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**SMALL SHOP
ESSENTIALS**



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TESTED:
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ROUTER**

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JOURNEY:
SHARING SPACE**

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QUOTES:
SETH CHRISTOU**



ISSUE #132
JUNE/JULY 2021

CANADIAN Woodworking & HOME IMPROVEMENT

WORKING IN A SMALL SHOP

2021 EDITION

- **Ultimate Crosscut Jig** p.28
- **Removable Band Saw
Support Table** p.24
- **Universal Table
Saw Sled** p.54
- **Overhead Table
Saw Guard** p.42
- **Quick and Easy
Mitre Saw Stand** p.14

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THE POWER OF WEDGES

p.16

TOP 10
Tips for
Great Shop
Organization
p.10



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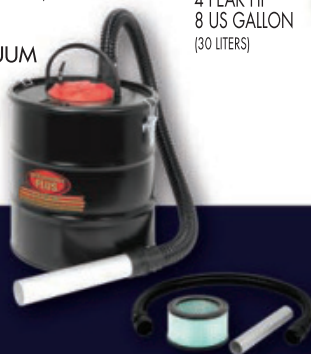
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Simple, yet so functional. Learn why you should make and use wedges in your shop.

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Few table saw additions are more versatile and accurate than a good crosscut jig.

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Check out these great products that will make working in a small shop more productive and enjoyable.

54 Universal Table Saw Sled BY BRIAN DONAIS

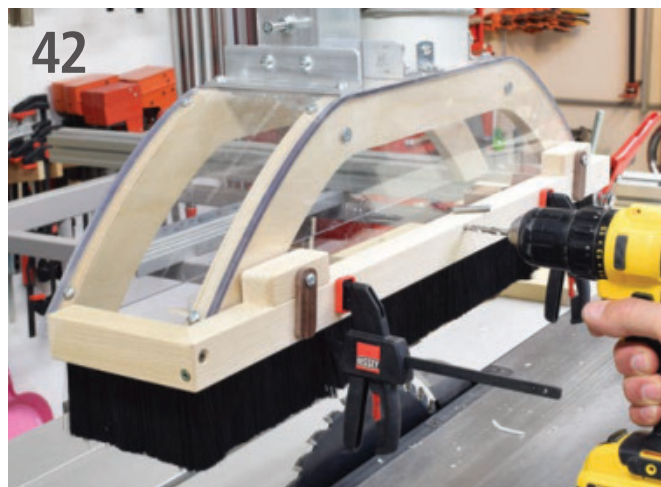
Work safely and more accurately with this universal table saw sled.



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editor's letter

11th Annual “Working in a Small Shop” Issue

When we put out our first “Working in a Small Shop” issue 10 years ago I hoped it would ring a bell with our readers, and give woodworkers of all stripes a few tips on how to get the most out of a small space. Within a few days of it hitting the newsstands our former publisher, Paul Fulcher, called to say he thought we should continue this theme once a year, as he was getting a lot of compliments about how the issue spoke to our readers.

The thought of working in a huge, well-outfitted shop is a romantic notion, but it's not reality for the majority of our readers. Working in a corner of the basement, or sharing a detached garage with a car, ladders, bikes and a bunch of lawn-care equipment is where many woodworkers in Canada are building things. And I love them for it. Doing whatever they can in order to eke out a bit of space to call their own is a worthy endeavour, and one I hope every woodworker can succeed at. Having heaps of space is great, but if you don't have that luxury, there's still hope.

Knowing how to use tools and machinery correctly, and how to get the most out of them, is a critical skill to have. Adding jigs and fixtures to machines will make working safer, and more accurate and efficient. In this issue, there are five articles on making shop fixtures or jigs to help you work more productively on many different machines. There's an article on the power of wedges, which includes a few simple projects you can make to help improve your time in the shop. We've also included much more information that will make your small shop feel like it's a lot bigger.

As Brian Johnson, lead singer of the rock band AC/DC, said, “For those working in a small shop...we salute you.” I'm paraphrasing, of course, but I think we all know folks making the best of a small workshop are to be commended for their ingenuity and determination.

I salute you all for spending time in your shop, no matter how small it is.

— Rob Brown

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letters

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Hi Rob,

I got the recent issue of CW&HI and on page 63 saw the headline “Shop Project Boards and Dressed Lumber from KJP.” Millimetre by millimetre I have been renovating my 70-year-old built-in kitchen cabinets. One of my tasks was to get rid of the two badly mauled plywood cutting boards and replace them with some hardwood cutting boards. But how do I do that? I went to the KJP website and saw their kits of dressed hardwood suitable for laminating into a cutting board. I ordered three kits to build my two pullout cutting boards. Now I need to carefully sharpen the blade in my smoothing plane so I can properly clean up after the gluing and clamping step.

KJP has a lot of interesting wood and they're willing to ship to my door. Maybe I will have to buy a jointer.

I also enjoyed your router articles in which you pointed out a few things that I learned the hard way. It's nice to have my perceptions confirmed. I learned for the first time how a router lift works. I had no idea! I bought a much smaller, newer and lighter Ryobi router for freehand use. It's a lot more pleasant to use than my big, old Rockwell was.

I always look forward to reading your magazine.

James G.

Via email

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Stephen B.
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St. Mary's, ON
has won a \$250
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Pint-Sized Workbench

Hello Carl,

I have a couple of questions about the pint-sized workbench project (June/July 2014) you wrote about. Is this something a beginner would be able to build? I'm just getting into woodworking, so I'm a novice and need to build up my knowledge. Secondly, do you have your wood for this project pre-cut or do you buy bulk, and if so, how much ash wood did you purchase?

Ray L.

Via email

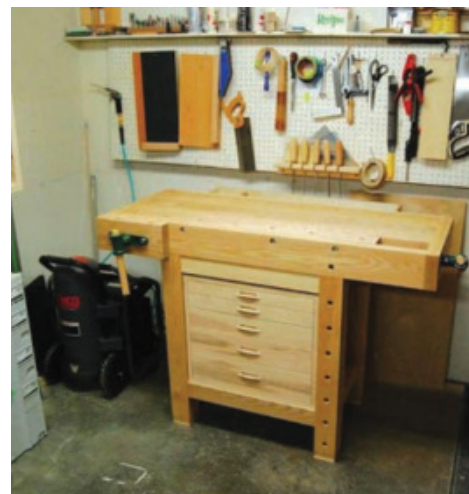
Hi Ray,

Sure, a beginning woodworker certainly can build this workbench. You want to take your time, and make sure you understand each step in the build process. And don't be afraid to change or improvise. I used dowels to join the braces to the legs, but you could bolt them together or use mortise-and-tenon joinery. You can easily change the dimensions to make the bench larger (or smaller). I buy my lumber rough and mill it in my shop.

If you lack the machinery to do this, you can ask your local lumber dealer to mill the parts for you. I'm not sure exactly how much material I used (I purchase it in large quantities as I use a lot of it) but estimate around 50 board feet.

All the best in your build, Ray. Send me a photo of the bench when it's done!

— Carl Duguay, Digital Editor
CW&HI



From Poland, with Thanks!

Hi Rob,

I'm a distant subscriber in Poland, and I just started some basic woodworking a year ago. Your recent necklace stand article (“Make a Necklace Stand,” Dec/Jan 2021) inspired me to make one for my wife, and after few horrible trials I made

it! Probably not even close to your standards, but she seemed to be very happy with that gift, so thanks again! I made it out of mahogany and put on some antique wax that delivered greyish streaks to make it appear older.

To be frank, the biggest challenge for me was to arrive at a proper shape for the heart. My workshop is still a developing project, hence the absence of a band saw, which is still on my shopping list. I used a jigsaw, which resulted in wasting some nice pieces of wood before reaching the acceptable shape.

I tried some power carving on the surface, but I mostly worked with curved chisels.

I have to admit that your idea of making a form and a caul for bending was an excellent one, otherwise I wouldn't have known how to do it.

Generally, I find your descriptions very useful, enabling greenhorns like me to follow along relatively easily. However, we use the metric system so some of your imperial measurements are not so obvious.

Many thanks, and greetings from Poland!

Maciej B.

Poland

Hi Maciej,

Thanks very much for sharing your necklace stand with me. I think it looks great! I'm sure your wife will be very happy with it for years to come. Learning to work wood, and having the money to build up a great workshop, takes time. Stick with it and you'll be rewarded with the skills and tools needed to make many more pieces of furniture and other wooden objects.

—Rob Brown, CW&HI Editor

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Japanese Hand Saws

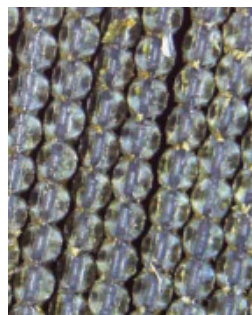
Japanese saws (nokogiri) are available in a wide range of styles and configurations with names that you may not be overly familiar with, such as dozuki, kataba, ryoba and kugihiki. We'll give you an overview of the most common styles of Japanese saws used in western woodworking shops.



Hatchets

Hatchets are mini versions of axes, usually under about 20" long and between one and two pounds in weight. Because they have shorter handles and lighter heads, they deliver less chopping power than axes. However, they're lighter, making them easier to carry around and less tiring to use. Typically used one-handed, you can use your free hand to hold or steady whatever you're cutting. For light chopping, splitting and shaping a hatchet is hard to beat.

Find more new products at: canadianwoodworking.com/reviews

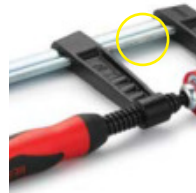


Micro Mystery

Can you guess this object commonly found in most shops?

Follow us on Instagram to see regular Micro Mystery challenges.

We will post the answer to this one in our Aug/Sept issue.



Previous issue:
Clamp bar texture



Best Build

Check out the **Woodworking** section of our forum for our latest "Best Build" thread – a piece of intarsia wall art. This month's winner, Louis Turgeon, wins a **Gift Certificate** from Lee Valley.



To find out more about this project, go to: forum.canadianwoodworking.com or simply go to CanadianWoodworking.com and click **FORUM**.

Free Plan

A Sawhorse: How to Build a Silent Partner

We don't have to tell you how handy sawhorses are in the shop. They act like silent partners, assisting us whenever we need support.



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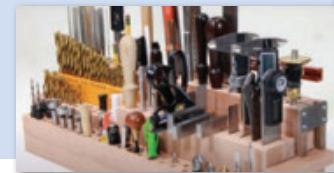


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Canadian Quotes:
Seth Christou

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Forum Thread

Check out these home improvement threads and many others at forum.canadianwoodworking.com

- **Enlarge Basement Windows** – A member was considering cutting his concrete basement wall to allow a new window to be installed, but they weren't sure it was a job they could do themselves. Other members offered some good advice on the situation.
- **Basement Subfloor Issues** – One of our forum members was having trouble with his concrete screws constantly stripping when he tried to install them. Our members brought up a few new options to solve the problem.

Got a question? Join our forum so you can ask our skilled and experienced members any home improvement question you like. It's free, and is just a click away.

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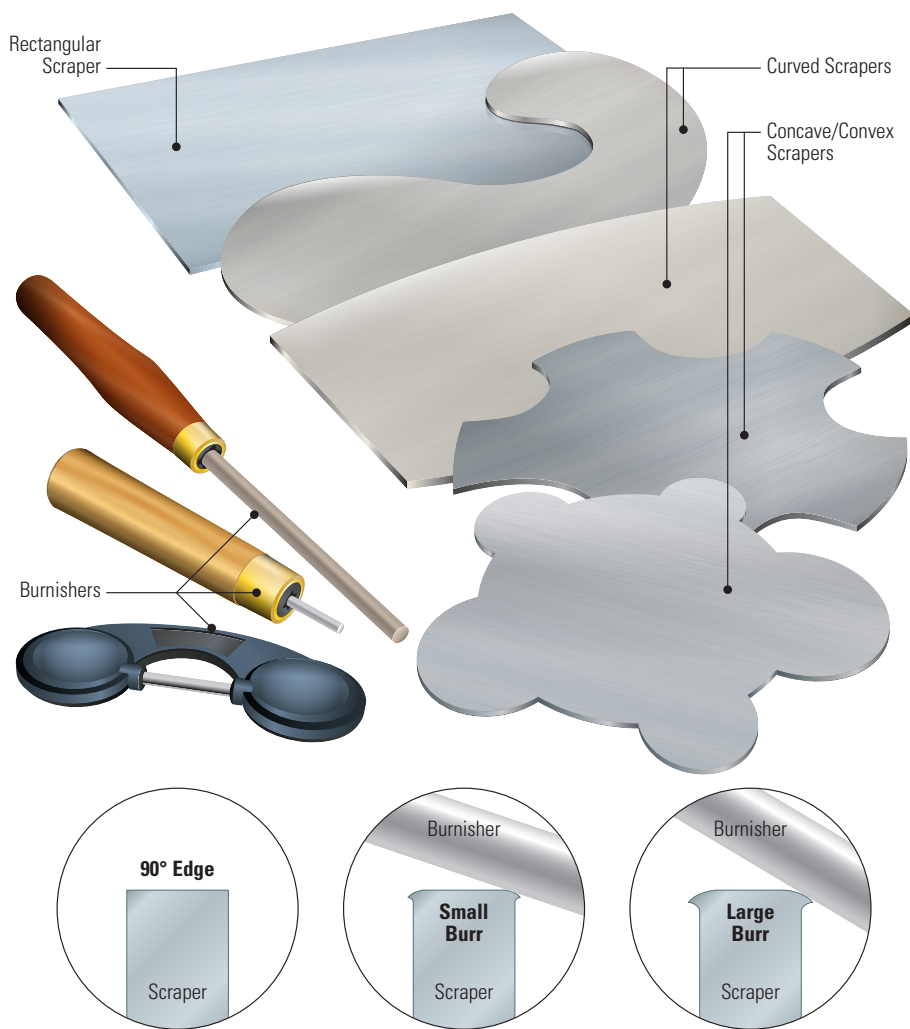
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Card Scrapers and Burnishers



A very simple tool, the edge of a **card scraper** is pressed against the wood's surface and moved across it, creating a shaving. In use, a scraper is flexed by the user to focus the pressure of the cutting burr on a narrow portion of the work-piece. If dust is the result of using a scraper, it's not sharpened properly. It should cut with relative ease once sharpened. Though a 90° edge can be used for very light wood removal, a **burnisher** is needed to create a hook on a scraper's edge. The larger the hook, the heavier the shaving that's removed. A very large hook on a thick scraper can be used to remove paint. Generally speaking, the thicker the scraper, the heavier the work it's intended for. Also, the more flex a user applies to a scraper, the heavier the cut. Burnishers are available in a variety of styles, lengths and diameters, depending on the size and shape of scraper you're sharpening. Accessories can include **files** (for creating an even, square edge that a hook can be added to with a burnisher), hand-held **scraper holders** (which flex the scraper and are easier on the user's hands) and **jointer/edger tools** (to assist with obtaining the initial square edge). Hand tools very similar to hand planes and spokeshaves are also available to hold a scraper. Putting in the time to practice sharpening your scraper will pay off down the road. A dull scraper is of no use to anyone.

Price: \$5 to \$15 (scraper), \$15 to \$60 (burnisher)

Card scraper thickness: 0.010" to 0.042"

Card scraper shapes: rectangular, slightly curved edges, heavily curved edges

Get the Most Out of Your Scraper

Learn How to Sharpen

Sharpening a scraper isn't at all like sharpening other woodworking tools. Learn the proper techniques and you'll be well-rewarded.

Sharpen It

A dull scraper is useless and maddening to use. Now that you know how to sharpen it, you've just got to spend the time when needed to actually sharpen it.

Not So Soft

Softer woods don't react well to a scraper. The wood fibres just flex out of the way when scraped, and the wood's surface is just compressed slightly.

Protect Them

Once sharp, a scraper should be stored so it doesn't bang around with a lot of other metal tools, prematurely dulling the cutting burr or even damaging the scraper.

Variety Is Good

Scrapers are often rectangular, though it's easy to find them with varying degrees of simple or complex curves on their edges for smoothing convex and concave surfaces.

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Tips for Great Shop Organization

We all need more shop space, but another approach is to make better use of what we have.

BY ROB BROWN

1 Get Rid of What You Don't Need – Be ruthless. Whatever you don't need really has to go. There's no sense saving a million small scraps if you don't have the space to turn them into something. And tools and machinery, too. If you don't use them, sell them or give them away.

2 Figure Out What Type of Work You Do – If you plan on making large wall units and kitchen cabinets, yet only have 150 square feet of space, you've got to specifically set up your shop for that. Keep the work you do in mind when making purchases and organizing your shop.

3 Consider Storing Some Items Elsewhere – I don't want you to get in trouble with your spouse for monopolizing the basement, too, but if there's a seldom-used tool or machine that could live there while not in use, or some extra materials you could store for later, I'd start eyeing the basement or other areas.

4 Look Up – Storing materials like solid wood and long strips of sheet goods up high may free up some much-needed space around benchtop height. Power tools, clamps and other items can also be stored above, as long as everything is secure.

5 Build Cabinets and Shelves – A bit of dedicated storage will go a long way to keeping things organized in general, as well as storing things up high, out of the way.

6 Look for Small, Unused Areas – Whether it's under your workbench, table saw, mitre saw or lathe, those small, dead spaces that go unused are great opportunities. No need to try to cram large items into small spots, as they will be frustrating to get out. Instead, use these small spaces to store small items.



7 Off the Floor – I find keeping as many items off the floor as possible is a great way to streamline organization and keep my shop clean. Sweeping is easier, things aren't falling over and shop life is just better.

8 Considering a Table Saw? – There's no question that a table saw can take care of a lot of shop tasks, but it also takes up a lot of space and isn't easily maneuverable when you need to shift things around. Deciding on whether to center your work around a table saw or forgo one in favour of a track saw or circular saw jig for cutting sheet goods, and tools like a router, Domino or hand tools to take care of the rest — and save all that space — is an important decision.

9 Expand Outdoors? – Although not feasible for even the hardest Canadian during the winter, doing some of your work outside the shop is an option for at least half the year. There are obviously pros and cons, but even building a roof structure overhead would go a long way to making this option work quite nicely.

10 A Spot for Everything – This is one of those things you hear all the time, but only because it really works. Even going as far as having a hook on the wall for your shop apron (you do wear one, right?) will keep your shop safer, tidier and more efficient.

ROB BROWN

rbrown@canadianwoodworking.com



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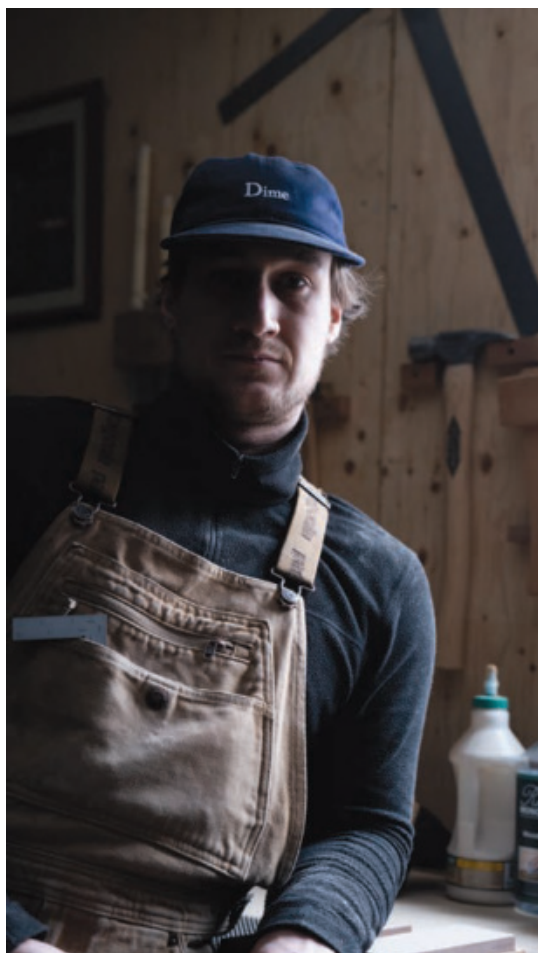


SINCE 1958

Seth Christou

...on sketching, woodworking books and cringing at his past designs.

BY ROB BROWN



How long have you been building furniture?

Built furniture as a personal hobby for a long time; started Peyto Designs as a full-time career in 2020.

What sort of furniture do you specialize in?

Tough question. Not fine furniture, but not cheap furniture. Just quality, hand-made furniture. I am most passionate about creating design-forward seating.

Tell us a couple interesting things about your personal life.

I like to skateboard and I've recently taken up bowhunting. My partner and I had our son in October 2020, so at the moment my schedule is fully booked at all times.

If you were not a furniture maker, what would you be?

I think I would pursue a career in architecture.

In order, what are the three most important items in your shop apron?

Combo square, marking knife, folding ruler.

Do you prefer hand tools or power tools?

Both have their place. I think you need both to be well rounded. I have to say I do love the simplicity of a hammer and chisel.

Solid wood or veneer?

Solid wood.

Figured wood or straight grain?

Figured.

Inherited Vintage Stanley Sweetheart or fresh-out-of-the-box Veritas?

Damn, people are going to hate me for this. Veritas. Those things are great.

Flowing curves or geometric shapes?

Flowing curves.

Favourite wood?

American black walnut.

Least favourite wood?

Maple.

Coffee Table – Built for a client, this black walnut coffee table design has each leg offset from the end of the table at a different distance so it's not symmetrical.



Photos by Seth Christou

Seth Christou, 27, Peyto Designs, peyto designs.shop

Location of studio –Shop located in Calgary, Alberta

Education – Self-taught

quotes

My studio is bright! I've put lots of hours in there. I'm positive I spend more time there than anywhere else. I'm outgrowing it now, so I'm currently moving to a bigger space.



I get up early and spend the mornings doing computer work and replying to emails, and then I head into the shop. I also work late.



I would say my Laguna BX band saw is my favourite machine. I spend a lot of time in front of it. I have also become really fond of the Festool system. Lastly, I use a lot of jigs and do a lot of pre-planning on Fusion.



There are so many places to get inspiration from. I study a lot of older work like Juhl, Wegner, etc. My home is full of books on chair design. There is nothing better than the feel of a physical book in your hands. I think that sentiment is lost these days with all of the e-reading.



I rough sketch a lot. I try to draw one new piece a day, or at least think of new ideas. I use Procreate on my iPad with a pencil and then take that into Fusion.



I like to make three different designs based on the original concept/design, which allows me to expand and develop the design before starting to build it.

My number one piece of advice for new woodworkers is don't be afraid to revise designs and to draw up some crazy funky pieces. They will evolve into something unique that reflects your personality.



Looking back at some of my early pieces I cringe, but then I'm also fascinated by the progress and evolution of my designs.



I absolutely despise the "live, love, laugh" river table / epoxy cutting board trend.



I try to make sure I'm giving updates to my customers frequently. I think one of the most important parts of running a successful business is creating an excellent customer experience.



I think a mentorship program for young woodworkers would be amazing. I also think we need to create awareness around the fact that working for a big corporation is not the only way to provide for your family. If you are passionate about something and stick with it, the money will come.



There are so many great Canadian makers. Mobius Objects here in Calgary rules. Gavin Goodall and Owen Crane, both out of Vancouver. Christian Woo, as well.



Jory Brigham's Hank chair is one of my all-time favourites.



Chairs and Stool – Christou found the white oak posed certain challenges while template-routing many of the parts to size and shape, as it's prone to tear-out. This project saw Christou make a total of 10 chairs and stools.

My partner, Julia, has had the biggest influence over my work. She's the brains behind everything. None of this would be possible without her support.



I've always liked designing new things and being able to work solo.



Being able to be creative and original is the most important thing to me. You see a ton of companies starting up and just building the same thing that the last guy built. Like how many times can a blue epoxy table be "original?"



The design comes before the material.



I like to design before I build. That way the mistake part of woodworking is reduced significantly. When you're using solid wood, mistakes are expensive.



Aspiring woodworkers should just get into the shop and experiment.

ROB BROWN

[rbrown@](mailto:rbrown@canadianwoodworking.com)

canadianwoodworking.com



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SLIDESHOW: To view a slideshow of Christou's work visit the Videos section of our website

Build a Temporary Mitre Saw Stand

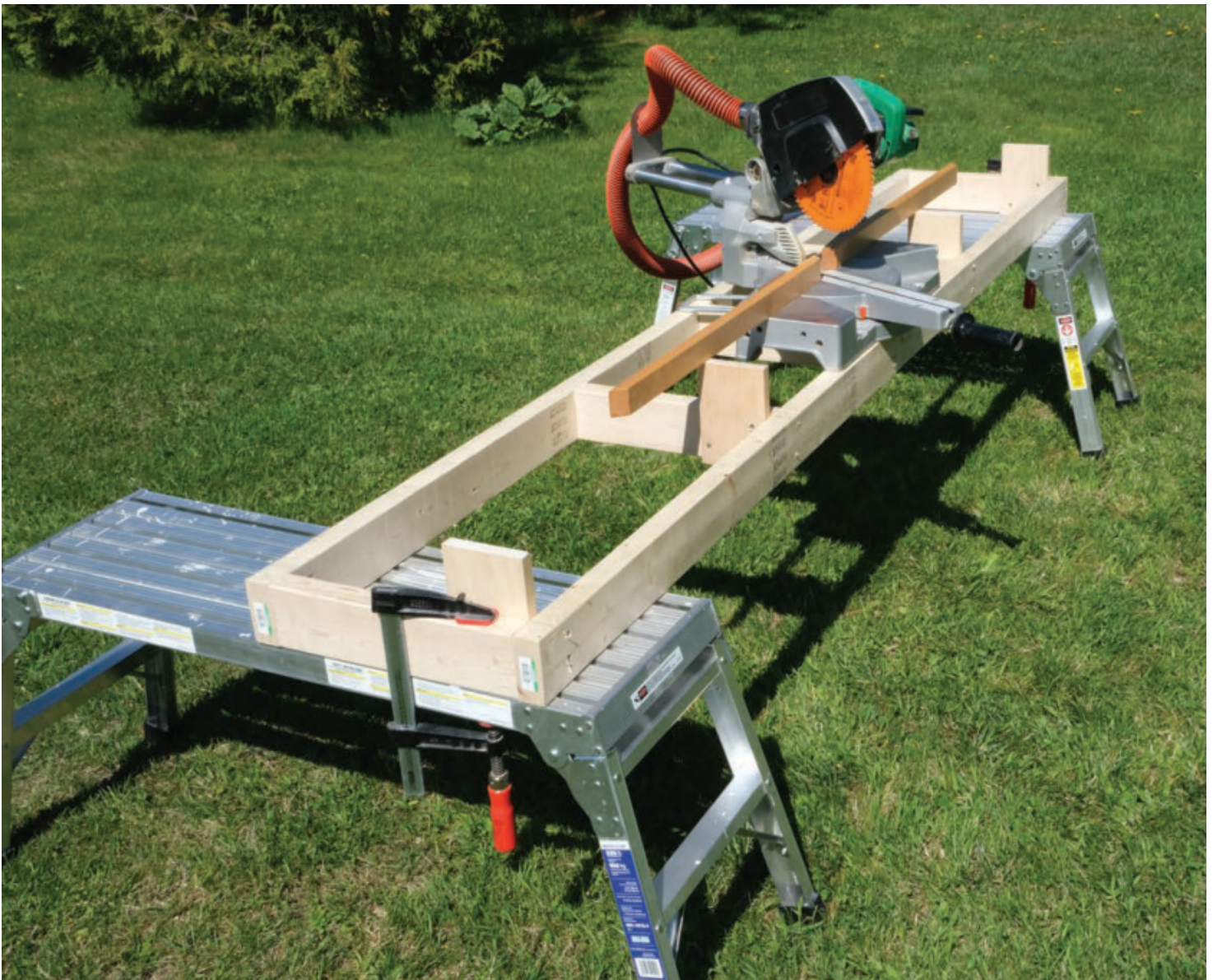


Photo by Mark Salisbury

A few 2 × 4s are all you need to make this quick and temporary mitre saw stand for your next trim project. Your back will thank you.

BY MARK SALUSBURY

When trimming a reno site, I needed a quick, cheap, temporary base to support my mitre-saw so I could tame baseboard, quarter round and other stock mouldings, some 16' long and often at the extreme ends. My solution was to use three 8' long 2 × 4s to make a super-simple workstation I could clamp to some on-hand work stands.

The 8' rails were fine, but I would have used 10' or even 12' rails for extra support if I had had them. The length of the spacer blocking to fit between the rails was determined by the

depth of the mitre-saw base and the screw-hole locations for fastening the saw down. The center of the holes was equal to the center-to-center distance of the long 2 × 4s. Just like assembling a stud wall, the rails were screwed to the blocks with 3" construction screws.

Once assembled, clamped to stands and the saw fastened centrally, I measured the height of the saw's working surface above the top surface of my support assembly (3" for me), added the width of my support stock (3-1/2"), and cut blocks from scrap wide enough to support the trim I was preparing to cut. Two or three on each side of the saw supported even floppy quarter round. Short +2" × 2' long auxiliary fences suited my needs, but could have been longer or taller as required to offer adequate support for the stock to be safely and accurately cut.

Once the job was over, the parts were unclamped and disassembled, the screws went back in the tub and the 2 × 4 lumber was set aside for the next build.

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The Power of Wedges

The simple yet powerful wedge has been around for more than two million years and is still useful in the world of woodworking. The sharp end dives right in and with a few blows on the blunt end you can either split a log or seat something nice and tight. Using a wedge for wooden hand planes, clamping wood panels, holding workpieces and securing sandpaper is just the beginning. Let's make a bunch.

Photos by Steven Der-Carabedian

BY STEVEN DER-GARABEDIAN

They're everywhere you look. I'm talking about the simplest tool of all — the powerful wedge. Just take a look around. An axe works very well due to its wedged-shaped head. I use wedges when I make hammers to make sure the head doesn't fly off. If you've ever made a Krenovian-style wooden plane, then you've made a wedge to hold the blade tight to the rear ramp. In fact, take a look at the bevel of the blade. Remind you of a particular shape? They're also used to lock in joinery, such as a wedged mortise and tenon or a tusk tenon. A wedge is also used to hold the lid shut on a Japanese-style toolbox.

It's not just in the shop, either. My parents used to place those hard rubber wedges on the floor to hold doors open. Wheel chocks stop trailers, cars and even airplanes from budging an inch and are in the shape of a wedge. Should I even mention the power of potato wedges or a wedge of delicious cheesecake? I apologize, it's almost lunch time.

Making wedges

Wedges can be shop-made several ways. You can chop a few, but make sure you have a sharp edge, unlike the rusty one on my axe. More practical is a small hand saw or, better yet, a band saw.

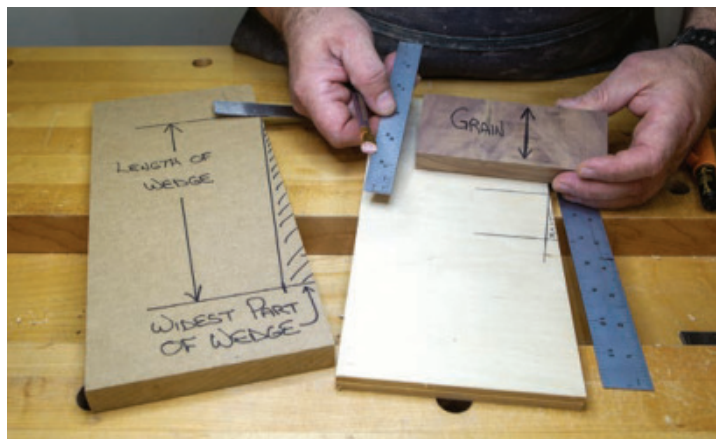
For the sanding block and small parts vise below, I used a longer-than-needed piece of wood and slowly cut it free-hand on the band saw. For all others I like to use the jig as shown below, and in a video you can find on the CW&HI website.

A bit of band saw work

Use a piece of MDF or plywood roughly 12" long × 6" wide and around 1/2" or 3/4" thick with the long edges parallel. On one long edge of your jig, draw two lines using a square that are separated by the length of the wedge that you want. On the lower line, place a pencil tick as to how thick you want the wedge to be on its blunt end. Join this tick line to the upper line at the edge. You now have a picture of your wedge.

Head to the band saw with your new jig and bring along a piece of 1/8" thick hardboard and some blue masking tape. The hardboard should be approximately the depth of your band saw table and about 3/4 as wide. Cut out the wedge. While the cuts don't have to be perfect, take your time and get as close to the shape as you've drawn. In order to get good results, we need this side to brush against the blade. You can adjust the fence back and forth, but what I find easiest is to turn the jig around and set the fence to cut about 1/4" off the blank end. Complete the cut and when the jig is turned back around it will line up perfectly.

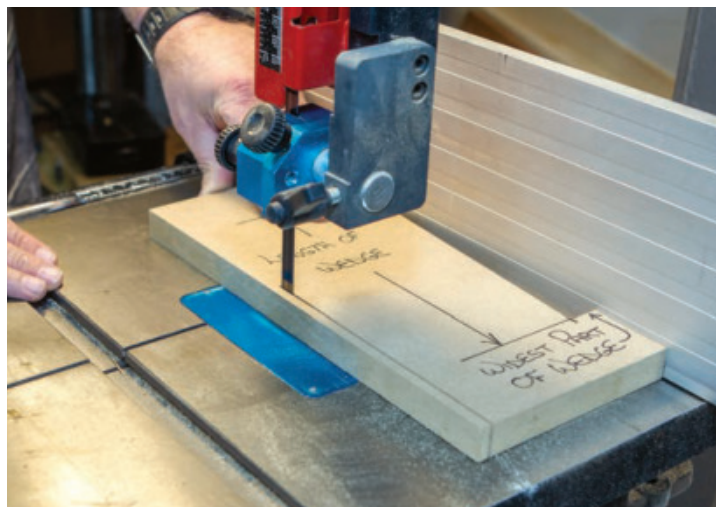
It's unlikely large wedges will slip into the throat plate opening, but small pieces will annoyingly drop in and jam, forcing you to stop the band saw and clear them. Make your own zero-clearance insert with a piece of thin hardboard. Since the fence is now locked in position, cut about halfway into the hardboard. You can use clamps, but I find some strategically placed blue tape is more than enough to stop it from moving.



Start with a Jig – Although there are many approaches to making wedges, Der-Garabedian's first step is to draw the wedge shape in full size. Keep in mind the grain of the wood must run the length of the wedge to be strong.



Pretty Close – Although you don't have to be perfect, cutting your jig straight will go a long way to creating good wedges.



Trim the Jig to Size – Der-Garabedian rotates his jig, then references off his band saw fence while cutting it to size. He then leaves the fence locked in the same position. This means the jig will cut a piece of solid wood to the correct wedge shape and size when the jig is rotated back to its standard position.



Zero Clearance – Although not always needed, a thin sheet of hardboard taped to your band saw table will stop any small wedges from getting caught in the blade and throat.

Take stock

It's important to cut your wedges with the long grain running down their length. Cutting in the opposite direction creates weak wedges that will easily break. Mill up your stock to the thickness required and cross cut the stock to the length needed. Keeping the jig against the fence and pushing the stock against the jig, cut your first wedge. In order to keep producing long-grain wedges, flip the stock over and repeat. Keep doing this until you've got enough wedges for your job or the stock gets too small and your fingers get too close to the blade. Wedges of any practical size can be made in this manner.

Putting wedges into action

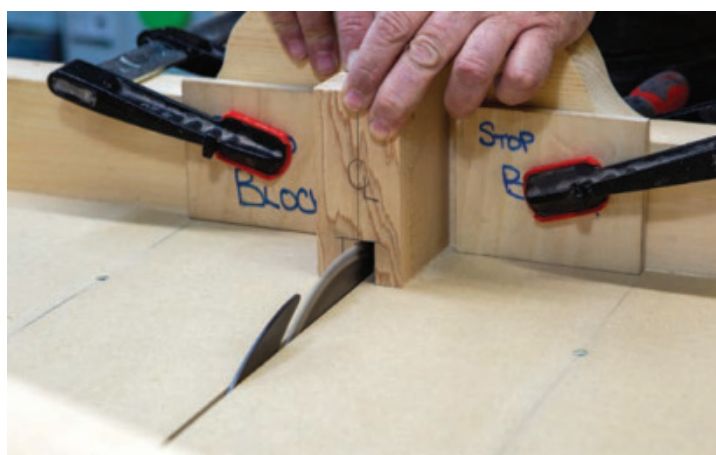
Here are a few simple shop projects that showcase the simplicity and power of a wedge. Sanding blocks are very useful in the shop and shaping them like a wedge will ensure they get into almost all spots. I like to make my own handles and knobs for box lids and drawers but holding small pieces can be a challenge. How about a small vise made with nothing more than a dowel, a wedge, washers, a nut and bolt? You know the saying, "You can never have enough clamps." How about a "wedged" solution? Finally, a really simple, neat trick to be able to use your thickness planer as a wide jointer.

Sanding block

Sanding blocks are great in the shop as they are easy on the hands and when sized right will use just the right amount of sandpaper. Start off with a block of hardwood that's 4-1/2" long x 3" wide x 2" thick. Cut a groove centered on its width 1" deep and 3/4" wide. Find the center of this groove and drill a hole approximately 1" deep to be able to drive in a 1/4"-20 threaded insert. In my case, the insert called for a 3/8" hole. However, because I used hard maple, I ended up sizing the hole a bit bigger at 13/32". Drive in the insert about 1/8" below the surface. On one side of the block, draw the desired shape and cut it out on the band saw. Using hand planes, files or sandpaper, smooth all surfaces and round over all sharp edges. Trace the shape of the opening for the wedge onto some appropriately sized material, and once again cut and smooth this using whatever tools you have and are comfortable with. The fit doesn't have to be absolutely perfect but take your time and come somewhat close. Drill a 9/32" hole in the wedge to be able to use a

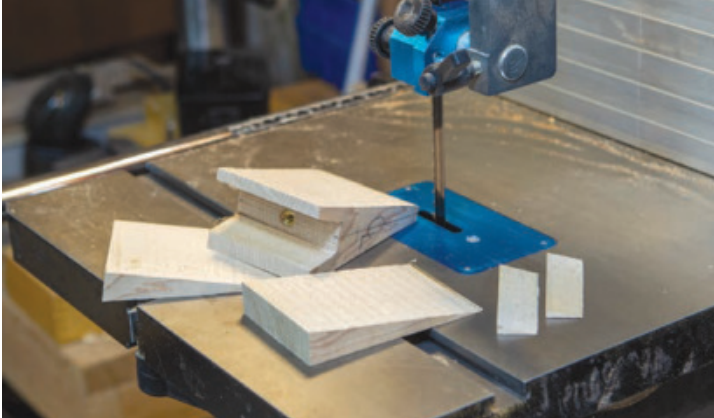


Flip Flop – After making your first wedge, flip the stock over to make the next wedge. This "back-and-forth" process will ensure the grain always runs the length of the wedge, making it as strong as possible.



Cut the Recess – There are many ways to remove the material in the end of your sanding block. Der-Garabedian uses a crosscut sled and a pair of stop blocks to get the job done.

1/4"- 20 thumb screw or similar to tighten the wedge into its home. I find when in use the wedge can just be pushed into place. Between the action of the wedge and the sandpaper everything is held nice



Remove Wedges – Although they won't be used in this sanding block project, wedges are removed from the outer faces of the block, as well as on the smaller, inner faces.

and taut. Give the block a bit of cushioning by adding some cork. This size of block lets you fully use three strips from a sheet of 9" x 11" sandpaper.

Small parts vise

This vise is similar to a jeweller's ring clamp used for holding rings and other small pieces of jewellery. I tried a few different versions using square stock and a hose clamp as the pivot point, but in the end the version utilizing a dowel worked great. I made two

Wedge It in There – The wedge that holds the sandpaper in place will also keep it taut and ready for action. Sized properly, it will hold 1/3 of a sheet of sandpaper.



Trace and Cut – Der-Garabedian traces the shape of the rear cavity onto the end grain of a length of lumber, then creates the wedge that will fit into this cavity to hold the sandpaper in place with an assortment of machines and tools.



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Blocks for Stability – In order to keep the dowel from rotating or shifting while cutting it down the center on a band saw, Der-Garabedian creates a pair of solid wood cradles for either end of the dowel to fit into. Once the cradles are split in half, they can be used to support the dowel while you bore a hole through it to accept the bolt.



Clearance Hole – Using the split cradles for support, drill a slightly oversized hole through the dowel, perpendicular to the band saw cut.



Small, Yet Simple – Your new clamping aid will go a long way to holding tiny parts in place when you need to sand or shape them.



Simple Layout – Two simple layout lines are all that's needed for this work-holding device.

models. One with a V-groove down the middle to better hold round stock and the second I lined with cork to gently yet firmly hold small, thin pieces.

Start off with a 1" diameter dowel that's 6" long. We'll need to cut it in half, which can be tricky. You can make a V-grooved base or, like me, take 1-1/4" square stock and drill a 1" hole in the middle. Fit each end of the dowel with a square ring and cut it in half on the band saw. Using your freshly made sanding block, give the rough surfaces a gentle cleaning, then tape the pieces together. Cradle the dowel on the half squares and drill a 9/32" hole in the center of the dowel. Your eye is a pretty good judge of where center is along the dowel's diameter. You can also line up the split in the dowel with the top of the cradle. Using a longer than required piece of wood, free-hand cut a wedge using the band saw. Smooth it out using a small block plane, sandpaper or a file before trimming it to length.

Assemble your vise with a round head bolt and wing nut. I find pivoting is aided if there is a washer or two between the halves. In order to get the proper spread for clamping, I place the stock in the pivot point and tighten the wing nut until the two pieces lightly

pinch it. Now place the piece at the top and drive the wedge in from the opposite side. You'll find that your pieces are held surprisingly tight. As mentioned above, I placed a groove in one version and cork on the other. If you like, you can sand the clamping end of your vise into a cone shape to give you more access to what you're working on. Play around with the shape and size of the wedge to best clamp your work.

From the mouth of birds

A bird's mouth is a traditional way of holding work on edge. While my front vise can do basically the same thing, a bird's mouth lets me hold longer pieces on the bench and most times at a more comfortable height.

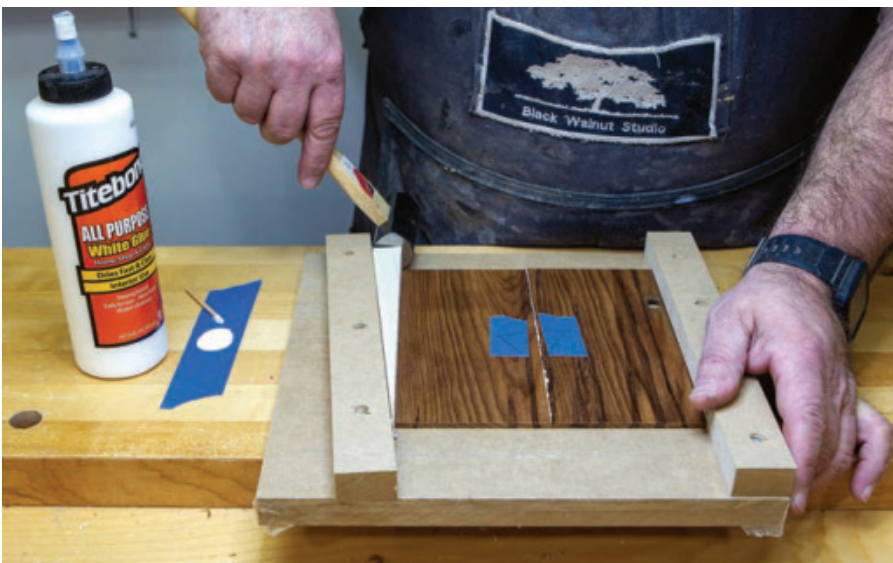
Starting off with a piece of hardwood approximately 1" x 5" x 15", draw a line parallel to one side, 3/4" in and 8-1/2" long. Next, draw an angled line 1-1/4" in from the other side and down to the end of the first line. This gives you an

approximate 20° angle. Cut this out on the band saw. Smooth the resulting wedge and cut off the point. This doesn't have to be perfect; in fact, a bit of roughness along with the wedge shape will help lock things in place nicely.

To secure the jig to the workbench, drill a 3/4" hole for a bench dog and use a hold down. Slide your piece to be worked on into the jig and press the wedge into action. A few light taps will hold the piece and give you full access to your work.



A Strong Bite – The slightly rough band sawn edges of the wedge and main section of the jig provide a lot of friction and hold a workpiece stationary when in use.



Tame Thin Glue-ups – Once the wedge is tapped into place it provides more than enough pressure to hold thin pieces of wood together while the glue dries. It also keeps the workpieces flat while being glued.



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Any Length – Bar clamps of virtually any length can be made from wood. A few holes over the length of the wood will allow you to glue up many different widths of panels. Notice Der-Garabedian has chamfered the edges of the holes for easy dowel insertion.



No Movement – Hot gluing thin wedges in place to support a cupped or twisted piece of lumber will keep the material from moving while you flatten the upper face of the wood with a thickness planer. It doesn't need to be pretty. A thick, dense piece of wood needs fewer support wedges, while a thinner piece needs more. When in doubt, more is better.

A pair of clamping solutions

Since you can't have enough clamps, we will make a few to add to your collection. The first version is for clamping thin pieces. The second is a panel clamp of sorts that can be made to almost any length.

Clamping thin stock, such as that used in small box bottoms, is always a bit tricky. Wedges to the rescue. Start with a piece of MDF larger than the pieces being glued. As we don't want our pieces permanently attached to the MDF base, lay down some packing tape, making sure to overlap each row slightly. Next, attach a fence parallel to one edge with screws. Place the pieces to be glued down on the MDF along with a low angle wedge (roughly 7°) and another MDF fence. Screw this second fence down to the base as well. All that remains is to apply glue to the edges, lay the pieces down, and tap the wedge, securing the pieces tight and flat.

Making extra clamps when you need them is nothing more than having some wood (preferably hardwood), a pair of dowels and wedges. While you could get away with regular clamps on this edge glue-up, it was more to demonstrate how easy of a setup it can be to make a clamp or two if your longest bar clamp wasn't long enough for a task. I normally use 3/4" flat stock roughly 3" wide,

Cupped Upward – Notice

Der-Garabedian placed the concave face of the cupped board upward when securing the lumber to his sled base. He used wedges on the outside edges wherever needed to support the material.



white ash in this case, and place a 3/4" diameter hole 1-1/2" from the end for a dowel. On the other end you can place multiple holes to suit the width of the glue-up. Use

a pair of wedges on each end and, as with regular clamps, use cauls to help distribute clamping pressure and protect edges. Line up the wedges so their sloped sides are facing each other and, very importantly, don't forget packing tape on the inside faces.

Wider jointing

To mill wide rough lumber, you would typically first rip it down to the capacity of your jointer, then joint and plane it to thickness. It's relatively easy to re-join stock after milling, but there are times you won't want to break up the grain pattern to what is lost by cutting and edge jointing. Break out the hot glue gun, MDF and your wedge-making jig. Place your wobbly lumber on top of a slightly wider and longer piece of MDF and use wedges to take up any gaps between the two. Hot glue these wedges and send your assembly through the thickness planer. Once the top is flat, drive in another wedge to separate the two, flip your stock over and thickness as usual.

Angles and cheesecake

Here are a couple of points about wedge angles. While I haven't given specific angles to cut the wedges, you will find that for wooden planes, mortise and tenons, and tusk tenons, lower angles somewhere in the range of 5° to 7° work best. A 20° angle works well for the bird's mouth and could even work as a single wedge in the panel clamp. Play around with the angles, but you'll find sometimes steeper angles pop out during use while shallow angles don't provide enough flexibility.

Normally, at the end of an article I suggest giving the project a try. But you probably already have. Now, where did I put that wedge of cheesecake?



STEVE DER-GARABEDIAN
info@blackwalnutstudio.ca



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VIDEOS: To watch a video of Der-Garabedian making wedges on a band saw go to the videos section of our website.

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Build a **REMOVABLE OUTFEED TABLE**

Improve your band saw's ability to machine long workpieces by adding this support table. When not in use it can easily be removed and stored out of the way.

BY CHRIS WONG

Having a large enough band saw tabletop that can fully support your workpiece can improve accuracy, reduce user strain and improve the quality of your work. However, having large infeed and outfeed tables for every machine takes up a considerable amount of space that can, in many cases, be better utilized. In addition, a machine with larger tables is heavier, harder to move, occupies more space and usually costs more.

After struggling with ripping long lengths of material on my band saw, I decided to address the issue by building an extension table and mounting rail system to allow the table length to be increased when necessary but stored out of the way when not needed. With appropriately mounted

Photos by Chris Wong

rails, an extension table can be used on the infeed or outfeed side of a machine, as well as on the left or right. You could even mount multiple extension tables in a series for extra length.

Keep in mind that an extension table on a band saw, table saw or router is primarily to provide support and keep long material from tipping off the end of the table, whereas an extension table for a jointer or planer can actually serve as an extension of the precision ground machine bed and increase machining accuracy of long material if it is sufficiently flat and properly aligned. A shop-made extension table can be made of sufficient accuracy for either application if care is taken choosing appropriate materials and in construction.

Table design

Looking at the different lengths of material I commonly cut on the band saw, I decided that a 12" × 30" table would suit my needs well, offering ample support without being unnecessarily long which would make it heavier, more prone to sagging and more difficult to store when not in use.

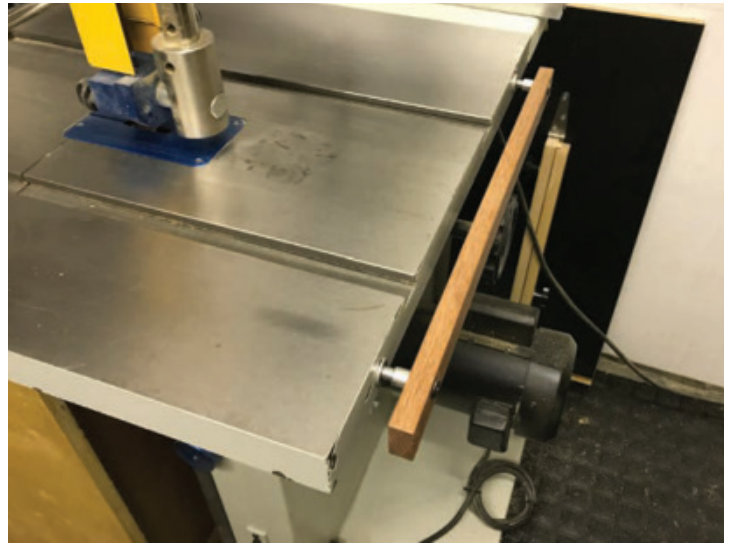
Most commercial extension tables are made of cast iron, anodized aluminum, sheet steel or particleboard covered with plastic laminate. These materials have excellent wear resistance and are also fairly slick, so your workpiece will glide over it. For a shop-made table, a plastic laminate-coated surface is a great choice and well within the capabilities of most woodworking shops. Although not as durable, a melamine-coated particleboard table is slick, flat, cheap and readily available. Plywood, MDF or solid wood is suitable for light-duty use, although none of these are as flat, stable, wear-resistant or slick. Material that's 3/4" thick is stronger and stiffer, but for small tables a 5/8" thickness may be sufficient.

Building the table

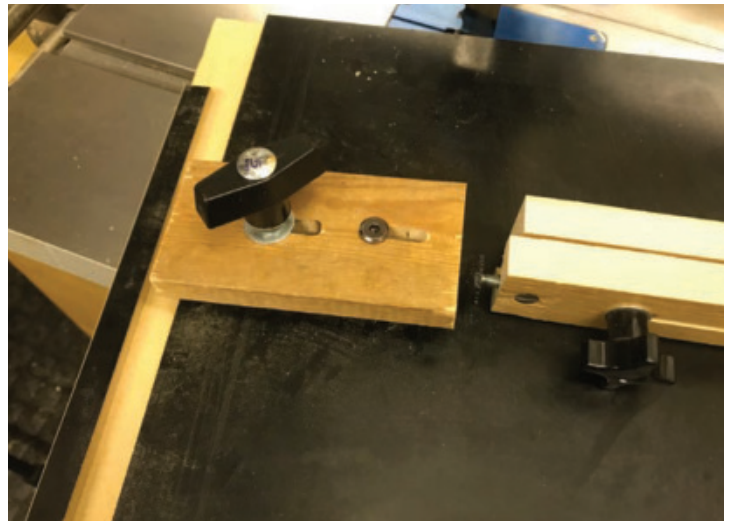
Cut the extension table to your desired size and mill grooves in line with the mitre slots, if desired. The shape doesn't matter as long as there is one straight edge to go against the machine table. With a table saw or router, plow a 3/4" wide dado about a third of the way into the bottom of the table, 5/8" from the edge, that will attach to the machine. The distance the dado should be machined away from the end of the support table will depend on the hardware you're going to use to fix the rail to the band saw table. To help align the mounting rail during installation, make a setup block from a scrap of the extension table material with the same dado setup.

Although I machined the dado in the underside of the support table, then installed the solid wood rail on my band saw's table, it could be completed in the opposite order. You'd then be able to fine-tune the depth of the dado according to the height of the rail. There are pros and cons to each approach. The deeper you mill your dado in the underside of the support table, the weaker the support table will be.

To secure the table to the rail, a simple rail clamp is employed. It consists of a 5" × 2-1/2" × 3/4" wood batten with two 1" long by 1/4" wide slots in it starting 1-1/2" and 3-1/4" from the front edge, and some 1/4"-20 hardware. The clamping knob passes through the front slot of the batten and into a T-nut installed in the top of the extension table. For effective clamping, it's important to ensure the batten is kept parallel to the bottom of the mounting rail. This is achieved with a second bolt through the rear slot in the batten and into an insert nut in the bottom of the extension table, and a few carefully adjusted 1/4"-20 nuts.



Attach a Rail – Wong machines and attaches a solid wood rail to the rear edge of his band saw table. With the necessary hardware to keep the rail away from the edge of the table and making sure to position the rail at the proper height below the band saw's table, the support table will be strong and flush with the band saw table's surface.

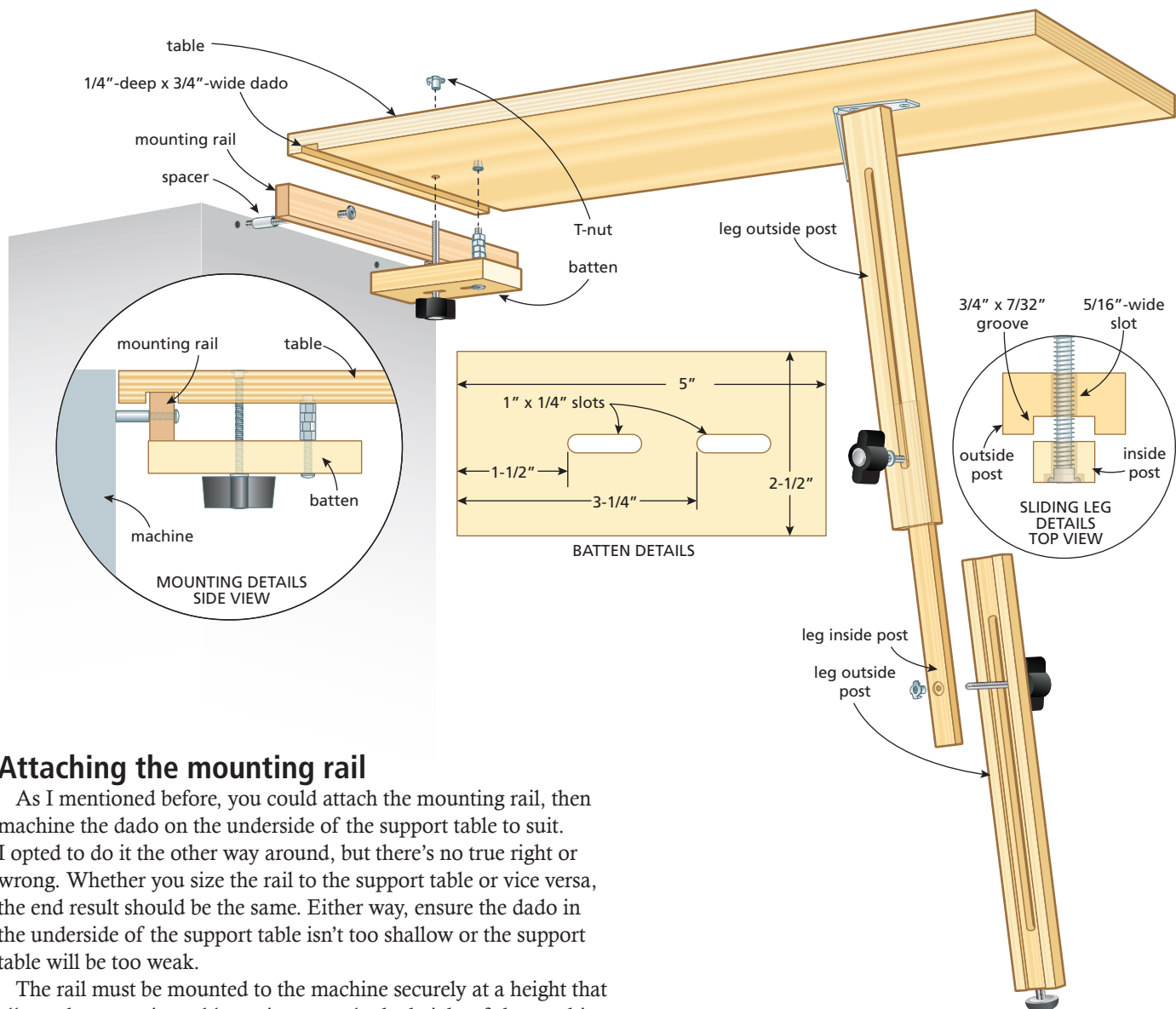


Under the Hood – A shop-made clamping device will secure the support table to the rail, while the adjustable support leg will work well not only for use on your band saw, but also on other machines you attach a similar support rail to.

Mounting rail design

After trying a number of ideas, I settled on a 1-1/8" × 9/16" rectangular mounting rail made from a piece of hardwood. The oversized dado in the tabletop slips over the rail and keeps it from sliding off.

I cut the mounting rail to about the width of the machine's table. If the extension table will be used in only one position, such as right behind the blade, the rail could be made exactly as wide as the table. However, having a wider rail allows greater flexibility in positioning the table for optimum support. I would advise against having a rail protrude from the edge of the machine's table as it would likely be in the way and catch on things.



Attaching the mounting rail

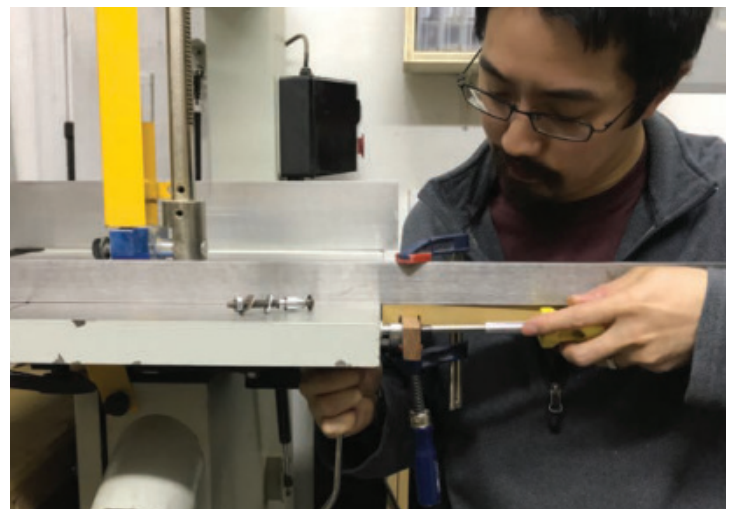
As I mentioned before, you could attach the mounting rail, then machine the dado on the underside of the support table to suit. I opted to do it the other way around, but there's no true right or wrong. Whether you size the rail to the support table or vice versa, the end result should be the same. Either way, ensure the dado in the underside of the support table isn't too shallow or the support table will be too weak.

The rail must be mounted to the machine securely at a height that allows the extension table to sit at exactly the height of the machine table. Using 1/4" bolts through 3/8" holes allows a reasonable amount of height adjustment if your holes aren't located perfectly.

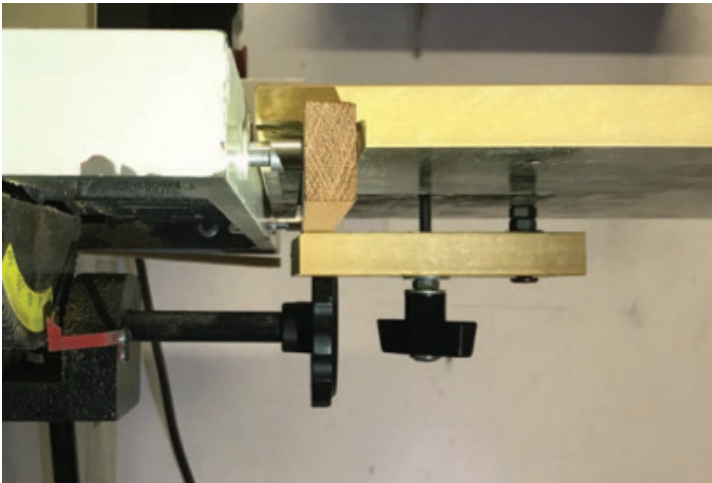
If your table doesn't have any appropriately located holes, you'll need to add some. The exact placement of the holes will depend on the table design you're dealing with. Keeping the holes lower on the rail will prevent the bolts from interfering with the lateral positioning of the extension table, but don't locate them too close to the bottom edge of the table. Also, make sure to locate your holes far enough from any reinforcing webbing underneath to allow a washer to sit flat.

Most machine tables are cast iron, which can be drilled with an electric drill, a few twist bits and patience. Mild steel is easier to drill and aluminum even easier. When drilling metal, I always use a slow speed and a liquid cutting lubricant on the bit to reduce heat buildup and make drilling more efficient. Listen for the sound of the bit cutting into the metal. Also, it's easiest to drill a small hole first to set the location of the hole, then use a larger bit to enlarge the hole.

To attach the rail, I first put a 2-1/2" long 1/4-20 bolt through the rail followed by a spacer about 5/8"-3/4" long. (I used a steel bearing spacer from a pair of old roller blades, but any small tubing



Small Adjustments, Big Benefits – Wong bored a slightly oversized hole in the rail so it could be adjusted up or down. This gave him the option to ensure the outfeed support table is co-planer with his band saw table.



Locked and Loaded – With the support fence in place and the shop-made clamping device engaged, Wong can be sure his support table will stay in place while working.

resistant to compression would work. The end of the bearing spacer was quite thin, so to increase the bearing surface, I added a washer. I had considered using old pen-turning bushings or making spacers from wooden dowel, but this seemed the easiest.) Then the bolt went through the machine table and was secured with a washer and nut.

Positioning the rail at the exact height can be achieved most easily by setting a straight edge on the machine's table near a bolt and clamping the setup block you made earlier between the straight edge and rail. Tighten the bolts, confirm that nothing moved, then move the setup to the next bolt and repeat.

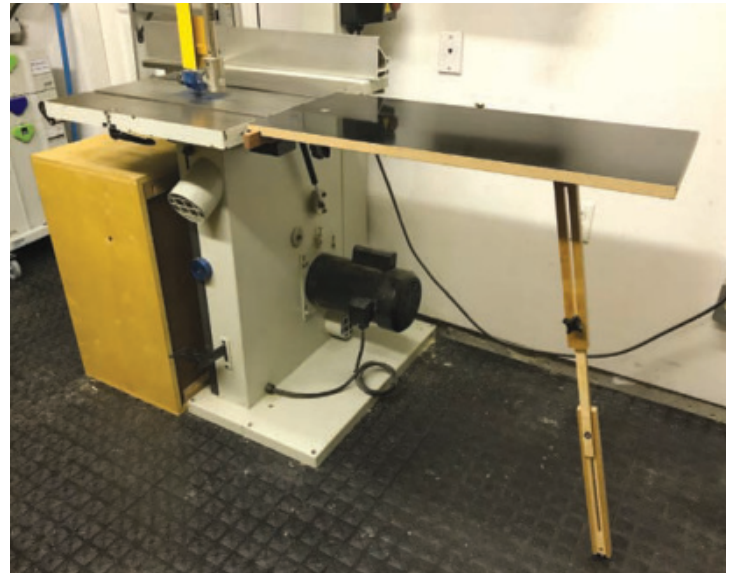
Building an adjustable leg

I built an adjustable leg to support the other end of the table. If the extension table will go over a work surface or other machine top, you could use a set of shims instead. You could also consider using a diagonal brace from the end of the table to the base of the machine. If using the table with multiple machines, alignment marks or stops on an adjustable leg could reduce setup time. Another option would be to just use a one-piece arm that extends all the way to the floor. It's stronger and simpler to make, though it doesn't tuck away as nicely, nor does it offer much help if you're using this support table on machines of differing heights.

To make the adjustable leg, I measured the table heights of various machines I might use the table with and identified the tallest and lowest tables. I added a few inches to the tallest table to accommodate the loss from the slant of the leg. Since I wanted a compact leg that was also tall enough for use at my band saw, I built a three-tier leg, but you could make a simpler two-tier leg if you don't need that range of adjustability — just omit one outside part and one set of hardware. The following instructions are for a three-tier leg.

Machine the outside posts to $1\frac{1}{2}'' \times 3\frac{3}{4}''$ and inside post to $3\frac{3}{4}'' \times 1\frac{1}{2}''$, cut them to the same length (which you have to determine based on the heights of your machines), and mill $7/32''$ deep grooves down the centers of the two outside posts so the inner post slides freely. Rout a $5/16''$ wide groove for a $1/4''$ bolt along the center of each outside post, stopping 2" from each end.

At 2" from each end of the inside post, and on opposite faces, drill and counterbore for a T-nut. Install the T-nut, then assemble the leg with $1/4\text{-}20$ jig knobs and washers. At the bottom of the leg,



Ready for Action – Wong's setup will support a surprising amount of weight and is very easy to set up. This is exactly what working in a small shop is all about.

install a cross dowel and thread in a $1/4\text{-}20$ adjustable foot for making fine adjustments to the height. Attach the leg to the extension table with a strap hinge.

Attaching the extension table

Adjust the leg to the approximate required height, then position the dado of the extension table over the rail. Slide the rail clamp forward and tighten the locking knob to secure the table to the mounting rail. Use a straight edge to see if the extension table is planar to the machine's table and raise or lower the leg as required.

Benefits of an extension table

This was a quick and inexpensive build that works well and, best of all, has made my work easier and more accurate. Now, instead of trying to balance a big workpiece on a small table, I can just focus on accuracy.

Upon reviewing my article, *CW&HI* Editor Rob Brown, who is always concerned with the safety of his readers, questioned the strength of the table and, specifically, the adjustable leg. To illustrate the strength of the table design, I took one of the biggest pieces of wood in my shop — a 6' long piece of $2\text{-}1\frac{1}{4}''$ thick black locust and straight-lined one edge. The extension table did its job wonderfully, allowing me to focus on following my line rather than balancing the heavy slab. I considered placing the dynamic loads of either my two- or four-year-old kids on the table, but strangely they declined to participate in my experiment.



CHRIS WONG
chris@flairwoodworks.com



THE ULTIMATE TABLE SAW CROSSCUT JIG

A quality table saw crosscut jig will help you make accurate, repeatable crosscuts every time.

Mitre saws are versatile, as they can cut your workpieces at a wide range of angles and are portable, but I find there's something very pleasing about a table saw crosscut jig. Maybe it's the fact that I can see the line I'm cutting to clearly. Being able to quickly and easily change blades on my table saw, depending on the material I'm cutting, is also helpful. For some of us, the extra space needed for a mitre saw (that are only growing in size) is a luxury we don't have. For a jobsite, the mitre saw is king, but I find I'm using mine less often these days, and I don't want to dedicate the space for one. But keeping my mitre saw tucked away raises an important question: How will I cut narrow pieces like trim, door frames, etc. to length, and possibly at an angle? Making my own versatile crosscut jig was the obvious answer.

What's the function?

Before making a shop fixture like this I want to be sure I know what the main functions are. To crosscut a single piece of wood, I can just grab my standard mitre gauge and make the cut to a marked line, but I needed something for cutting multiple parts to the same length, and potentially at an angle. This was my main focus. Many of the parts I work with are shorter, as I'm not cutting baseboard or crown. But having said that, I don't want to have a huge jig to store when not in use. The ability to add an extension to this crosscut jig when needed is critical.

Materials

Many commercial crosscut jigs and mitre gauges are made mostly, or even entirely, of metal. This was an option, but I'm a woodworker, not a metal worker, and wood offcuts are just hanging around my shop waiting to be used, and I have the tools and machines to do that.

I did use some metal in this jig, though. Metal is the perfect material for a lot of the hardware that will keep a jig like this working for years to come. A standard mitre gauge forms the foundation for my jig. It fits in my table saw's mitre slot, allows me to angle the jig in relation to my blade and is super durable. T-track allows me a lot of options for making wood stops that will give me the repeatability I need. That, coupled with T-bolts, makes for a sleek solution. Some additional miscellaneous 1/4-20 hardware helps bring this jig together in a clean, strong and lasting manner.

Baltic birch plywood 3/4" thick and solid hard maple will provide a dense, smooth surface for years of use.



A Third, Partial Layer – Once the first two layers of plywood are glued together and trimmed flush, Brown added a third layer of plywood. This third layer was cut 6" short, and doesn't extend to the far end of the jig. The 6" wide cavity created will be filled with a removable zero-clearance insert.

The build

The overall dimensions of this jig aren't critical. Everyone has different requirements. You can adjust the overall length or height of the jig to meet your needs.

Start by cutting and laminating two pieces of plywood together. The pieces should be at least 4" wide and an inch longer than you want to make your crosscut jig. When you're gluing the two pieces together, make sure they're flat. I glued them on the surface of my table saw. An accurate crosscut jig needs to be dead straight. When dry, trim it to 3-3/4" wide, but don't worry about the length yet.

Cut a third layer to the same width and length of the 1-1/2" thick assembly, then trim 6" off one end. The longer piece will be glued to the 1-1/2" thick assembly, while the offcut will be used as a removable zero-clearance insert. Glue the longer piece to the other two, flush with one end, yet keep one long edge about 1/16" inside the other during glue-up. When dry, rip the edges straight and even, then trim the ends smooth.

A groove and two rabbets

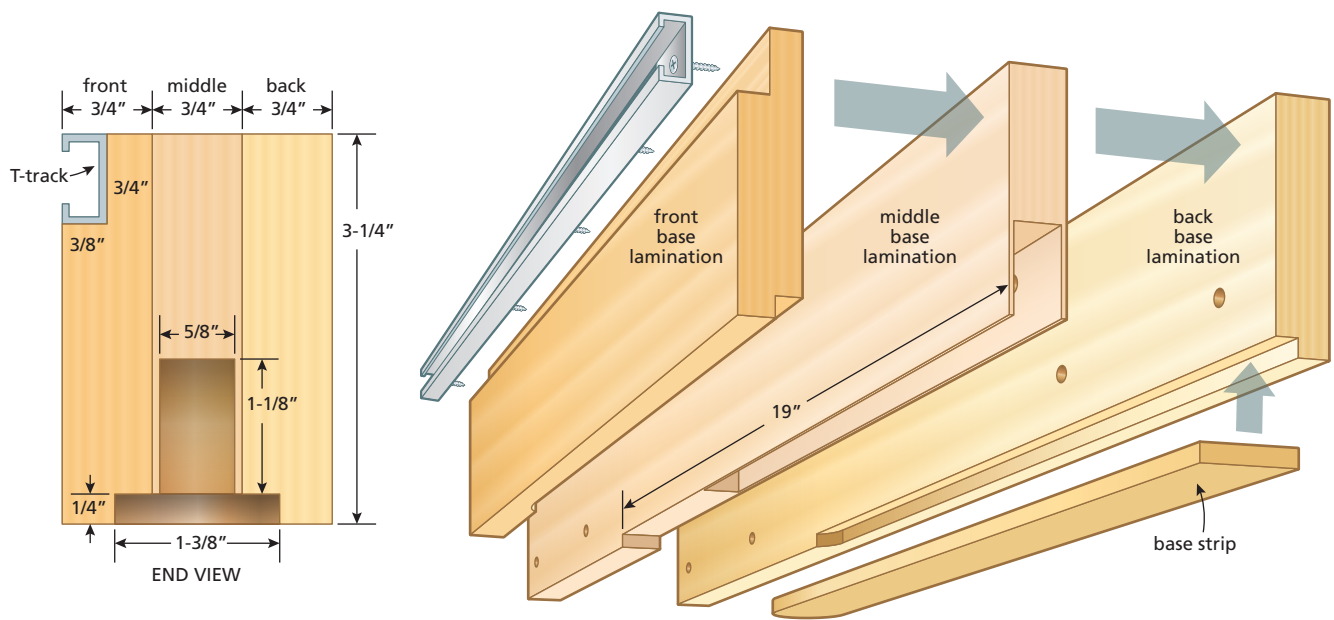
Cut a 1-3/8" deep × 5/8" wide stopped groove somewhere vaguely close to the center of the 2-1/4" wide edge. Stop the groove before the future location of the screws that will attach the crosscut jig to your mitre gauge, as the screws will need the material to

shopnotes

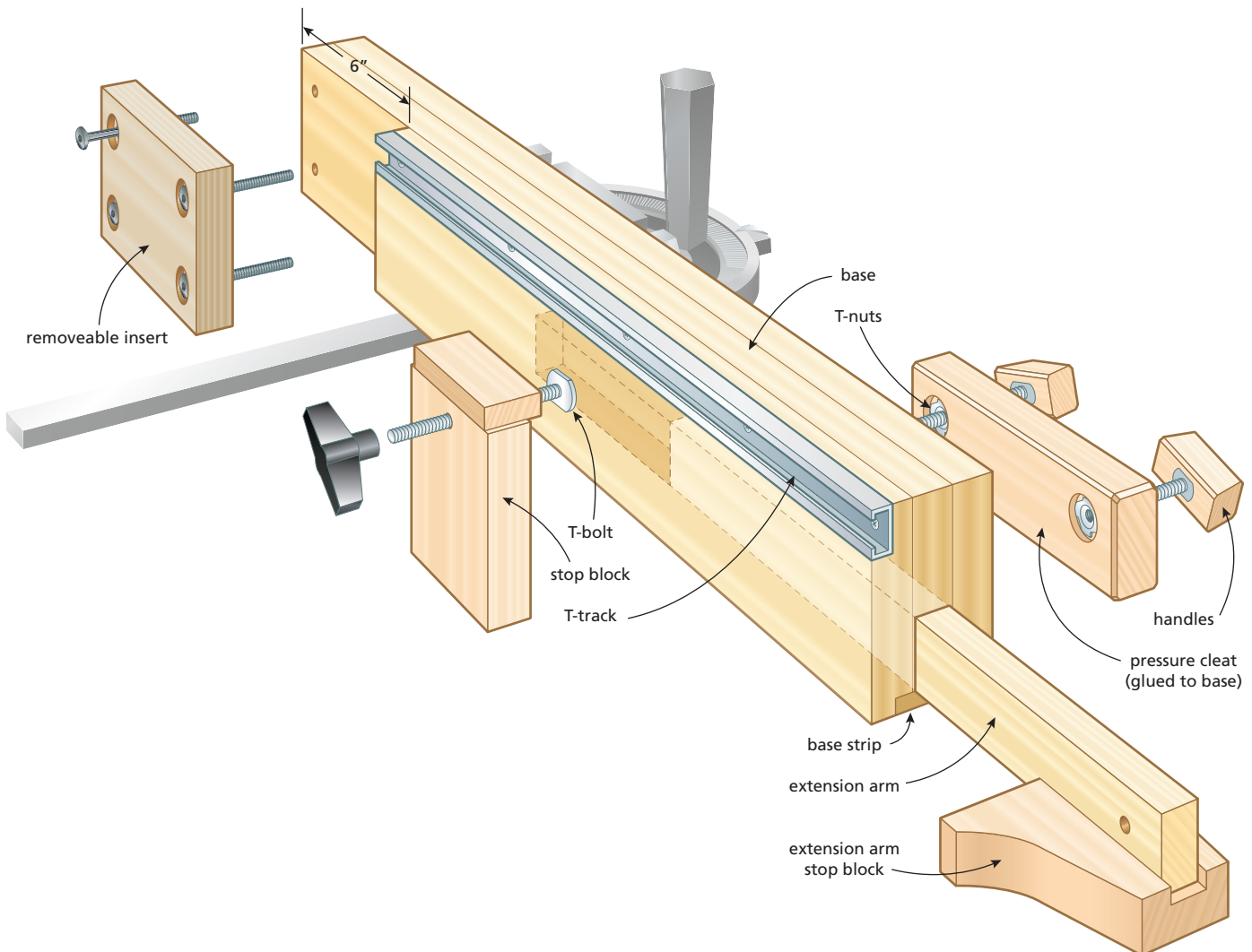
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BASE LAMINATIONS DETAIL



Materials List

Part	Qty	T	W	L	Material
Base Laminations	2	3/4	3-1/4	25	Plywood
Face Lamination	1	3/4	3-1/4	19	Plywood
Removable Inserts	1+	3/4	3-1/4	6	Plywood
Base Strip	1	1/4	1-3/8	16	Solid Maple
Pressure Cleat	1	7/8	1-3/4	6	Solid Maple
Handles	2	3/4	3/4	1 1/2	Solid Maple
Extension Arms	2	5/8	1-1/8	To Suit	Solid Maple
Stop Blocks	2	To Suit			Solid Maple

Hardware List

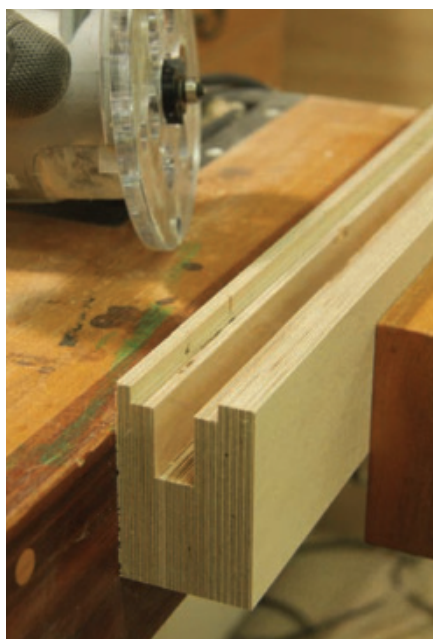
Name	Qty	Size	Details	Supplier
T-Track	1	3/8" x 3/4"		Misc
T-Nuts	6	1/4 x 20		Misc
T-Bolts	4	1/4 x 20		Misc
Quick-Connect Regular-Head Bolts	4	x 50mm long	00N1650	Lee Valley
Jig Handles	2	1/4 x 20	For Stop Blocks	Misc



Mark Screw Locations – With the jig positioned properly against the mitre gauge, mark the locations of the holes that will secure the jig to the mitre gauge. Brown made sure the groove he machined after this step didn't extend up to this line.

bite into, and the screws will interfere with the solid wood extension that will fit into this groove. I set up a stop to limit travel and made this groove with multiple passes, though a router and straight bit (also with multiple passes) would also work nicely.

Once the large groove is done, run a router equipped with a rabbeting bit along both inner edges of the groove.



A Pair of Rabbets – With the extension bar groove complete, Brown used a rabbet router bit to machine the two rabbets on either side of the groove. He then glued a strip of solid wood into these two rabbets.

The resulting rabbets should be about 1/4" high and 3/8" wide. The exact measurements aren't critical, as you'll be machining the strip of wood to fit into these rabbets, so you can size it accordingly. Next, machine and install the solid

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T-Nut Cavities – After marking the locations on the back of the jig, Brown bored four holes that allowed him to hammer in T-nuts. Bolts holding the replaceable zero-clearance insert in place will thread into these T-nuts. If the T-nuts aren't set below the jig's rear face the entire jig won't sit flat on the mitre gauge.

hardwood base strip in those two rabbets. I machined this piece about 1/32" thicker than needed. When dry, I trimmed the strip of solid wood to the end of the jig, then I laid the jig on its side and ripped about 1/16" off its height to create a flat, even bottom. The exact finished height of the jig when complete isn't overly important.

Rabbet track

The aluminum T-track needs a rabbet to recess it into the upper front edge of the jig. It's not the end of the world if the top of the T-track sits slightly proud or below the top of the jig, but when machining the depth of the rabbet, take a bit more care to get it very close. If anything, you want the face of your T-track to sit ever so slightly back from the face of the jig. Machine the rabbet, then drill screw clearance holes in the track and install it with #6 screws.

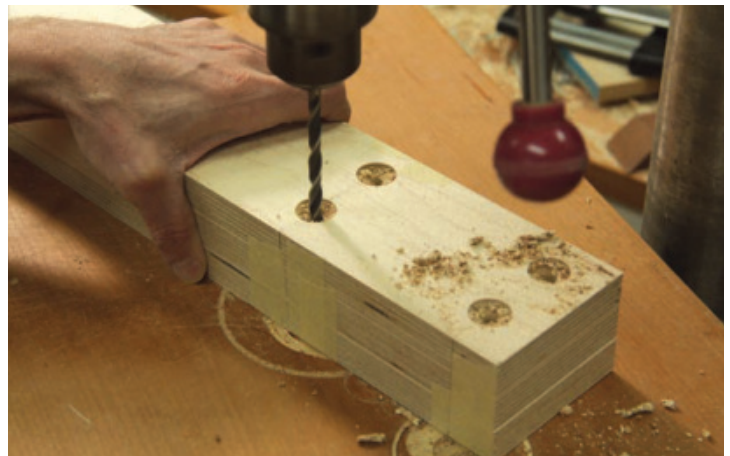
Zero-clearance plywood inserts

These inserts will support the tail end of the cut and reduce tear-out as the workpiece exits the blade. You should make a few now, and even label these inserts depending on the width of the blade. These inserts were 6" wide, and the jig was screwed to the mitre gauge so the blade is centered on the inserts. There will be about 3" of jig extending beyond the blade.

Cut the inserts to fit the area, then tape one insert in place. Put your mitre gauge in the table saw slot, position the jig against the mitre gauge and screw it to the mitre gauge.

Mark the locations of the four holes needed to bolt the insert to the jig and drill 3/4" diameter holes, about 1/4" deep, in the rear face of the jig in these four spots. This will recess the T-nuts into the surface of the jig. This step is necessary so the bolts will be able to engage with the threads on the T-nuts without extending past the rear surface of the jig and without butting into the mitre gauge. Next, drill a 1/4" diameter hole through both the insert and the jig.

Remove the insert, tape it to the other inserts, and bore all the 1/4" holes through the rest of the inserts. At this point I marked the bottom edge of the inserts so they would be easier to install down the road.



All the Way Through – With the insert taped in place, 1/4" diameter holes are drilled through the jig and insert.



Hammer it Home – Use a piece of hardwood to hammer the T-nut below the outer surface of the jig.



Recess for the Bolt Head – Usually a Forstner bit's center spur keeps the bit from wandering or the piece from shifting, but in this case holes have already been drilled in this zero-clearance insert. As long as the bit is advanced slowly and the piece is held securely, things will work out fine. If you're unsure, drill a slightly oversized hole.

Bore a 5/16" diameter hole about 3/8" deep on the back face of the jig. This hole will accept the center threaded section of the T-nuts.

The last series of holes to be bored were in the faces of the inserts to allow the four bolt heads to sit below the surface of the insert's face. It's not easy to drill a hole with a Forstner bit centered over



Tape is Temporary – The extension bar pressure cleat is fixed to the jig with double-sided tape, then a hole is drilled through the cleat and jig into the extension bar cavity.

another hole because the center point of the Forstner bit isn't engaged in wood, but using a drill press and clamping the work-piece to the drill press table so it doesn't move should work quite well. You could also use a slightly larger Forstner bit and just hold the insert with your hand and not need to worry if it slides around a bit while drilling. Drill slowly and there should be no problem. Repeat this for all the inserts.

Extension bar pressure cleat

A block of wood, fitted with a pair of T-nuts on its inner surface, needs to be attached to the rear face of the jig so an extension arm can be secured in place. Machine the block to size, temporarily affix



Bore for a T-Nut – A T-nut needs to be installed in the rear side of the extension bar pressure cleat. Bore the holes, then hammer in the T-nuts.

the block to the rear face of the jig with double-sided tape, then drill a 1/16" diameter hole where the two T-nuts are to be located. This hole should extend to the center groove in the jig.

Remove the block and bore a 3/4" diameter hole in its inner face, about 1/8" deep. This hole will allow the T-nuts to be recessed below the inner face of the block so the block can be glued to the jig. Finally, bore 5/16" diameter holes through both the block and the jig so a T-bolt can be threaded through the T-nuts and used to apply pressure to the extension bar.

Install two T-nuts in the inner face of the block, then glue it to the rear face of the jig, making sure the center of the T-nuts are centered over the center of the two holes in the rear face of the jig.



Carve a Glue Trough – With care usually reserved for a fine piece of furniture, Brown added a groove around the perimeter of the face of the cleat that gets glued to the jig. This minimizes glue squeeze-out from happening.



Shapely Handles – After routing rough cavities for the heads of the T-bolts, Brown used epoxy to securely adhere the T-bolts to the wood. When dry, he shaped the handles.

Extension bars

You could just make one long extension bar that would allow you to cut workpieces to any length required, but I find most of the work I do isn't overly long, and it's more difficult to work with a long extension bar when a much shorter one will usually do. I opted to make two extension bars; one about 32" long and the other about 72" long. The 72" long extension bar will allow me to cut multiple parts up to about 96" long. It's rare that I need to cut pieces longer than that. These extension bars are also very easy to make. Dress clear hardwood stock to fit in the cavity, break the sharp edges, drill a hole in one end and hang it on your shop wall near your table saw.

Wood knobs

Although there's likely hardware that could be purchased, I opted for a shop-made solution here. One word of caution: If you purchase knobs, most jig hardware handles are about 2" wide, and might come into contact with the table saw's table while in use.

I had extra T-bolts, so I traced their heads onto the edge of some hardwood, free-hand routed a 3/16" deep cavity with a 1/4" diameter straight bit, then epoxied the T-bolts in place. When they were dry, I shaped the handles to size, making sure their heads weren't too large.



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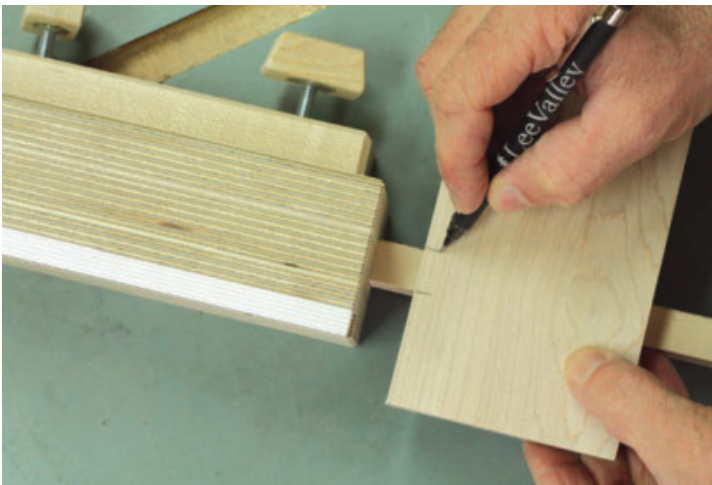
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Wooden Stop Block – Brown marked, then cut a dado to help position the extension bar stop block in place. It gets clamped to the extension bar with a 2" lightweight C-clamp.

Stop blocks

At least two stop blocks needed to be made. One for clamping to the T-track in the jig; the second for clamping to the extension bars.

The stop block for attaching directly to the jig uses a bit of 1/4-20 hardware to promote easy clamping and quick adjustment, while the block for the extension bar is very simple, and just gets clamped in place. I'm sure there are many options for creating a sleek clamping system to secure the second block to the extension bar, but I didn't feel I needed to get that fancy.

To make the first block, I cut some solid maple about 1/16" narrower than the height of the jig and 3" long. The 1/16" gap at the bottom of the stop will allow sawdust to slide under the stop block and not interfere with cutting parts to the proper length. I drilled a clearance hole 3/8" from its upper edge so a bolt could extend through the block and engage with the T-track. To ensure the stop block always sits square I added a small strip of wood to the top of the block. This strip of wood will rest on top of the T-track and help with alignment.

After marking the location of the dado, the stop block for the extension arm was dadoed to mate with the underside of the extension arm, then it was sawn to shape. This stop block finished at 7/8" thick and 2-1/2" square. The dado was cut 3/8" deep. Ensure the stop block will actually allow a workpiece to butt up against it, rather than passing very closely past it, when the block is clamped in place.



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Tersaknives.com



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The new **King Canada KC-12HS-VS**, with a footprint of only 19-1/2" by 21", will be a welcome addition in any space-challenged workshop. It has a 5/8" chuck capacity, a 12" swing and a generous 3" stroke. The 1/2 HP, 5-amp motor delivers variable speeds from 580 to 3,200 RPM with smooth and balanced performance even at the highest speeds. The mechanical variable-speed system transfers full power and torque through the entire speed range, while digital speed readout makes precision drilling quick and easy. The external, easy-to-adjust variable speed lever eliminates the need to access belts and pulleys. The KC-12HS-VS is a powerhouse for your shop.

KingCanada.com



Outstanding Value in a Variable Speed Stationary Drill Press

The **King Canada KC-15HS-VS** delivers a wealth of features, superior performance and great quality in a 15" floor model band saw. A powerful 3/4 HP, 8.6-amp motor, coupled with a mechanical variable speed system, offers two smooth speed ranges from 280 to 1,100 RPM and 900 to 3,300 RPM. The externally mounted variable-speed lever reduces the need to access belts and pulleys. You get a full 4" stroke capacity and a 5/8" chuck that will accept your largest drill bits. Digital readout delivers precise spindle speed control while dual intersecting adjustable laser guides make accurate, repetitive drilling quick and easy.

KingCanada.com



Start Carving Now

Professionals will like the quality and hobbyists will appreciate the value of **Flexcut's KN500 3-Knife Starter Set**. They've packaged some of their most popular knives in one 3-Knife Starter Set. The comfortable curved ergonomic handle allows for long periods of carving without hand fatigue. The blades are precision-made from high-carbon steel. Cutting edges stay sharp and are easily maintained. Each blade is hand-sharpened at Flexcut's factory in Pennsylvania before shipping. Knives included are KN12 Cutting Knife, KN13 Detail Knife and KN14 Roughing Knife. Flexcut Gold polishing compound is also included.

Flexcut.com



A Complete Wood-Carving Kit in Your Pocket

The six-blade **Flexcut JKN91 Carvin' Jack** is the world's first folding multi-tool for wood carving. You can use it for both rough shaping and detail work. It's equipped with two scorps, straight gouge, a hook knife, chisel and a detail knife that all lock in the open position. You also get a slip stop, a bar of Flexcut Gold polishing compound to keep your blades sharp, and a leather belt-mounted sheath that looks good with jeans or even your better pants.

Flexcut.com



The Ultimate Spoon Carving Knife

The **Flexcut JKN96 Spoon Carvin' Jack** has both a shallow and a deep hook knife designed to form the hollows of spoons and bowls. It also features a straight blade for shaping and carving fine details into the design. This tool fits neatly in your pocket, so you can carve wherever you go. The handle is made of rugged aerospace aluminum with an ergonomic design that contours to fit the palm of your hand. There is also deep crosshatching on the handle to keep the knife from slipping while carving.

Flexcut.com

Precision Drilling with the Magnum Drill Press Table

Adding an auxiliary table to expand the work surface and accommodate accessories can enhance the functionality of the drill press and make life in the shop more enjoyable. With the **Magnum 99-705** you get a perfectly flat 12" by 24" work surface with twin T-tracks and two hold-down clamps. The 24" adjustable anodized aluminum back fence incorporates a 2-1/2" dust port and sliding flip-stop. After installing this handy add-on for your drill press, you're going to wonder how you ever got along without it.

KMStools.com



Wood Filler That Goes on Pink and Dries Natural

DAP WOODPRO-X goes on pink so you can easily see the areas you're repairing, but then dries to a natural colour letting you know when WOODPRO-X is cured, ready to be sanded, stained or painted. It's low in odour and cleans up with water. This all-purpose, high-quality, latex-based wood filler is formulated to create a surface and body that looks and acts like real wood. Use it to repair cracks, gouges, holes and other surface defects on indoor or outdoor furniture and woodwork. The thick, knife-grade formula can be spread smoothly and evenly, and easily moulded and sculpted for corners as well as vertical and unsupported surfaces.

DAP.ca



Easy, Affordable Pocket Hole Joinery

The new **Kreg 520PRO** makes it easier than ever to create rock-solid pocket-hole joints anywhere you build with materials 1/2" to 1-1/2" thick. It's loaded with features, like the VersaGrip 360° rotating handle that helps the 520PRO adapt easily to nearly any pocket-hole project. VersaGrip also includes built-in clamping – just squeeze the handle until your material is clamped securely. Pre-set material thickness settings on the drill guide block make setup fast for 1/2", 3/4" and 1-1/2" material. Plus, the adjustable stop offers repeatability when you need to drill multiple pocket holes in pieces of similar thickness.

Kregtool.com



Make Perfectly Straight Cuts Up to 4 Feet with Guided Cutting

Cut sheet goods and solid wood panels down to size with precision and ease using the **Kreg Straight Edge Guide**. Work with material up to 4 feet and get the cuts you need — whether you're using a circular saw, jigsaw or trim router. The guide works with most brands. Your saw rides against the aluminum guide, allowing you to make straight and precise cuts. Retractable cutline indicators help position cuts perfectly. Guided cutting makes it easier than ever to see exactly where you'll cut so you can get the results you expect.

Kregtool.com



Affordable Classic Dovetails

The **Leigh Through Dovetail Jig (TD330)** makes classic fitting dovetail joints on boards up to 12-7/8" wide and from 1/8" to 13/16" thick. Perfect for drawers, utility boxes, case goods and much more. Seamlessly join boards of different thicknesses with a handheld router or on a router table! Included is the Leigh patented elliptical guide bushing. Easily adjust joint fit for great fitting joints every time. Visit us online to see demo videos.

Leightools.com



Great Fitting Box Joints

The **Leigh Box Joint & Beehive Jig (B975)** is a multipurpose box joint jig. It's a simple, easy-to-use tool for making 1/2" and 3/4" box joints on boards up to 13/16" thick, and from 1-7/16" to 17-13/16" wide. Along with boxes, drawers and benches, it's also well suited for beehive boxes. Easily adjust joint fit with the included Leigh patented elliptical guide bushing so you can achieve great-fitting joints every time. Added feature — works on a router table! Visit us online to see demo videos.

Leightools.com



The All-Purpose Latex Wood Filler

Cracks, gouges, holes and other surface defects happen. But with **DAP WOODPRO** you don't have to worry. This high-quality, latex-based, indoor/outdoor, low-odour wood filler is formulated to create a surface and body that looks and acts like real wood. Use it for repairs on furniture, woodwork, moulding, cabinets, panelling, plywood, windows, doors and painted surfaces. The thick, knife-grade formula can be moulded and sculpted, making it ideal for corners as well as vertical and unsupported surfaces. When dry, it can be sanded, cut, planed, drilled, nailed or screwed, stained, and painted. It's shrink-, crack- and crumble-resistant, and provides strong nail and screw anchoring.

DAP.ca

Lift, Press, Tighten with Controlled Precision

The **Viking Arm Installation Tool** reduces the number of hands needed for certain types of installation work. This allows for better economics in the professional field and a significant reduction in frustration among home improvers. It makes working alone much easier and with a lifting capacity of up to 330 lbs. the range of applications is virtually unlimited. Constructed of hardened stainless steel and aluminum this ingenious and built-to-last tool helps with the installation of kitchens, windows, doors, cabinets, floors and much more. Get into tight spaces and lift, clamp, press or tighten with controlled precision. Your imagination sets the limits. Oryxtools.ca



Sharpen Any Knife or Edged Tool Quickly and Easily

Using flexible abrasive belts, the **Worksharp MK. 2 Knife and Tool Sharpener** can sharpen not just straight-bladed knives, but also curved knives, tanto blades, filet knives, serrated knives, scissors and virtually any other edged tool. Use the low-speed setting for knives and fine-edge tools, and the high-speed for grinding larger tools when you need to remove a lot of material. With the flip of a switch, you can select between 20° or 25° bevel angles. A front edge guide increases control and supports the blade through the full pass so you can maintain consistent factory profiles from heel to tip. WorkSharpertools.com



Rock Solid Performance in a Premium Table Saw

The new **Laguna F3 Fusion Table Saw** is unlike any saw on the market. Encased in an industrial 14-gauge steel cabinet is a 3HP motor with completely redesigned cast-iron trunnion and cabinet-mounted arbor along with permanently lubricated bearings and Acme screws. The F3 comes with a wealth of features, including precisely machined cast-iron table and wings, a European high-low industrial-quality fence, premium mitre gauge, quick-release blade guard and spreader, riving knife, and zero-clearance throat plate. Lagunatools.com



Upgrade Your Makita Planer or Jointer with a Spiral Cutterhead

For a smoother finish and quieter operation, upgrade your Makita planer or jointer with a **Sheartak Spiral Cutterhead**. Each cutter sits at a slight angle on the cutterhead to produce a shearing, staggered cut, which eliminates tear-out and leaves a glassy surface finish on even highly figured hardwood – reducing or even eliminating sanding. Noise is greatly reduced, and dust extraction is easier as spiral cutterheads produce thinner and shorter chips. The precision-ground 15mm × 15mm × 2.5mm tungsten carbide four-sided cutters are super quick to change and last up to 10 times longer than high-speed steel blades. Sheartak.com



Precision Cutting Simplified

The **Shaper Origin** is a hand-held precision CNC router. It combines precision and repeatability with unprecedented flexibility. With the Origin it's just as easy to rout intricate inlays on small panels as it is to rout dovetails, dadoes or grooves on large workpieces. The Shaper Workstation is the ultimate workspace and fixturing solution to use with the Shaper Origin. It's designed to streamline and expand upon Origin's abilities, offering rapid, repeatable and precise fixturing of a wide range of stock configurations. The Shaper Origin and Workstation give you the convenience and accuracy of a CNC, but in a compact, portable package with no limits on workpiece size. Shapertools.com



Dust-Free Hand-Held Routing

The **Oneida Air Systems Universal Dust-Free Router Hood (AXH000001)** connects to a wet/dry vacuum and captures nearly all the wood chips and dust produced by handheld routers from both above and below the bit. It virtually eliminates post-project cleanup, facilitates fine detail work, and reduces wear and tear on bits. Moulded from clear polycarbonate, it offers excellent clarity and superior durability. It's designed to work with most of the fixed-base and plunge-style routers from major brands and comes with multiple snap-on chip covers for edge, shallow edge and inset routing. It's made from the same material used to make bulletproof "glass", motorcycle helmets and jet fighter canopies. Incredibly tough and extremely durable. Tame the dust! Oneida-Air.com



The Ultimate Template-Guided Joinery System

The **PantoRouter** makes woodworking joinery fast, accurate, safe, repeatable and fun! Mortise and tenon has never been easier with over 150 perfectly fitting sizes using their patented tapered templates. You can set up and cut angled or compound-angled joints in minutes, virtually dust-free due to the incredibly effective dust collection hood. Go from setup to glue-up in under five minutes in most cases.

Box joints and dovetails can be variably spaced, and custom templates can be shop-made to produce the perfect size and shape for your project. Hobbyists and custom furniture makers use the large table and numerous clamping positions as a convenient platform for custom jigs and fixtures so the tool never limits their design.

Customers rave about PantoRouter's thoughtful design, engineering and high-quality construction. And because there's no safer way to use a woodworking router, the PantoRouter is popular in high school shops across the country.

Visit their website to see videos of the PantoRouter in action and learn more about how others are using this unique tool. **PantoRouter.com**



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CEILING-MOUNTED ADJUSTABLE TABLE SAW GUARD

This inexpensive, relatively easy to make table saw guard is packed with features. Personal safety and improved dust collection are top priorities in this design.

BY DAVID BEDROSIAN

This guard for my table saw blade is constructed of clear polycarbonate so it provides plenty of protection, but it doesn't restrict visibility of the blade or the surrounding area. It can also be easily raised and lowered to match the thickness of the workpiece, and it even folds to the side if I need to get it out of the way for a jig or tall workpiece. Most importantly, it has integrated dust collection to capture any dust coming off the top of the blade.

Many woodworkers consider the table saw to be the heart of their shop. It can be used to cut lumber, sheet goods and joinery, and for many other operations. Take a tour of many of these shops and you'll likely see that the guard has been removed for various reasons. When I got my sliding table saw several years ago, I challenged myself to design a guard that worked for all of the operations that I perform on my saw. I didn't want a guard that ended up in the corner of my shop collecting dust. I've successfully used my original guard for a few years, but recently made a few improvements.

Start at the blade

The blade guard is made from clear polycarbonate which, unlike acrylic, is shatter-proof. I used 6mm thick for the sides and 3mm thick for the top. To save money, check with a local plastics supplier to see if they have off-cuts to sell. I got more than enough material to make the guard for \$15. The sides and the top of the guard are joined together with a pair of Baltic birch plywood ribs – 1/2" thick in my case, but 3/4" would work just as well.

Before doing any cutting, decide on the size and shape of the guard that will work best for you. My table saw has a scoring blade in front of the main blade and I wanted both blades covered so my guard is fairly long. If you decide to make yours shorter, just make sure the flat section on top is large enough for both your dust collection fitting and the aluminum mounting brackets that secure the guard to the column.

The guard should be at least 2" wide, maybe more, depending on the size of your dust port. You want enough width to fully cover your blade when it's at maximum height and tilted to 45°. My guard is 4-3/4" wide to fit my 4" dust collector hose.

I used a single piece of polycarbonate for the top, and heated that piece to bend at the curves, but you could also design this with three straight lines and use flat straight pieces of polycarbonate for the top.



Draw the Shape – Draw the outline of the guard to cover the blade at full height. The top of the guard needs to be flat to attach the dust collection port and the mounting brackets that attach to the supporting column. You could also use three straight lines instead and join the front, top and back pieces of polycarbonate without a curve between them.



A Matching Set –

Plywood ribs hold the sides and top together. Both ribs need to be identical, so tape them together and sand the outside edge smooth. If you're going to create three flats on the ribs, attach three separate pieces of polycarbonate to the guard. Bedrosian rounded the transition from the flat top to the curved front and back to make it easier to bend the polycarbonate used for the top of the guard.

Make the ribs

Rip the plywood ribs to the correct height and use your band saw or jigsaw to cut the curves on the front and back. Smooth the curves with your sander and transfer the outside shape to form the inside of the rib. Mark the outer face of each rib so you know which side to attach the polycarbonate.

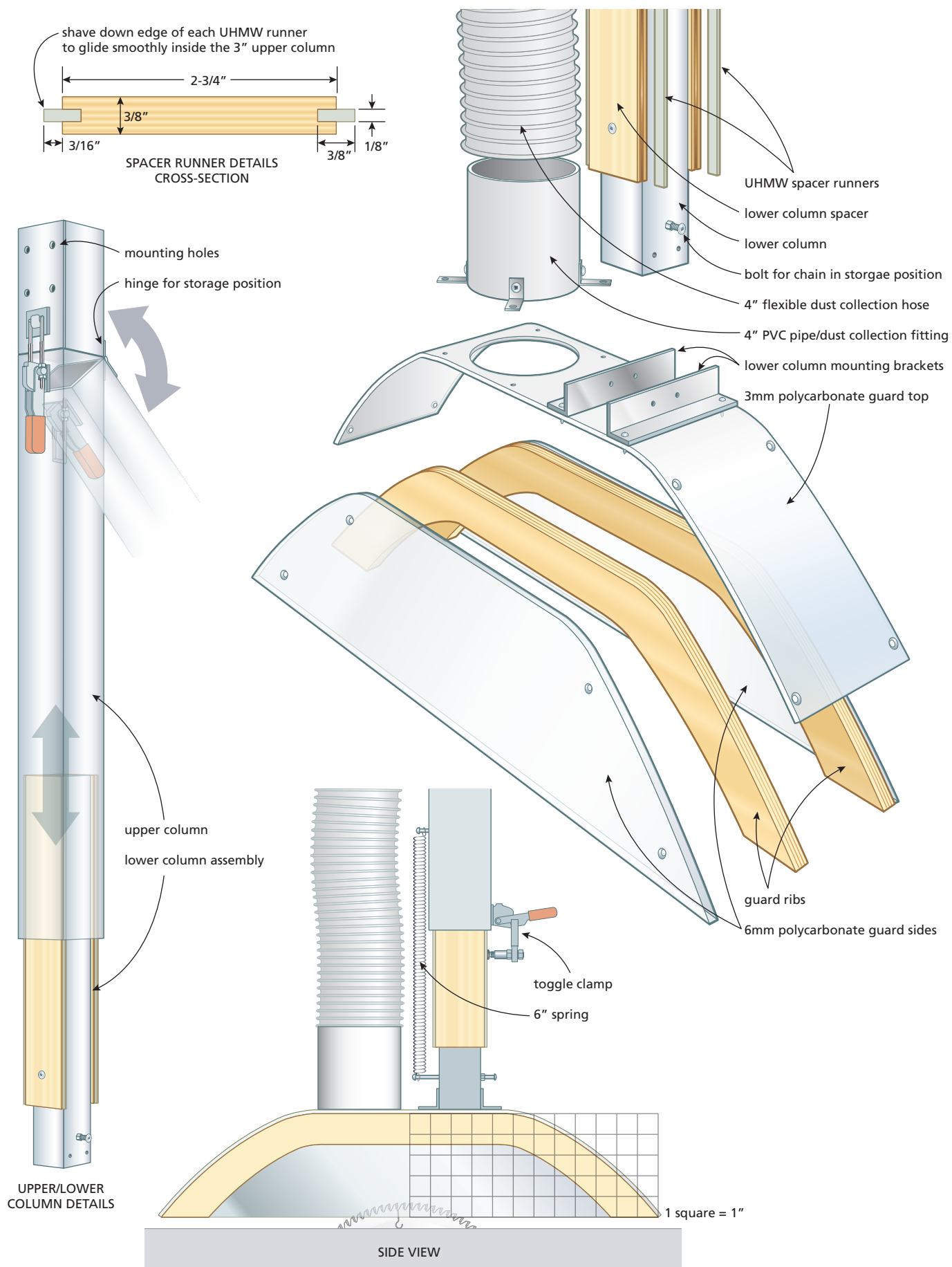
You're now ready to cut the 6mm thick sides. If you haven't used polycarbonate before, you'll be pleased at how easily it cuts.

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Materials List

Part	Ltr	Qty	T	W	L	Material
Guard Sides	A	2	6mm	5	24	polycarbonate
Guard Ribs	B	2	1/2	5	24	Baltic birch plywood
Guard Top	C	1	3mm	4-3/4	28	polycarbonate
Upper Column	D	1	3	3	36	1/8 thick aluminum tubing
Lower Column	E	1	2	2	24	1/8 thick aluminum tubing
Lower Column Spacers	F	2	3/8	2-3/8	21	Baltic birch plywood
Spacer Runners	G	4	1/8	3/8	21	UHMW
Lower Column Mounting Brackets	H	2	1	1	4-3/4	1/8 thick aluminum angle

Hardware List

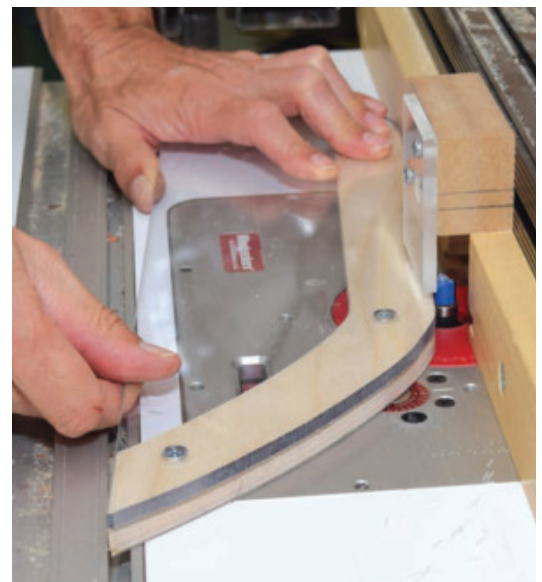
Name	Qty	Size	Details	Supplier
3" wide hinge - non-removable pin	1			Lowes or Home Depot
6" spring	1			Lowes or Home Depot
U-bolt toggle clamp	1			Amazon - style 40341
Low profile toggle clamp	1		88F0506	Lee Valley
Dust cover brush - 70mm high for CNC				Amazon
Dust collector fitting	1			
Miscellaneous bolts, nuts, washers and screws				



Mark, Then Cut – Use a marking gauge to offset the outside shape so the ribs are about 1-3/8" wide after cutting at the band saw.

It can be cut with your table saw, band saw or even a scroll saw, and you won't need special drill bits or router bits. It's best to leave the protective film on while you mark for any cutting or drilling. Align the bottom edge of the polycarbonate with the bottom of the rib and trace the outline before cutting both sides

slightly oversize. I did this on my band saw using a 6 tpi blade. As with the ribs, mark the outside faces before you drill and countersink four holes to secure the polycarbonate to the ribs with flat head screws. Use your router with either a pattern bit or a flush trim bit to rout the polycarbonate flush to the ribs.



Flush Trim the Sides – The 6mm thick polycarbonate sides are screwed to the plywood ribs and then routed flush. If you countersink the screw holes, you can use either a template bit or a flush trim bit.



Drill, Then Cut – Cut a hole for dust collection in the top of the guard. Bedrosian uses a short section of 4" PVC pipe and drills starting holes before cutting the opening on his scroll saw. The opening needs to be near the back of the flat section on top of the guard so there is enough room towards the front to attach the support column.

Top it off

The sides of the guard are held in place by a single piece of 3mm thick polycarbonate that starts at the back of the guard and curves over the flat top section and down the front. Cut the polycarbonate to the outside width of the guard; 4-3/4" in my case. Before bending the polycarbonate to the shape of the ribs, cut an opening for the dust collection fitting. I used a short piece of



Heat It to Bend It – Clamp temporary spacer blocks between the two sides so you can drill screw holes to fasten the polycarbonate to the plywood ribs. Secure the top section first before bending the polycarbonate over the front and back. Bedrosian uses a heat gun to soften the polycarbonate where it bends over the tight radius from the flat top to the gently curved front and back. Heat the polycarbonate evenly from side to side until it bends smoothly.



Mark and Mount – Mark the mounting location overhead. With the guard in the correct location on the table saw, use a long straightedge to transfer the position to the ceiling. Bedrosian uses two pieces of plywood secured between the floor joists to hold the guard in place. Depending on your situation, you may need to add extra blocking between the floor joists to provide something solid on which to mount your guard.



CA Glue and Brackets – Bedrosian uses CA glue and four angle brackets to secure a short piece of 4" PVC pipe to the top of the guard. This will connect to his dust collection hose. The angle brackets also help to secure the polycarbonate top to the plywood ribs.

4" PVC pipe which I traced around the inside and cut the opening on my scroll saw.

Cut temporary spacer blocks to the inside width of the guard and use them to clamp the two sides in place. Align the 3mm polycarbonate on the top flat section and secure it near the front with a pair of screws into the plywood ribs. An automatic center punch works well and you can then drill the pilot hole through both the

polycarbonate and into the plywood before enlarging the hole in the polycarbonate. This ensures perfectly aligned holes for the pan head screws. Staying on the top flat section, plan ahead to use the holes for your dust collection fitting for the screws near the back. I used four small right-angle brackets with my PVC pipe, and I lined them up to be in the middle of the plywood ribs. Drive these screws in without the dust collector fitting, which you'll add once the top is bent over the front and back.

Polycarbonate will bend without breaking, but it takes a lot of force to get it tight to the ribs where the top transitions to the front and back. To help with this, I used my heat gun to soften the



polycarbonate to make this relatively sharp bend. After that, the polycarbonate should easily bend along the gentle curve on the front and the back without heat. Drive screws in where needed to hold the top securely to the ribs. You can now add the dust collector fitting. I used a bead of CA glue to hold the PVC pipe to the top and further secured it with right angle brackets.

Support the guard

With the blade guard complete, turn your attention to the support column. Your installation may differ from mine, depending on the height and type of your ceiling. For my 7-1/2' high basement shop, I used a 3' long piece of 3" square aluminum tubing mounted into the ceiling, and a 2' long piece of 2" square aluminum tubing fastened to the top of the guard. The smaller tubing fits inside the larger tubing and can be retracted or extended depending on the thickness of the workpiece. Aluminum can be cut with a carbide blade on your table saw or chop saw; be careful to hold the metal



One High Hinge – The upper part of the column is hinged so the guard can be folded out of the way. Bedrosian uses a clamp to hold the sections of tubing together as he marks the bolt holes. A U-bolt toggle clamp provides plenty of force when closed so the lower section of tubing is rigid.



Secure the Upper Section – The short upper section of 3" tubing is sandwiched between two pieces of plywood that are secured between the floor joists. Drill four bolt holes on each side of the tubing and then use a transfer punch to mark the corresponding holes in the plywood. Bedrosian uses blue tape to hold each nut to a wrench so he can get them inside the 3" tubing.



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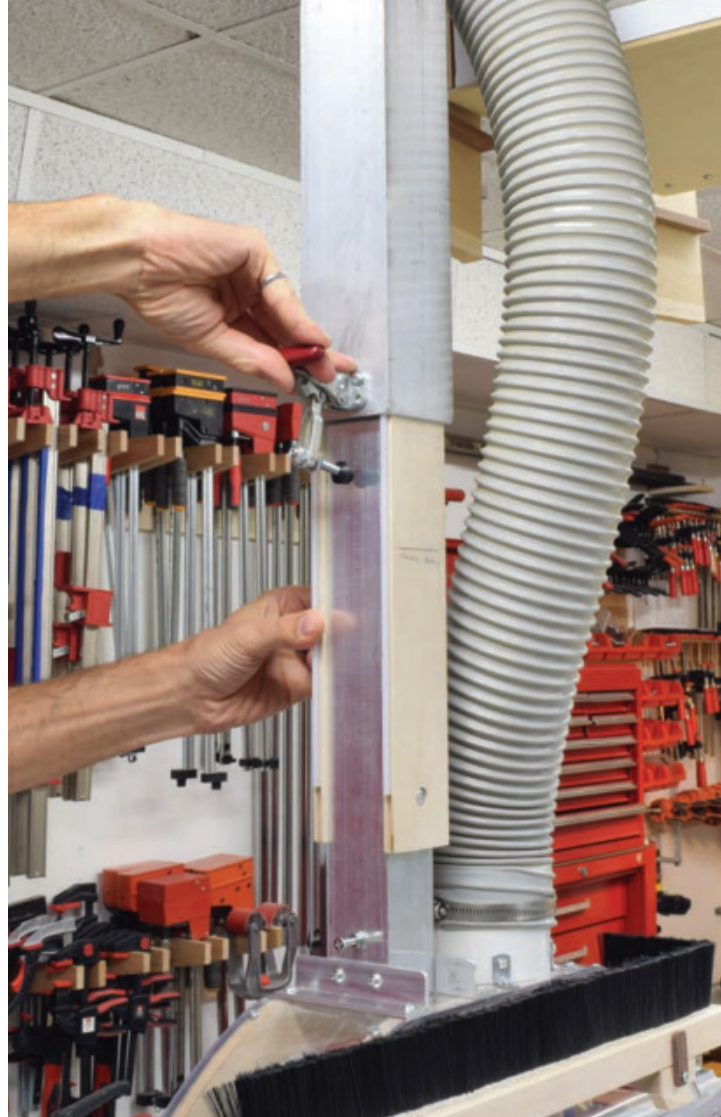
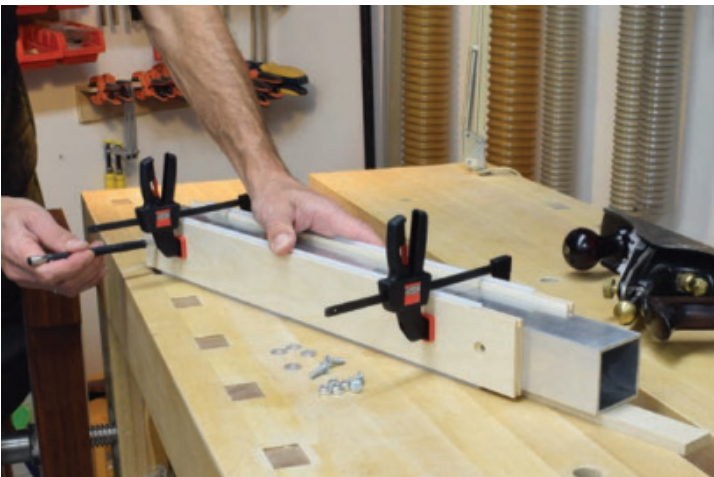
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Reduced Friction – Bedrosian routed 1/8" wide grooves in 3/8" thick plywood to accept 1/8" thick UHMW strips. The plywood is mounted to the side faces of the 2" tubing to reduce friction as it slides inside the 3" tubing. Use a scrap of 3/8" plywood under the 2" tubing so the plywood sides are offset equally.



Add Some Pressure – Bolt a toggle clamp to the 3" tubing so that it presses against the 2" tubing to lock it in place.

securely to prevent any kickback. Alternatively, the few cuts that are needed can be done with a hack saw.

My shop has a drop ceiling so I was able to remove some of the ceiling tiles and fasten support boards for the guard between the floor joists. To determine the correct position, set the guard over the blade so that it will cover your widest dado set as well as your blade tilted to 45°. Mark where the 2" tubing will attach to the top of the guard and use a long level to extend that location to the ceiling; this is where you want to mount the 3" tubing. I used two pieces of 3/4" Baltic birch plywood and secured them to the floor joists with wooden cleats. The plywood pieces should be 3" apart so the upper tubing fits snugly between them.

One of the features of this guard is that it can easily be folded out of the way to allow cutting tall workpieces. This is done by cutting off the top 7" of the 3" tubing and attaching the pieces together with a hinge and a U-bolt-style toggle clamp. Use a 3" wide hinge with a non-removable pin and bolt it to the left or the right side of the tubing, depending on which way you want the guard to fold.

Nested tubing

The 2" tubing needs to slide up and down inside the 3" tubing to allow the guard height to be adjusted. The inside dimension of

the 3" tubing is 3/4" larger than the 2" tubing, so I made up most of the difference with 3/8" thick Baltic birch plywood attached to opposite faces of the 2" tubing. My original guard had the plywood cut to width to fit precisely inside the 3" tubing which worked fine. With this improved guard, I wanted to reduce the friction of the plywood edges rubbing against the tubing so I added UHMW strips. If you choose to do the same, cut the plywood 2-3/8" wide and 21" long and then rout 1/8" thick grooves 3/16" deep on the long edges of both pieces. Cut 3/8" wide strips of 1/8" thick UHMW and insert them into these grooves to get the desired width of 2-3/4". Use a hand plane to shave down the UHMW until each board glides smoothly inside the 3" tubing before fastening them to the 2" tubing.

Bolt a toggle clamp near the bottom of the 3" tubing so when it's engaged it applies enough pressure to the 2" tubing to keep it from moving. Ensure the 2" tubing slides up and down easily. There should be a bit of play side-to-side since the plywood is slightly less than 3/8" thick, but there should be minimal front-to-back play with the UHMW strips. You're now ready to bolt the 3" tubing to the plywood that you previously mounted overhead.

Secure the guard to the 2" tubing with 1" by 1" aluminum angle stock cut to the same width as your guard. Bolt the angle stock to



Hang It High – The guard swings out of the way when not needed. Bedrosian uses a short section of chain fastened to the ceiling and hooks it to a bolt in the guard to hold it out of the way.



Spring for It – A spring helps to offset the weight of the guard so it doesn't crash down when the locking clamp is released. The upper bolt holding the spring should be positioned so the guard floats a few inches above the table saw with the locking clamp released.



A Nice Brush – Add a 2" brush to help with dust collection. A brush on the offcut side of the blade works best. Here, Bedrosian put the brush on the right side of the blade because he has a sliding table saw. In a typical cabinet saw application, the best place for the brush would be on the left side of the blade. Use small mounting blocks with locking tabs on the side of the guard to hold the brush in place. A 1/8" pin is glued into the wood and inserted in a hole in the side of the guard to lock the brush in place. The same blocks hold the brush upside down when it's not needed.



away 1/16" from the side of a long board, most of the sawdust was ejected from the side of the blade and wasn't trapped by the guard. To help with this, I added a removable brush that attaches to the side of the guard and extends around to the front as well. The brush fits snugly into a groove cut into a strip of maple clamped to the side of the guard. The same clamps hold the brush upside down when it's not required.

the tubing and use screws through the 3mm polycarbonate into the plywood ribs. Drill a hole above the angle mounting bracket all the way through the 2" tubing from front to back. Fasten a bolt in the front hole with about 1" sticking out the front. A short section of chain attached to the ceiling will hook over this bolt to hold the guard when it's folded out of the way. The bolt in the rear hole should stick out far enough to attach a spring that counteracts some of the weight of the guard. The other end of the spring is attached to a bolt in the 3" tubing.

Sweep up the dust

My original guard had outstanding dust collection for most cuts. The one exception was making cuts where the blade was only skimming the edge of the wood. As an example, when ripping

DAVID BEDROSIAN

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Reviews

Our staff writers review new tools and products on the market that are ideally suited to the woodworker and DIYer.

Bora 100" NGX Clamp Edge Saw Guide,
NGX Pro Saw Plate

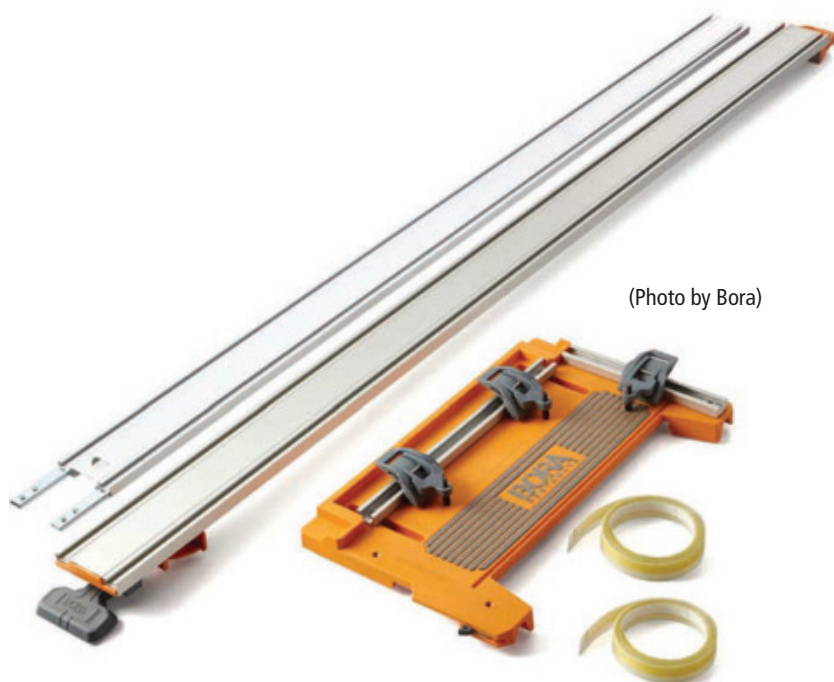
Break Down Sheet Goods With Ease

PantoRouter Pro-Pack

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Small, But Powerful



(Photo by Bora)

Bora 100" NGX Clamp Edge Saw Guide, NGX Pro Saw Plate

Sheet goods bring some serious benefits to the woodworking and DIY world, though if you work in a small workshop one major drawback is their cumbersome size. A table saw can break down a 4' x 8' sheet, but in many small shops it's almost impossible to get a full sheet to the table saw. Even if you can get a sheet to your saw, you may not have 8' clear in front of, as well as behind, your table saw to be able to rip it.

Track saws, with all their functionality, have been around for a while, but they don't come cheap. Bora has come up with a simple, more cost-effective solution to the main challenge surrounding working with sheet goods. Their 100" NGX Clamp Edge Saw Guide and NGX Pro Saw Plate can be set up to rip and crosscut sheet goods with ease. The system is available in 24", 36" and 50" lengths, and a 50" long extension is also available. I tested



Adjustable Positioning Fence – Before you can attach your circular saw to the Saw Plate for the first time, you need to adjust the fence on the plate. This will allow you to re-attach the saw accurately down the road without further adjustments.



Quick Alignment – There's an adjustable marker on the front of the Saw Plate that allows users to mark where their saw will cut. When the Non-Chip Strip is installed, users will also be able to align the edge guide with the pencil lines, making setup easier.

the 50" version with 50" extension. The extension attached to the 50" fence with four small screws. The resulting track was straight and rigid, and clamped securely to the sheet stock I was using. Best of all, I never felt like the track was going to slip while I was cutting. The Saw Plate comes with a length of Non-Chip Strip. The Non-Chip Strip is like a roll of thick tape that attaches to the Saw Plate to reduce tear-out. It applies downward pressure to the upper surface of the workpiece, immediately next to where the blade cuts.

Using the clamp edge system is easy. Determine if the extension needs to be added to your track, screw it to the main track if it does, add lines on your workpiece, align the track with the lines, position your saw on the Saw Plate, clamp it down and cut.

I find this track system works best when you're able to leave the circular saw in the Saw Plate. Although it's not overly hard to install the saw in the Saw Plate, it takes a bit of time, as well as a bit of fiddling. If you don't mind taking the extra few minutes to properly fix your saw to the Saw Plate before each use, this shouldn't be a problem. If you leave the saw secured to the Saw Plate, the process of making one cut takes about a minute or so, depending on whether you need to attach the extension. Add another minute or two if you do.

As helpful as their guide system is, Bora offers other accessories to make this edge guide system even more productive in your small shop. Track clamps allow you to clamp the fence to sheet goods at any angle, so you can easily and safely cut angles. Also, separate guide plates for use with either a router or a jigsaw are available that will attach directly to the same edge guide as your circular saw.

If you've been putting off venturing into the world of sheet goods because they're hard to handle, this guide system from Bora might be the perfect solution for you. The Bora 100" NGX Clamp Edge Saw Guide and NGX Pro Saw Plate is a cost-effective, simple and efficient solution to help woodworkers and DIYers with a common small workshop challenge of cutting sheet goods to size.

Bora 100" NGX Clamp Edge Saw Guide, NGX Pro Saw Plate

MSRP: 100" Edge Saw Guide: \$104, Saw Plate: \$57

Website: BoraTool.com

Tester: Rob Brown

PantoRouter Pro-Pack

This machine looks super cool. With its unique method of controlling and moving a router, it's impossible not to notice it right away. But this means nothing if the PantoRouter doesn't work well, help woodworkers produce quality joinery and maybe even add to their experience, too. I was keen to learn if the cool factor was all there was, or if this would be a machine that could help woodworkers of all stripes improve their woodworking.

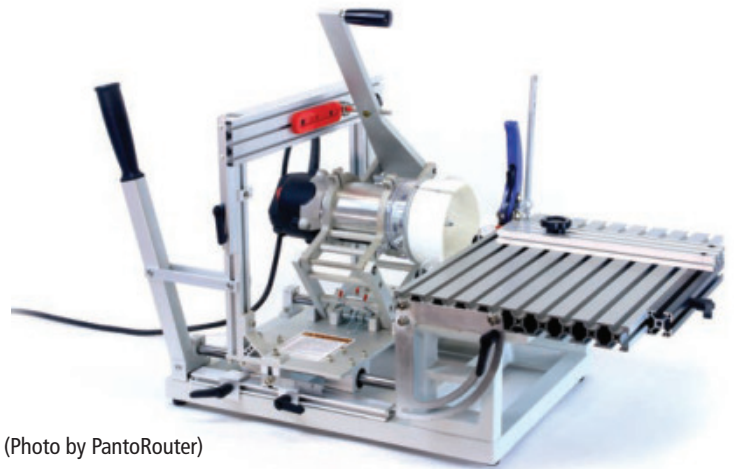
From the moment I started to unpack my PantoRouter I knew it was a well-made piece of machinery. It was packaged very carefully so nothing would get damaged during shipping. And this initial thought was only solidified as I continued to assemble the PantoRouter.

Assembling and fine-tuning took about 90 minutes, but it was surprisingly enjoyable to work with such accurately machined parts that fit together with such precision. The manual was also clear and helpful. As you can imagine, a machine with many moving parts,

and one that works with such accuracy, needs to be set up properly in order to work well. Thankfully, it wasn't overly complex to accomplish that task. The router bits included with the package were also of high quality, and I'm sure they will last a long time. Even the hold-down clamps that accompanied the machine worked smoothly and are a joy to use.

This is a well-made machine, but to me that was just the icing on the cake. I still needed to know if there was even a cake to ice. The machine is operated by using one hand to move a lever in and out to control the depth of cut.

Where the Magic Happens – When the guide bearing rides on the outside of the template, the tenon can be cut. When it's adjusted to ride in the center of the template, the mortise is cut. Many different templates are included, and you can even make your own if you wish.



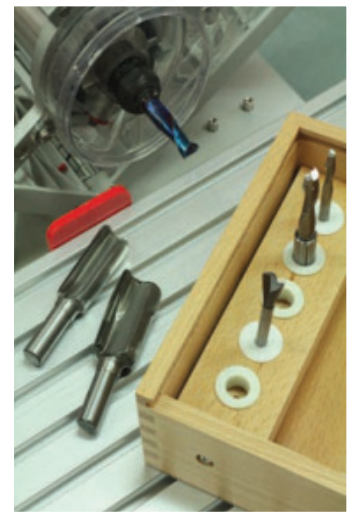
(Photo by PantoRouter)



Quickly Set the Thickness –

To adjust the height of the bit so it's centered on the workpiece is quick and easy. Place the workpiece on the stop, then move the template holder so it's resting on top of the workpiece.

(Photos by Rob Brown)



Quality All the Way –

The machining of the PantoRouter is high quality. Even the bits included with the machine are top-quality bits that will last.

The user's other hand operates the PantoGraph arm, causing the router to move left and right, and up and down. The bearing on the PantoGraph arm runs on the inside (to create the female portion of the joint) and outside (to create the male portion) of the template.

I started with a simple mortise and tenon joint in 7/8" wide stock to simulate making a standard cabinet door or face frame. Once again, the manual was clear and helpful, even though there's a lot for a beginner to consider. Using different templates, bearings and bits to create accurate joinery is what the PantoRouter is all about. Different combinations do different things, so the user needs to familiarize themselves with the options. I didn't realize this at first, and quickly created a beautiful 1/4" thick tenon for my 1/2" wide mortise. The joint looked great, but obviously didn't work so well. I'm not usually a guy who reaches for the manual, but I quickly realized I needed to. After 30 seconds of reading, I knew where I went wrong. Like most machines, it's simple to use once you know how. My next test M+T went much smoother, producing a joint that would stand the test of time.

The PantoRouter is capable of machining more than just standard mortise and tenon joints, though. You can also create double, triple, angled and compound angled mortise and tenons on virtually any workpiece. Next, you can jump into box joints, dowel joints, and both fixed and variable spaced dovetail joints. Finally, the option to create custom-shaped joints will allow you lots of flexibility for unique situations. I tested the PantoRouter Pro-Pack, which has everything you'd even need. Their PantoRouter Basic is meant for a workshop where the machine will be set up for a single operation, and left that way. It's about \$750 less.

The bottom line is this: The PantoRouter has the potential to be a highly versatile joinery machine in any shop. It's got loads of flexibility, is very accurate and is made with quality in mind. You can't really think of this machine as just one machine, as it can do so many things. If you take the time to learn the ins and outs of this versatile system, you'll be rewarded with great joinery and, in turn, strong, beautiful and lasting furniture.

PantoRouter Pro-Pack

MSRP: \$1849 (PantoRouter Basic: \$1095)

Website: PantoRouter.com

Tester: Rob Brown



(Photos by Record Power)



A Solid Stand – The optional stand is well built and provides a stable base for the lathe. Alternatively, the lathe can be mounted directly to a shop-made support surface.

Record Power Coronet Herald Lathe

I had the chance to check out a new Coronet Herald lathe by Record Power recently. I've had the chance to check over a number of bench-top lathes on today's market, and the Herald has a few advantages and several good things going for it. It's a bit larger than most bench tops on the market in Canada, letting you turn a 14" diameter piece inboard and 20" long, which is a good size to start with in a small shop. There are different accessories available for the lathe as well, making it easy to customize to fit your needs. Like most bench tops these days, you can get a stand, bed extension and different rests for the lathe. Stockroom Supply is the exclusive Canadian dealer of Record Power machinery.

Right away I noticed that the lathe was packed well. There were a lot of parts, but overall assembly was not too difficult. This lathe does require a bit more assembly than most bench-top lathes, but I was finished in about 45 minutes. The end user does have to mount the motor on the machine, and having someone to help makes this go a little easier. Assembling the stand also goes better with two people. The spindle is driven by a serpentine belt, pretty standard now on lathes, and it's something I like to see. A serpentine belt can withstand more stress than a V-belt, and they typically run a lot more smoothly and quietly, as well. The internals of the headstock look to be fairly beefy. The pulleys are nicely machined, and the indexing numbers are easy to read.



Well Built – The numbers for the indexing system are easy to read, and the drive uses a wide serpentine belt for more power and less vibration.

Overall, the machine seems well cast and machined. The castings have a good thickness to them. The spindle uses a 1-1/4" 8TPI thread, not typical of small machines, but I don't mind that the spindle thread is heavier.

This provides for a better mount for chuck work, and especially because you can turn the headstock on the Herald for outboard bowl work — a good feature.

Once I had the machine set up, I roughed out a few cylinders and worked the machine with a heavy gouge. I was surprised at the power the lathe seems to have. Usually a bench-top machine can be slowed down significantly with aggressive cutting, but I found that the Herald didn't seem to drop much speed when taking a heavy cut. One thing I did notice is that the RPM display on the Herald just shows the RPM the machine is set at; it doesn't show actual RPM. The upside of this is that unlike machines with a real

time sensor, you can see what the RPM is set to before turning the machine on. The downside is that you don't get any feedback about how hard you're working the machine. You also have to manually change a setting on the controls when you move belt positions so it shows the right speed.

I found the lathe didn't vibrate excessively even at higher speeds. I think the stand design works well for this size of machine. The legs splay out, making the machine fairly stable, but are on the verge of being intrusive in the workspace, however, because they stick out quite a bit.

The banjo and tool rest are fairly beefy castings, and everything operated smoothly. I think the locking handle for the tool rest could be improved a bit. It is quite small, and I wasn't really sure how secure I was locking the rest at first. It took some time to get used to. It's also not a ratchet handle, which means I can't reposition the handle if it ends up being in my way when I lock it.

Overall, I think that the Coronet Herald lathe is a really good machine. There are a few tiny details I would improve if I were trying to create the perfect bench-top lathe, but overall it has some strong points. It has excellent turning capacities for a smaller machine, and it has good, steady power when turning. You don't feel the machine bog down at all. These two features are important for a small lathe.

Record Power Coronet Herald Lathe

MSRP: \$1699

Website: RecordPower.co.uk / StockroomSupply.com

Tester: Rich Keller

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Universal Table Saw Sled

As woodworkers are well aware, it can be challenging to achieve accuracy and safety when working on a table saw. This multi-functional sled will help with both of these critical tasks, and open up new machining and joinery options for you, too.

With a career originally as a tool and die maker for 16 years, tight tolerances have always been a top priority for me, and using efficient machines to achieve these standards was always paramount. This habit carried over when I started woodworking. Over a few years, the challenge to plan and create a universal table saw sled to accommodate tight tolerances and perform a variety of cuts in a safe manner was investigated.

As a self-taught craftsman, reading was originally the only way to gain further knowledge in order to continuously develop skills. Access to online information has exponentially accelerated this capability. The universal table saw sled described in this article is a continuous improvement project based on using it in the shop.

There are a lot of metal components in the plan for this sled, though it could be adapted to use mainly wooden components. Wooden components might compromise the longevity of the sled, but those parts could be replaced down the road, if needed. If you build a sled to match mine, some previous metalworking experience is recommended.

Safety first

Firstly, this universal table saw sled can perform a variety of cuts in a safe manner.

This project was accomplished through several prototype trials with attention to safety by using clamps to hold a workpiece in place. Sliding a workpiece while it's clamped securely to the table is safer than holding a workpiece by hand. Usually the user relies on their hands to guide a wood piece past the blade, against the fence. This sled allows the piece to be clamped to a guided base so hands can be placed far away from the blade.

One key component that allows the table to travel effectively in the mitre slot is the steel runner that allows for a 0.008 sliding fit. The runner is regularly waxed for a smooth, consistent motion.

After many trials using different types of materials, such as plastics, plywood and phenolic, Baltic birch plywood proved to be the most effective for the table. The skill of mastering a table saw confidently and safely takes many years, but with this sled a novice can achieve great results much faster.

Versatility second

Secondly, the versatility of this sled is endless. There is no need to use the fence on the table saw, eliminating the need to place fingers next to the blade and risking possible kickback because the piece gets caught between the fence and blade. Also, possible burning on the edge of a board when cutting woods is eliminated. Instead, a smooth finish is produced when using a sharp blade.

This sled will give the woodworker the ability to cut the following:

- Cross-cut boards to length, and do it repeatably with extreme accuracy;
- Rip parallel boards repeatably up to about 6' long with an edge ready for lamination;
- Cut tenon lengths repeatably;
- Cut tapers on workpieces up to 5' long;
- Cut dadoes, rabbets and grooves;
- Cut finger joints;



Some Purchased, Some Made – The metal components in this build offer challenges to some woodworkers, but they also offer strength and versatility in the long term. Some of the components are bought, while others are made.

- Square up panels;
- Cut bevels or grooves on the edge of panels; and
- Cut thin slices safely for edging.

The build – sled board

Cut 3/4" Baltic birch plywood into an L-shape. Locate the runner using the dimension from the table saw blade to the mitre slot, leaving at least 1/16" of extra material for trimming once the sled is fully complete. Use the side opposite to the side that your dado blades are added, so when cutting dadoes the dado stack doesn't cut into your sled base.

Locate the center of the runner, then drill and countersink holes about 18" apart for a 1/4-20 flat head bolt. Transfer the holes to the 3/8" x 3/4" flat steel runner in the centre of its width. Drill and tap 1/4-20 threads to fasten the runner to the table. Mount the runner to the underside of the L-shaped plywood sled base. Cut the excess 1/16" off of the sled edge on the table saw to make an accurate starting point to build the rest of the sled from.

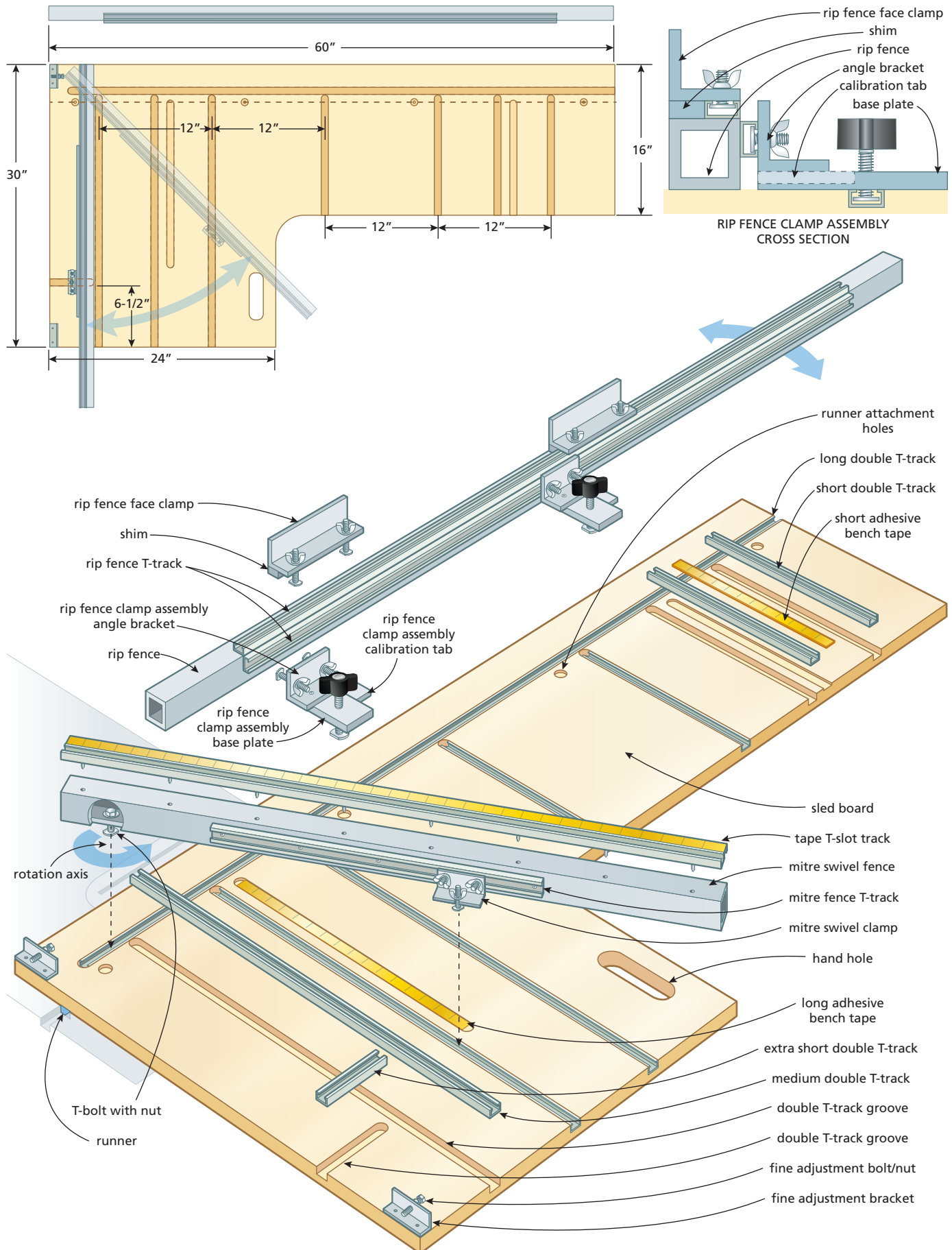
Cut the 3/8" deep x 3/4" wide dadoes that will house the double T-slot tracks. One option for machining these dadoes is to use a straightedge clamped to the plywood base to guide a router that's equipped with a straight router bit. Next, using a slotting router bit, cut the undercut to allow the double T-slot tracks to slide into place. This will allow for the double T-slot track to slide in place. Pre-drill, then add screws to secure it in place to keep them from sliding.

Cut a 1/2" wide x 3/32" deep dado to allow for the installation of a flush adhesive bench tape perpendicular to the cutting edge.

The rip fence

Cut 1-1/2" x 1-1/2" aluminum tubing 5' long. Make the two rip fence clamp assemblies from aluminum angle and plates. These assemblies will run in the double T-slot tracks and secure the rip fence in position in two places. Which two double T-slot tracks the user chooses depends on the angle of the rip fence. This versatility is one of the benefits of this sled.

(continued on page 58)

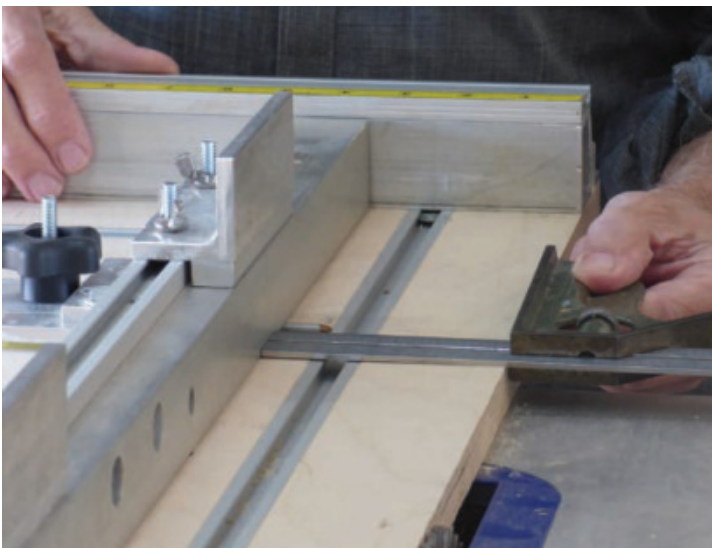


Materials List

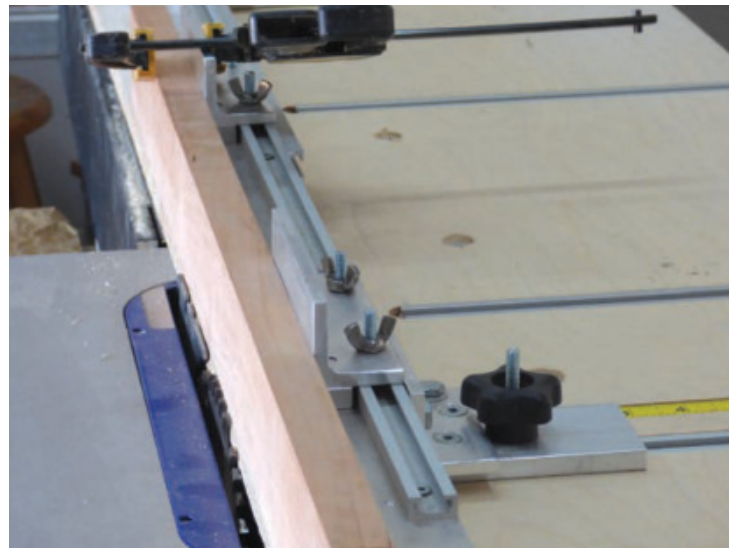
Part	Qty	T	W	L	Material
Sled Board	1	3/4	30	60	Baltic Birch Plywood

Hardware List

Name	Qty	Size	Details	Supplier
Fine Adjustment Bracket	2	3/4 × 3/4 × 3	Aluminum Angle Iron .125 Wall	Metal Supplier
Fine Adjustment Bolt / Nut	2	1/4-20		Hardware Store
Mitre Swivel Fence	1	1-1/2 × 1-1/2 × 36	Aluminum SQ. Tubing .25 Wall	Metal Supplier
Mitre Fence T-Track	1	3' Long		Lee Valley
Mitre Swivel Clamp	1	1 × 1 × 3	Aluminum Angle Iron .125 Wall	Metal Supplier
T-Bolts	10	1/4 -20 × 1'		Lee Valley
Rip Fence Clamp Assembly - Angle Bracket	2	3/8 × 2 × 4	Aluminum Plate	Metal Supplier
Rip Fence Clamp Assembly - Base Plate	2	1-1/2 × 1-1/2 × 6	Aluminum Angle Iron .25 Wall	Metal Supplier
Rip Fence Clamp Assembly - Calibration Tab	2	1/4 × 1 × 2	Aluminum Plate	Metal Supplier
Knobs - Female	2	1/4-20, 1-3/4 Diameter	#00M5020	Lee Valley
Adhesive Bench Tape	3	1/2 wide	Two long, one short	Lee Valley
Double T-slot Track - Extra Short	1	About 5" long	Use an offcut	Lee Valley
Double T-slot Track - Short	2	2' Long	Cut in half to obtain four tracks 1' long	Lee Valley
Double T-slot Track - Medium	3	2' Long		Lee Valley
Double T-slot Track - Long	2	3' Long		Lee Valley
Rip Fence	1	1-1/2 × 1-1/2 × 5'	Aluminum SQ. Tubing .25 Wall	Metal Supplier
Rip Fence T-Track	2	4' Long		Lee Valley
Rip Fence Face Clamp	2	1-1/2 × 1-1/2 × 6	Aluminum Angle Iron .25 Wall	Metal Supplier
Shim	2	3/8" × 3/4" × 6	Aluminum Plate	Metal Supplier
Flip-Stop	1	1-1/2	13K1208	Lee Valley
Tape T-slot Track	1	3' Long	13K1203	Lee Valley
Runner	1	3/8 × 3/4 × 5'	CRS	Metal Supplier
Wing Nuts	10	1/4-20		Hardware Store
Hex Bolts	10	1/4-20	Varying Lengths	Hardware Store



Set Up for Ripping – A combination square will assist with setting up the rip fence so it's parallel to the cut line.



Time to Rip – Here, the rip fence is in use, as are the rip fence face clamps.

(continued from page 55)

Mount T-track to the side of the rip fence with screws to allow the rip fence clamp assemblies to slide along the T-track for angle adjustment. Attach another T-track to the top of the rip fence using screws. This will allow the rip fence face clamps to be used for face-clamping purposes.

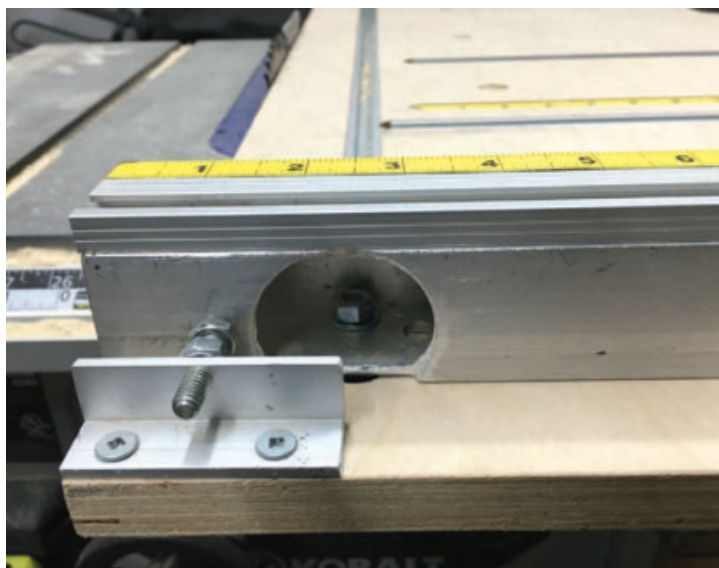
Mitre fence

Cut 1-1/2" × 1-1/2" aluminum tubing to 36" long. Add a tape T-slot track on top of the fence so the flip-stop is able to slide along the mitre fence for repeatable length adjustment. Add the two fine adjustment brackets, along with the screws and nuts, at each end to square up the mitre fence.

The mitre fence is able to swivel for angle cuts by adding a T-track to the rear face of the mitre fence. The end of the mitre



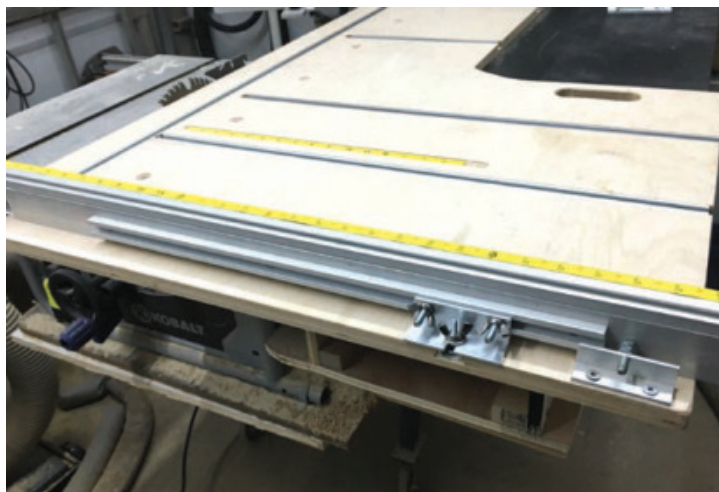
Any Angle – The mitre swivel clamp can be repositioned in the mitre fence T-track so virtually any angle can be achieved.



Pivot Point – The mitre fence pivots on the long double T-track. A cutout was made in the mitre fence so the user can easily access the nut to tighten this end of the fence.



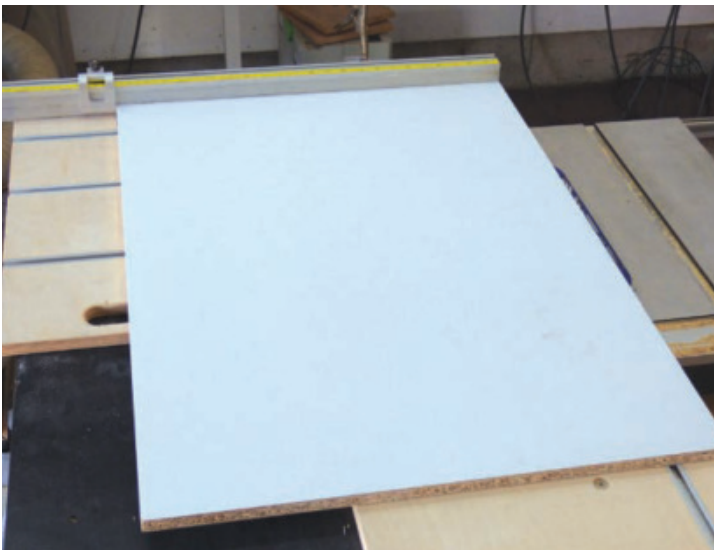
Remove the Rip Fence – It's even possible to rip without the rip fence. By using a few shop-made, hold-down devices you can treat your sled like a jointer and cut square, glue-ready edges.



90° Cuts – The far end of the mitre fence can be fine-tuned to create a square cut. Fine adjustments bolts at both ends of the mitre fence keep the fence square.



Measure, Then Clamp – Measure the angle of the mitre fence against the cut edge of the sled, then clamp it in place.



Sheet Stock – Large enough to cut most sheet good parts to size, this sled will help out with more than just solid wood.

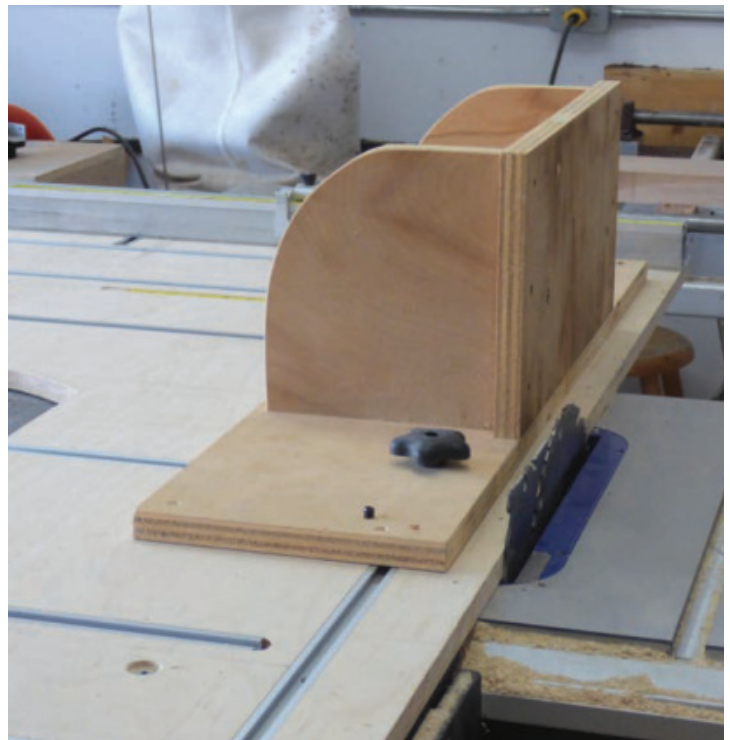


Clamp It Down – Shop-made hold-down clamps are very useful to have around. Make at least three, and you'll be happy you did.

fence closest to the user gets attached to the long double T-slot track, while the mitre swivel clamp can secure the other end of the mitre fence to either the extra short or medium length double T-track.

Setting it up

When setting up the rip fence, use the recessed tape or a combination square. If you install the front end of the tape equidistant from the cutting edge you can reference off the rip fence clamp assembly calibration tabs for quick reference. If you make the holes to attach the calibration tabs to the rip fence clamp assembly



The Sky is the Limit – Angled surface attachments come in handy for different joinery applications. You could even clamp or screw stops to the face of this attachment to hold workpieces.

slightly oversized you can also adjust the tabs to make up for any imperfections. The rip fence will give you highly accurate and repeatable cuts. For the mitre fence setup, use a protractor to set any angles.

Possible accessories

Hold-down devices are easy to make and come in very handy. Make three right away, and you'll never regret it.

You could make a plywood 90° surface to cut larger panels if you thought you might benefit from this capability. Jig hardware will allow you to quickly attach it to the existing T-tracks, giving you a right-angled surface to attach stops to or just clamp a workpiece to.

A finger joint attachment is also easy to make and will give you the option of creating this strong joint in the future.

Generating your own universal sled could provide years of accurate, safe and confident use of your table saw to help you produce high-quality wood projects.

Brian builds fine furniture and provides woodworking classes using hand tools in the London, Ontario, area. You can see some of his work on Instagram @donaisbrian.



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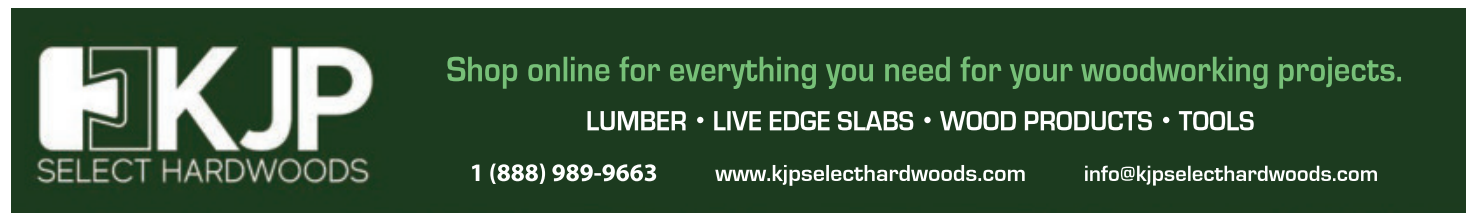
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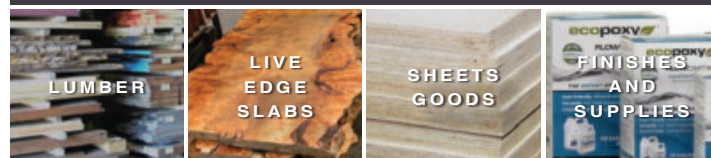
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Sharing Space

My small workshop would feel a lot bigger if it wasn't also the home to kids' toys, yard tools, firewood and more.

BY JAMES JACKSON

I have what you might call a small workshop. I guess. To be honest, I've never really had a proper workshop so I don't have much to compare it to. I'm not even sure if it would qualify as a workshop given all the other stuff that lives in it most of the time.

We had a 8' x 10' shed installed in our backyard last summer and I had high hopes it would become a place where I could set up a dedicated stand for my mitre saw, maybe get a small drill press and store my tools all nicely organized on one of the walls.

Things haven't quite worked out that way.

Eighty square feet sounds pretty big on paper, and even when it's empty it seems like there's space to spare. But that's not always the case.

Tools are big, they're bulky and they take up a lot of room. But so does the lawnmower, the gardening tools, the kids' bikes and scooters, and all the other non-woodworking items we need to keep in there.

We don't have a garage, and our basement is unfinished, but it's where we wash and hang the laundry to dry, and where we keep some workout equipment, so my wife is pretty hesitant to let me start sawing and cutting down there. The noise alone would carry throughout our 900-square-foot home with ease, never mind the dust.

So I was hopeful the new shed would become a sanding sanctuary. A whittling wonderland. A project paradise. Instead, I'm tripping over the weedwacker while reaching for a box of screws, scattering them across the floor. Oh, and the ladder fell on

my head the other week while I was moving some wood I had stacked nearby.

I thought cuts and scrapes were the big threats in woodworking, not twisted ankles and concussions.

Yet 8' x 10' would be more than ideal for many woodworkers. I've never been a very organized person, and perhaps my scattered workshop and disheveled desk reflect my disorganized mind.

My father-in-law has created many wonderful pieces of woodworking in his basement workshop that's not much bigger than mine, while my father has the luxury of a modified drive shed that's heated, well-lit and big enough to park two cars inside with extra space to spare. And every now and then he laments it isn't bigger.

I think he's joking, but it's hard to tell with him sometimes.

I'd love a full-size garage that I could convert into my own workspace - or at the very least, a space where I don't have to run an extension cord out from the house just to get some power for my tools.

I read an article once that said the absolute minimum for a shop should be about 75 square feet, and the ideal space is about 125 square feet. I'm barely above the minimum, but I'm still far from the ideal.

The trick is to have a dedicated space, I think, and not one you have to share with inflatable pool toys or lawn chairs.

Maybe the size of the woodshop isn't as important as what you make in it. If my shop spills out into the driveway or backyard during the warm summer months because I need the additional space, and if it goes largely quiet in the winter because of the winter conditions, I'm okay with that, too.

JAMES JACKSON

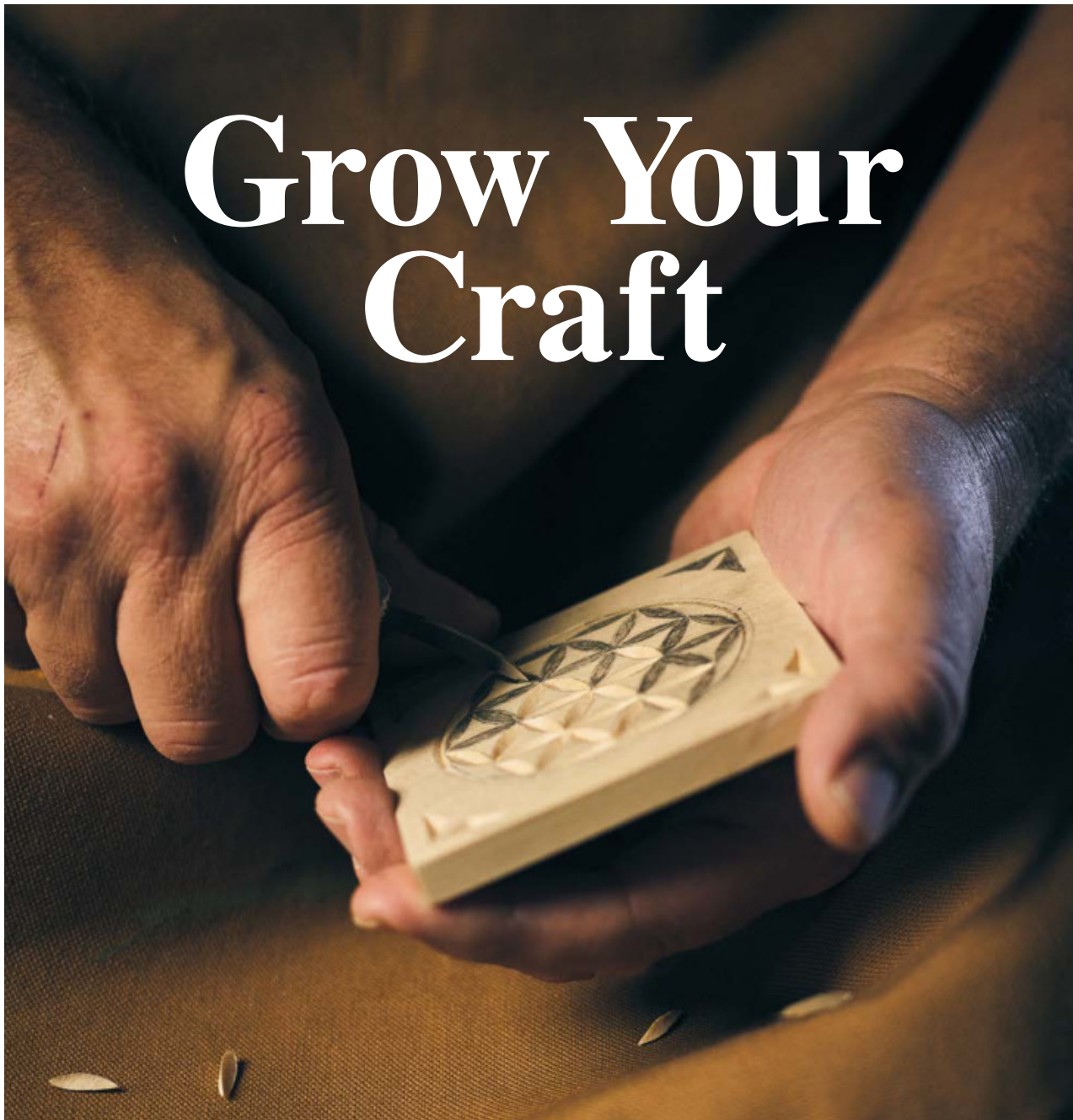
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Illustration by Mike Del Rizzo



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 **Lee Valley**

A black wooden chair with a woven seat, designed by Seth Christou. The chair has a modern, minimalist design with a black finish. The seat is made of a light-colored, woven material. The chair is positioned in a room with a concrete floor and a wooden table in the background. A potted plant is visible in the foreground on the left.

Seth Christou

Head of the Table

Designed a bit larger and slightly different from the others in this set, this chair was for the head of the table. With its more relaxed geometry, it also makes after-dinner conversation more comfortable, too. The black finish is always a challenge, says Christou. “The finishing process on this is quite time consuming, and sometimes doesn’t work the way you want it to. I spent some time getting the black dialed in.”

Turn to page 12 for more quotes.
(Photo by Seth Christou)