" diameter tubular metal frame is connected with special plastic connectors to support the 1" thick top. The frame also acts as an anchor point for the canvas enclosure that surrounds the router. A zippered front panel and side storage pouches give good access to the router and extra space to store accessories. Adjustable leg levelers give you firm footing on your worksurface, however there isn't a convenient place to clamp the table down.

The extruded aluminum fence is heavy-duty and has a great looking anodized finish. The knobs for locking down the fence and adjusting the split fence are well-positioned and easy to operate. With convenient T-Track along the top and front of the fence, this portable router table can accommodate most standard and shop-made accessories. A robust miter track accepts common miter gauges and featherboard accessories and would look right at home on a full-size router table. The 11 3/4" x 9 1/4" aluminum insert plate comes blank but was easy to drill for a common 3-hole DeWalt/Bosch mounting pattern. The plate was out of flat by 0.008", which is more than I like, but the setup worked fine in testing. This is one of four router tables in the test to offer two dust ports. In addition to the typical fence 2 1/4" and/or 2 1/2" fence port, you get a dust fitting mounted low in the fabric bag at the rear of the unit. Dust collection was good topside and excellent overall at containing dust. An auxiliary power switch is provided for the router, but there's no power strip to run a shop vac. There's also no dedicated hole or grommet for running your router power cord through the canvas enclosure, so you just sneak it past the Velcro attachment where it meets the tabletop. At the back, you'll find a handy cord winder to wrap things up when you're done for the day.



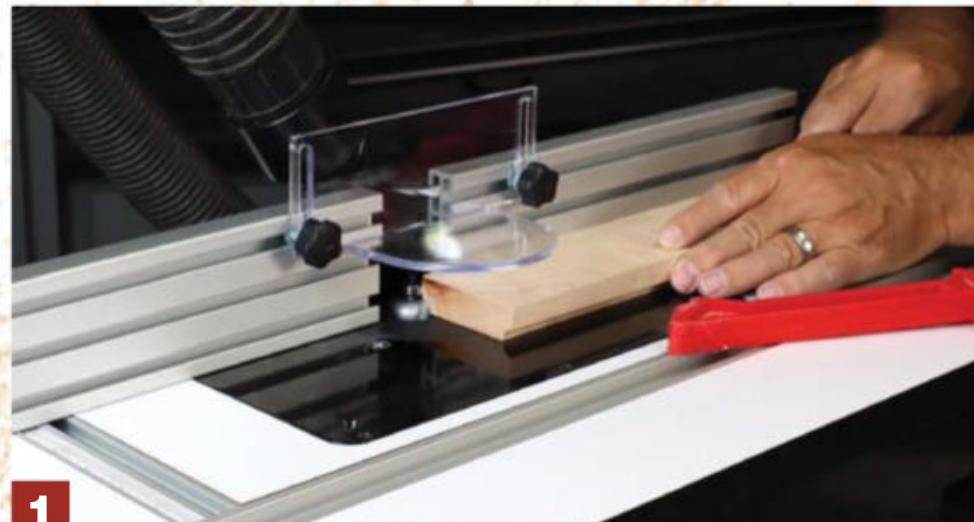
### ROUTER TABLE DETAILS:

- 1 A zippered canvas enclosure on the Grizzly T28028 offers better dust containment, while still giving good access to the router.
- 2 Twist-lock style insert rings in various sizes are included, along with a sturdy wrench and centering pin.



## Grizzly® T31636 Benchtop Router Table: *The Basic One*

With a standard configuration, this is a good basic router table. The fence is angle iron with aluminum extrusions mounted to it. This was one of only two router tables (along with the Infinity) that offers aluminum as the working fence surface—a nice touch for precision operations. The fence secures to the table in T-tracks, which is perhaps not as sturdy as through-bolts, and I found the locking knobs too small and difficult to secure. Like the T28048, I was impressed with the heavy-duty miter slot hardware for common accessories. There's a metal dust port on the fence with 1½" and 2½" dust collection options, or it will fit common 2¼" shop vacs on the I.D. of the dust fitting. Dust collection performance was good topside and like many router tables, fair below. The 11¾" x 9¼" phenolic plate arrives as a blank and must be drilled to fit your router, but that's easy to accomplish if you make a template. The plate was out-of-flat by 0.010" and is leveled by 8 set screws and held in place by magnets. I prefer plates that are secured by 4 corner screws to help pull them level with the table. Furthermore, this plate had the only non-threaded starter pin that simply drops into a hole. I consider that a safety concern, but if you don't use a starter pin, it's a non-issue. The sturdy metal leg set with leg levelers provides a stable base for routing tasks. A single guide bushing sized insert ring is provided with a sturdy metal installation wrench.



### ROUTER TABLE DETAILS:

- 1 The T31636 features aluminum faces on the split fence and heavy-duty miter slot hardware worthy of a full-sized router table.



1



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#### ROUTER TABLE DETAILS:

**1** Use the three included Level-Loc ring inserts and plastic wrench or add the optional 5-piece kit with storage stand for easy setup with any bit size.

**2** The Kreg anodized aluminum fence is compatible with an optional precision router table stop, which flips out of the way when not in use and works great for cutting stopped grooves.

## Kreg® PRS2100 Precision Benchtop Router Table:

### *Most Popular*

This router table is a popular one and for good reasons including its microdot table surface for low sliding friction and medium-duty anodized fence extrusion with split MDF faces. The fence is secured to the table with quick-release knobs, rather than traditional tall knobs and bolts. This system seems to work well, although the plastic hardware can be cumbersome when removing or reinstalling the fence. Like several router tables in the test, the bolts securing the split fences rotate when you turn the knobs behind the fence. Better systems use T-track or threaded inserts for truly tool-free operation. Despite these relatively minor shortcomings, the tapered metal base and rubber feet give this table a stance like a mule, with no real need to clamp it down. Dust collection is accomplished by means of a typical 2 1/4" dust port at the fence, and managed good extraction topside, and a fair grade below the table. At 24 lbs., 9 oz. it's not the heaviest or lightest in the test but feels relatively easy to transport. The table surface is generous at nearly 24" x 16" and provides room to work, whether that's outside for a few quick cuts or on a tool stand as your semi-permanent router table. An 11 3/4" x 9 1/4" phenolic plate accepts any of the three included Level-Loc insert rings, or a set of 5 with storage stand is available separately. Featherboards aren't included with the kit, but the fence and miter slot work well with Kreg's True-FLEX featherboards and excellent precision router table stop. Interestingly, there isn't one feature of the Kreg PRS2100 that stands out from the pack, but it has a good showing in all categories and just flat out works. If sturdy and functional is the name of the game, mostly for shop duty and occasional on-site work, you can't go wrong with this Kreg model.

# Woodpeckers® Stabilmax™ Router Table:

## *The Finest Adjuster*

This portable router table with folding legs can be clamped to your worksurface in a number of ways or stored on the wall with the included Rack-It brackets. The entire router weighs 24 lbs., but the fence accounts for a staggering 9 lbs., 10 oz. of that total. That's due to the double steel "L" shaped construction that allows the unique micro-adjustment feature. Plus – this is the only table in the test that truly allows adjustment for fence squareness, something sorely lacking on most models. Four jack screws and hex nuts allow fine adjustment to dial the fence perfectly square. The D-shaped router mounting plate is also novel and installs with a friction fit thanks to a rubber compression washer mounted in the table. There's also an inverted handle mounted to the plate that doubles as an oversize base plate for freehand routing! And switching between handheld and table routing is completely tool-free. Genius. On the negative side, the overall design doesn't allow for T-tracks or miter slots, so you won't be able to use typical featherboards or miter gauges. The fence also secures to partial depth slots in the top, which never feel quite as secure as through bolts. But if portability and multiple mounting options are paramount for you, or you love the thought of quickly switching from router table to oversized sub-base, the Woodpeckers Stabilmax RT is worth a look.

### ROUTER TABLE DETAILS:

- 1 You can get straight to work with your new router table because the plate comes pre-drilled for common compact trim routers.
- 2 Two independent steel fences allow for micro-adjustment of the fence front-to-back, via a well-machined adjustment knob for precise control. Four jack screws and hex nuts allow adjustment for a perfectly square fence.
- 3 A quick release router plate installs tool-free and doubles as an oversized sub-base for handheld routing.



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## Rockler® Convertible Benchtop Router Table:

### *The Space Saver*

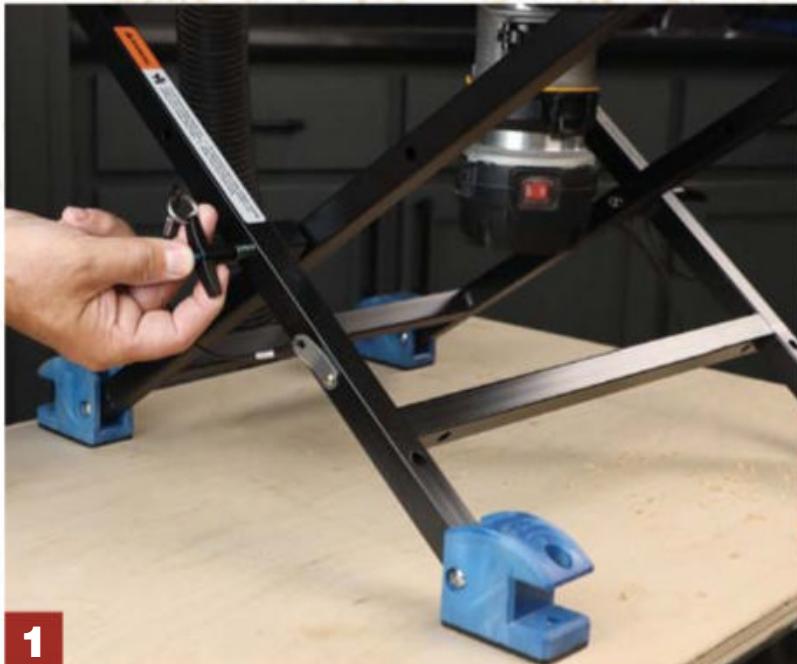
When the priority is portability or space-saving in the shop, this little router table from Rockler might fit the bill. The legs are folding and lock in place with a quick hitch T-handle pin. This base, along with the interesting feet pads give this pint-size table a surprisingly stable stance. Or convert the table for wall mounting by installing the pins through the hole in the blue feet. This orients the legs at an angle and the table can be dropped down when not in use. As the lighter router table in the test, its small size and portability come with some compromises. The fence is made from lightweight aluminum angle stock, with MDF split faces. While the tall fence knobs and split face knobs are excellent with a rubber over-mold for improved grip (love those Rockler knobs), the split faces leave something to be desired. They secure with T-slots milled directly into the MDF, without any T-track. I consider this a light-duty construction method, so go easy on those knobs. The fence does accept the included clear bit guard and optional Rockler fence featherboards and the miter slot works well with their optional table featherboards. A non-standard D-shaped plate is outfitted with a frosted acrylic insert predrilled for common compact routers. Or choose an alternate plate when ordering, that accepts midsize routers instead. If compact and convertible are the key features for your next router table, consider this Rockler model.



#### ROUTER TABLE DETAILS:

**1** Quick-hitch T-handle pins let you quickly assemble this pint-size router table—or convert it to a wall-mounted setup.

**2** Despite its small size, it accepts standard fence and table accessories like Rockler featherboards, available separately.



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## WoodCraft® WoodRiver® Bench Router Table 506-80:

*Don't Need Featherboards?  
Choose This One.*

The cabinet style router tables require a little more patience to assemble, but it's worth the effort. The panels are all pre-drilled and the connector screws go together well. The top is secured to the cabinet with wooden cleats, which was odd compared to the other designs, but seems to work. The medium-duty fence is designed around an aluminum "C" channel that adds rigidity, but limits access to the adjustment knobs. Dust collection is a two-port affair—one fence port and a second at the lower rear of the cabinet. The fence port offers very good dust collection by itself and while the lower port won't remove everything, it's nice to contain the mess in a cabinet. It does require two shop vacs or a 4" to two 2½" splitters for your dust collector. A split plate allows the router cord to pass through the cabinet but requires removing 4 screws to pull your router for handheld tasks. As a dedicated router station that approach is fine, but a rubber grommet for the power cord would make more sense for occasional users. Like the Bosch RA1171, this style of cabinet base is the easiest and most natural to clamp down to your worksurface, however, at 38 lbs., 7 oz. it's the second heaviest in the test and therefore one of the least portable. I'm willing to bet most users keep their portable router table set up much of the time and rarely carry it to a jobsite, so it may be a moot point. Surprisingly, there are no miter tracks on the face of the split fences and no miter slots in the table for popular accessories like featherboards and miter gauges. There is a top-Track for the bit guard, but it's unclear if stop blocks or accessories are available for that system. The phenolic plate is drilled for a starting pin only, which is a nylon bushing and screw. So, plan on drilling the plate to accept your particular router. The plate is a standard 11¾" x 9¼" size and was flat within 0.006". If a storage cabinet design is appealing to you and you don't use featherboards, take a look at the WoodRiver Bench Router Table.



1

### ROUTER TABLE DETAILS:

**1** Basic and ready to work. With an ample 24" x 16" work surface and sturdy "C" channel aluminum fence, the WoodRiver Bench Router Table is capable of routine edge profiling. Use a push paddle when appropriate because you don't get T-tracks or miter slots for featherboards and other accessories.

## Trend® CRT/MK3 CraftPro Router Table:

### *Easiest to Assemble*

As far as initial quality, this Trend router table hits a high note. A sturdy flared leg set rests on rubber pads and the kit includes hold-down brackets for permanent mounting. The fence assembly is extremely rugged and heavy-duty and weighs in at nearly 7 lbs. That gets you a solid fence extrusion, tall knobs, and split fences that easily lock into position. Plus, there are some thoughtful features like threaded holes to stow the two starting pins and jointing rods that not only store in the fence, but lock in place with spring-loaded knobs when not in use. The 1" thick table was within 0.001" of flat and the sturdy aluminum plate was within 0.002" of flat. It doesn't come pre-drilled for common routers though, so you'll likely need to drill holes to suit your needs. The kit comes with a good variety of plastic insert rings, but they're the snap-in variety and they're quite difficult to install. One is a two-piece ring that holds a guide bushing inside the smaller section and that one was relatively easy to use. I generally prefer twist-lock inserts, but I suppose the snap-in inserts get easier to install with repeated use. A sturdy dust shroud engages with grooves in the fence, before screwing in place and accepts common 2 1/4" shop vac fittings. Observed dust collection was excellent above the table and fair below. The combined bit guard/featherboard is more awkward to set than two standard featherboards, because the router bit is in the way. However, the standard T-track slots let you use any common accessories you choose. This is one of the easiest tables to assemble and the construction throughout just screams quality.

There's even a cord winder included. Just be aware that the U.S. version doesn't come with the NVR (No Voltage Release) auxiliary power switch. If you have a Trend router, or don't mind drilling for a more common hole pattern, you won't be disappointed with the quality and features of this portable table.



1



2

#### ROUTER TABLE DETAILS:

**1** Clever features built-in. The 3 1/2" tall heavy-duty aluminum Trend fence got a lot of "Oohs and Ahhs" for the jointer rod storage that retains the bars with spring-loaded knobs and the two threaded starting pins that store neatly out of the way, when not in use. The D.C. port was also sturdier than most, because it engages in slots in the fence, before securing with screws.

**2** After assembly and drilling for a DeWalt 618 router, this sturdy table was a pleasure to use.

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# Turned Winged Box

**PROJECT #2504**

**Skill Level:**  
**Advanced**  
**Time: 4 Hours**  
**Cost: \$20**

This winged box is turned fast, and the end result will leave people asking how you did that.

**By Jimmy Clewes**

PHOTOS BY LOGAN WITTMER

**Before beginning this project,** I want to warn you that this woodturning project is not for the faint hearted. I would recommend that you not only have the confidence but also tool technique and ability to attempt it. The speed you are able to turn makes a huge difference given the fact that the base of the box is 10" long, 4" wide, and a 2 1/2" thick piece of maple. Also, given the fact that it is a rectangle rather than round or square, there will be a lot of cutting and missing effect as it is turning. That's where the speed comes in, the faster the piece is turning, the more "solid" it becomes as the time between cuts are lessened.

### Prepare

For accuracy, make sure that the blank is accurately cut and square before marking the center of the face and using a center pop to allow for accurate drilling for the screw chuck. I prefer to use the screw chuck because as you are turning, the resistance is actually tightening the piece onto the chuck. I'm using a Vicmarc VM 100 chuck. A little wax on the screw and in the hole will help to take the piece on and off the screw chuck. After mounting the base onto the screw chuck and making sure that the piece is tight against the face of the screw chuck, you can begin turning.

### Few Notes Before Turning

Before we begin, I want to point out the noise that you will hear as you turn. As you turn the speed up, the sound the wings make as they catch the air will also increase. Don't worry, it's only a noise! Had the piece been a round bowl blank, there would be very little noise at the same speed.

Okay, so here we are. I turn these pieces on my *Powermatic* 3520B at 3,200 rpm, which is the fastest speed it will go. The slowest speed I turned one at was 2,000 rpm and it, in my mind, was far more difficult from a tooling point of view but still achievable. One other thing... when turning the lathe on and off, remember the piece has wings that are difficult to see. It was this piece that got me a reputation in the woodturning world as a some-

what "dangerous" wood turner! A little unfair in my mind as most of the audience in a demo didn't understand the physics needed to execute the turning and most of them had never needed to turn at that speed unless it was a pen.

### Let's Turn the Bottom

The first cut, using the wing of a 1/2" bowl gouge with an Irish grind, is a push cut from the edge of the piece towards the middle to a depth of about 1/2" at the center. It's basically a soft curve. If the surface is not relatively smooth, you will be off the bevel and cutting with the tip of the tool. The bevel not only controls the tool but tells you in which direction you're cutting. The reason for this is that I want the piece to sit on the wings rather than on a foot and so the tenon need to be higher than the wings in order to remove it later.



**1** Start with a center hole for the screw chuck.

**2** The first cut is to form the curve of the bottom. Start at the outside edge and make a soft curve towards the center.

**3** As you work in, the piece gets shallower and shallower. Here's where the tenon will be formed for reversing it on the chuck.



## Winged Box



4

**4** Carefully use your dividers to mark out the tenon.

**5** A parting tool can be used to start to define the tenon.

**6** Switch back to the bowl gouge and start to form the bowl shape of the bottom.

**7** Remark the tenon if you removed it during waste removal.

**8-9** Final shaping of the bowl and tenon can be done, making sure to dovetail the tenon.



5



6

After cutting the first curve, I then mark out for the tenon. Using a  $1/8"$  parting tool, I cut to the left of the scribed line to a depth of about  $1/4"$ . I am happier as it provides a safer hold in the chuck.

We then need to start the outside of the box section by cutting away from the tenon. You will need to be aware so the wings of the bowl gouge don't catch. To avoid this happening, you will also need to cut from the outside of the wings of the blank towards the middle to match the cuts when turning the box section. Be sure to take careful cuts and as many as necessary in order to build up the final outside curve. Again, watch the wings! At this point, the diameter of the box is about  $3\frac{3}{4}"$  and so it is within the 4" width of the piece. This allows for an aesthetically clearly defined edge of the box.

Next, I carefully power sand the box section in the middle and the first 1" away from it. Then I hand sand the rest of the wings as this is much safer and avoids bruised or cut fingers. I started with 180 grit and finished at 400 grit.

After sanding, my preferred finish is to seal the wood with a thin coat of Zinsser's wax free shellac. After letting it dry completely, I additionally give mine a thin coat



7



8



9

of natural Danish oil being sure to wipe off the excess. The finish does “pop” the grain in the wood.

### Turning Inside Face

After unscrewing the base from the screw chuck and mounting it in the chuck, you can now start the inside face of the box starting with the wings.

I firstly mark the outside edge of what will become the box part in the middle of the piece. The wings have to be stepped down gradually using small careful cuts. Using the wing of the 1/2" bowl gouge and drawing the gouge towards me, I make cuts with the grain cutting downhill. You will notice that the sound of the piece turning has decreased a lot and is not quite as intimidating now.

**10** Sand the underside of the box, keeping your hands clear of the wings of the box.

**11** Flipping the box around, mark out the shape of the wing.

**12-13** With a bowl gouge, start to sweep out the wings, mirroring the shape of the bottom.





14



15

Again, take your time and take as many controlled cuts as necessary. You can take wood off, but you can't put it back on! I turn the first  $1/2"$  of the wings to the finished thickness of  $1/8"$  and then carefully continue the same cuts for the next  $1/2"$  and so on and so on. Note in photo 16 that I have drawn a line which I can see and follow when the piece is turning. The wings taper from  $1/8"$  thick at the tips to approximately  $3/8"$  thick at the box part. I feel the taper is delicate and "lifts" the piece aesthetically.

After the wings have been completed, you can now start to hollow the box section. I use my  $1/8"$  parting tool and cut squarely to a depth of  $1/8"$ . The reason for this is that when the piece is completed, it can be rechucked and the tenon removed to finish the underside of the box with a nice uninterrupted curve. The flat allows the chuck to sit squarely when rechecking. Make sure that the plunge cut with the parting tool is square as this is also going to be used as a jointing surface for the lid.

I hollowed out the box using a  $1/4"$  gouge as the  $1/2"$  bowl gouge will be too large and the heel would likely rub behind the cut and bruise the wood. A scraper would also work—in fact use whatever tool you feel comfortable using to accomplish this task. The box hollow is basically a hemisphere



16



17

The piece was then sanded starting with 180 grit and finished with 400 grit and finished just the same as the underneath of the box.

### Onto the Lid

Now to turn our attention to the lid, no pun intended! The lid is  $3\frac{1}{2}$ " wide, 5" long, and  $2\frac{1}{2}$ " thick. Accurately cross the face and find the center. This piece is chucked straight up against the fence of the jaws using the tailstock revolving center as if it were a piece of spindle work. It is perfectly safe and secure.

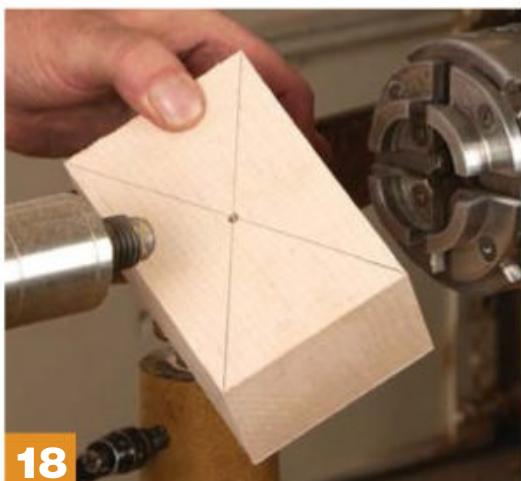
I turned the speed down to 2,500 rpm as the time between cutting and missing is less. This time I

**14** From the top-down view, you can see the steps in the waste and start to smooth the curve.

**15** Drop the handle a bit and use the wing of the gouge to blend in the curve.

**16-17** Define the bowl edge with a parting tool and hollow it out with a small bowl gouge.

produce the tenon by cutting some of the wings away again using the Irish grind bowl gauge and drawing the tool towards me therefore cutting the grain. I cut about half-way down the blank. This makes access easier to cut the tenon with



**18**



**19**



**20**

the parting tool. After cutting the tenon, take the piece and mount it in the chuck as we will be working on the underneath of the lid first. Then a similar cut to the base is made, cutting from the outside

wings towards the middle, producing a soft curve. Remember if you don't get a smooth surface then you are riding the bevel and will be cutting with just the tip of the tool. The lid looks far better if the

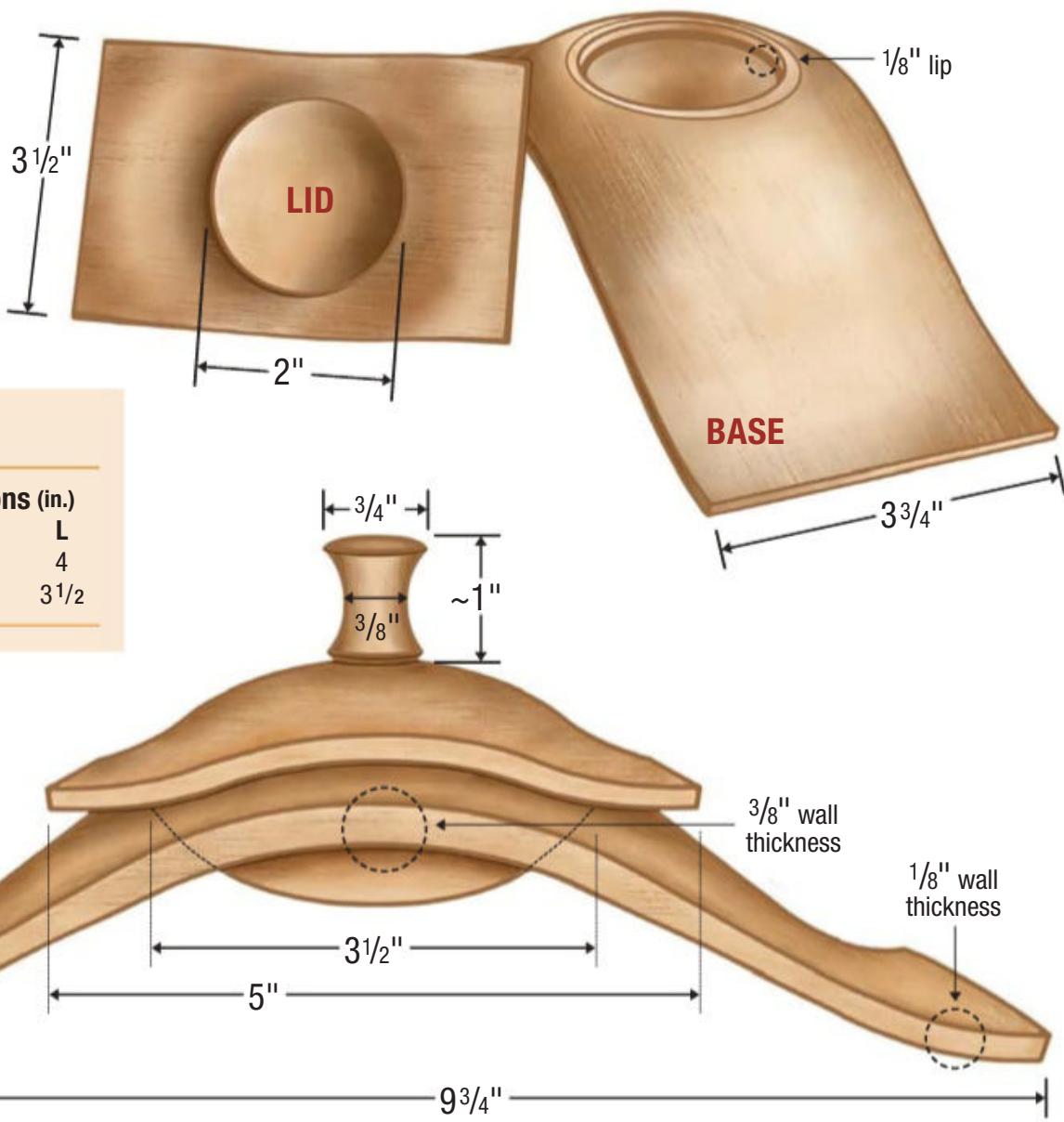
**18-19** Pinch the top between the tailstock and the chuck.

**20** Start to form the bottom curve of the lid. This matches the curve on the top of the box.

## Turned Winged Bowl

### Cutlist

No.	Items	Dimensions (in.)		
		T	W	L
1	A Base	2 1/2	10	4
1	B Lid	2 1/2	5	3 1/2



## Winged Box

curve on the lid matches the curve on the base.

Then measure a little larger than the outside diameter of the box recess and scribe a line on the underside of the lid. With your parting tool, make a plunge cut about  $1/8$ " deep and square to the surface. This will become the joint for which to attach the lid to the base. Keep making tiny cuts to reduce the diameter of the joint and the excess wood on the wings until you can fit the base to the underside of the lid. Note that the slight flare on the wings of the lid match the flare of

the wings on the base. The joint is then hollowed out slightly to reduce the final thickness of the finished lid.

With the underside of the lid now turned, we can now sand and finish as we did on the base down to 400 grit, sealed, and lightly oiled.

Remove the lid from the chuck and carefully turn it around and hold the joint into the jaws of



**21**

**21** Measure the opening in the top of the box with dividers.

**22** Transfer that measurement to the inside of the box.

**23** Define the tenon with a parting tool and remove the waste with a gouge.



**22**



**23**



**24**



**25**

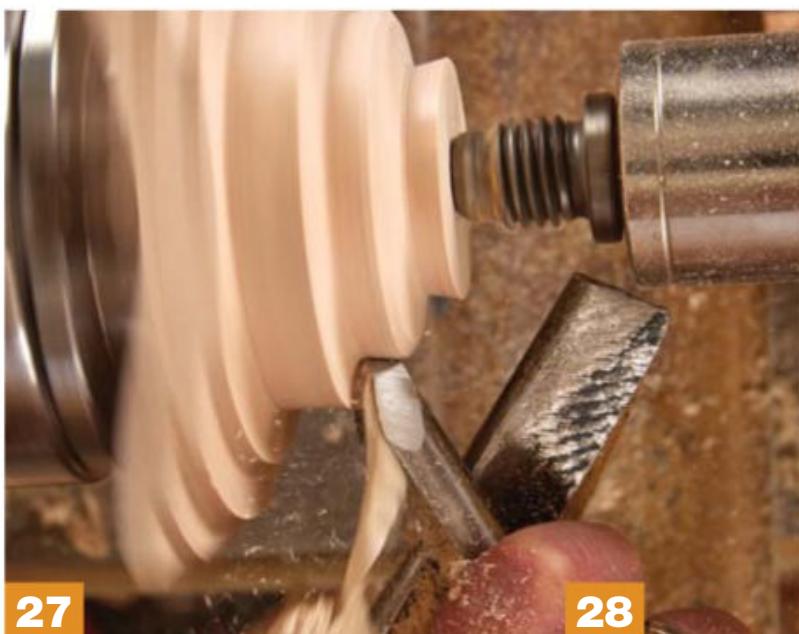
**24** Check the fit — you want a complimentary curve.

**25** Make adjustments as necessary.

**26** The fit you're looking for between the top and the base.



**26**



**27**



**28**

**27-28** Start to form the curve of the top. Step down the waste to near-finished shape, then blend it together.

**29-30** Start working down the handle to a cylinder. Shape the handle with a couple of cove cuts. A slight undercut lifts the handle off of the top. When the shaping is done, remove the tailstock and make a light finishing cut to curve the top of the handle.



**29**



**30**

the chuck. Another way is to jam chuck the lid into a scrap piece of wood. Bring the tailstock up for extra support. Then just as I did with the base, step the cuts down gradually until you turn the outside  $1/2"$  of the lid's wings to the thickness of just less than the lid.

This looks aesthetically pleasing. Continue the steps until you have removed most of the waste material whilst leaving approximately  $1/2"$  of wood in the center which will eventually become a handle. The curve on the lid is a slight ogee but still reflects the shape of the base and gives the impression that they are meant to be matched together. Again, like the base, the lid tapers and is slightly thicker towards the top where the handle is located.

The handle itself is shaped using a  $3/8"$  spindle gouge and it is basically like cutting a cove. The piece can be supported up until the very last few cuts when the tailstock can be removed for total access to the top of the handle. Taking small cuts, turn a slight dome on the top of the handle. Be careful as the grain will be short on the stem of the handle and it could snap with a catch or heavy cut. If this happens, just turn a finial, drill a "stopped" hole in the lid and glue the separate handle in place.

The lid can now be sanded and finished like the rest of the piece.

### Final Touch

To finish the piece, we need to remove the tenon on the underside of the base. To achieve this,

just remove the lid from the chuck, pick up the base, and expand the jaws into the joint. Make sure that the jaws are sitting squarely and flat on the  $1/8"$  step cut in the joint for the lid. The speed can be turned down to a sedate 1,800 rpm as you are just removing the tenon. Take several small cuts with the  $1/4"$  bowl gouge and remove the tenon making sure that the curve on the base of the box flows into the original curve.

Now simply sand and finish as before. If you worked with rough sawn stock, sand the edges of the base. Remove the base from the chuck and put on the lid. Place it at eye level then stand back, look, and be very proud of yourself as this is not an easy piece to execute! **PW –Jimmy Clewes**

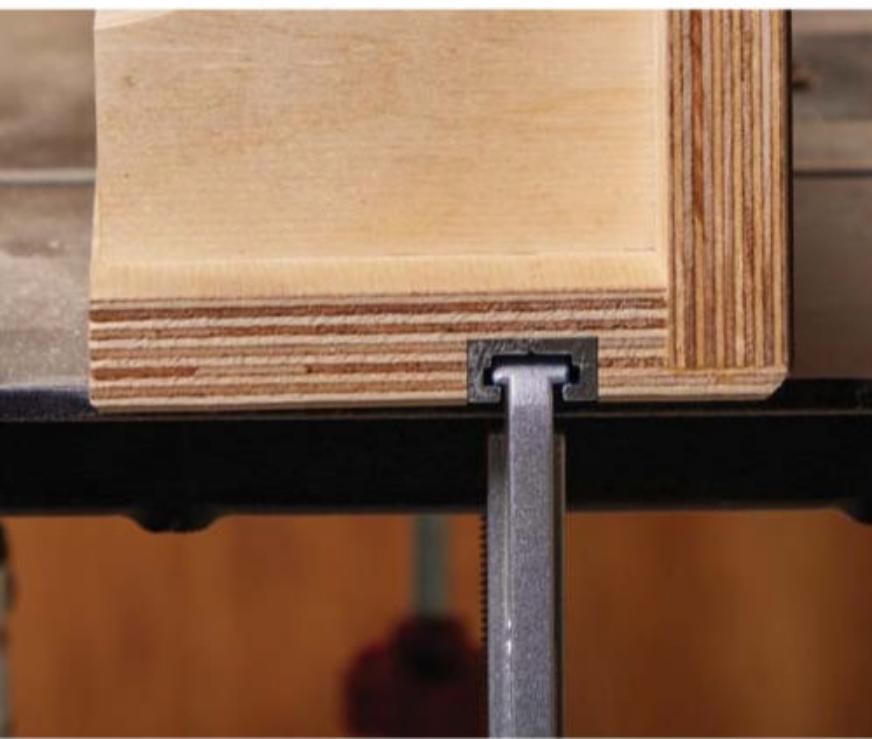


**PROJECT #2505**

**Skill Level:**  
**Beginner**  
**Time: 2 Days**  
**Cost: \$20**

# Dust Collection Fence

This fence is designed to be used at a drill press or router table, and features built-in dust collection for keeping your shop, and lungs, clean. **By Logan Wittmer**



PHOTOS BY LOGAN WITTMER

## Dust Collection Fence

If you ask me what my favorite tool in my shop is, I would have never guessed that I would have said it is my dust collector. But, after installing a powerful 5 HP Smart Gorilla from *Oneida* and spending time hard piping the entire system (you may recall reading about that a few issues back), I have to say: it's a pleasure working in the shop with quality dust collection. Most tools have pretty decent dust collection built in. Some, however, need a bit of help in that department. This universal dust collection fence is designed to be used at the drill press and router tables to help gather some of that lose dust.

### Plywood Parts

This little fence is built from plywood. Baltic birch is great if you have it, but any flat plywood would do. (As would MDF if you'd like). The entire fence requires very little material. You can get by with a quarter sheet from a big-box store. I built this fence 22" wide, but adjust it to fit whatever application you need. I found this size works well for a drill press or a small router table, but a larger router table would call for some simple modifications to make everything a bit wider.

Most of the parts for this fence are straightforward. The fence base and faces are rectangular in shape. Start by ripping all the stock to width. You can see this in photo 1. When working with plywood, I never use the factory edge. While the edge of plywood may look okay, it's usually dinged up and not straight. Running the edge over the jointer will clean up the edge and give you a true reference surface.

After ripping off a few strips, flip over to a miter gauge to square up the ends before cutting the parts to length. Before leaving the table saw, load up a dado blade to cut a rabbet along one edge of the base.



**1** Rip off a few strips of material from a larger sheet.

**2-3** Using a miter gauge, square up one end of the workpieces before flipping them around and cutting them to length.

**4** A dado blade buried in an auxiliary fence helps cut a rabbet along the edge of the base.

### Careful Glue Up

Before we start assembling anything, you'll want to make a notch in the base. This helps you capture dust when using large Forstner bits, or burying a router bit if you use this on a router table. As you can see in Photo 5, I started with a large Forstner bit hole. Then, using a backsaw, I cut the waste away. If there is any nubbins or unevenness, you can file it smooth. Now, you can glue the fence faces onto the base. Apply a bead of glue to the rabbet on the base. Then, clamp the fence faces in the rabbet. The goal here is to end up with a fence that is perfectly 90° to the base. Using accurate 90° clamps help ensure this. Check out Photo 7 to see my set up. Once the fence is in clamps, you can swap over to start building the dust collection flange.

### Dust Port

To collect dust at whatever tool you're using this fence at, you'll need a way to attach a flex hose. To do this, a plastic port is connected to a hardboard flange, mounted on the back side of the fence. The flange will need a hole cut in it to match the diameter of the port you purchase. I used a 2.5" port. After cutting the flange to size, I reached a pencil in to roughly outline the opening. Because of the angle of the port, the hole in the flange is not round. However, that's no problem. As you can see in Photos 9 and 10, a large Forstner bit will remove most of the waste. Then, a coping saw will help you saw away the rest. Smooth out the opening with a rasp and sandpaper. It doesn't need to be perfectly smooth, but remove any lumps or bumps that could impede airflow or cause a whistling sound as the dust collector is turned on. After smoothing it out, use a block plane to bevel the top and bottom edge of the flange.



5



6

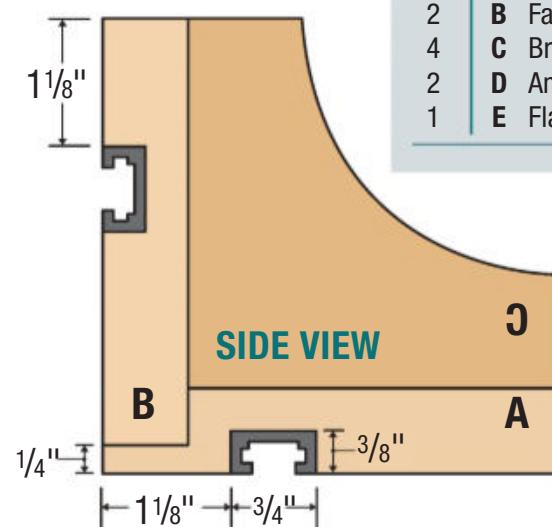
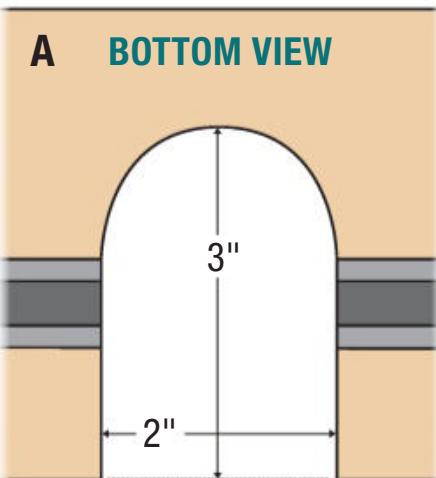


7

**5** Bore out the notch with a Forstner bit, and cut the waste away with a hand saw. Smooth it out with files and sandpaper.

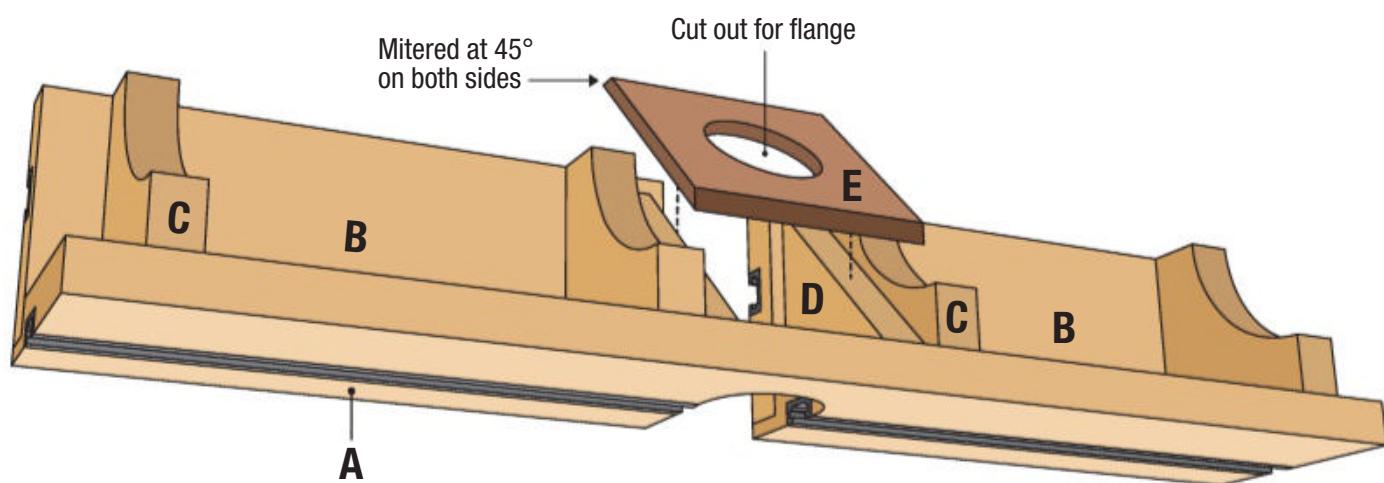
**6-7** Glue the fence faces to the base. Use right angle clamps to ensure that the fence is 90° to the base.

# Dust Collection Fence



## Cutlist

No.	Items	Dimensions (in.)
T	W	L
1	A Base	3/4 22 4
2	B Faces	3/4 10 3 1/4
4	C Braces	3/4 3 1/4 3 1/4
2	D Angled braces	3/4 3 3
1	E Flange	1/4 4 4 1/2



**8** Transfer the port hole size and shape to the flange.



**9** Drill out the waste with a large diameter Forstner bit.



**10** Cut away the rest of the waste with a coping saw.



11

**11** Mark a radius on one corner of a brace. The radius size does not matter, nor does it matter if it's a roundover or a cove.

**12** Cut the entire stack of braces at once. Make a smooth flowing cut to make smoothing them out easier.

**13** Smoothing out the curved surface is easily done with a spindle sander, round rasps, or sand paper wrapped around a piece of PVC pipe.

### Braces

A standard L-shape is a perfectly functional way to build a fence. However, to guarantee years of accurate use, I added several braces to the back side of the fence. Looking at the drawing on page 57, you'll see that there are two different braces. A pair of angled braces support the collection flange. The remainder of the braces are spaced evenly across the back of the fence. If you're making your fence longer, you may want to add more than the 4 braces I show here.

The angled braces are simply cut corner-to-corner at a 45° angle. I cut these on the band saw, and then smoothed out the cut with a block plane. The curved supports take just a bit more work. I started by tracing an arc on one of the braces. The diameter is exactly the same as a 4lb can of Durham's Water Putty. I don't know the radius, and it doesn't matter. Just mark an arc.

With having a total of four braces, I stuck them together into a stack with double-sided tape. Then, I cut the stack at the band saw, following the line as well as I could. A quick trip to the spindle sander smoothed out the entire stack before I peeled them apart.



12



13



**14**



**15**

## Attaching Braces

Attaching the braces to the fence is a two-step process. First, the angled blocks need to be glued to a pair of the braces. You can see this in photo 14 above. If you want, you can shoot a few small pin nails to attach the two together while the glue dries.

Now, all of the braces can be glued to the fence. As you see in photos 15 and 16, the braces with the attached angle blocks are glued on either side of the notch in the base. If needed, use the flange as a spacer to space these out. The other pair of braces are installed on the left and the right of the fence. Clamping them can be a bit tricky — the end braces can be clamped straight across the corner. The middle ones may need a pair of clamps — one on each end. Here again, you could shoot a few pin nails if you want. However, I'd avoid screws as you'll be cutting a few grooves in a bit and you don't want to nip into them.

## Long Wearing Faces

The final two things to do before putting the fence to work is to laminate the faces with laminate, as well as add a few pieces of



**16**

**14-16** The mounting point for the dust collection flange is a pair of angled blocks. These are glued to a pair of the braces. Position these so that they are spaced correctly for the flange to fit between.

**17** Clamp the braces into place and let the glue dry. A pair of clamps on each of the middle braces, and one on the ends should do.



**17**

## Dust Collection Fence



18



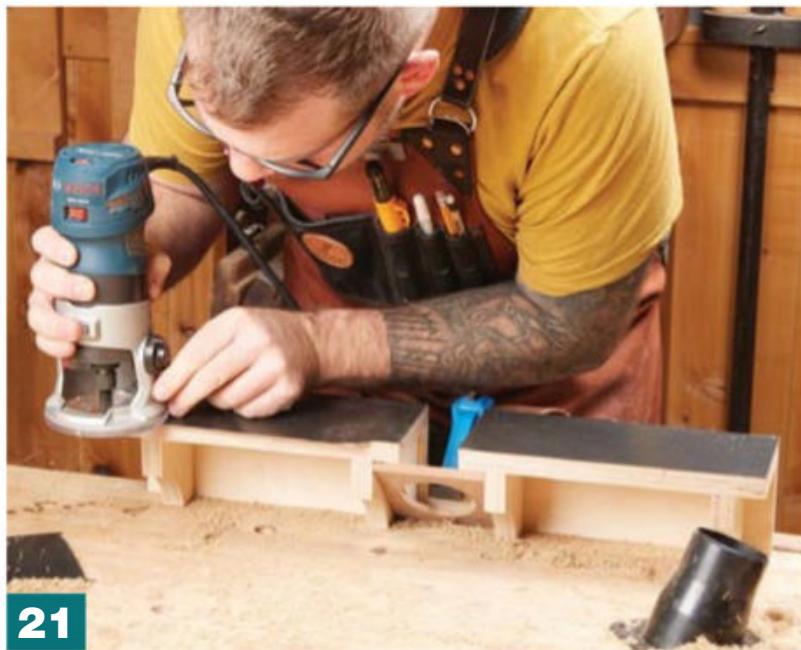
19

**18-19** Brush a layer of contact cement on both surfaces that are to be bonded together.

**20** Test the laminate to see if it's dry. If your finger makes a squeaking sound as it's rubbed across it, the cement is dry. Bond the two surface with firm downward pressure.



20



21



22

T-track to help attach the fence to your tool of choice. Let's get the laminate added first.

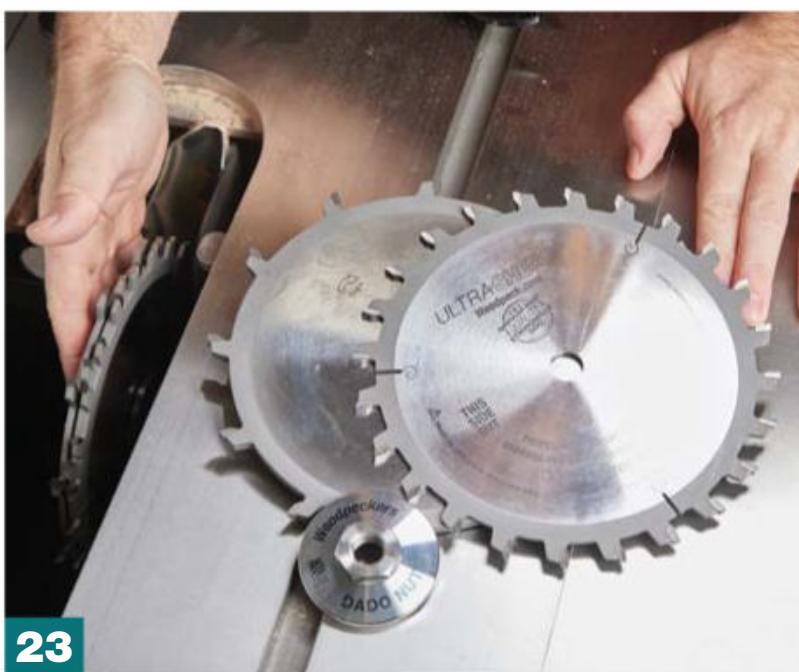
If you've never worked with plastic laminate, it's pretty straight forward. I prefer to install laminate with contact cement. Brush a healthy coat on both surfaces that are being mounted together. In this case, it's a layer on each face as well as the two

pieces of laminate. With contact cement, you need to let the two surfaces dry to the touch before sticking them together. Be careful positioning the laminate—once the two dried surfaces of contact cement touch each other, they bond instantly. Use your hand or a J-roller to roll them out and make the bond permanent.

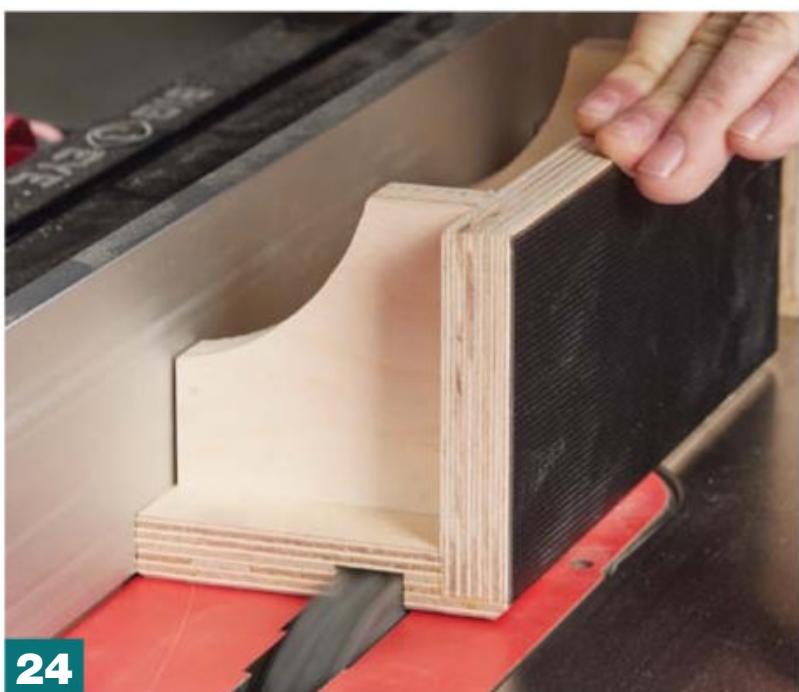
The overhanging edges of the

**21-22** Use a flush trim bit to trim the laminate before routing a chamfer all the way around the laminated surface.

plastic laminate can be trimmed down using a flush trim bit. (You can buy bits to trim plastic laminate, but I think for occasional trimming, a flush trim bit works



**23**



**24**

**23-24** Install a dado blade the exact width of the T-track. Make test cuts to dial in the fit before cutting a groove in the face and the base of the fence.

just fine.) Before addressing the T-track grooves, run a chamfer bit all the way around the faces of the fence. The purpose of this is two-fold. First, it helps keep the edge of the laminate from catching during use and peeling up. Second, it provides dust relief along the base of the fence.

### Buried T-Track

As the fence sits, it's fully functional. A pair of clamps across the base will mount it to whatever

tool you'd like. However, the addition of a couple of runs of T-track will increase the user experience ten-fold.

Installing T-track is an exercise in making test cuts and fitting. I cut a pair of grooves in the fence—one across the faces that will work for attaching stop blocks and the like. The T-track that is installed in the base is for a pair of T-track clamps. These make attaching the fence to a tool a bit more convenient. Set up a dado



**25**

**25** Use short screws to attach the T-track without poking through the plywood.

**26** The final task is to attach the flange and dust collection port to the angled braces with a couple of long screws.



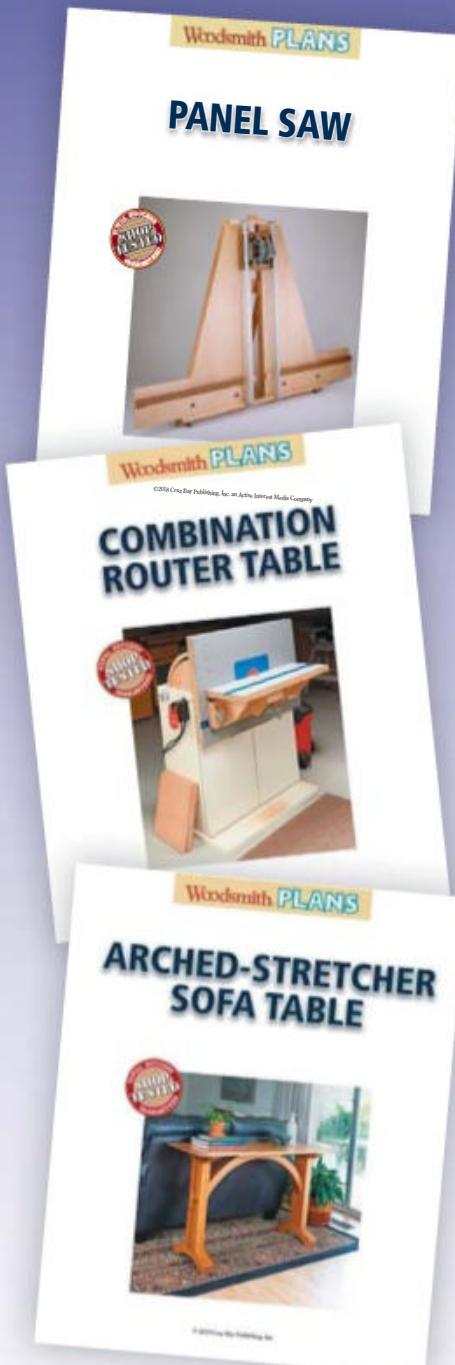
**26**

blade in the table saw, and cut the groove on both faces. Attach the T-track in place with screws (make sure they're short enough so they don't poke through). Finally, add the dust collection port and flange.

If you want to add a bit of storage to the fence, the area between the braces makes a great location for blocks to store drill bits, drum sanders, or router bits. A quick shot of lacquer and the fence is ready to go to work.

**PW—Logan Wittmer**

# Woodsmith PLANS



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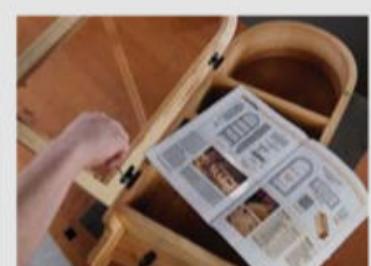
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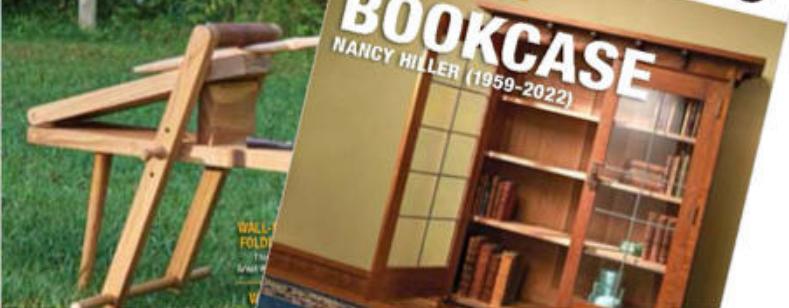


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### GUEST SPEAKERS

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# ThermalWood

By Logan Wittmer

ThermalWood Canada is offering specialty material to woodworkers all over the world, including an ebony alternative.

One of my favorite woods to use is ebony. This dark wood turns beautifully, takes a polish, and holds crisp detail. Plus, no matter what you make, it always seems a little “extra” being made from ebony or having ebony accents. However, one of the biggest issues with ebony is its availability. It’s a controlled material, the harvesting of it is a point of contention, and it’s expensive.

*ThermalWood Canada* is offering woodworkers an alternative to ebony, in a material they’re referring to as Obsidian Ebony. Obsidian Ebony is torrified maple —maple that’s been thermally modified before being infused with resin. By baking the maple in a large, oxygen deprived oven, the cellular structure of the wood changes. Not only does it get darker in color, but it also becomes more water resistant —the cells of the wood don’t like to soak up water like they did before the baking process. It makes sense that, when you look at the ThermalWood Canada’s website ([thermalwoodcanada.com](http://thermalwoodcanada.com)), that a lot of their offering is thermally modified outdoor material —siding, decking, etc.

So, how does Obsidian Ebony compare to the real deal? Well enough that I have to give stuff a real hard look when I’m pulling it out of my lumber rack. Obsidian Ebony has color all the way through, and the weight is very similar to ebony. The only noticeable difference is that the grain shows up ever-so-slightly before finish is applied — you

can see it a bit in the photos to the right (the top image is real ebony for comparison’s sake).

Working with Obsidian Ebony is almost identical to real ebony. It can be chippy — which is an unfortunate characteristic of ebony. In fact, a few issues back, I showed how to do inlays with the *Shaper Origin*. The black material in that article was Obsidian Ebony. The material, once finish is applied, turns jet black and is indistinguishable from ebony.

ThermalWood Canada offers Obsidian Ebony in various sizes, including some sized specifically for luthiers building guitars. You can find out more about it on their website [thermalwoodcanada.com](http://thermalwoodcanada.com). PW - Logan Wittmer





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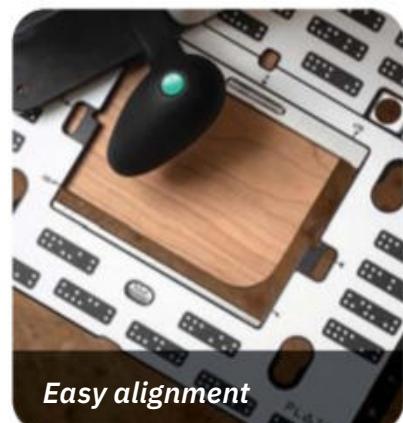
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