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CANADIAN Woodworking & HOME IMPROVEMENT

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COVER STORY

Cover photo by Rob Brown

editor's letter

Typically, the summer is pretty busy for everyone. Travel, camping, barbecuing and relaxing all come in pretty high on our lists. Woodworking sometimes gets left behind, although simple, fun projects that don't take too long to complete are perfect for summer. Given that starting a Philadelphia-style highboy might not make the best summer project for most woodworkers, we hope a few of the articles in this project-packed issue will give you enough time to go camping and relax in the backyard, and also get you into your shop now and then.

rbrown@canadianwoodworking.com

Speaking of backyards, three of our projects may end up in your backyard — a kids' play structure, a cedar planter bench and a serving tray. Admittedly, the play structure won't be completed quickly, but it will allow you to spend time outdoors while building it, as well as time with your kids (or grandkids) when it's complete. The cedar bench will add a hit of colour, as well as a place to rest, while you're around the pool or entertaining company outdoors. The serving tray will come in handy whether you're enjoying a quiet breakfast on the patio or having friends over for a few drinks. This is the Rolls-Royce of serving trays; the figured veneer and quality joinery will make you look great. If you're not into working with veneer, start with a piece of veneered plywood and you'll finish this project in time for company tomorrow.

Our fourth project in this issue is a scroll-sawn sign. The approach described by Lesley de Abaitua will give you a solid foundation for creating all sorts of whimsical, beautiful signs. Her approach is simple, but the results look stunning.

Last, but not least, is a beer caddy I write about. It's intended to be used as a gift to be passed along, and the interesting surprise for each recipient is a list of past gift-givers on the underside of the caddy's bottom panel. Sign your name on the caddy, give it to a friend as a "thank you" and they can pass it on, too. I'm hoping to hear where my beer caddy's journey takes it, as I added my email address to the bottom panel, too.

With all of these great projects, I'd understand if you were tempted to shorten your holiday camping trip, but I don't recommend it. A bit of shop time an evening or two per week, and sneaking away for a few hours on the weekend, will be just enough to scratch that shop itch while keeping your family's camping plans intact. Send me a few photos of your summer projects. I'd love to be able to share them in an upcoming issue.

— Rob Brown

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CANADIAN Woodworking & HOME IMPROVEMENT

Issue #133

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Print and digital subscription in Canada (plus tax)

1 year	6 issues	$27.97
2 years	12 issues	$49.97
3 years	18 issues	$64.97
Single copy		$6.97

Inspiring media

Canadian Woodworking & Home Improvement is published by Inspiring Media Inc

PO Box 808, Niagara on the Lake, Ontario L0S 1J0 Canada
Telephone 519 449 1221
Facsimile 647 370 0864
Email publisher@canadianwoodworking.com

Canada Post Publications Mail 40035186
ISSN 1921-6432 (print) ISSN 2371-9028 (online)
HST 85195 6862

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letters

Thanks, *CW&HI*!

Rob,

I'm a cabinet-making and construction teacher at Lord Beaverbrook High School in Calgary, AB. Thank you for publishing *CW&HI*. Few resources are distinctly Canadian, and it actually makes a big difference to readers like me. I like a magazine that features the actual price I would pay, and provides me with information about local sources for tools, jigs, etc. How many times have I seen a tool in *Fine Woodworking* that is only $45, but after currency exchange, taxes, import duties and fees, and shipping it becomes a much bigger adventure?

You feature local woodworkers. I'm just in the process of trying to connect with Seth Christou, who I only learned about via *CW&HI*'s June/July edition.

Your offer to supply subscriptions free to shops – so few people take a pro-active approach to reaching young people this way.

On top of all this, the articles are interesting and relevant. I even enjoy the sponsored content you feature. The magazine industry seems less profitable and stable than ever. Your magazine is important to the future of woodworking in this country, and I appreciate the effort you must be making to sustain it.

Thanks, *CW&HI*!

Josh O.

Via email

Reader Project

Scrollsaw pattern designed by Steve Good and executed by Peter McKenna. The tree is made of Baltic birch and the background is oak plywood.

To view readers' photos, and to submit your own, please visit canadianwoodworking.com/share-photos.

"Working in a Small Shop" 2021 Edition

Rob,

I am a long-time subscriber and have read many previous "Working in a Small Shop" editions. This year's issue is a total disappointment. It could more accurately have been called the table saw edition. What articles were exclusively relevant to a small shop? As far as I can tell there weren't any. As I only have a small shop, this was a big let-down. I usually really enjoy the day the magazine arrives in the mail but today wasn't one of those days.

Regards,

Tony I.

Via email

Hi Tony,

Thank you for your message. I'm sorry to hear you didn't enjoy the June/July issue. It's always tricky to balance each issue with a range of content we hope readers will find helpful. There were three articles dedicated to table saw usage, but I hope you were able to enjoy some of the other articles in the issue.

Although some woodworkers with a small shop don't have a table saw, there are many who do. These days, decent jobsite tables don't take up much room, and they're light enough so they can be moved around fairly easily. Table saws can also be multi-functional, adding to their appeal.

Thanks again. — Rob Brown, Editor, CW&HI

Dollhouse Project

Dear Mr. Brown,

On the internet I searched for a construction drawing of a dollhouse that I wanted to build for both my granddaughters. I saw one in your Dec/Jan 2009 issue. It is a beautiful, simply executed dollhouse by Michael Kampen. Recently, I completed the construction of this dollhouse. I cut almost 700 wooden roof tiles (25 x 30 mm) for the roof.

Many thanks,

Tjeerd de Jong

Elst, The Netherlands

Great Issue. Great Content.

Hey *CW&HI,*

Super-solid material coming from you folks! I'm a woodshop teacher and I have just colour-printed and laminated your Workshop Poster series for the classroom. As well, I have been linking to tons of your articles since we've moved to online learning due to COVID-19. It has been amazing and incredible to have these articles to share with my students.

Your latest "Working in a Small Shop" issue – especially the article on wedges – was just awesome for me personally. So interesting.

Thank you so much,

Gord W.

Via email

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Tool Reviews

View these reviews and more at:
canadianwoodworking.com/**reviews**

Carhartt Work Jacket

Stick Vacs

Micro Mystery

Can you guess this object commonly found in most shops?

Follow us on Instagram and Facebook to see regular close-up photos of common workshop tools and objects.

We will post the answer to this one in our Oct/Nov issue.

Previous issue: Nailing pins

Best Build

Check out the **Turning** section of our forum for our latest "Best Build" thread – a Tage Frid stool. This month's winner, Jim Belair, wins a **Veritas Dual Marking Gauge** 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

Design & Build a Wall Unit

With some planning, and the right approach, an intermediate woodworker can make a great wall unit.
canadianwoodworking.com/free-plans

Product Watch

dB4 Acoustic Floor Underlayment

This new underlay from Trimaco is designed with a mass loaded material (polyolefin Elastomer) attached to a polyester fibre layer. The combination of the materials significantly reduces both airborne sounds and structural vibrations, including voices, television, music and footfall noises in multi-family units or office buildings. It has a very high Delta IIC rating (a measure of performance gain in sound reduction).
trimaco.com

Milwaukee Stabilizer Performance Knee Pads

If you're down on your knees a lot while working on the jobsite or around the home, protecting your knees should be top of mind. These new performance knee pads from Milwaukee Tools are equipped with large flat caps, making them the most stable knee pads for working in stationary locations, and layered gel that absorbs pressure to support the knee during all-day kneeling. They come with an integrated hinged thigh strap for better mobility, allowing you to more easily move around on your knees or when standing up.
milwaukeetool.ca

Video Links

canadianwoodworking.com/**videos**

Canadian Quotes – Nathan Sterkenburg

How to make patterned inlay banding

Forum Thread

Check out these, and many other, home improvement threads at ***forum.canadianwoodworking.com***

- **What wood and footings for pergola / arches?** – One of our members was considering some aesthetic arches, but didn't know how to fix them in the ground. Our other members offered up some advice on how to make lasting arches.
- **How do I firm up loose anchors in brick?** – If brick isn't holding onto an anchor as planned, here are some thoughts on how to fix that frustrating 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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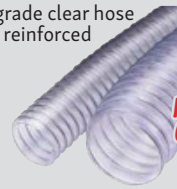

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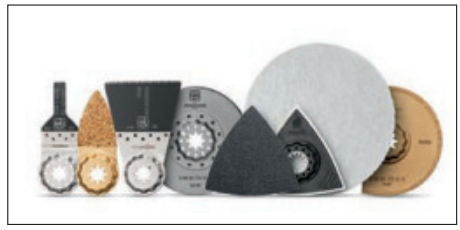
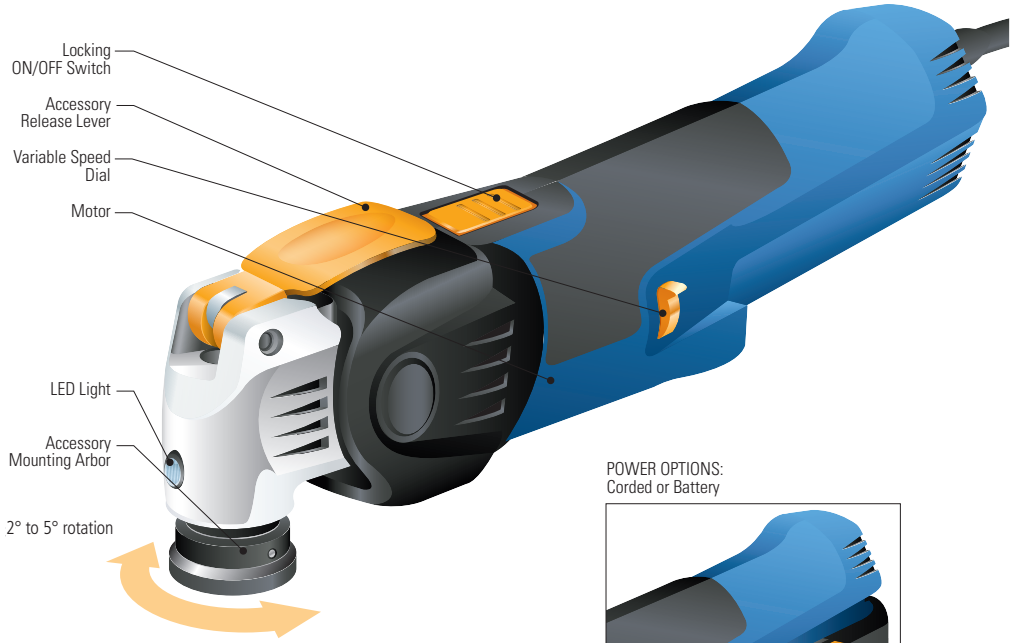
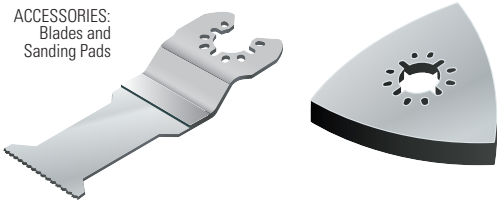
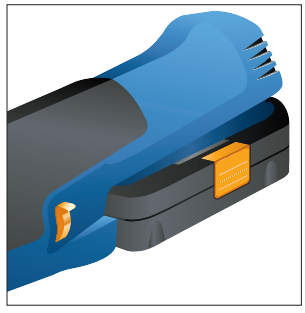


Oscillating Multi-Tool





POWER OPTIONS: Corded or Battery



An **OMT** operates by high-speed oscillation, rather than rotating or reciprocating motion. Oscillating motion moves in a side-to-side, arced motion, like a clock pendulum. It's this narrow angle of movement (from about 2° to 5°) and fast speed (up to about 22,000 oscillations per minute) that provides you with an unmatched degree of control. There are professional- and hobbyist-grade models in corded and cordless formats, available as a tool-only or in a kit with various accessories. The **attachments** (a.k.a. accessories) that do the work include various blades for sawing, cutting, scraping and grinding, and sanding pads that are typically triangular but can also be round. A clamping mechanism secures the attachment to the tool. Manufacturers use various clamping mechanisms (a.k.a. mounting systems). Some, like the Fein/Bosch Starlock system, are hands-free. Others require you to use a tool to change the attachment. While attachments are not always interchangeable across brands, there are some **universal adapters** that fit onto a tool's clamping mechanism that enable it to accept attachments from different brands. An OMT is not a replacement for a conventional sander, jigsaw or grinder, but a complementary tool. Benefits include ease-of-use, the wide array of functions it carries out and its ability to reach into constricted spaces.

Price: $60 to $260 (tool only)
$60 - $530 (kit)
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Speed: 0 – 22,000 OPM (oscillations per minute)
Oscillating angle: 2° to 5°
Weight: 3 to 4.5 pounds

Get the Most Out of Your **Oscillating Multi-Tool**

Use the Right Attachment

There are dozens – if not hundreds – of specialty attachments available. To get the best performance from your OMT use the attachment that's recommended for the task at hand.

Get a Good Grip

OMTs vary in size and weight. While some can be used with one hand, most require a two-handed grip. Tools with a large circumference can be tiring to hold for extended use. Choose a model that best suits your hand size and how frequently you'll likely use the tool.

Consider Variable Speed and Soft-Start

Not all OMTs have variable speed. Being able to reduce speed makes the tool more manageable and helps you increase precision. A soft-start function prevents the tool from jerking when started, delivers smoother speed acceleration and reduces motor stress.

Spend More, Get More

There is a wide price range in OMTs. If you will be using the tool on a regular or daily basis, then opt for a higher priced, pro-grade tool. They typically have better ergonomics, less vibration, tool-free mounting systems and longer warranties.

Make the Kit Fit

While kits are generally more economical than purchasing a bare tool, make sure that most of the items in the kit are ones you will likely use.

Photos by Rob Brown Illustration by Len Churchill

DON'T JUST Finish IT. Varathane IT.

SINCE 1958

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toptenTop10

Finishing Accessories

Along with your favourite topcoats, dyes and stains, these accessories will help make finishing your next projects easier and quicker.

BY CARL DUGUAY

1 Card Scraper – Sanding leaves dust on your project and in the air – a bane to finishing. A card scraper, on the other hand, produces shavings. Unlike sandpaper, it will last a lifetime if properly maintained. You can go straight from the card scraper to laying on your topcoat. Note: sandpaper works better on softwoods, as a card scraper has a tendency to compress these wood fibres rather than shear them off. I like the super-hard milled scrapers from **LeeValley.com** that come in four thicknesses.

2 Paper Bags – After the final topcoat has dried you gently caress the surface of your project with your hand only to feel the tiniest of dust nibs scattered across the surface. Don't panic. Instead, reach for a brown paper bag and gently rub out the dust nibs. The bag is just rough enough to flatten them without blemishing the surface.

3 Cork Sanding Block – While you can use sandpaper with just your hand or wrapped around a block of wood, I like to use a cork block. It's light in weight and with the right firmness to follow high and low spots on wood surfaces. I get mine from **SageRestoration.com**.

4 Coloured Putty Sticks – One of the easiest ways to conceal small pin or brad holes, along with scratches and gouges, is with putty sticks. The sticks come in a wide range of colours, and when applied the putty won't shrink. You can apply any topcoat over the putty. I get mine from Dover Finishing Products at **Dfp.ca**.

5 Painter's Pyramids – I've only been using these for a short time, and now find them indispensable. They keep project parts off the workbench and allow you to apply finish to both sides of the project piece. Available from **LeeValley.com**.

6 Linen/Cotton Rags – For a few bucks, I buy cotton bed sheets from my local thrift shop and snip them into 1' square pieces. They're much better than paper towels for applying stains or oil finishes, and for cleaning up.

7 Cone Paper Filters – It's a good idea to strain finishes that have been sitting around the shop – particularly waterborne and lacquer finishes – to remove dried finish, dust or other impurities in the finish. I use a medium mesh (about 200 microns). They're available from paint stores or your local hardware store. Packages of 50 or 100 are the most economical.

8 Plastic Measuring Cups – Plastic food containers are handy for short-term storage of topcoats, stains and thinners. But for mixing pigments and dyes, I use small 1-ounce graduated measuring cups. Available at pharmacies or in economical 25 and 100 packs from **WoodEssence.com**.

9 Drying Rack – If you regularly finish a lot of wood, then drying racks are the way to go. They not only conserve shop space, but help to keep your stock organized and safely out of the way while drying. They're quick and easy to make, and if space is at a premium in your shop, make racks that can be easily dismantled and stored when not needed.

10 Finisher's Colour Wheel – If you do much in the way of staining, a colour wheel comes in handy to help you visualize how different colours blend with each other. It's also helpful when matching veneers for intarsia, marquetry or inlay work. The one I use from **Mohawk-Finishing.com** uses standard wood colours.

CARL DUGUAY
cduguay@canadianwoodworking.com

Go Online for More

RELATED ARTICLES: Related Articles: Build a Knock-Down Finishing Rack *(June/July 2017)*, Top 10 Finishes for a Small Shop *(June/July 2014)*

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RUST-OLEUM

Nathan Sterkenburg

…on spruce, scale models and adding curves to his work.

BY ROB BROWN

Tripod Coffee Table – This was a quick project Sterkenburg built for himself as an escape from the perfectionism of our trade. He'd been getting tired of the need for everything to be absolutely flawless, and this build helped vent that frustration. Made of pine, the table is unfinished; Sterkenburg left all the checks and knots visible. (Photo by Sheena Zilinski)

How long have you been building furniture?
I've always built stuff. First real piece of furniture was around 12 years ago, though; it was a crib for our first-born.

What sort of furniture do you specialize in?
I'm definitely drawn towards contemporary and mid-century design styles. Simple lines, simple grain, graceful curves, crisp geometry.

Tell us a couple interesting things about your personal life
Born and raised in the woods of northern Alberta, married with three kids, living in Medicine Hat, Alberta.

If you were not a furniture maker, what would you be?
As long as I can be creative and work with my hands, I'm happy.

In order, what are the three most important items in your shop apron?
Pencil, Olfa knife, tape measure.

Do you prefer hand tools or power tools?
In theory, hand tools. In reality, power tools.

Solid wood or veneer?
Solid wood, sliced really thin sometimes.

Figured wood or straight grain?
Straight for sure.

Inherited Vintage Stanley Sweetheart or fresh-out-of-the-box Veritas?
Vintage with a new blade.

Flowing curves or geometric shapes?
Curves!

Favorite wood?
Tough one. Spruce, maybe? It demands respect. There are so many good ones, though.

Least favourite wood?
Also spruce because it can be miserable.

Lead Photo by Jenae Sterkenburg

Nathan Sterkenburg, 34
Sterk Woodworks & Design, sterkwoodworks.com
Location & size of studio — Medicine Hat, Alberta, 1,800 sq. ft.
Education — Journeyman carpenter, mostly self-taught

quotes

I run a small shop with one full-time employee and one part-time helper. We primarily build custom kitchens, cabinetry and architectural millwork, but we also take on furniture commissions as well as occasional pieces on spec.

I wake up around 6 a.m., get the kids fed, load up on coffee, then head over to my shop around 7. My employees come in around 8 so I get an hour to get organized and have some calm before the day starts. From 8 until 5 it's a mad frenzy of dust and noise. On Fridays, I try and schedule light so we can clean the shop, sharpen some tools and have some beers.

I love the challenge of doing curved work, either bent laminations, bricking or steam bending. It's always a good brain stretch.

Inspiration comes from everywhere. Online is a great source, as is nature. But even simple things like the way light creates shadow and texture that you can try and replicate on a piece.

My process with spec pieces is pretty free flowing. I start with a napkin sketch of an overall concept. I might try and draw key details a little more in depth. But then I just start building, usually with whatever wood I have on hand. I'm not fixed on certain dimensions or angles. Just the overall feel of the piece.

Stop studying, start making. You can only learn so much from books and YouTube.

Some customers need a lot of one-on-one hand holding throughout the process. Others just trust me completely and trust my judgment.

Most of my work comes through Instagram, Facebook and word of mouth.

Woodworking is not a cheap hobby. Even if schools bring back woodshops, the students will have no outlet to woodwork after school. Shops like mine need to apprentice the next generation. Co-work spaces are also a great place where young people can find an outlet for woodworking.

Throughout the whole process of learning woodworking I studied everything. I read every magazine I could get my hands on and bought every woodworking book I could afford.

For spec work I let the material I have on hand influence the design. With commissioned work it's all about the design.

Kitchen Renovation – With this kitchen renovation, the old kitchen wasn't in bad shape, just very dated. Sterkenburg reused a lot of the existing cabinets and refinished the old doors. All that was needed were a few more cabinets and doors, some white oak floating shelves and the vent hood. (Photo by Roxy Grove)

For design I mostly use pencil and paper. Full-scale drawings done on my workbench also help with finding angles and measurements. I've found scale models and prototypes a waste of time and money.

I really enjoyed making a very simple pine coffee table recently. I embraced imperfection during that build. There's a Japanese philosophy called wabi-sabi that celebrates the beauty of imperfection and aging gracefully, and I want this table to represent that.

I don't think it's healthy to have your identity rooted in what you create, because it's very easy to let yourself down and feel like a failure.

Aspiring woodworkers should get paid to learn. Spend your early years working for someone who will teach you the basics. When you've learned all you can there, find another job to learn different skills. Or keep it as a hobby and don't sweat the small stuff. Perfection is a sliding scale, so don't worry if your early projects don't come out how you think they should.

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SLIDESHOW: View a slideshow of Sterkenburg's work on our website.

Hardwoods

Woodworkers overwhelmingly prefer to work with hardwoods. Softwoods have their place in construction and paper making along with some specialty applications, but for fine furniture, turnery, carving and all the other uses we find for wood, hardwoods are the wood of choice.

BY PETER MAC SWEEN

Softwoods tend to be a uniform group, offering up little visual variety. Hardwoods are where you find much more interesting eye candy. Birdseye, fiddleback, burls and all sorts of enticing colours are the providence of the hardwoods. If you need a wood that's strong, or perhaps easy to carve, there's a hardwood for that as well. When planning your next project, there are a number of factors that will influence the hardwood you select.

Botanically, hardwoods are angiosperms, which means they have flowers and covered seeds. They are a very diverse group and structurally more complex than the softwoods. This complexity is obvious when examining the end grain of a hardwood. Here you will see a high diversity of cell types when compared to the softwoods. The relative abundance of each cell type determines the wide range of characteristics exhibited by the hardwoods. Although hardwoods are usually denser and harder than softwoods, this isn't always the case. Balsa and basswood are two examples of this.

Four types

There are four types of cells found in hardwoods. Vessels (or pores) are thin-walled cells of varying diameter that have evolved specifically for sap conduction. Fibre cells are thick-walled and provide structural support. Ray cells extend horizontally from the pith and are involved in sap movement and sugar storage. Finally, tracheids are thin-walled cells orientated vertically that help move food around the tree. Pores are the focus of this column, as they help determine the texture, density and even the strength of a piece of wood. The other cell types will have their own story to tell in future columns.

Photos by Rob Brown

Pores: where woodworking magic happens

Pores can vary in size and distribution within a given growth ring. When large pores occur only in the earlywood of a growth ring, these hardwoods are called ring porous. There is a distinct separation between the large-pored earlywood and latewood with its small diameter pores. Oaks, elms and ashes are typical ring porous hardwoods, and the earlywood pores are visible to the naked eye and give these woods a distinctive look and coarse texture. If you carve ring porous hardwoods or work them with hand tools, you will notice a change in resistance between the earlywood and denser latewood.

Ring porous woods are excellent candidates for staining. Pigmented stains will accumulate within the large pores, deepening the colour of the earlywood and accentuating the grain of the wood. If you want a glass-smooth finish on these woods, you will have to use a pore filler to create a level surface to finish. It's important to realize that the cell structure of a hardwood will determine what finish you can use successfully.

At the opposite end of the spectrum are the diffuse porous hardwoods. The pores in these woods are relatively small and evenly distributed throughout the growth rings. Cherry, basswood and yellow poplar are good examples of diffuse porous hardwoods. The small pore sizes within the growth rings give these woods a fine texture. Basswood is a great carving wood because the texture of the wood allows for fine details to be carved wherever needed to suit the design. In addition, with its low density, basswood makes for easy and effortless carving. Diffuse porous hardwoods are also harder to stain as the small pores don't allow the stain's pigments to accumulate and colour the wood.

Finally, there is an in-between category called semi-ring porous. In these woods, there is a gradual decrease in pore size from earlywood to latewood. The change is subtle with no distinction between the early and latewood. These woods have a medium texture; walnut and mahogany are typical examples. Like the ring porous woods, you can stain them and a pore filler is recommended if a glass-smooth finish is desired.

Sapwood / hardwood transition

When the sapwood changes to heartwood as the tree ages, there are changes in the pores. In some species, tyloses form within the heartwood pores. These are bubble- or dome-shaped structures that block the pores. Red oak does not have tyloses, while white oak does. You can't build a barrel from red oak, as the contents of the barrel will drain out the open pores. On the other hand, white oak barrels, with tyloses blocking the vessels, will not leak that expensive wine onto the floor.

Gorgeous Figure – The hardwoods are generally where you'll find the great figure that woodworkers love so much.

Medullary Rays – While they have a different function for a growing tree, medullary rays provide a striking focal point when lumber is quarter cut. Red oak is one of the species that has very pronounced rays.

Pore size can also affect the strength of a given piece of wood. This is most evident in the ring porous woods with their large pores. The large pores will create areas of weakness parallel to the grain direction. As a result, these woods can be easier to split into firewood.

An interesting use of the weakness of ring porous woods is basket making. Some Indigenous peoples have been making baskets

shopnotes

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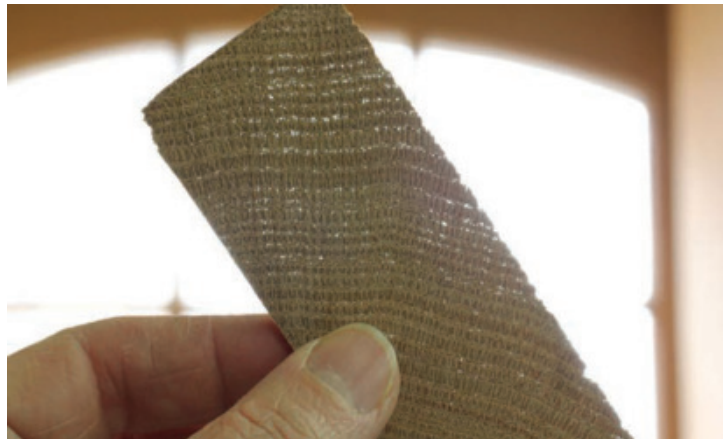
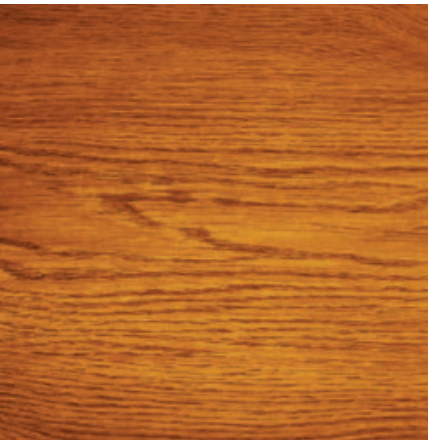
Ring Porous Woods – Red oak is a ring porous wood. The earlywood growth each year produces a band of large, hollow pores to transport sap, before putting on denser latewood pores.



Large Earlywood Pores – This slice of red oak is 1/8" thick, yet it's possible to see light through the larger diameter earlywood pores of this ring porous wood.



Colourful Pores – Larger volume of pigment stains get trapped in the deeper earlywood pores of ring porous woods like this red oak. (Photo by Shutterstock)

Diffuse Porous Woods – Maple is a diffuse porous hardwood, making its end grain more even than most woods. Maple earlywood and latewood are more similar to each other than a ring porous hardwood.

Faster, Stronger – Many types of woods put on a layer of larger pores early in the growing season, then add denser, stronger pores if the growing conditions are optimal. Teak, shown here growing in a Mys-Teak plantation in Costa Rica, are a great example of how faster growth equals stronger wood. (Photo by Mys-Teak)

from black ash for centuries. When a green, freshly cut log is pounded, the weaker pores in the early wood collapse. This allows thin pieces of wood to be peeled off the log, similar to an onion. The larger pieces are cut into thin strips that can then be woven into baskets.

Growth rate is important for strength

Growth rates can also help determine the strength of ring porous hardwoods. Ring porous hardwood trees will always produce large, weak earlywood pores at the start of the growth season, and only then start adding stronger latewood layers if growing conditions are optimal. Slow growing ring porous hardwoods are weaker because their annual growth rings are predominantly earlywood, with large, thin-walled pores. The opposite effect is seen in fast growing ring porous hardwoods. Here, the latewood, with small pores and an increased number of fibre cells dominating the growth rings, yields a tougher, stronger wood. I would expect fast growing teak from a plantation to be stronger than teak harvested from the forest. This doesn't always apply to diffuse and semi ring porous trees, as there are other factors in play.

Cellular structure is what creates the incredibly diverse world of hardwoods. When planning your next project, take this into consideration. Do you like the look of stained wood? Then look to ring porous woods for candidates. Do you like to carve? Diffuse pored hardwoods are your best bet, as they yield consistently to a sharp edge. When choosing the wood for your next project, take the time to look at the end grain to determine its pore structure and the stories it tells.

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Install a PLYWOOD FLOOR

When you need a cost-effective flooring solution but still want the character of wide planks, consider a quality plywood for the job.

Photos by Karen McBride

BY KAREN MCBRIDE

It was time to lay the floor in our new three-season sunroom created from our recently rebuilt back porch. I wanted a wide plank painted wood floor that suited our 150-year-old farmhouse, but worried about wood movement in wide, solid wood boards. It seemed like the perfect opportunity to try a plywood floor, but I was initially hesitant. How would it look? Would it hold up to the dog's nails and foot traffic? After a bit of research, I decided to give it a go. How could I lose? In the worst-case scenario, it could always be an over-the-top subfloor. For a bit of wasted time and minimal materials, it seemed like a good gamble.

Quality plywood

For floor material I bought the best 1/2" plywood I could find: Good One Side (GIS) sanded fir plywood for approximately $50 a sheet. Four sheets of plywood would cover the 160 square feet of the sunporch, but I bought a fifth sheet for good measure.

After cleaning up the plywood's factory edges, ripping strips at 7-3/4" produced six planks per 4' × 8' sheet. For aesthetic reasons, I didn't want any plywood patches on the floor. In the end all five sheets were used, which was roughly 25 per cent wastage.

Start ripping

To clean the factory edge, I ripped one 8" wide strip from each plywood sheet and set these five 8" pieces aside. Then I ripped the remainder of the sheets into 7-3/4" width planks being careful to always place my clean cut against the fence. When all the sheets were cut, I ripped the 8" wide pieces to 7-3/4", once again, with the clean cut against the fence.

Before taking the planks to the work site, I trimmed one end of each flooring plank clean and square. I marked the uncut factory end with a red lumber crayon to indicate it was the untrimmed end.

Start in the middle

It's always advantageous to start laying wide plank flooring in the center of the room and to work outward from there, thus balancing the width of the partially cut pieces needed at each end of the room. To find the center, measure across the room from the end walls and mark center in two places, close to the side walls. Snap a chalk line between those two points and lay the first run of flooring against the chalk line.

The plywood's sanded surface is smooth enough to be a finished floor so no sanding is needed once the floor is laid. To avoid mistakes, carefully stack the plank flooring on-site with the good sanded side up and the good cut ends all facing the same way. If a piece is flipped over accidentally and installed, it will need to be sanded in place.

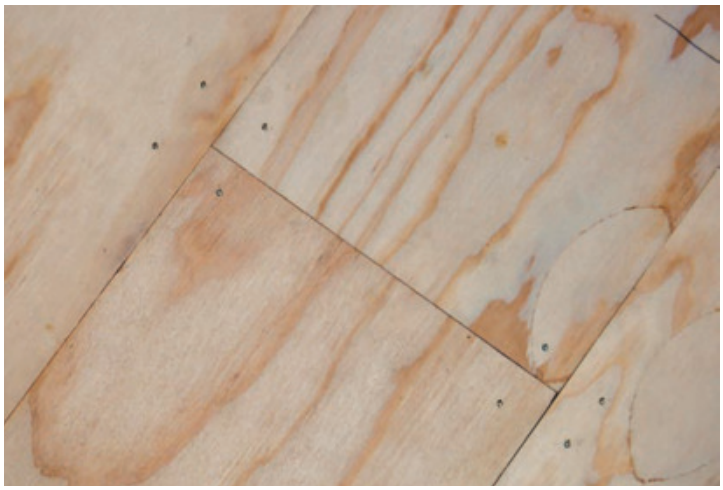
Lay them down

To lay the floor, select a plank from the top of the pile and cut it to maximum length, eliminating any patches in the plywood. Lay and nail the next planks along the chalk line until you reach a wall. If you wanted to be extra sure the initial line was straight you could place a few other lengths beside the first row, making sure the joints were staggered. Next, lightly clamp them together and then nail the first row in place.

Use the remaining length from the final board in each row to start the next run, thus generating a random-length pattern in the

Rip it Up – The first strip should be ripped slightly wider, then turned end-for-end and ripped a second time to remove the factory edge. Careful cutting will give you the maximum number of strips, all of the same width, to use.

Pin it Down – McBride uses 15-gauge nails to secure the floor in place. Her first row was lined up with the center of the room.



Minimal Gaps – With a bit of care, McBride ensured the boards fitted together nicely. Any gaps that remain add to the character of using this approach to install a floor.

Lots of Holes to Fill – It's a time-consuming task, but an important one. Filling the nail holes leaves you with a much nicer finished look

Almost Done – Although McBride opted for a painted finish, using a clear finish, or even applying a stain first, is an option.

flooring. Watch for the red lumber crayon mark. A red crayon mark can be placed against the wall where it will be covered with quarter round, but not in the middle of the room. The flooring can be laid tight against the walls as there is no need to worry about expansion and contraction with plywood. Adjacent planks should be held tightly together when nailing. Hand pressure is enough to hold them in place.

Pin selection

I chose to nail with a 15-gauge brad nailer. A heavier nail could be used, but don't opt for anything lighter than 15-gauge. The planks were nailed along both sides at a 10" to 16" spacing and four nails were used to secure the planks at the corners where boards meet. When a board did not look like it was sitting flush, I stood on the high spot then nailed it down. The nail holes blend in well after filling and sanding so don't hesitate to bang in extra nails where needed.

It can be fiddly work fitting the last planks against the end walls since a partial board will need to be ripped to width. To fit these last pieces, cut a full width plank to length and lay it in place with the good side down. At each end of the board carefully mark where the board must be cut. Rip the plank then flip it over for a test fit, with the ripped edge against the wall. If the piece is close to square, the plank can be ripped on the table saw. If it must be ripped out of square, cut it with a circular saw on a piece of foam insulation or a sacrificial board. A block plane can be used to make fine adjustments, remembering that gaps can be covered with quarter round.

Don't forget the details

To check for high spots, loose boards or joints that don't sit level, walk around the floor in stocking feet to feel for snags and/or boards that move under your weight. Nail any high spots down and hand sand the snags with 80 grit sandpaper glued to an MDF block.

Now it's time to fill the nail holes with wood filler using a flexible putty knife followed by a quick sand with 80-grit when the filler is dry. Work your way around the room in a methodical fashion so no holes are missed. With that done, the only remaining task is to install quarter round and finish the floor with paint or a clear floor finish of your choice.

My floor has been in use for over a year now and it's holding up well. It wouldn't be suitable for a high traffic area like a front entranceway, but a plywood floor is an economical alternative that can always be covered with a more expensive floor covering at a later date.

Karen is a furniture maker with a passion for vintage woodworking machinery, photography, birding, vegetable gardening and her constant companion Daffy, a big hairy Bouvier des Flandres shop dog.

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Make a Scrolled Name Sign

Creating a custom sign is a great way to personalize any room in your home. With a few tools and a few hours, you can take some basic materials and turn them into something amazing.

Photos by Lesley de Abaitua

BY LESLEY DE ABAITUA

Designing your sign is the first step in creating a custom piece of art. You can purchase templates from a variety of sources or, if you're like me, you can even design your own. Using fonts and graphics purchased from Etsy shops, I lay out all my designs in PowerPoint or Keynote, because these programs allow you to customize the size of your page. For this woodland nursery sign, I set it on a 30" diameter circle. Once I laid it out exactly as I wanted it to appear, I had it printed by a large format printer so I could set my design up to be cut out on my scroll saw.

If your design is small enough to fit on one page, you could print it out and use as-is. If you didn't want to send your design out to be printed you could print multiple pages and piece them together to create the design.

Prepping your materials

The next step in creating your custom sign is deciding what kind of dimension, if any, you want to add to your design. For this woodland sign, I wanted the words to be puzzled into the tree, but I didn't want them to get lost in material that was all the same thickness. For that reason, I decided to cut the green part of the trees at 1/4" thickness and the rest of my design at 1/2" thickness. Using materials of different thicknesses is a great way to get a more dynamic-looking sign.

To achieve the puzzled portion, you'll need to cut both the 1/4" and 1/2" material at the same time. This is called a stack cut, because you literally stack the material on top of each other.

Since I needed to only stack cut the sections with the trees, and my design was so large, I cut my design so I could work on it in sections. To create the stack-cut portion, I glued the 1/4" board and the 1/2" board together using super glue along the outside edges.

Covering the top of my board in painter's tape also allowed me to tape the edges of my stacked materials together for extra reinforcement. If you wanted, you could also nail your boards together, or even use spray adhesive between boards. Using painter's tape on the top of your material and between sections protects the material when you're adhering your design to the board.

I use spray adhesive to stick my paper design to my material. If I glue it directly to my material, it creates a lot of work to sand off. By gluing the design to the tape, I am able to peel the tape and design off once I'm done cutting.

While your glue dries for your stack cuts, now is a good time to cut out your sign backer. For this sign, I cut a 30" round out of MDF. MDF is a great material to use when creating a painted backer since you don't risk it yellowing like wood does over time. Cutting rounds can be done a variety of ways, including using a band saw, jigsaw or router. All of these tools have jigs that you can purchase or make to make circle cutting simple and safe.

Cutting your design

Starting with interior cuts allows you to cut out the smallest sections of your design while keeping your project stable. To start, you will drill pilot holes in each of the interior sections so you can feed your blade through. I work on a DeWalt scroll saw, which takes pinless blades. This style of blade is very thin, so you can drill small pilot holes if needed. I use micro drill bits when doing small detail

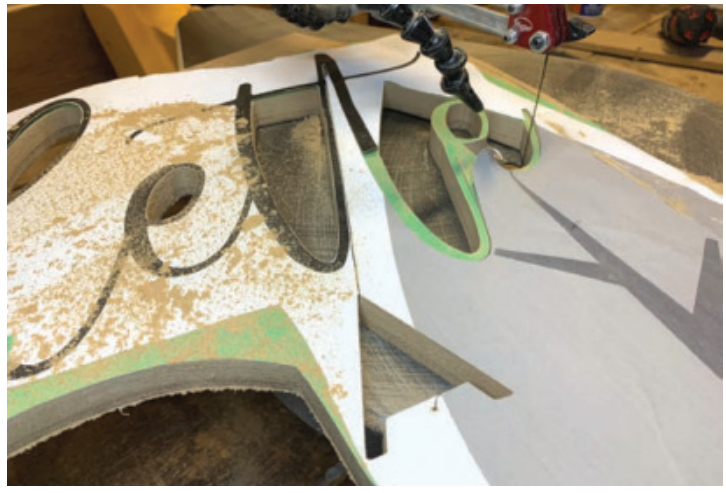
Large Format – Finding a printer that can print large format designs will save you a lot of time when it comes to printing your designs.

Divide and Conquer – When working with large designs, it's easier to work on your project in sections when possible. Cutting it into smaller sections allows you to minimize your material waste as well.

Create a Barrier – By covering your material with contact paper or masking tape (as pictured), you can use spray adhesive to stick your pattern onto the material for cutting without getting your material covered in glue. Here, De Abaitua has covered the material in green masking tape before adhering the printed design.

Drilling Small Holes – Using micro drill bits (1/16" and smaller) allows you to create very small pilot holes for pinless blades.

Start in the Middle – Starting with interior cuts allows you to cut the most delicate sections with stability. If you attempt to cut them last, you can easily break your delicate cuts.



Move Outside – Once the detailed inside sections and puzzle portions are cut, you can move to the outside cuts. Always cut using a pilot hole to ensure you keep stability. If you cut in from the edge, your board will become unstable which can cause you to lose control when cutting.

work. Once you've drilled all your pilot holes, you can start cutting the inside sections.

Using a scroll saw takes a lot of patience and practice. For me, cutting out a design like this is fairly consistent in terms of the blade and speed/tension that I use on my saw. I will typically use a #5 Pegas modified geometry blade or a #5 or #7 double reverse tooth blade for 1/2" to 3/4" thick materials. Both styles of blades are designed to cut from both the top and the bottom. This prevents tear-out and also cuts fairly quickly. Due to the speed of the blade, I usually set my saw speed midway for the interior cuts. For the outside cuts, I increase my speed to 8. To set your tension, you need to ensure that your blade isn't flexing too much, but also not so tight that it will break. Again, this comes with practice (and likely a few broken blades).

If you find that your material is jumping around, and you have to hold it down to prevent it from vibrating, your speed is likely too low, which is causing your blade to catch the material and pull it. Conversely, if you find yourself losing control and not able to stay on the lines of your design, your speed may be too high or your blade TPI (teeth per inch) could be too high for the material you're using. Switching blades and adjusting your speed/tension until you find the right setting is the best way to perfect your scrolling technique.

Once the inside sections are cut, I move on to any puzzle cut sections of my design. In this case, the main word "Violette" and the trees would be cut first. For these detailed cuts, I keep my speed around 6 to ensure I stay as close as possible to my design since all the puzzled pieces will need to slot together.

Finally, I move on to the remainder of my exterior cuts, which include the small woodland animals. For the animals, I cut each portion of the image as a separate piece that will be puzzled back together to give them dimension.

Check the Fit – Dry fitting your design once you're done cutting ensures you have all your pieces, that everything fits together and you can visualize the finished product.

Once all your elements are cut, you can dry-fit your design to ensure everything fits together before starting the finishing process. At this stage, I discard any scrap portions from my stack cuts (or save them for future use if they can be used again). Confirming you have everything and no further cutting is required, you can move on to the most time-consuming portion of your project: finishing.

Finishing

To begin the process, I sand all of the larger elements with my orbital sander and 220 grit sandpaper. When using MDF, this is typically a quick process since it sands very smooth. For smaller, more delicate pieces, I prefer to sand by hand using files, Micro Zip handheld sanders, and smaller pieces of sandpaper at high grit, typically 220 and 320.

Painting also offers many options, and for custom signs like this one, I primarily use Behr paint as it comes in many colours and is a long-lasting paint that doesn't fade or require sealer. However, acrylic craft paints and spray paint are great options.

For the majority of the sign, I used slightly watered-down Behr paint and hand painted each piece using simple craft and foam brushes. For the large white backer, I used a small foam roller to ensure a consistent finish. All of the elements required two coats of paint to get smooth coverage. Between coats, I lightly sand each element to ensure the paint is applied as smoothly as possible. It's a time-consuming process, but necessary to ensure you don't have any bumps or imperfections in your painted finish.

The large gold name was the exception in this project, and to get the metallic finish, I used spray paint. To begin, I primed the name in black, as in my experience using a dark colour beneath metallic allows for a brighter shine. Once primed, I then sanded by hand with 320 grit sandpaper to ensure the sides and top were smooth and ready for the metallic spray.

Spraying from a distance, and focusing on the edges, I coated the name lightly in gold. Spray paint can be very finicky, especially to temperature, so it's essential to spray in a well-ventilated area that's not too hot or too cold. Reading the recommendations for the specific spray paint you're using is important. With gold, drying times are necessary to follow, otherwise you'll end up with a murky finish. Waiting 48 hours can test your patience, but it's worth it in the end.

After the first coat is fully dry, I sand again at 320 grit, wipe the piece clean with a microfibre cloth and spray another coat of metallic on the sides to ensure they're fully covered. I then focus on the top. Once it's dry, you can be the judge if the process needs to be repeated. For this project, I sprayed the metallic name three times, sanding in between each coat. And if you do that math, it was in fact six days of drying and waiting to get the finish I wanted.

Sanding is Important – Sanding can be time consuming, but to achieve a beautiful paint finish, your surface needs to be as smooth as possible. Unless your cut pieces are fairly rough, start at a medium grit like 120 and work upwards.

Start Applying Colour – Painting can be done by hand, with paint sprayers or spray cans. Like everything, what method works best for you will come with practice and patience.

Lots of Spray Options – Spray paint can be tricky. It's important to follow drying time directions and to use several thin coats to achieve a smooth finish.

The eye details on the deer and fox were painted by hand using a fine-tip paint brush and black acrylic paint. For the eyes on the racoon and the dots on the back of the deer, I used the bottom end of a paint brush dipped in paint to make the perfect dots, a handy trick.

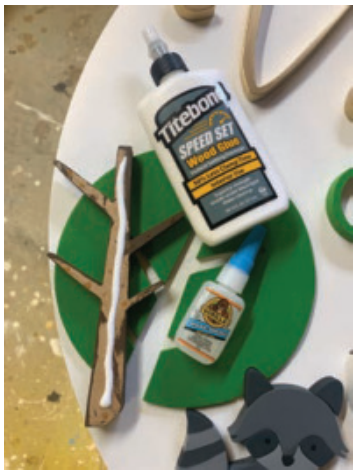
Glue the pieces on

Once all your pieces are fully dry and ready to be glued, it's important to do another dry fit to ensure your elements all fit together. With puzzle cuts, even the smallest amount of paint can cause pieces not to fit properly.

Test the Fit – Dry fitting ensures your elements all fit together properly once they have a layer of paint. If not, at this stage you can sand and adjust until it's ready for gluing.

To begin gluing, there are many ways to ensure you place your pieces properly. For smaller designs, I will keep the wood that I cut my design from and use it as a template to glue my elements down. However, for large pieces like this, where I cut my design in sections, that's not an option.

If you finish your backer before you cut your design, you can lay your design down and trace it on using transfer paper so you can see where each piece goes. This is my favourite method to



A Few Glue Types – Glue is often all you need to adhere your design to your backer. Using a combination of wood glue and super glue is a quick and effective way to glue your design down. When the piece being attached is larger or heavier, consider using screws or nails through the backer into the piece to secure it in place.

Hanging System – Using a strong, secure hanging system is essential for large signs. Cleat systems are great for heavier items while a. simple sawtooth hanger is often enough for smaller signs.

ensure everything is in the right spot. Or, if you're good with basic math and measuring tools, you can use levels and tape measures to ensure proper spacing. In this case, since most of my design was puzzled together allowing me to see how it should be laid out, I was able to use a tape measure and speed square to glue up my design.

Glue is the best way to adhere your design to your backer. If you use nails, you will be ruining that paint finish you worked so hard to achieve. And since the material is so light and thin, nails really aren't necessary. My glue of choice is a combination of wood glue and super glue for larger pieces and super glue alone on small details.

For the larger pieces, I put wood glue in the middle, and super glue along the edges. The super glue dries quickly and acts as a clamp for the slower-drying wood glue. A quick tip to save you from glue squeeze-out is to lightly press your glue-covered piece on a scrap piece of wood or paper before gluing it to your backer. If you put too much glue on a piece, this dabbing step will save you from having that glue squeeze out all over your finished sign.

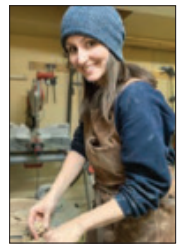
If you're trying to attach a large piece of cut material to the backer, and you want to be extra sure it stays in place, you could drive a few small screws or nails through the back of the backer into the piece to be attached. Just be sure not to go through the face of the piece you're attaching.

Hanging hardware

Once your glue is dry and your sign is ready, attaching hardware to hang your sign is an important step to ensure that it's hung securely and safely. For smaller projects, a simple sawtooth hook is great. But for larger projects, I prefer to use a cleat system that screws into the back of the sign, and then the other portion is screwed or nailed into the wall. Many of these cleats are rated for up to 100 pounds, so they're very secure for most projects.

Creating custom art work is a process and although it can be time consuming, the results can be outstanding. By using a few of these tips and tricks, I hope it will be a little less time consuming for you. Happy sign making!

When she's not busy chasing around her two daughters, three chickens or her husband, Lesley is often found creating scroll saw art in her home workshop in Tottenham, Ont.



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INFO: DIFFICULTY – **3/5,** LENGTH/TIME – **3/5,** COST – **3/5**

MAKE A VENEERED SERVING TRAY

This tray looks stunning with figured veneer on its main surface, but you could also use a pre-veneered piece of plywood if you're not comfortable with veneering.

Photos by David Bedrosian

BY DAVID BEDROSIAN

This stylish serving tray features solid wood handles made from pau ferro glued and pinned to a curly makore veneered panel. Use this project to showcase your veneering skills with some special veneer. You can use different species for the opposite sides of the tray and you can even experiment with marquetry or parquetry.

Glue the core

The tray starts with two pieces of 3mm Baltic birch plywood glued together to form a stable core for the veneer. It's best to glue a piece of veneer between the two plywood sheets with the grain running perpendicular to the plywood so each layer has alternating grain direction. Cut the veneer and the plywood oversize by about 1" in length and width to allow for some misalignment when the pieces are glued together. For my tray, I cut the plywood to 17" by 20-1/2". If your plywood is cupped or twisted (as is often the case with Baltic birch) orient the two pieces to try to cancel out this distortion when the boards are glued together. A vacuum bag is the easiest way to clamp the three layers together, but wooden cauls and clamps can also be used. Apply an even layer of glue to the inside faces of the plywood and align the three layers before inserting the sandwich into the vacuum bag for at least an hour.

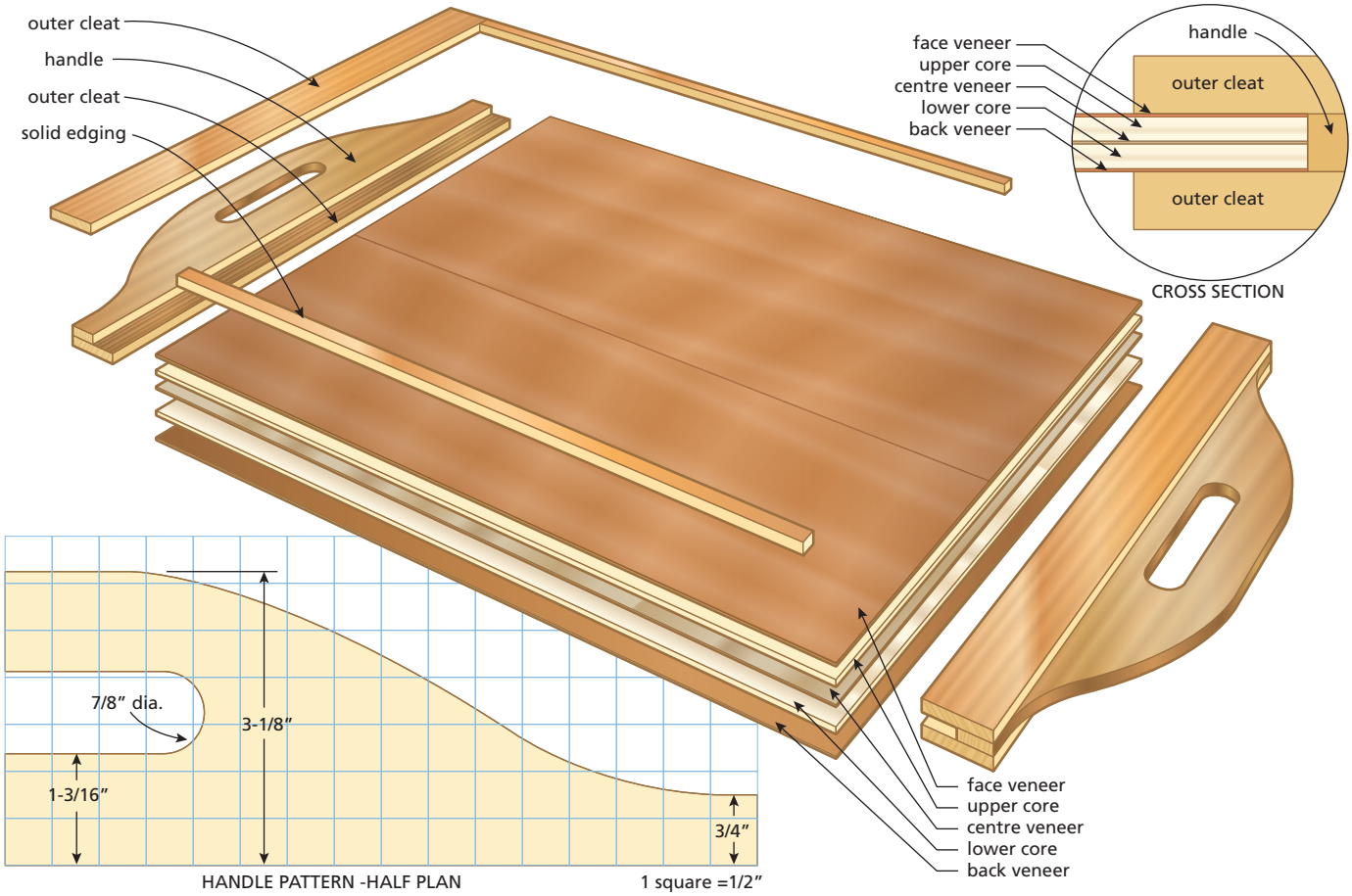
Stable Core - Bedrosian uses Titebond original on the inside faces of the 3mm Baltic birch plywood panels; he applies glue to the core, not the veneer.

Remove the Air - The three-layer sandwich is clamped in his vacuum bag veneer press. The sheet of veneer between the plywood is needed so the grain direction of each layer is perpendicular to the next. The alternating grain direction will continue when the face veneer is applied.

Add solid wood edging

The sides of the panel are trimmed with solid wood before the faces are veneered. The ends don't need edging since they will be hidden by the handles. Start by cutting the panel 1/4" narrower than the finished width, making sure that both edges are parallel and ready for glue. When finished, the edging on each side will be about 1/8" wide, making up the full width of the panel. I find it easier to work with thicker edging, so I machine solid wood 1/2" wide and slightly thicker than the panel. I chose a piece of makore to match the veneer, but you could use a contrasting wood instead. Blue tape works well to clamp the edging to the plywood while the glue dries. Use any combination of a router, hand plane and sander to flush the edging so it's the same thickness as the panel.

Solid Wood Edging - The sides of the panel are edged with solid wood before the face veneer is applied. The edging is oversize in thickness and in width to make it easier to work with. Blue tape provides plenty of clamping pressure and a wooden caul clamped to the panel ensures it's flat. Once the glue dries, level the edging so it's flush with the plywood.



At this point, the panel should be about 3/4" wider than the finished width and 1" longer. Cut the veneer for the front and back of the panel to just under this size and glue it in place. Be sure to spread glue all the way to the edges of the panel to get a good bond.

Once the glue cures, use a crosscut sled to cut the panel to the finished length. Be sure the edge you reference off is free of any glue squeeze-out. Follow a two-step procedure to cut the panel to width. Adjust your rip fence to cut away all but 1/8" of the solid wood edging on one side of the panel, then flip the panel around and adjust the rip fence to cut the opposite side, leaving 1/8" of edging. Leaving this small width of solid edging lessens the chance of any seasonal changes in its thickness telegraphing through to the veneer.

Make a router sled

The ends of the tray are made from three layers of wood sandwiched together. The middle layer is the handle with a cutout for your fingers; it's the same thickness as the veneered panel. The face pieces are narrower and are glued to both the veneered panel and the handle to hold everything together. Normally, this cross-grain glue joint would cause issues, but since the panel is made from plywood, there will be no seasonal expansion and contraction across its width, and the joint will stand up over time.

You can freehand shape each handle, but I chose to make a simple router sled that I could use with a pattern bit in case I decide to make more of these trays. The opposite sides of each handle are mirror images so you only need to cut and sand the shape of half of the handle on a piece of MDF or plywood slightly wider than half the width of the tray. Use this template to make the router sled which should be at least 1" wider than the veneered panel.

Attach a fence about 3-1/2" back from the top of the sled and draw a perpendicular center line to the top of the sled. Temporarily fasten the template to the sled so you can flush trim that half of the handle. Flip the template over, referencing off the center line of the sled, to do the same for the other side. I drilled 7/8" diameter holes at each end and then scroll-sawed closed to the line and followed up with my spindle sander to create a smooth opening. Complete the sled by securing two toggle clamps to hold the workpiece when it is being routed.

Shape the handles

Resaw the approximately 1/4" thick stock for the handles from a 4/4 board. The thickness of the handle must match the thickness of the veneered panel within a close tolerance. Plane, scrape and sand the wood until you are a few thousandths of an inch thicker than the panel. A dial caliper works well for this, but your fingers are also a good gauge. Place the handle against the panel and you should feel a difference in height about the thickness of a piece of paper.

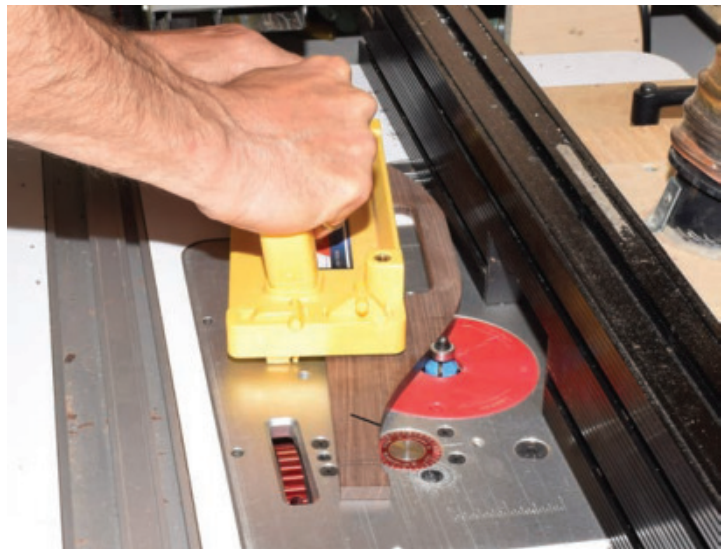
Once you're satisfied with the thickness, use the router sled to

Mirror Image - Make a template for the shape of half of the handle. Be sure the top section and the end section are parallel to the bottom. Use a router with a flush trim bit to transfer the shape of this template to both sides of a router sled with a fence.

mark the handle shape including the finger opening. Leave the handle longer than the width of the veneered panel; it will be trimmed to final size after everything is glued together. Remove most of the waste at your band saw and finish up the profile at the router table with the sled and a pattern bit. Drill overlapping 3/4" diameter holes for the finger opening and clean up most of the

Trim Some Waste – Use your band saw to remove the majority of the handle's waste.

Drill the Handle – A drill press will remove the majority of the waste for the handle slots. Bedrosian cut close to the line with his scroll saw, then turned to his router table to finish off the slots.

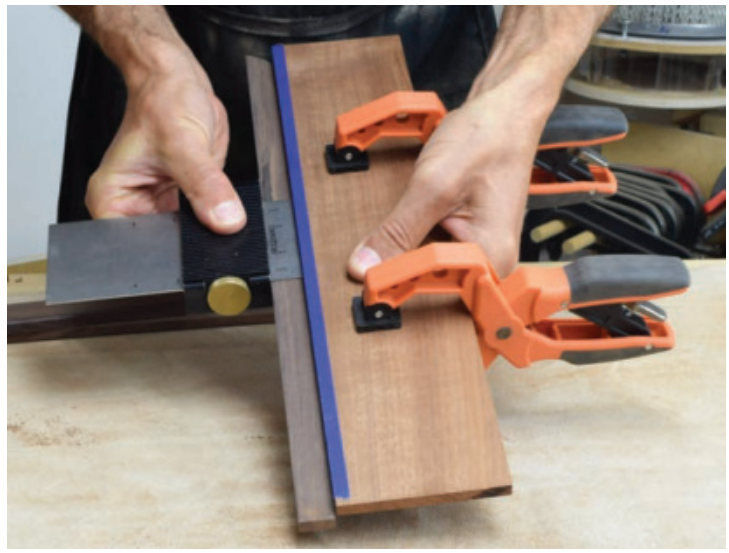


Pattern Rout the Handles - Finish up with a pattern bit in your router. To avoid routing into the grain, you can flip the workpiece over and only rout with half of the sled.

waste using your scroll saw. Rout the finger opening flush to the sled, paying attention to the rotation of the router bit so you are not climb cutting.

The two pairs of outer cleats that secure the handle to the veneered panel can be any thickness, but for convenience I used the same thickness as the handle. Rip these 1-1/2" wide and leave them 1" longer than the finished length. Install a 1/8" round over bit in

Soften All Edges - Bedrosian uses a 1/8" radius round over bit to ease the edges of the handles. Note the black line where the round over should stop. This is where the handle gets covered by the outer faces.



Glue the Faces - Bedrosian clamps a temporary fence to the handle, ensuring there is a consistent offset from the bottom. The portion of the handle with the finger slot isn't visible in this photo, as it's underneath the temporary fence.

your router table so you can soften the edges on the three pieces that make up each end. Round over the two outside long edges on the 1-1/2" wide faces of the outer cleats, as well as both sides of the finger opening. The handle needs a stopped round over that ends where the handle joins with the two outer faces. Do a dry fit of the pieces and mark these transition points so you don't rout too far.

Gluing the three end pieces together can be a challenge since you need to keep them aligned as you apply clamps. A wooden fence clamped to the handle helps with this task, as does gluing one face at a time. Since the boards are long, you only have to focus on keeping the face tight against the fence. Remove any glue squeeze-out that could interfere with inserting the veneered panel between the faces.

Tape to the Rescue - Blue tape keeps any squeeze-out from sticking to the temporary fence. Glue on the outer faces one at a time, being sure they register tightly against the fence.

Just Enough Glue - Apply glue sparingly to the inside of the faces; you want to avoid squeeze-out getting on the veneered panel.

Put it all together

You're now ready to glue the ends to the panel. Do a dry fit to be sure the panel bottoms-out against the handle at each end; any gaps will be visible in the finished tray so you want to get this right. If needed, you can pare down the ends of the panel as long as you only remove wood from areas that will be covered by the handle. You want a snug fit but not so tight that you risk splitting the faces on the ends when you apply glue.

Mark the center line of the veneered panel near each end and also mark the center line of each handle. Glue one end at a time using just enough clamping pressure to close the joint. Use your table saw to trim the ends of the tray flush with the veneered panel. Keep in mind that the solid wood edging on the panel is only 1/8" wide so you have very little room for error. Sand the corners round and follow up with the 1/8" round over bit on any parts of the end pieces that need it.

Clamp Everything Together – Light clamping pressure should be enough to bring the parts together. Be sure the center of each handle is aligned with the center of the panel.

Add Decorative Pins - The glue joint between the ends and the veneered panel is strong enough to support the tray so the pins aren't required, but they enhance the look. Bedrosian makes his own 1/8" dowels out of maple and glues them in place.

Add a Lip - Glue a small lip of wood flush with each edge of the veneered panel between the handles. This keeps things from sliding off the tray.

Add decorative pins and trim

If you want to jazz up the handles, you can add wood or brass pins to the faces at each end. I glued in 1/8" wooden pins made from maple, which contrasts nicely with the pau ferro handles. After you decide which side of the tray is up, glue two strips of wood flush with the edges of the veneered panel. These stops prevent things from rolling off the tray. After applying your finish of choice, attach small plastic bumpers on the bottom of the handles so the tray doesn't sit in water if it's placed on a wet counter.

Protect the Wood - Bedrosian uses an Osmo finish on this tray to bring out the rich colours and offer protection.

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RELATED ARTICLES: Make a Sushi Geta *(Aug/Sept 2013)*

INFO: DIFFICULTY – **3/5,** LENGTH/TIME – **3/5,** COST – **2/5**

MAKE A BEER CADDY

Beer makes a great gift. But giving beer in a handmade beer caddy isn't just fun to give, it's fun to make.

Photos by Rob Brown Illustration by Len Churchill

BY ROB BROWN

Giving beer to someone isn't new. Nor is giving it in a beer caddy. The twist with this beer caddy is that on the underside there's a spot to write your name and date, so there will be a story associated with this beer caddy as it travels from home to home. I even put my email address on the inside of the bottom panel, and I'm hoping a few people will let me know where the caddy is along its journey.

I designed this around the size of a tall boy can, but you could also adjust it for a short can or bottle.

Dovetails

Pretty much everyone loves dovetails, so I thought they'd be a good joint to use to fasten the four corners together. Many other joints would have worked, too. Use whatever joint you'd like to show off to all the recipients of this caddy down the road.

I opted to use the Leigh TD330 dovetail jig to machine the dovetails in this project. Once the router is set up, and you're familiar with the process, making dovetail joints with this jig is super simple. The only slight drawback with using this jig is that it doesn't allow for variably spaced dovetails. That wasn't a big problem, as I had some flexibility as to how wide to make the joints. Making the sides and ends 3/4" lower would have made it easier to grasp the cans and remove them from the caddy, but that would have meant the dovetail spacing would have been a bit awkward. If I lowered the height of the sides and ends by more than an inch, the tops of the cans would interfere with your hand while carrying the caddy. I went with nice-looking dovetails on this project, as I'm sure any recipient of free beer is going to find a way to get the beer out, even if they have chubby fingers.

Dovetails are usually oriented so they will mechanically keep the parts together in a certain direction. For this project, there's no real incorrect way to orient them. I opted to machine them so they're visible on the narrow ends of the finished caddy, as opposed to the wider sides of the caddy. The only time this will be important to remember is when I discuss machining the grooves to accept the bottom. The groove in each of the ends needs to be stopped, while the groove in each side doesn't need to be stopped, but that's only true if you orient the dovetails as I did.

Fast and Accurate Dovetails – Dovetails are not only strong and beautiful, but can also be cut quickly. Brown used a Leigh TD330 dovetail jig to rout the dovetails for the case.

Breakout

I was able to get the two ends and two sides out of one board without the need to glue anything up. I machined them to thickness and width, and machined them extra-long so I could use them to dial in the router setup to machine the dovetails. If I made a mistake, I could just trim the board down a bit.

shopnotes

RALI Shark…Always Sharp

Sponsored: The RALI Shark is a revolutionary wood chisel. Rather than having to sharpen your chisel when dull, the RALI Shark offers disposable blades that can be swapped out in seconds. The Shark case comes with a small, medium and large chisel as well as three blade widths for each size. This gives you nine configurable chisel sizes in one convenient case. It also includes a scraper and a jig saw attachment that can fit regular Bosch saw blades (blades not included). The RALI Shark lets you spend more time working on wood and less time working on tools. Visit **TersaKnives.com** for more information.

Spectacular Poly Resin Turning Blocks From William Wood-Write

Sponsored: Poly resin knife blocks are among the newest additions to the turning lineup at William Wood-Write. Their rich, vibrant colours and iridescent shimmer make for some stunning finished projects. Measuring 1" × 1-3/4" × 5-1/8", these blocks are ideal for creating unique knife handles. They also work well for small turning projects that require something a bit bigger than a pen blank, such as perfume sprayers or William Wood-Write's new lighter key ring kits. Visit **PenBlanks.ca** for more information on their poly resin blocks and other great turning materials.

Materials List

Part	Qty	T	W	L	Material
Sides	2	11/16	6-1/4	10-1/8	Cherry
Ends	2	11/16	6-1/4	7-1/2	Cherry
Bottom	1	1/4	To	Fit	Cherry
Dividers	2	3/8	5/8	To Fit	Cherry
Lower Handle Half	1	3/4	1-7/16	10-1/8	Cherry
Upper Handle Half	1	3/4	1-7/16	10-1/8	Cherry

After setting up the router for dovetailing, I cut the parts to length, marked them so they could be machined and assembled in order to best keep grain continuity, and machined the dovetails. I know a lot of woodworkers get a serious kick out of hand-cutting dovetails, but the simplicity, speed and accuracy of this jig puts a big smile on my face.

Time to groove

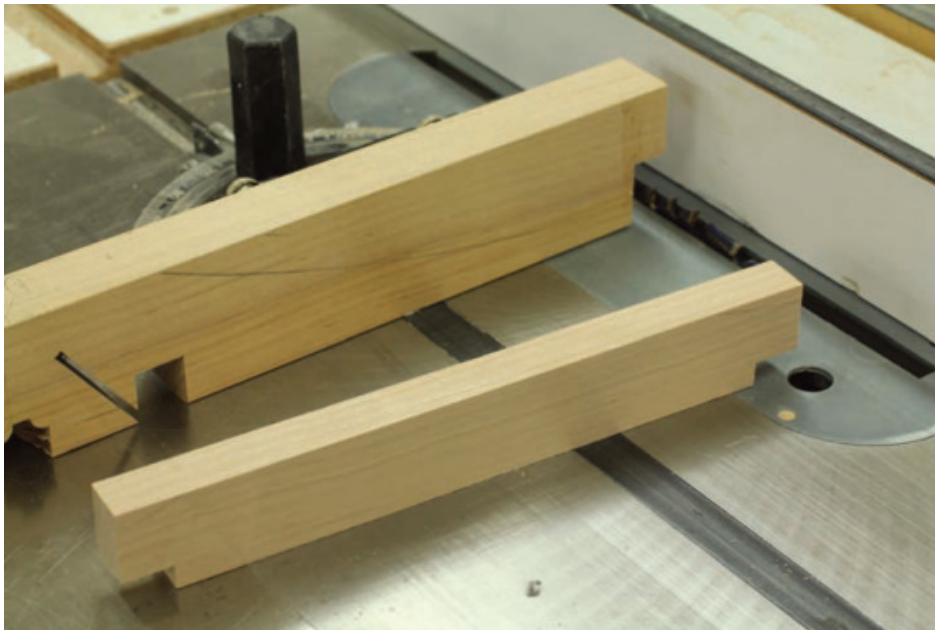
Because I didn't want a groove to be visible from the outside of the case, I had to machine stopped grooves in the two ends. The router table is a great machine for this. Install a 1/4" diameter straight bit in your router, fix it in your router table and adjust the height to 1/4", then set up your fence to machine the grooves somewhere within one of the dovetail portions of the joint.

Now for the "stopped" portion of this joint. Using one of your end workpieces as a guide, clamp two stops to the router table. These stops will allow you to position these two workpieces at the correct point to start the groove just inside the leading edge of the workpiece, then to stop that workpiece from travelling past the trailing edge of the workpiece. Machine these two grooves, then remove the stops and machine through grooves in the other two end workpieces.

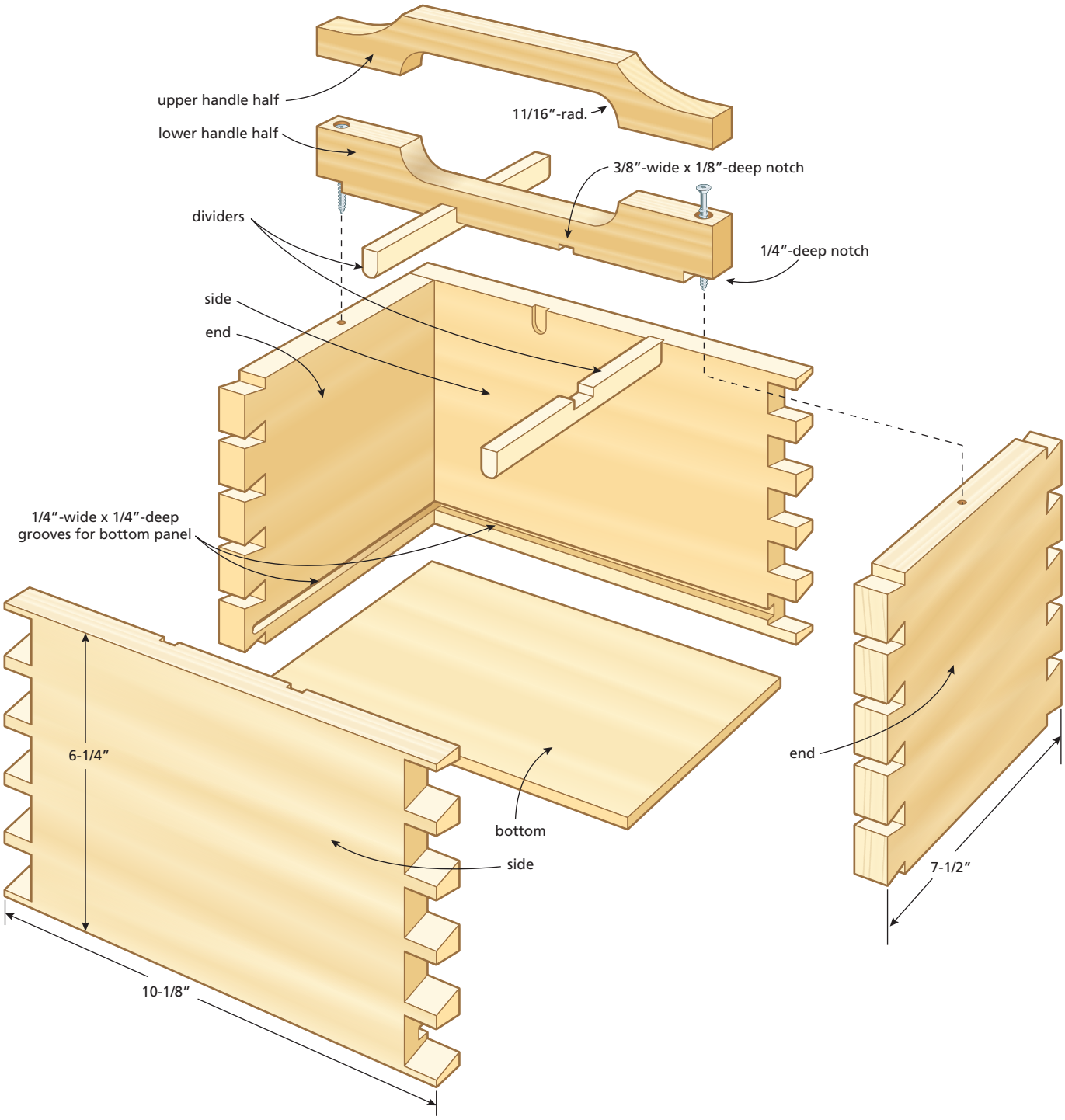
The lower handle half

The handle will be machined as two parts, then one of those parts will be glued to the case. When it's dry, the other part of the handle will be glued to the first part of the handle. This is done to ensure the joint between the handle and the case is strong, and to make sure there are no visible fasteners to ruin the

Stopped Grooves – To accept the bottom panel, the ends of this beer caddy need stopped grooves. Without them the grooves would be visible on the exterior of the case. Notice the two wood stops positioned at the start and end of the cut. The grooves on the other two case pieces don't need to be stopped, as the ends of those grooves will be covered by the dovetails in the end workpieces.



Large Notches – So the lower handle half can fit over the ends of the caddy, Brown adds a notch in either end of the lower handle half. This notch is 1/4" deep and the same width as the case ends.



Smaller Notches – The lower handle half also gets two 3/8" wide notches in it to accept the dividers. These notches are 1/8" deep.

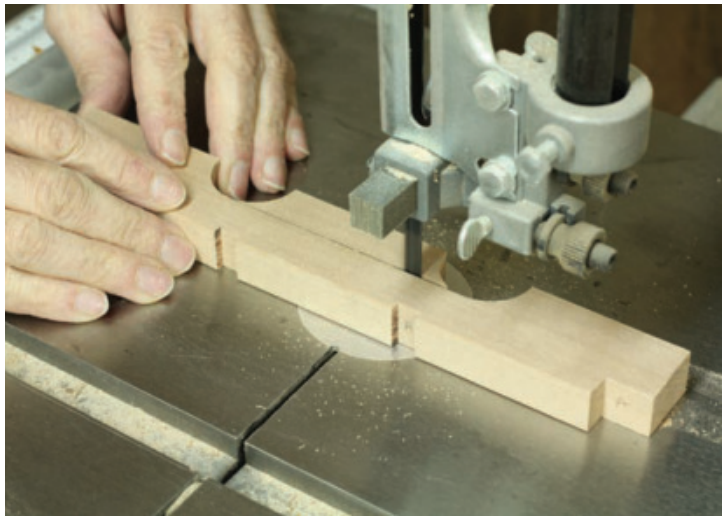
sleek look of the caddy. For the next step, make sure to take measurements from the case while it's dry-assembled.

The lower handle half can be broken out and cut to the exact same length as the case. Though you will put it aside after it's cut to size, it's probably easiest to machine the upper handle half to size now, too. Dress both of these parts as closely as possible to 3/4", as they will be need to fit into a 3/4" wide routed groove in the dividers.

Cut a 1/4" deep notch in the lower ends of the lower handle half so the resulting shoulder will fit snugly between the inner faces of the case ends.

Handle Holes – With the two handle halves clamped together, Brown bores a pair of 1-3/8" diameter holes in them, centered on the joint.

Clamp and Rout – With the two handle halves clamped together, rout a round over on both sides of the handle recess.



Trim the Excess – After marking a line tangent to both of the holes, Brown cuts the waste free, forming a recess for people to grasp.

To accept the dividers, cut a pair of 3/8" wide × 1/8" deep notches into the underside of this lower handle half. This will mainly assist with divider alignment during assembly. Although you can easily machine these notches on a table saw, you're going to have to machine other notches that need to be the exact same width as these on the router table, so I suggest heading for your router table now.

Machine the two notches so the three gaps between these notches and the larger notches at either end of the lower handle half are all equal.

The upper handle half

With this workpiece already broken out, clamp it to the lower handle half and drill two 1-3/8" diameter holes to form the outer ends of the handle recess. The exact size isn't crucial, as long as a person's hands can comfortably fit inside the recess, and the recess isn't so large that the upper portion of the handle is too weak.

With the holes bored, unclamp the parts and remove the waste with a band saw. Clamp the parts together again, and use a small trim router to machine a small round over on both sides of the recess. You may have to adjust the location of the clamps while you rout to be able to round over the entire edge.

Finally, draw, band saw and fair the curve in either end of the upper handle half.

Notches in the sides

Cut 3/8" notches into the inner faces of the sides. The dividers will sit in these notches, keeping them locked in place during use. The routed notches are 1/8" deep. They need to be cut the same length as the dividers are high. Don't worry about the rounded bottom of the notch, as we will round the two lower edges of the

Divider Notches – Located to match the notches in the underside of the handle, these notches will accept the dividers. Notice the stop, which will make routing multiple parts fast, accurate and safe.

dividers to fit in these notches later.

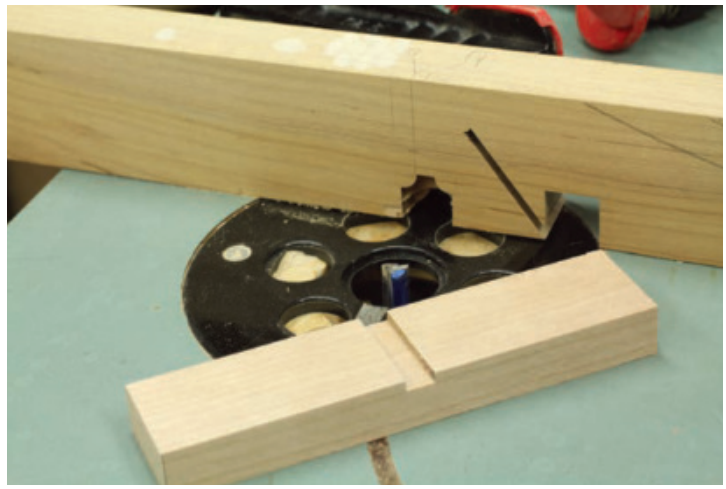
Using the lower handle half to transfer the location of the two notches to the inner face of the sides, set up the router table to make this cut. I used a stop block on my mitre gauge to not only give me a stop to machine both sides identically, but also as a way of helping me keep the workpiece stationary during the operation.

One other stop, positioned so the workpiece could only travel over the blade so far, was added beyond the 3/8" diameter router bit. This set the length of the notch.

Dividers

Thin, small workpieces are hard to machine. I made a blank that would allow me to cut the dividers to length and machine a notch into them, before ripping the dividers from the blank. After dressing the blank to 3/4" thickness, I took a measurement from the dry-assembled case, then cut the blank to that length.

The notch in the upper face of this blank will mate with the underside of the lower handle half. In theory, this notch should be 1/8" deep, but best to check your work to make sure. Machine this



Divider Blank – Rather than machine small parts, Brown cuts the divider blank to length, then adds the notches, before ripping the two dividers from the blank.

notch with a mitre gauge in your router table or at your table saw.

Rip the dividers from the blank, ensuring they're ever so slightly wider than the notches in both the sides and lower handle half. Use a hand plane to take light passes from the dividers, or sand them down until the fit is perfect. Heavily ease the two lower corners of the dividers where they meet the case sides. They need to sit into the notches so their upper faces are flush with the upper edge of the case sides.

A Place to Write – Brown uses a pyrography pen to create a surface on the underside of the bottom for people to write their name and the date, so there will be a record of who gave this beer caddy, and when. This could also be done with pen.

The bottom

Machine the bottom to fit into the grooves. I used a pyrography pen to add lines to the underside of the bottom so folks could write their name and date in each box as they pass it on. I laid it out in pencil first, then went over it freehand with my pyrography pen. I also added my email address to the upper face of the bottom in hopes that people would send me a note as to where the caddy was as it travelled.

Assemble the parts

As always, a dry run to ensure all the parts fit together nicely before adding glue was necessary. I lightly sanded the inner faces of the four main case pieces, the dividers and the handle halves. Working quickly, I glued the dovetail joints, assembled the four case parts and the bottom, then applied clamps to bring the joints together.

While that was drying, I installed the two dividers with a bit of glue, followed by the lower handle half, and sunk two #8 × 2" screws to fix the lower handle half in place for good. On top of the lower handle half I glued and clamped the upper handle half, making sure to align the two halves accurately so there would be minimal sanding once the glue was dry.

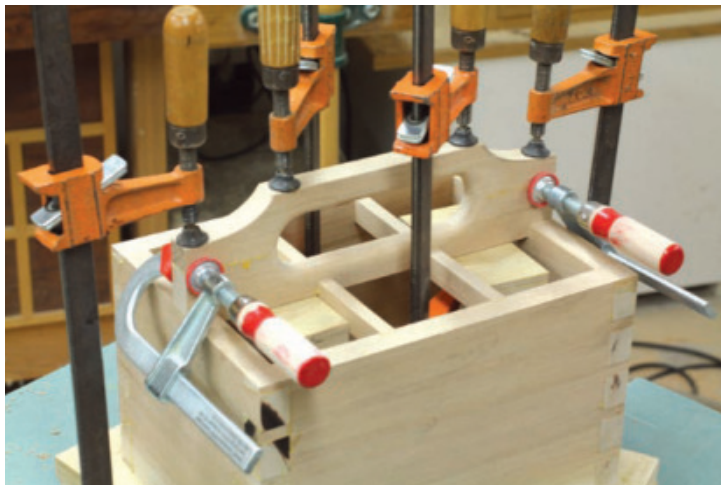
An hour later I scraped excess glue away, then waited overnight until sanding the handle so it looked like one continuous piece. A block plane added a fairly heavy chamfer to all of the edges so any wear and tear would be less visible.

A durable finish

Since this was likely to see a bit of everything in its life, I used a quality

Start the Assembly – Apply glue to the dovetail joints, bring the case sides and ends together, with the bottom panel inserted into the groove. Clamp it up, then add the two dividers.

Lower Handle Half – Add glue to the joints securing the lower handle half to the case, then countersink for a screw to secure the handle in place.



Upper Handle Half – Apply glue to the edge joints, then use two clamps to ensure the joint meets flush. Use a few more clamps and a pair of cauls to bring the joints together.

polyurethane to add protection and enhance the colour and grain of the wood. A finish could be applied with a brush or rag, but I felt an aerosol spray can would be the quickest and easiest approach, and even likely give me a smoother result than the other options. I used Rustoleum's Professional Oil-Based finish in satin. I only sprayed a bit of finish on the inside of the caddy, nearest the top of the can openings, but that was enough to bring some colour to those surfaces.

The only thing to do next was to write my name and the date on the bottom, fill the caddy with a half dozen beers,and drop it off at a friend's house. He did a favour for me, and I owed him a thank you. I really hope I hear from its temporary owners while it bounces from home to home.

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INFO: DIFFICULTY – **3/5,** LENGTH/TIME – **4/5,** COST – **5/5**

Build a Backyard Play Structure

Nothing says fun for kids like a swing, slide, ladder and fort crossed with a wooden bulldozer. Let this design be inspiration for your backyard play structure, and see where your imagination takes you.

BY LISA CHEMERIKA

My daughter, Jill, has a home day care. When it's warm outside, the kids she cares for always want to get outside more, so we talked about a play structure for her backyard. The children in her care are mostly preschoolers, so safety for these toddlers was foremost in our minds. But we also wanted the older children to be able to have good creative and active fun, too. We essentially wanted a bit of everything in this play structure.

There are CSA standards for playground equipment, but these standards don't apply to private, residential (in-home) playgrounds. Having said that, we still wanted to keep the play structure as safe as possible. We thought of anything a child could possible do to hurt themselves badly and tried to make the design protect against that sort of injury. It took some brainstorming, and some reconsidering as the project went on, but I think the end result was well worth it.

Photos by Lisa Chemerika

I won't go over all of the specific measurements I used to build this play structure, as anyone who builds this will likely have to customize it to their yard and needs. Coming up with a fun design for kids is half of the fun when taking on a project like this.

Materials

I chose cedar so that there would be no treated lumber for little ones to chew on, and no finish required. I used 13 4×4×8 posts, about 12 2×4×8s and 48 deck boards. For the design I came up with, it turned out that two of those posts should have been 10' long.

Design time

This was the first big mother/daughter build for us, so we wanted expert advice. We went to Jill's little experts for their ideas on the perfect play structure.

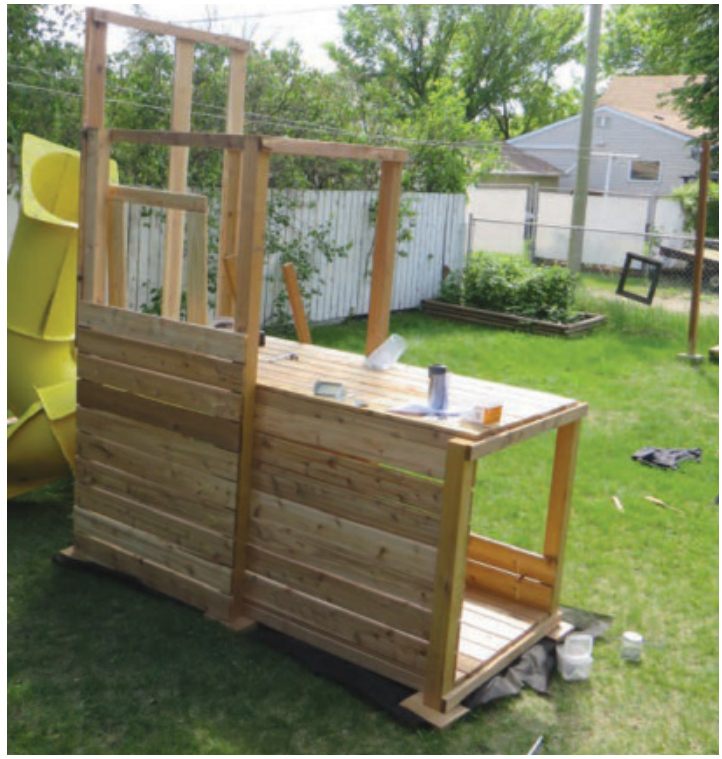
Here's what they asked for. First on their list was a spiral slide. I thought the idea of a covered slide was very good for the littlest ones. Enough clearance under it so a paddle pool could be installed under the slide end for a hot day. After that, it was lots of climbing, lots of switches, lots of levers and lots of lights.

"And it should look like a bulldozer," a little one said, matter-of-factly. What? I had to do a little rethinking on how that would work.

The first thing we did was acquire the slide, swings and all of the other bits and pieces of equipment we wanted to use. This is no different than the cardinal rule of woodworking, which clearly states the builder should have all the necessary hardware before making even one tiny piece of sawdust.

I found out after I started the play structure that a 7' slide needs 118" to the top of the opening. I should have read the installation instructions before I started building. This oversight resulted in the design opportunity for the back of the roof to be 10' tall to accommodate the 7' slide.

Start Towards the Outside – Chemerika started with the 4' × 8' perimeter and fixed the corners in place with 4×4 posts. Adding intermediate 4 × 4s and a few more structural components, and the basic shape started to be visible.



Fill It In – Deck boards were next. They were added for siding as well as any horizontal walking surfaces.

shopnotes

Teak Garden Boxes From Mys-Teak

Add a Slide – The focal point of a play structure, the slide will see a lot of use in its lifetime.

The slide sat for a while before we put it together, and it was very time consuming and difficult to get the holes to line up. I'm not sure if it warped in the sun or if they really are just that frustrating to put together. Also, there are supports for the slide that need to be incorporated into your design. Keep all these things in mind when you build your play structure.

Start at the base

I started by laying landscape fabric on the ground under the frame. I don't know if this will actually help keep the grass from growing through the bottom, but I thought it couldn't hurt. I put a piece of cedar 2"×10" cut to 10" long under each post to stop it from sinking into the ground.

The main frame is a 4'×8' footprint, framed with 2×4s, so I had surfaces to screw on the boards for the bottom deck and the sides. I didn't have a firm plan on where the openings would be. With this style of build, they could be added just about anywhere.

Generally speaking, I used 4×4 posts for the corner and intermediate uprights, then connected those uprights together with 2×4s at 4' and 8' off the ground. As I mentioned, the two 4×4 corner posts that the slide secures to should have been 10' tall, so I made some additions after the fact. I screwed these joints together with long exterior screws.

With the main structure in place, I added sides and deck, all with deck boards. Openings, to allow kids to move in and out of the play structure, were left where appropriate. Railings and other devices to keep kids from falling off the higher sections of the play structure were also critical. That was taken care of next, if there were any areas that weren't safe.

There's always room for growth

I didn't want the 4×4 hydraulic arms and the bucket to be too high in the air because I knew kids would climb them and possibly fall off. It seemed like a good place to hang the tire from for the toddlers. I didn't put boards across the upper portion of the bucket, as that would have allowed them to climb about 4' above the tire. We all know how that would have ended. I could always add deck boards down the road, along with a railing and extra supports at the end of the 4×4 posts that hold up the tire swing. As your kids grow, your play structure may have to grow, too.

Swings

The boards the swings hang from were attached to the post in the cab of the dozer, and extend to a post running into the ground. I sank the end post into the

Don't Skimp – Cool details, like these tires Chemerika got for free from a local tire shop, go a long way to adding intrigue and character to a play structure. Bonus points for finding large tractor tires like these.

ground, and used gravel and concrete to fix it in place. Because there's a dynamic movement associated with swings, I added a few additional angled pieces to help keep the end post stationary. These pieces of posts were left over from other cuts. The swings hang from bolts through the two top boards. Nuts on the bolts keep the chains in place.

Blowin' in the Wind – Swings are a kid favourite. Make sure they're strong enough to withstand the dynamic forces that will act upon them, and they'll provide years of fun.

THE CANADIAN WOODWORKING CENSUS 2021

In May 2021, *Canadian Woodworking* received 4,898 responses to our Small Shop Survey on canadianwoodworking.com. Here are the results.

We've segmented the results for those who say woodworking is a hobby (94%) or a profession (6%). Here's what you told us about where you do your woodworking and what you do.

	A HOBBY	A PROFESSION
Dedicated space		
At my home	83%	64%
Shared with some others	1%	5%
Use a portable tool box	2%	1%
At another location	4%	22%
Nothing but hope to have someday	10%	7%
Shop at home in...		
Basement	27%	17%
Stand-alone structure	14%	22%
Garage not attached	24%	28%
Garage attached	29%	28%
Other space	5%	5%
Size of woodworking space		
Less than 150 square feet (10' x 15')	36%	18%
150 to 300 square feet (20' x 15')	35%	20%
300 to 500 square feet (20' x 25')	19%	22%
Over 500 square feet	11%	41%
What kind of woodworking (one choice only)		
Other	10%	13%
Home improvement	42%	26%
Furniture making	18%	25%
Craft making	17%	10%
Cabinet making	7%	20%
Woodturning	7%	6%

Quality Add-Ons – Purpose-built parts, like these ladder bars, make the build easier and the play structure fun to play in.

Get to Work – Kids love imaginative play, and what would any kid rather operate than a bulldozer? An operator's seat, complete with a steering wheel and operational levers, will get loads of use.

A roof

I considered a tarp for the roof, but in the end I still had more fence boards so I used them instead. That gave me a place to install more lights. The steep roof might prevent kids from crawling up there 10' off the ground…I hope.

Additional bits and pieces

We were able to get some tires from a tire shop free of charge, and used small blocks of wood inside the tire to fasten the tires to the sides. We used scrap boards on the inside for extra backing for the screws. We got some used belting from a hay bailer to run between the tires for tracks. The belting was screwed to the tires as tightly as we could pull it. I didn't put cleats on the tracks. It would have looked great but I didn't think the wooden cleats would stand up to play and I didn't want cleats with screws sticking out of them on the ground.

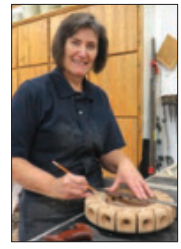
The smoke stacks are also pieces of scrap cedar posts. We painted them black so you would know what they were supposed to be. I trolled the bargain bins at Princess Auto for lights, reflectors and accessories. The kids love lights and levers and anything else you can think of.

In the end, there is a spiral slide, a tire swing, a tic-tac-toe game, a regular swing, a glider swing, a ladder for the slide, a ladder to get into the cab, a periscope and a telescope. I'm sure there will be additions and changes as time goes on once we see what they like and use. I got all the kids involved in sanding the rough edges so they could help with the build and make it their own. So far, the littles are having a blast!

After seeing this play structure in use for over a year my only piece of added advice would be to build it stronger than you think you need to. Kids play hard and do things that adults likely wouldn't. I've had to reinforce the large tractor tires, as they just about pulled them off the play structure. I've also had to do the odd bit of maintenance to shore up a few pieces because kids go all out when playing on something like this. When in doubt, make it extra strong. One other thing I would have done slightly differently is to raise the lowest level up an extra 4" to 6". This would have kept that level a bit farther from the moisture of the ground and increase airflow.

I also went back to add a few extra handrails in a few locations where the kids seemed to need an extra hand-hold. This was mainly where ladders transitioned to other walking surfaces.

The only question that remains is who will have more fun? Your kids playing on this, or you designing and building it with them?



LISA CHEMERIKA
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RELATED ARTICLES: *Build an Indoor Bouldering Wall for Kids (Feb/Mar 2014)*, Build a Catio: An Outdoor Enclosure for Cats *(Aug/Sept 2018)*

Reviews

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

Viking Arm Installation Tool

Photo by Oryx Tools

BY ROB BROWN

I would forgive you if you thought this was just a glorified one-handed clamp. Although it looks similar, the Viking Arm Installation Tool is its much more powerful distant cousin. Used mainly in the installation and home improvement sectors, this well-made tool has a wide range of applications. Oryx Tools is the exclusive Canadian retailer of the tool, which is made in Norway.

From the moment I squeezed the handle I knew I was dealing with a quality tool that works very smoothly and can produce a lot of power. I used to make and install custom kitchen cabinets professionally, and I could have used a pair of these to help level and position base cabinets, and level upper cabinets so they could be fastened to a wall. But installing kitchen cabinets isn't the end of the road for these power jaws. Built-ins, vanities, workshop storage cabinets and many other household fixtures could be installed more easily and quickly with this tool.

Home improvement folks would also benefit from having an extra, super-strong hand around while doing many jobs. Ensuring floorboards butt up nicely to each other, lifting drywall off the ground during installation, positioning large windows or interior / exterior doors during installation, and bringing deck boards into position for screwing could all be done quickly and easily with this installation tool. Even when extreme strength

Smooth Action – The inner workings of the Viking Arm Installation Tool are high quality and work well under heavy loads.

Two Lowering Options – When under load, there are two options for lowering the upper jaw. The thumb lever on the left offers very controlled lowering by any distance up to about 3/16" per press, while the lever on the right releases the upper jaw's grasp on the shaft entirely. (Photos by Rob Brown)

isn't needed, it would offer much-needed assistance.

Professional contractors will quickly realize that many jobs could be handled by a single installer if they had a Viking Arm Installation Tool in their toolbox. Time is money, and the amount of time to take care of countless tasks every day will be reduced, which boosts the bottom line.

Grasping the large hand lever causes the jaws to easily move away from each other. There are also a pair of levers near the user's thumb. The left lever allows the user to bring the jaws back together by up to about 3/16", depending on how far the lever is pressed. This is for fine-tuning the exact position of the object you're lifting or positioning. The right lever will release all tension on the shaft and will allow you to move the upper jaw wherever you want.

The movement is smooth, and the amount of grip needed to lift a heavy object is surprisingly little. Even my nine-year-old son could lift a box weighing about 75 pounds 3" off the ground with a single hand in about five seconds. The jaws have bevelled front edges, allowing them to be positioned between two objects, then taped into place if need be. There are also a few holes in the base to allow the user to fix the installation tool to another fixture, enabling more specific tasks to be taken care of with ease. All in all, this is a solid product that will stand the test of time.

Viking Arm Installation Tool
MSRP: $299
Website: Oryxtools.ca
Tester: Rob Brown

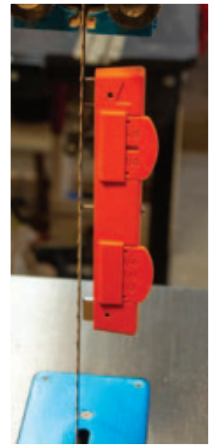
EZTension Bandsaw Blade Tension Gauge

What Size? – The longer version of the EZTension Gauge fits saws with a depth of cut of at least 6", and for blade widths between 1/4" and 3/4". For saws with a 4" depth of cut, and blades between 1/8" and 3/8" wide, the shorter version is needed.

BY STEVE DER-GARABEDIAN

One of the more popular courses I teach is on bandsaw tune-up and use. While there are various questions from students, the one question that everyone seems to ask is how to properly set blade tension. While some machines don't, most modern bandsaws will come with a factory-set tension gauge.

Blade Depth Adjustment – To adjust the gauge for different widths of blades, adjust the set screw with the on-board depth indicator.



Proper Tension – Start with low blade tension and both magnets attracted to the blade, then increase blade tension. You can see the lower magnet has pulled away from the blade in this photo. The moment this happens, blade tension is set properly.

Using a wheel, knob or similar, you adjust the tension according to the width of blade in use.

I've wondered about their accuracy; however, I wasn't willing to shell out $500 or more for a gauge made specifically for such measurements. Instead, I put my faith in the machine's gauge. More importantly, though, is how to describe the proper tension to students, especially if their model doesn't include a gauge. When I was in school, one of my teachers would pluck at the blade, listening for a certain note. I always felt like he was just pulling our legs. Besides, I played the drums not the bass. Another method involves pushing the blade from the side to a certain deflection. What if you ate an extra bowl of Wheaties that morning and pushed harder today than the last time you put on a new blade?

While falling down an internet rabbit hole one day, I came across the EZTension bandsaw tension gauge. The gauge is the brainchild of Mark Juliana, who works at the Centre for Furniture Craftsmanship. Part of Juliana's job includes tuning up the school's multiple bandsaws. The device is quite simple both in design and use. It has a slim body, a small screw between two rare-earth magnets, a pair of setting guides and a hex wrench. The guides and hex wrench store onboard the body, which in turn conveniently attaches to the band saw when not in use. To set the gauge, attach it to the side of your table. Pull out the setting guide with the notch that matches your blade's width. Next, use the hex wrench to adjust the screw to the proper projection and place it on your blade with the arrow pointing up. Increase the tension of your blade until one of the magnets detaches from the blade. Alternatively, if both magnets are not attached to the blade, back off the tension until they do, then increase as before.

I checked my machine's indicator after using the EZTension gauge. The factory setting called for much more tension. Contrary to what may seem to make sense, over-tensioning a band saw blade does not lead to straighter cuts or fix tracking issues. In fact, too much tension leads to premature wear of both the tires and tensioning spring. It's also harder on your bearings and can cause blades to break. Under-tensioning isn't good, either, and leads to poor cuts. While proper tension is good you don't want it on all the time. Proper maintenance of a band saw calls for the release of blade tension at the end of the day or for storage. A bonus feature of the EZTension gauge is that you can place the gauge on the blade,

Photos by Steve Der-Garbedian

release tension and the next time you need the bandsaw you'll have a visual reminder to re-tension the blade.

There are two versions of the gauge and each costs $39.95 plus $10 shipping (US dollars). The original will fit on bandsaws with at least a 6" depth of cut and blade widths from 1/4" to 3/4". The mini version will fit bandsaws that have a 4" depth of cut and blade widths from 1/8" to 3/8". One note of importance is that the gauge only works on carbon steel blades and not bi-metal blades due to their magnetic properties.

I'm happy that my surfing brought me to the EZTension website. It's now very easy to show students what proper tension is, whether they're musicians or not, and at an affordable cost.

EZTension Bandsaw Blade Tension Gauge
MSRP: $39.95 + $10 shipping (US dollars)
Website: EZTension.com
Tester: Steve Der-Garabedian

Photo by Kreg

Kreg Portable Crosscut Guide

BY ROB BROWN

Mitre saws are great for cutting dimensional lumber and many other workpieces, but they can be heavy and expensive. They often need to be set up carefully on a worksurface to work properly. The Kreg Portable Crosscut Guide is a great solution to all of these challenges, as well as a few others. While it won't make your mitre saw obsolete, it will go a long way to simplifying cutting all sorts of lumber with a circular saw, while maintaining more than enough accuracy and quality to keep you smiling until the project is complete.

Using this guide is simple. Mark the location of the cut on the lumber, extend the retractable cutline indicator with a thumb (more on this cool feature later), position the guide so it's in line with the pencil line, apply light pressure to the guide with one hand and make the cut with your other hand. It's simple, quick and works well. Now that you know how it's used, let's go over some of the many checkmarks in the "pro" column.

One of the best things about this guide is that it's lightweight and easy to move around a yard, shop, house or wherever you need it next. It weighs next to nothing, and is made of a strong and durable ABS plastic, so it will last a long time. It also takes up little space when not in use.

As I mentioned, there are two retractable cutline indicators: one for 90° cuts and another for 45° cuts. These indicators allow you to position the guide exactly where it's needed so you can cut precisely to your line every time. You can adjust these indicators

Adjust for Your Saw – Both of the cutline indicators need to be adjusted for your saw's base. By adjusting the indicators, then tightening the elliptical nut, you will be able to make accurate cuts each time.

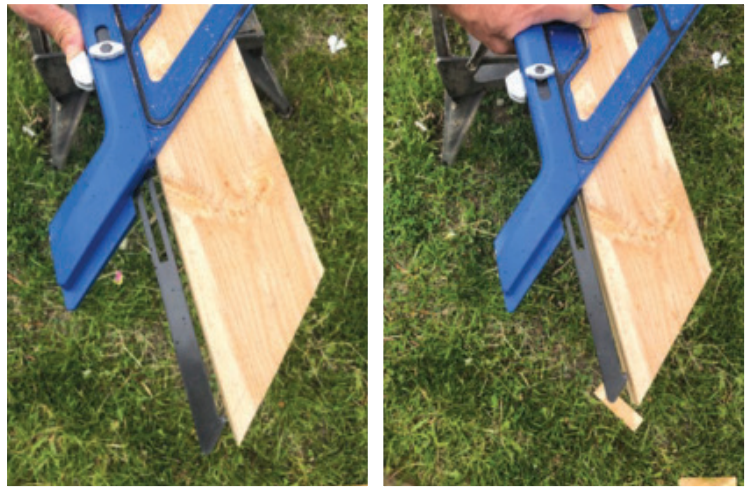
depending on the size of your saw. Once they're both tightened, you just extend the indicators using a single thumb, align the indicator with the pencil line, then allow the spring-loaded indicator to retract before holding the guide in place and making the cut. It might sound like a lot on paper, but in practice it's simple and easy.

Once you have the guide positioned, apply a bit of hand pressure to keep it in place. "GripMaxx" is Kreg's name for the grippy gasket-like material on both faces of this guide. It keeps the guide stationary during cuts, so no clamps are needed.

Another nice feature, especially when cutting 45° angles, is the saw support ledge. This added material supports the saw base while starting each cut.

Considering how easy this guide is to use and how well it works, it's very reasonably priced. It can be used by both pro contractors and homeowners to simplify crosscutting tasks. If you crosscut dimensional lumber on even a vaguely regular basis, I would recommend this guide. Kreg has a long line of quality joinery and cutting tools, and this adds to their strong arsenal.

Kreg Portable Crosscut Guide
MSRP: $24.99
Website: KregTool.com
Tester: Rob Brown



Press of a Thumb – One thumb presses the cutline indicator outwards, then the guide is aligned with the pencil line (left). Once the cutline indicator is released it automatically retracts, allowing the cut to be made (right). (Photos by Rob Brown)

INFO: DIFFICULTY – **2/5,** LENGTH/TIME – **3/5,** COST – **3/5**

Build a CEDAR PLANTER BENCH

This planter bench will offer a seat to anyone who needs it and add colour to the area with some flowers.

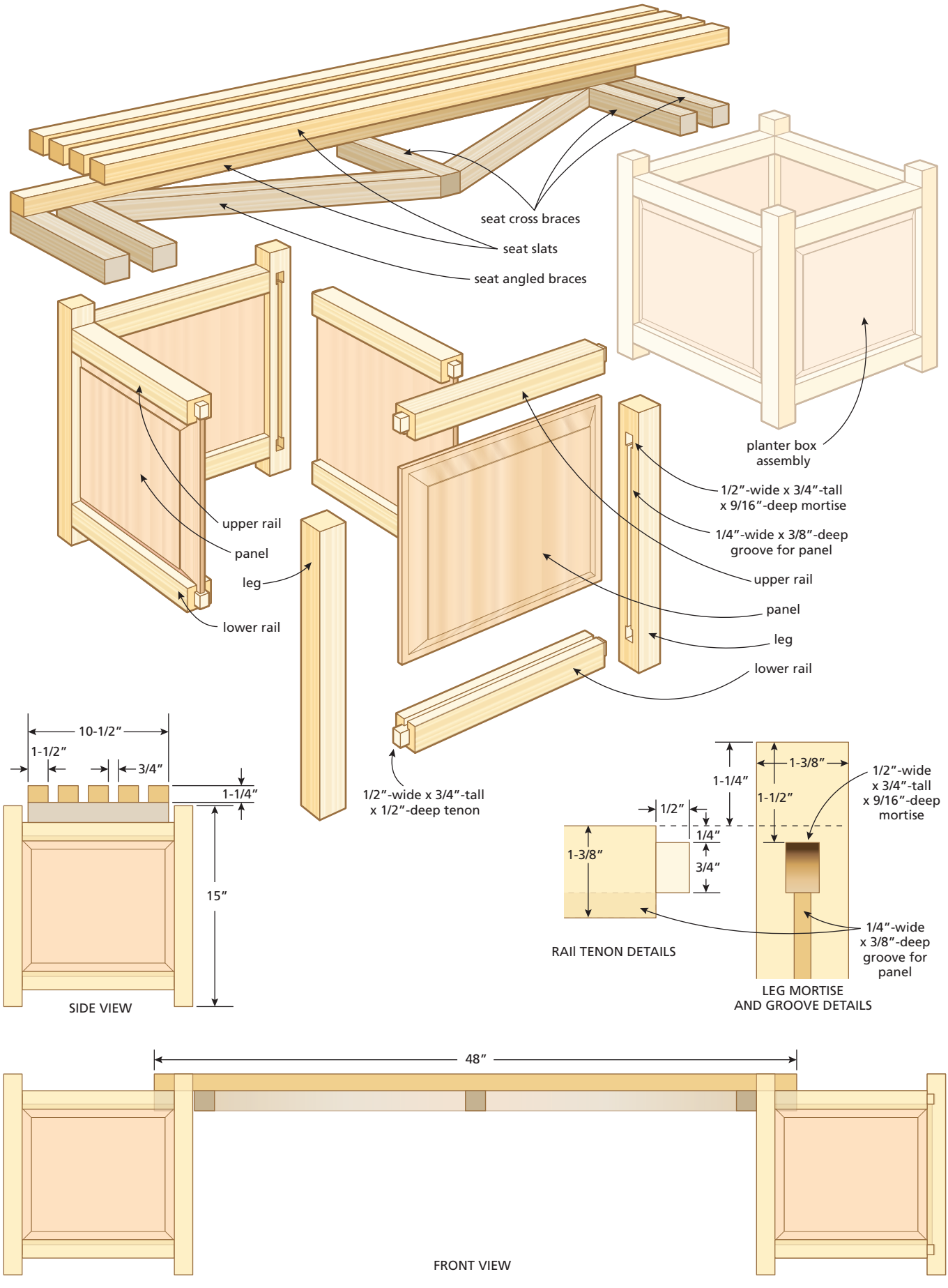
BY ROBERT ZAKARIAN

We needed a small bench near the pool, and I thought adding flower planters at either end of the bench would not only support the bench seat but add colour to the area. This design also didn't take up too much space. The planters measure 15" tall by 14" wide, and the bench measures 48" long by 10-1/2" wide. The entire project measures 76" long by 14" wide.

I bought two medium-sized pots before starting this project, and designed the planter bench so the rims of the pots could be supported by the upper rails on each planter. However, you could also purchase a square pot that could sit directly on the ground in the middle of each planter box. Depending on the size of the pots you use, you may have to adjust the size of the planter boxes to contain your purchased pots.

Photos by Robert Zakarian

Rails and Stiles – The rails and stiles are cut from 2×4s, then dressed to final dimensions.


seat cross braces
seat slats
seat angled braces
planter box assembly
upper rail
panel
leg
lower rail
1/2"-wide x 3/4"-tall x 9/16"-deep mortise
1/4"-wide x 3/8"-deep groove for panel
upper rail
panel
leg
lower rail
1/2"-wide x 3/4"-tall x 1/2"-deep tenon
10-1/2"
1-1/2"
3/4"
1-1/4"
15"
SIDE VIEW
1-1/4"
1-3/8"
1/2"
1/4"
3/4"
1-3/8"
RAIl TENON DETAILS
1-1/2"
1/2"-wide x 3/4"-tall x 9/16"-deep mortise
1/4"-wide x 3/8"-deep groove for panel
LEG MORTISE AND GROOVE DETAILS
48"
FRONT VIEW

Materials List

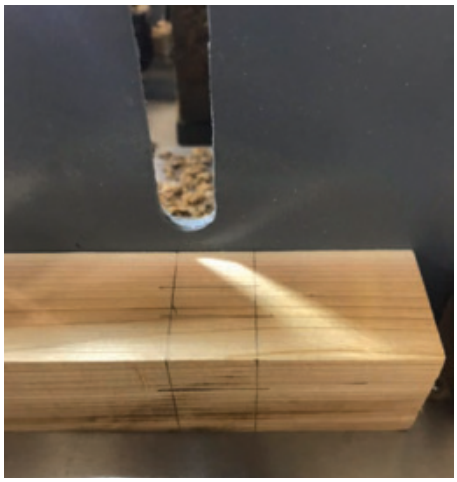
Part	Qty	T	W	L	Material
Legs	8	1-3/8	1-3/8	15	Cedar
Rails	16	1-3/8	1-3/8	12-3/8	Cedar
Panels	8	3/4	12	10-1/2	Cedar
Seat Slats	5	1-1/2	1-1/4	48	Cedar
Seat Cross Braces	5	1-1/2	1-1/2	10-1/2	Cedar
Seat Angled Braces	2	1-1/2	1-1/2	To Fit	Cedar

Wood selection

The wood I used for this project was solid cedar. This planter bench was built with a mix of 2×4s and 1×6s, all 8' long. Cedar is a soft wood with an attractive, warm colour. It also stands up to the elements very well. It's not cheap, but for a project of this size it's not too bad. Cedar weathers to a beautiful greyish colour if you don't finish it, but also accepts an exterior finish nicely if you don't like the natural grey color. For this project I used natural oil to keep cedar's original reddish colour.

Traditional construction

To make the legs, rip the 2×4s down the center, then cut them to length. You will need eight legs 15" long and 16 rails 12-3/8" long. Note that 2×4s are sold with a 1/8" round over on all sides. I dressed the parts down an extra 1/8" to ensure I had square legs and rails.



Proper Layout – Laying out the mortises will help keep track of the parts, and ensure the mortises are cut in the correct location and size.

Cutting the mortises

Each stile will require two mortises on two of its faces. I cut the mortises with hand tools, but there are lots of other options. You can also adjust the dimensions of the tenons according to the tools you have.

The rails should be 1-1/4" away from the upper and lower ends of the stiles. To do this, measure 1-1/2" in from both ends of the stile. This is one edge of the mortise. From there, mark your 3/4" wide by 1/2" thick mortise. Cut the mortises 9/16" deep, which is just shy of half the depth of the stile.

You could also offset your mortises towards the outside of the stile, as this might make it easier to avoid blowing out the material where the two mortises almost meet near the center of the stiles, not to mention allow you to make the tenons longer and stronger. If you do this, just make sure to offset your tenons so the rails mate nicely with the stiles. Repeat this step for all stiles, then cut the mortises, being careful not to blow out the area between the mortises.

A Few Options – Zakarian used hand tools to cut the mortises in his planters, but a router is also a common option.

Add tenons to the rails

To cut the tenons on the rails, install dado blades in your table saw and make a test cut with a scrap piece. Use a mitre gauge to keep the workpiece perpendicular to the rip fence. This is one of the few times when using the mitre gauge and the rip fence at the same time is acceptable. Dry-fit the test piece in the mortise of one of the stiles done in the previous step. Adjust dado height accordingly to achieve a proper fit. Next, cut the tenons for all your rails.

Next, use your test piece to set up the dado blade to machine the tenons to 3/4" wide and run the parts across the blade to form the final tenons.

Cut grooves

The grooves to accept the panels are 3/8" deep and 1/4" wide. Set up a router table with a 1/4" straight bit, adjust the fence to locate the grooves in the center of the stiles, then add stops to keep the cut between the edges of the mortises. Doing this in a couple of passes, with the first pass only 1/4" deep, is safer and will produce a better finished cut.

Making the panels

Make the panels from 1×6s. As per my calculation, the area between the bottom of each groove is 10-7/8" in height and 12-1/8" in width, but it's best to check the dimensions on your workpieces just in case they differ.

To make the workpieces manageable, I cut the 1×6s in half at 48" long, then ran them through the table saw to cut off the round overs on both edges. Glue them together, paying close attention to alternate the annual rings. This will help stabilize the wood during expansion and contraction. Once the glue has cured, run the plank through the planer to a final thickness of 3/4". Cut the panel to the final width and length.

Raised panels

To profile the raised panel, I used the Freud three-piece raised panel bit set. The kit contains a rail and stile profiler as well as the raised panel cutter. For this project I only used the raised panel cutter. There are many different raised panel cutters on the market that can be

Alternating Rings – By alternating the end grain growth ring patterns you can keep the panels a bit flatter. The seasonal changes in humidity cause wood to expand and contract parallel to their growth rings and cause the wood to curve.

Dry Assembly – A critical stage in the build, dry assembly will let you test how all the parts fit together before you apply glue. If there are any problems they can be dealt with before final assembly.

purchased separately if a set isn't required. Set up the router table, then run the panels through to shape the panel. Multiple passes will leave you with a cleaner cut. If done properly, you'll end up with a taper of 1/4" at the end of the profile.

At this stage it's important to pre-assemble the planter to ensure all parts fit well and are square with each other.

Assembly

Pre-sand all the inner parts of the planter, then assemble the parts using waterproof Titebond III glue. Do not glue the panel in the groove, as this will prevent expansion and contraction as the weather changes.

Cross Pieces – The five bench cross pieces get screwed to the underside of the bench top assembly. The outer two pieces will go on either side of one of the upper rails in the planters when the planter bench is fully assembled. The angled braces get screwed in place after the five bench cross pieces get installed.

Bench

The final step is to fabricate the bench top. Cut the main bench slats to 48" long, then rip them to 1-1/4" wide. Lay them out on a flat bench separated by 3/4" wide spacers. Clamping them together will ensure they remain square and even with each other while attaching the other parts to the underside of the bench assembly. Cut and install the five cross braces, ensuring the gap between the two at either end of the bench assembly will accept the upper rail on the planters. Finally, cut and assemble the two angled braces.

Finishing

Sand all parts with 120 grit sandpaper. Finish the wood with a finish of your choice. I used Behr Premium waterproofing stain and sealer. Applying a film finish like an exterior spar varnish looks great, but may need more maintenance down the road. A penetrating oil won't flake off and will likely not need much maintainance in the future.

Position the planters and install the bench top. A few screws in either end will keep the bench assembly secure. If you want to bring it inside for the winter, removing a few screws is all that's required.

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Great Lakes Saws

Sponsored: Great Lakes Tool Works, established in 2018, is a small tool manufacturer in Owen Sound, Ontario. The company currently offers three types of back saws or joinery saws: a dovetail saw; a carcass saw; and a tenon saw. Every component of each of their saws is carefully handcrafted in their workshop. These saws are entirely customizable, from the tote size to the wood species to the tooth line. Great Lakes Tool Works saws come out of the box with a highly tuned, smooth-cutting tooth line that tracks a line like a bloodhound. These tools typically stay sharp for years, but when it's time you can either sharpen it yourself, or send it back to them to sharpen at shipping cost. Visit them at **GreatLakesToolWorks.ca**

The Project That Never Ends

In February my wife suggested we put up shiplap in our hallway. It still isn't finished.

BY JAMES JACKSON

Does anyone recall the tune "The Song That Never Ends?" It was an annoying, single-verse song that was part of the children's show "Lamb Chop's Play-Along" in the early 1990s and could be sung on an infinite loop.

Well, I feel as if my latest home improvement project is a variation of that tune, because it never seems to end and it goes on and on, my friends.

The story begins in February, when my wife, Becky, suggested we put up some shiplap in the hallway. It would add an interesting design element to the otherwise bland space, and the white boards would really help brighten up the area. She's actually been suggesting we do this little project since before the pandemic began.

The MDF shiplap boards are eight feet long and about 5-1/2" wide, so our completely rational thinking was we could bang the project out in a weekend. The hallway is only about 12' long, after all, and the handy tongue-and-groove design meant the boards fit together very easily and all I needed to do was check my progress every now and then with a level.

The first thing I did was watch a couple of handy YouTube videos to learn how to securely fasten the shiplap to the drywall. Pretty soon into the project, however (okay, the first board), I realized there would be some tough angles on the wall. It took six cuts on my mitre saw to get the first one right (it was about 46.7°, by the way) and by the time our first workday ended we had exactly…four boards in place.

Surely the next day would go more quickly, right? Now that we've worked out the kinks. Well, on Day 2 I came across an even bigger nemesis – electrical outlets and light switches.

Did I mention this is the first time I've tried something like this? After wasting one board by improperly measuring the width of the light switch opening, I finally got it right on the second try. My handheld jigsaw really came in handy for this part of the job, even though the blade is slightly bent.

I did have a small victory, though. I actually managed to disconnect the old thermostat (after safely switching it off at the fuse panel), drill a new hole in the wall and reposition the wires, connect them to the new thermostat, and it fired right back up – all on the very first try and without consulting my YouTube feed. Becky was thoroughly impressed.

Despite the victory, the project persisted. I could only work on weekends, thanks to my day job as a newspaper reporter, but after four long weeks I finally hung the final piece of shiplap.

Any joy I might have felt was short-lived, however, as I soon realized I still had to put up the trim. And the new door frames. And putty all the nail holes. And caulk the seams. And then paint.

I've now finished about three-quarters of the trim and half the caulking. The COVID-19 lockdown in Ontario this spring made it really tough to get the trim pieces I needed, because the hardware store didn't sell them online. I had to wait about six weeks for the stores to reopen.

The job is almost finished, and I have to say that it looks pretty good, but I am definitely anxious to wrap it all up.

It's taken a lot of time, a lot of cuts on the mitre saw, and a few gouges of flesh to get to this point. It hasn't all been bad, though. I did get to buy a brand-new, battery-powered brad nailer. New tools are always a win in my book.

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Illustration by Mike Del Rizzo

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Nathan Sterkenburg

Wenge Chair

Most of the parts that make up this chair were hand-turned on a lathe, then dowelled together with screws to add additional strength. The back was assembled like bricks and shaped with power-carving equipment.

Turn to page 12 for more quotes.
(Photo by Sheena Zilinski)