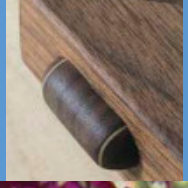
SHOP TESTED: EINHELL & FESTOOL

p.40 FAUX TENONS



p.32 BUILD A CURVED LEG DESK

ISSUE #145
AUGUST/SEPTEMBER 2023

CANADIAN Woodworking & HOME IMPROVEMENT

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Build a Handy Railing Bar

+ 4 GREAT SUMMER PROJECTS

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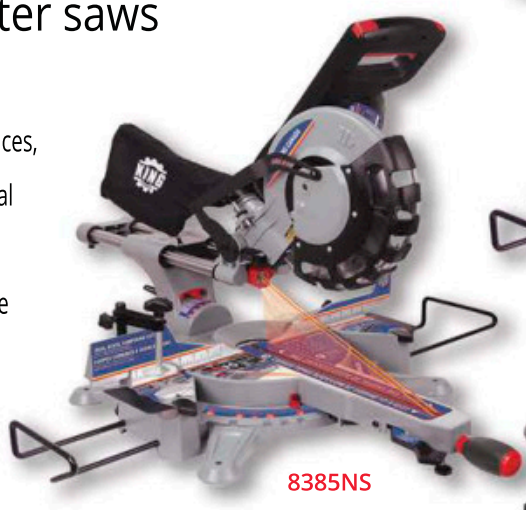

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AUGUST/SEPTEMBER 2023

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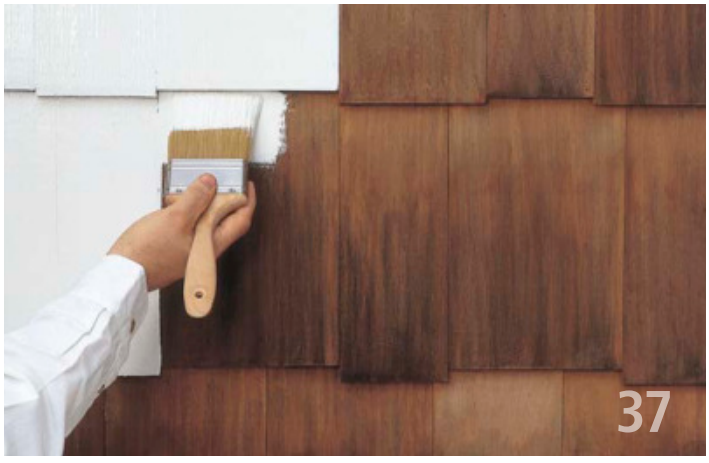

DEPARTMENTS

COVER STORY

Cover photo by Rob Brown

editor's letter

rbrown@canadianwoodworking.com

As Canadians, we have to make the most of our short summers. Travel, sports events, and getting together with family and friends when it's warm outdoors make for a busy few months. On top of that, many Canadian woodworkers who have shops in unheated garages or sheds are extra time challenged because summer is the best time for them to work wood. We've put together a great collection of outdoor projects for you to do this summer. Start them now and you'll still be able to enjoy them this season.

The railing bar on our cover is a project I made last year and have enjoyed quite a bit since installing it. It helps create more space where there really was none, allowing us to rest a few drinks, to chat and snack with friends, or even have an intimate dinner for two. It won't replace a large outdoor patio table, but it will definitely fill the gap when it comes to a small gathering.

Another summer project that would pair well with the railing bar is a flower planter box. Choose your own style of finish to highlight its simple design, then add a variety of colourful flowers to complete the project. The simplest project in this issue is likely a house number plaque with a herringbone pattern. It can be customized to your house number, and it's up to you whether you purchase your numbers or make them yourself in a striking font.

If painting your home is on the agenda, we describe how using the right approach and quality materials while following a few pointers can make this job go smoothly and not be a huge chore.

Once you're done with improving the look and function of the exterior of your home, it's time for a diversion. A plywood bike jump is the obvious answer. This is a simple project you can make with your kids. Trust me when I say it's a lot of fun to use. You'll also bring the neighbourhood kids out of the woodwork once you place this jump on your lawn.

If you finish all of these outdoor projects you could look towards the inside of your home and build a desk with curved legs. This project isn't as simple as the others, but it will sure enhance the look of your home office. Whatever project you choose, enjoy the process and savour the rewards this summer.

—Rob Brown, Editor

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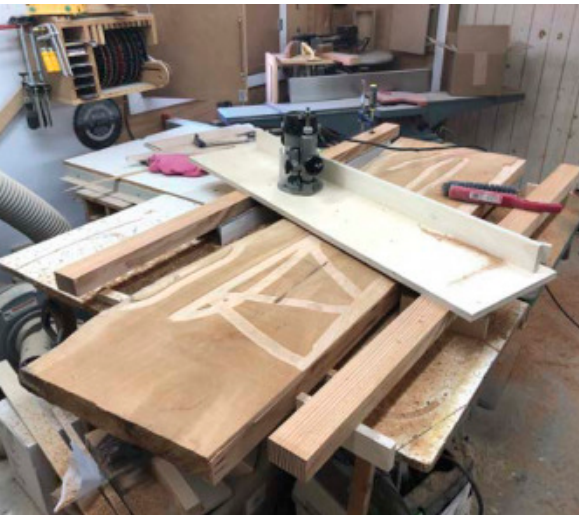

"From Rob's Bench" weekly column

I enjoy your weekly columns, which are always well written and personal. You provide useful, down-to-earth information without making things look difficult or complex. I always learn something new and it's one of only a handful of feeds that I read consistently.

Rob M.
Via email

Hi Rob,
I'm glad you're enjoying my weekly columns. They're fun to write and I enjoy the feedback I get from our readers. It gives me a chance to cover a bit of everything, from what I'm currently up to in my shop and other makers' work to cool new tools, and the pros and cons of different materials, techniques and approaches. It's available in our weekly ShopNEWS e-newsletter, which can be subscribed to by clicking on the "Community" tab on our menu bar and then selecting "Email signup."
— Rob Brown, Editor

Great Rideau Canal article

I loved the article about the Rideau Canal (April/May 2023 issue). I enjoyed the history, the discussion of techniques and skills, the planning and logistics of such a project, and the impact the finished product has on preserving our waterways and consequently the environment. It was especially interesting seeing how techniques that were used 190 years ago still work today, even if power tools are now involved. It was for me the most interesting article I've read in *Canadian Woodworking & Home Improvement* to date.

Reg D.
Via email

I really enjoyed the article on rebuilding the gates of the Rideau Canal (April/May 2023 issue). I found the amount of planning, skill and adaptability that goes into the gates fascinating. Although I'll never take on a project of that scale, I often find that inspiration and solutions for my own woodworking come from unexpected places. Thank you for taking the time to include this article.

Micah C.
Montreal, Que
Via email

I just received my June/July 2023 issue, got to [the letter criticizing the article about the Rideau Canal gates in the April/May issue] and had to write to you.

My husband and I thought the article was utterly compelling and I was so glad you took the time and pages and did a thorough, lengthy article. Anything less would not have done it justice. Really interesting and completely relevant for a woodworking magazine. The photos with the article were great, too. I know you can't please everyone, but I'm hoping you received many more positive comments than negative.

Stephanie
Via email

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Tool Reviews

Tormek T-8 water-cooled sharpening system

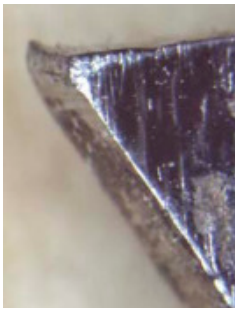
The Tormek T-8 is the sharpening system of choice for both professional woodworkers and avid hobbyist woodworkers.

Axminster UJK multifunction workbench

Multifunction workbenches (popularly referred to as MFTs) are becoming increasingly popular. You can purchase one, or better yet, make one. Axminster Tools provides several cost-effective options for building and outfitting your own multifunction workbench.

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

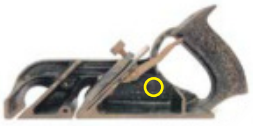
Micro Mystery



Can you guess this object commonly found in most shops?

Follow us on Instagram to see regular "Micro Mystery" challenges.

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



Previous issue: The "#78" on a Stanley shoulder plane.

Reader's Gallery

Maker: Kun Xie
Location: La Prairie, Quebec
This classic Ming-style armchair is made of cherry. The arm is composed of three pieces connected by a scarf joint. The chair is finished with Danish oil.

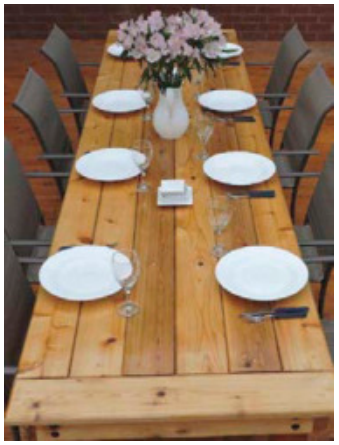
Visit canadianwoodworking.com/readers-photos/ to see other readers' projects and to submit your own.

Free Plan

Build a Patio Harvest Table

There's something about the simplicity of a table, and the joy of sharing a meal with friends around a handcrafted piece of furniture, that brings a smile to the heart.

canadianwoodworking.com/project-plan/



Product Watch

Magnetic Stud Finder with Laser-Mark

There are lots of different stud finders on the market. This one, from Kreg Tool, has a couple of very useful features. There are two magnets on the back of the stud finder that can detect a nail or screw set up to .150" in depth from wall surface (a typical drywall fastener is around .035-.050" below the surface). The magnets hold the stud finder in place, freeing up both hands. At the press of a button the stud finder projects a narrow bright red line up or down the wall. At only 4" long and 87 grams in weight it fits snugly in a pocket or apron. $39. KregTool.com

Events

Hamilton Woodworking Show

Oct 20-22, 2023
Caledonia Fairgrounds, Caledonia, Ontario
WoodShows.com

2023 Woodworking Machinery Conference and Expo

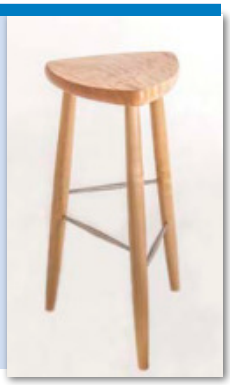
Nov 2-4, 2023
The International Centre, Mississauga, Ontario
Woodworkingnetwork.com

Video Links

canadianwoodworking.com/**videos**

Canadian Quotes: Sandra Carr

To view a slideshow on Sandra Carr visit our website.



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Cordless Lawnmowers



There are four types of cordless lawnmowers – **push, self-propelled, riding** and **robot**. The two most popular and affordable are push and self-propelled. In general, they're very similar in function and operation to electric corded and gas mowers. You'll find that they're much quieter, run cleaner and require less maintenance than gas mowers. And you don't have to deal with the bothersome power cord that's intrinsic to an electric corded mower. Many cordless models have brushless motors, which makes them more efficient and generate less friction, heat and amp draw than brushed motors.

This helps sustain battery runtime and transfers more power to the drive shaft. The amount of runtime at your disposal will depend on the battery voltage and amp-hour rating. Self-propelled mowers are a good choice for medium-size to large lawns and those with sloped terrain. However, they can reduce battery runtime by up to half. Mowers with oversize wheels tend to be easier to maneuver and will roll more smoothly over rough terrain. Similar to other types of mowers, they can have rear-mounted collection bags (which makes for easy cleanup), side discharge (which ejects clippings out the side of the mower) or a mulching function (which chops up the grass before discharging it into a bag or onto the lawn). A mower's deck size refers to the width of its cutting swath, typically from 13" to 25". Most mowers have two to four blades and all feature an adjustable cutting height that usually ranges from 1" to 4". Most mowers have folding handles that can be adjusted to suit your height and fold up for storage.

Battery: 18V 4.0 Ah to 82V 8.0Ah
Cutting swath: 13" to 25"
Weight: 30 to 100+ lbs
Price range: $200 to $1,500

Get the Most Out of Your **Cordless Lawnmower**

Bigger is not always better

If you have a small flat lawn consider getting a push cordless mower with a smaller 13" or 14" deck without a mulcher – you'll save money and get a longer battery runtime.

Only one battery?

If you have a large lawn, having a second battery on hand will extend your runtime so you can get back to the more important things in life – like woodworking.

Swab that deck, mate

The undercarriage (under the deck) eventually gets clogged with dried grass and dirt. Too much muck reduces cutting efficiency; scrape it away from time to time.

Stay sharp

Sticks and stones will dull the blade, and tear the grass instead of cutting it, giving it an uneven cut. Inspect and sharpen the blades as needed before putting the mower to bed each fall.

Bring the battery in

Don't leave batteries out during winter. The extreme cold typically isn't kind to a battery. Batteries don't like extreme heat either, so keep them in the shade in summer.

Illustration by Len Churchill Photos by Rob Brown

19|38 The Legendary Supermax

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toptenTop10

Workbench Accessories

Workbenches are the focal point of many workshops, but they don't work alone. Accessories make a workbench more efficient, useful, accurate and enjoyable.

BY ROB BROWN

1 Face Vise – Maybe it's assumed that a workbench will have a vise on it, but I've added it just in case yours doesn't. Easily the most important accessory to a workbench, a vise will help out in many ways. I added two face vises to the front of my bench, but some prefer just one. This approach will leave room for a tail vise, typically at the right end of the bench.

2 Tail Vise – A tail vise is positioned at the end of a bench. It's very similar to a face vise, but it holds a workpiece in a slightly different way. It's also regularly used to secure a workpiece on top of a bench, with the use of bench dogs.

3 Bench Dog – A bench dog can be store-bought or shop-made. Usually round, but sometimes rectangular, a bench dog can be positioned in any one of the holes in the top of your bench to offer a surface to clamp a workpiece against. A second bench dog can be used in a vise to provide the clamping power.

4 Handsaw Hook – A bench hook will help you make 90° and 45° cuts, not to mention any other cuts you'd like to make a hook for. These are very simple bench accessories and are generally shop-made. A base, with a fence attached to the top of the base, along with a block on the underside to help secure the base while cutting, is all you really need. I secure this jig in my face vise, though other hooks will reference off the front edge of your bench.

5 Planing Stop – Purchase or made, a planing stop can be inserted into the bench dog holes on your bench and used to give you a stop to plane against. Once you have one you'll likely realize there are many tasks these stops can help you out with.

6 Veritas Inset Vise – This type of vise can be added to any bench that's at least 1-1/4" thick. It works with existing bench dog holes to secure workpieces on top of your benchtop. I installed a Veritas inset vise on my bench and I strongly recommend one.

7 Moxon Vise – A moxon vise will assist you when you're using hand tools to work with smaller workpieces. It will allow you to bring the workpiece to a more helpful height and do a great job at securing it for cutting, planing, paring and so on.

8 Adjustable Light – A bench is just about useless without proper lighting. Even if you have your bench right in front of a window, an adjustable light will allow you to direct light towards where you're working even if it's dark outside.

9 V-Groove Holder Jig – This jig will help secure round or odd-shaped workpieces so they can be worked on. I also use this jig to hold work that I'm chamfering. I secure this jig in my face vise, but there's nothing wrong with making one that can be inserted into a couple of bench dog holes or be secured with a tail vise.

10 Belt Sanding Stop for Vise – Although I mainly use this stop for belt sanding workpieces, it also has other uses. It's simple to make by fixing a block to the underside of the base. The block gets secured in place with a face vise and the base can be used as a stop.

ROB BROWN
rbrown@canadianwoodworking.com

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RELATED ARTICLES: Build a Moxon Vise *(June/July 2013)*, Build a Tall Vise *(June/July 2020)*, Pint-Sized Workbench *(June/July 2014)*

Photo by Rob Brown

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CanadianQuotes

Sandra Carr

…on live edge, breaking out lumber and the benefits of teaching.

BY ROB BROWN

Sawing Lumber on Campus – When a Garry oak tree on Camosun College's Lansdowne Campus came down in a windstorm, Carr (right) was contacted by the school's administration about salvaging the tree. Theo Riecken, one of the college's carpentry instructors, has an Alaska mill and ran a milling session where Carr and her students (including Sinead Strickjack, left) participated in the process of milling the tree into slabs. (Photo by Theo Riecken)

How long have you been building furniture?
For 26 years, many of them as a self-employed craftsperson.

Tell us a couple of interesting things about your personal life.
I'm happiest when I'm in nature hiking and backpacking. I'm having a lot of fun right now learning various textile arts, and thinking of ways to incorporate what I'm learning into my furniture practice.

If you weren't a furniture maker what would you be?
Museum conservator, wilderness guide, textile artist.

In order, what are the three most important items in your shop apron?
0.5 mechanical pencil, 4" engineer's square, Veritas sliding square.

Do you prefer hand tools or power tools?
I consider both to be essential. To choose one over the other is limiting.

Solid wood or veneer?
I work mostly in solid, but veneer opens up a lot of creative opportunities.

Figured wood or straight grain?
Straight grain.

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

Favourite wood?
I couldn't imagine choosing just one, but lately I'm drawn to the local woods that come from our local guild's wood recovery program, such as Garry oak and arbutus. I appreciate the sustainable nature of this wood, which has been recovered rather than harvested.

Least favourite wood?
Anything from pallets.

Porter Cabinet – Made of Garry oak, arbutus burl veneer and macassar ebony, this cabinet's design was inspired by Japanese tori gates. Carr's client had the oak and arbutus burl growing on his property and liked the idea of incorporating both into the design. Through joinery can be a bit too obvious sometimes, but Carr was pleased with the detail it brought to this piece.

Photos by Sandra Carr

Sandra Carr
sandracarr.ca
Instructor and program leader,
Fine Furniture Program, Camosun College, Victoria, B.C.
Education — Camosun College Fine Furniture Program,
Cabinetmaker-Joiner Red Seal, various short courses over the years.

quotes

I love my Lie Neilson 102 low angle block plane and my laminate trimmer with a 1/4" up cut spiral bit. Transfer punches are also indispensable.

While I love all aspects of making a piece, one of the most satisfying is planning and breaking out from rough lumber. It's an overlooked but crucial part of the process where choices greatly affect the final piece in terms of grain matching, flow, colour and potential wood movement.

To start the design process I identify a feeling or quality I want to convey. This can be something like a quality of physical and visual lightness. Usually I know the materials and wood I want to work with, and sometimes the material's qualities may inform the design, but not always. Then I sketch and generate as many iterations of the idea as I can before narrowing it down to a final design. A lot of the time, I will start building before having it completely resolved, and make decisions as I go. I find leaving some aspects of the design open creates flexibility and makes me responsive to what is actually taking shape as I build.

I'm a bit tired of live edge, and while I love mid-century modern, that style is starting to feel a bit overdone, although I'll never tire of Danish cord on anything. I think it's beautiful and like the sustainability of it.

I've always valued working directly with clients to make custom pieces that are personal and meaningful to them. Many of the people I've built for over the years have become friends. That said, speculative work is very freeing creatively, and I enjoy that aspect as well.

In the past five years, the majority of my practice has shifted to teaching full time. While my hands aren't producing many pieces at the moment, I get immense satisfaction from sharing my knowledge with newcomers to the craft. I see the work they do, and know that I have had a hand in it. Investing my energy in people is a lot different than producing my own work, and feels important. One thing I didn't anticipate about teaching is just how much I would learn. It's easy to follow what interests me and do what I'm already good at in my own practice, but teaching pushes me in directions I might not go on my own.

Kate Duncan (KateDuncan.ca) is a rock star of Canadian furniture design. Her collections are really cohesive and I find the business success she has created for herself inspiring. Internationally, I love Laura Mays' woodworking on so many levels (LauraMays.com).

Young people just need to be exposed to woodworking and know that it's an option. It's innately human to want to create and be creative.

Elm Hall Table with Pot – Elm, rusted sheet metal, wenge, clay pot, wrought-iron nails. Carr's friend and artist Cathi Jefferson had a square pot with rectangular cut-outs in it hanging around her studio. Carr asked if she could do something with it and this table is the result.

Refinement, beauty, functionality are a large part of good design.

Making work of my own design is deeply personal. I don't see how you could be a craftsperson and not have it be central to your sense of identity.

I'm excited by the possibilities that digital communication has created for contemporary makers. The market is wide open for those who can promote themselves effectively.

I think digital fabrication techniques are going to be the biggest influence on studio furniture in the future. There are a lot of creative possibilities and exciting work being made. It can potentially have a very positive impact on the financial side of things. With digital fabrication, the maker can invest in the development of a design with the aim of having the making aspect partially completed with a CNC, laser or other tool. In this way, the focus shifts to the creative potential and the design itself.

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VIDEOS: Visit our website to view a slideshow of Carr's work.
RELATED ARTICLES: Melanie Hamilton *(Dec/Jan 2023)*, Heidi Earnshaw *(Apr/May 2014)*

INFO: DIFFICULTY – **1/5,** LENGTH/TIME – **1/5,** COST – **1/5**

Make a House Number Plaque

A custom house plaque is a great weekend project, and you can probably find most of the materials you'll need in your shop's offcuts bin.

Photos by Rodger Nicholson

BY RODGER NICHOLSON

The only specialty items you may need to make this plaque are the house numbers themselves, which you can buy locally or online. You could also fabricate wooden ones yourself if you wish. If you go that route you can make numbers with a much different look, font or size than what's commercially available and create a sign that's even more customized to your home.

Planning is critical

Like all projects, the most important step is planning. Make sure to measure out the size of your plaque, based upon your desired mounting area. I used strips of painter's tape to get a good idea of what would look proportional. This took only a few moments and gave me a great idea of what the final project dimensions should be. After some trial and error, I ended up with a finished plaque size of 18-1/2" × 9-1/2" × 7/8".

Materials for the great outdoors

My sign won't be in direct sunlight or get much rain or snow on it, as it's under an overhang. Water will damage some woods and finishes more than others, but sunlight will wreak havoc on pretty much any wood it shines on. Sunlight causes wood discoloration and checks, not to mention causing most finishes to deteriorate quickly. If the elements will be an issue for your sign, use durable materials, adhesives and finishes, and touch up the finish as soon as it starts to degrade.

Cut the base

For the base, I used a piece of 1/4" Baltic birch plywood that was in my offcut bin. Baltic birch is ideal here, as it is stable and measures an actual 1/4" (most other 1/4" sheet goods don't). If you decide to use another dimension of plywood, make sure to take this into account for future steps. Avoid MDF and particleboard altogether, as they aren't suitable for outdoors, even when painted.

Mill up the herringbone blanks

I also had some leftover hickory from a past project, so I milled up a few 30" long sticks to 1-1/2" wide and 1/4" thick. Once the longer sticks were prepared, I cut them to 8" on the mitre saw. It's always a good idea to leave project parts long to help keep your hands away from blades and bits. The long sticks yielded about 20 8" tiles and allowed me to cut away knots and other imperfections that I didn't want in my final project.

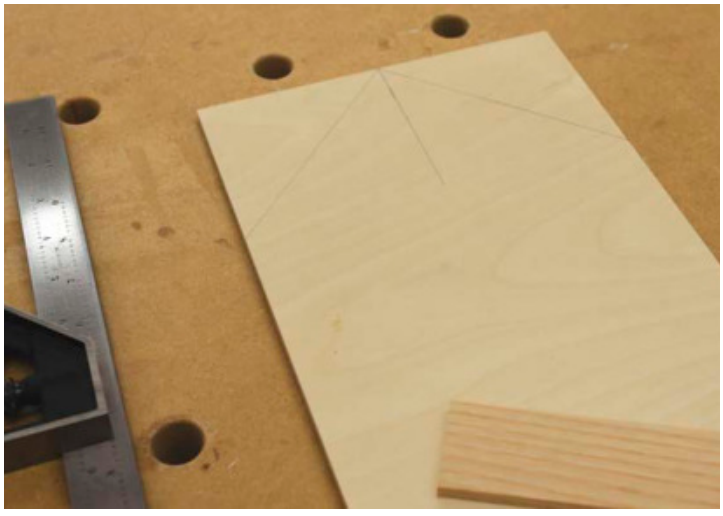
Lay out the pattern

With the tiles cut, head back to the bench. Mark the centre of the short end of the plywood, and strike two lines in opposite directions from your centre mark (both at 45°). These lines are critical and will be the basis for your pattern, so ensure these lines are accurate.

Apply waterproof PVA glue to the back of your first tile, and then align it with your marks. Fasten it down with a 23-gauge pin nailer, using 1/2" long pins. If your base isn't a true 1/4", use 3/8" nails to avoid blowouts. The solid wood tiles should overhang the panel, as they will be cut to final size later.

Apply glue to your second tile and align it with the opposing layout line. This will give you the starting "V" of the herringbone

Knot Free – Nicholson marked all his solid wood strips so he could remove all the knots yet still have usable lengths of material for the sign face.



Strike Reference Lines – Strike opposing 45° reference lines from the centre of the base. These lines will guide you when you're laying out the first few pieces.

Right Angle – Ensure the first two pieces are accurately fixed to the base and at a 90° angle to each other. These two pieces will form the basis for the design.

Hand Cut the Small Pieces – Hand cut any small pieces for safety and accuracy. It's okay to leave the solid wood strips long, as they will be trimmed flush with the base later.

pattern. Continue this pattern by gluing, placing and pinning tiles until you run out of space. When you get to smaller sections of the base that cannot support a longer tile, cut some smaller tiles with a handsaw to roughly fit the space. Avoid using power tools, as your hands will be far too close to the blade. Leave your panel to dry overnight.

Trim the panel

Clamp the panel upside down on your workbench and carefully trim off the excess material using a jigsaw. Aim to leave about 1/16" of material overhanging. Next, flip the panel over and reclamp it to the bench. Chuck a flush trim bit into a trim router and run the bearing along the plywood base to clean up the overhang. This will leave you with a perfectly flush panel. If you find the grain direction of the overhanging solid wood is causing you grief and tearing out, using a hand plane to flush the edges is a good approach.

It makes sense to finish this panel now, so add a finish of your choosing. I like the natural look of hickory, so I added three coats of exterior water-based polyurethane over a few days, sanding between coats with 400 grit sandpaper.

Many Options – A router or laminate trimmer equipped with a flush trim bit will help flush the solid wood to the base. If tearout is occurring, a hand plane may be your best bet. Once one long edge has been flushed, a table saw and mitre gauge can also help with the other three sides.

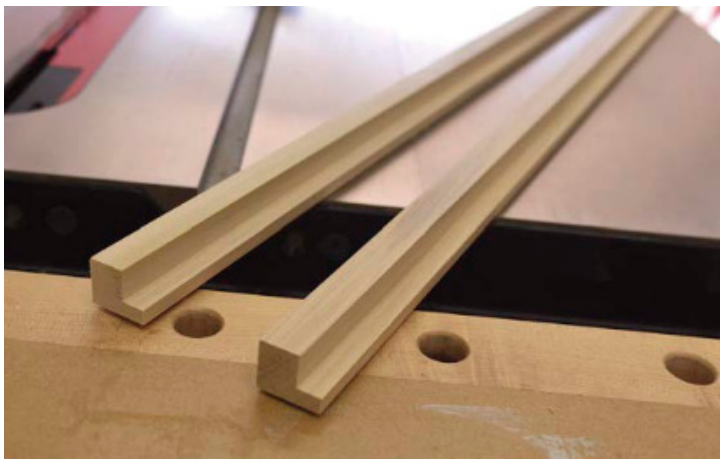
Tiles Glued Down – Leave the tiles long while the glue sets. Patience and accuracy when lining up and attaching all the strips pays off with an even, gap-free pattern.

Prepare the frame blanks

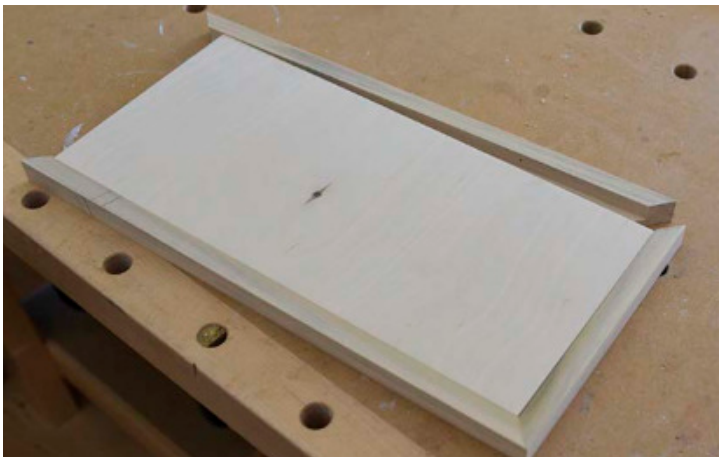
The next step is to mill up stock for your frame. I used poplar, but other species like pine would work just as well. The finished dimensions will be project-specific and the frame should be cut to fit. I milled up two long sticks at 32" × 1" × 7/8", and then machined a 3/8" wide by 1/2" deep rabbet in them to accept the panel. I cut this rabbet on the table saw using multiple passes with a FTG blade, but it could also be safely cut on the router table using either a bearing guided rabbet bit with starter pin, or a straight bit and fence. Avoid making this cut with a handheld router as the likelihood of the router tipping during the cut is high.

Mitre the frame

Using the project itself for measurements is a good idea here, as it will greatly reduce errors. Using the mitre saw, cut a 45° mitre on one of the long trim pieces. Then align the inside of that mitre with one corner of your panel. Make a small mark on the opposing side of the trim, and then return to the mitre saw to cut the opposing mitre. Align the piece, and then nail it down using an 18-gauge nailer.



Frame Material – Although Nicholson painted his frame once it was installed, you could also use contrasting solid wood for your frame.



Relative Measurements – Make your marks from the project itself. When it comes to the final piece of the frame be sure to sneak up on a nice fit so there are no gaps.

Continue in this fashion, working your way around the panel. When you get to the final piece of trim, really take your time and sneak up on a tight fit by making multiple light cuts until it fits just right. Nail as needed, and then fill the nail holes. I like to add some glue to the mitre joints as I assemble the frame.

After the filler dries, sand up to 180, mask off the panel with painter's tape, and paint the frame a colour of your choice. I went with black, as it matches the house numbers I purchased.

You could also use a different species for the frame to include some contrast in your project, rather than paint the frame.

Finishing up and installation

Follow the manufacturer's directions for installing the plaque numbers that you purchased. Most often it simply involves centring the numbers and then marking, drilling and driving the included screws. Many come with templates to assist you. If you made your own wooden numbers, add those instead.

Installation will vary depending upon the exterior house material. The house this plaque is installed on is brick, so I drilled out two holes and inserted some plastic plugs in the mortar to mount a cleat (which is easier to level). If your home has vinyl siding, specialty hardware is available if you don't want to drill into the vinyl siding. Other options include using a brick hanger, picture wire, or simply driving screws through the frame itself into plugged holes.

Make sure to double check the plaque for level. Then sit back and enjoy the compliments you're sure to receive from your friends and neighbours.

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RELATED ARTICLES:
Top 10 Great Woodworking Projects for the Outdoors

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

Make a Railing Bar

If you have a small patio a project like this will give you a place to pull up a chair and have a meal or drink outdoors.

BY ROB BROWN

We have a small front patio that overlooks a street that has little vehicular traffic but a fair bit of foot traffic. We've never sat out front because there wasn't really enough room for a few mid-sized chairs and a table. When I realized a railing bar would be small enough so that it wouldn't monopolize the area, yet large enough to pull a couple of stools up to it, I decided to build one. And when the stools aren't in use they fit underneath the railing bar.

Size the situation up

While there are common railing heights, not every railing is built to these standards. Also, not all patio and railing designs are the same, nor is the seating used on our patios the same height. I won't mention too many specifics in terms of dimensions, as these differences will affect your specific situation. The height of my railing is 42" and the stools we have are 30" high. You might need to adjust the height of your railing bar to suit your seating and railing. You

Photos by Rob Brown Illustration by Len Churchill

may also have to adjust the dimensions of the wooden brackets you make to secure your bar surface to the railing.

You'll also need the dimensions of the parts that make up your railing and the width and setback of the slats that run up into the railing. I made a full-sized sketch of the parts to be sure the dimensions I would be working with were accurate. The main surface will be positioned about 1/8" away from the railing. The arm hooks will be adhered to the main surface so there's about 1/8" gap between the rear edge of the surface and the inner face of the top arm. The brackets will get screwed to the underside of the surface and rest against the slats that make up the railing, supporting the surface. The brackets can be removed at the end of the season when it's time to store the bar for the winter.

It's one thing to make a wooden railing bar rock solid but remember it's only going to be as strong as its weakest link. In some cases that might be the railing. If you have a wooden railing that's partially rotten or not built correctly, or if your metal railing is weaker than it should be, it might be best to upgrade your railing first. And making a railing bar for many people might cause undue stress on even the strongest railings, so please consider this before making a bar that fits your entire hockey team when they come over for a few drinks.

Materials for the great outdoors

Water and sunlight wreak havoc on wood, adhesives and wood finish. Having said that, there are products that stand up to the elements quite nicely for several years. Choose them wisely and you'll never regret your choice.

Some wood species deteriorate very quickly outside. Others, such as white oak, teak, ipe and cedar, stand the test of time. Not only will these woods last for a long time, but they look great. I made this railing bar out of white oak, mainly because I wanted a light-coloured wood in this situation.

Selecting the proper adhesives are also critical to the long-term success of this, as well as any, outdoor project. I used Titebond III on this bar, but there are many other waterproof PVA glues on the market. What adhesive you choose often depends on your level of familiarity with it and how easy it is to use.

A finish also plays an important role in the long-term look and function of a project that ends up outdoors. A finish that's not formulated to be outside will break down very quickly. There are lots of options on the market, many of which are available in a wide range of colours.

Start with the bar surface

There are three main components to this build: the surface, the supports and the railing hooks. I'll start with the surface, as the other two parts are built with its dimensions in mind.

After a few months of use, I find 11" deep is comfortable for a regular-sized dinner plate. However, if there was room I would add another 2" to this. In terms of length, this is going to vary for everyone. I made the surface 56" long, which I find is enough for two people, with a bit of added room for drinks, napkins and cutlery. If you're going to make the bar surface long enough for more than three people I would suggest adding extra brackets to support the surface.

And if you feel the crowd could be rowdy and exert a more-than-normal force on the surface while dining or drinking, an extra bracket will also reduce the chance of a catastrophe. The two brackets I used are quite strong and I have no worries about something giving way.

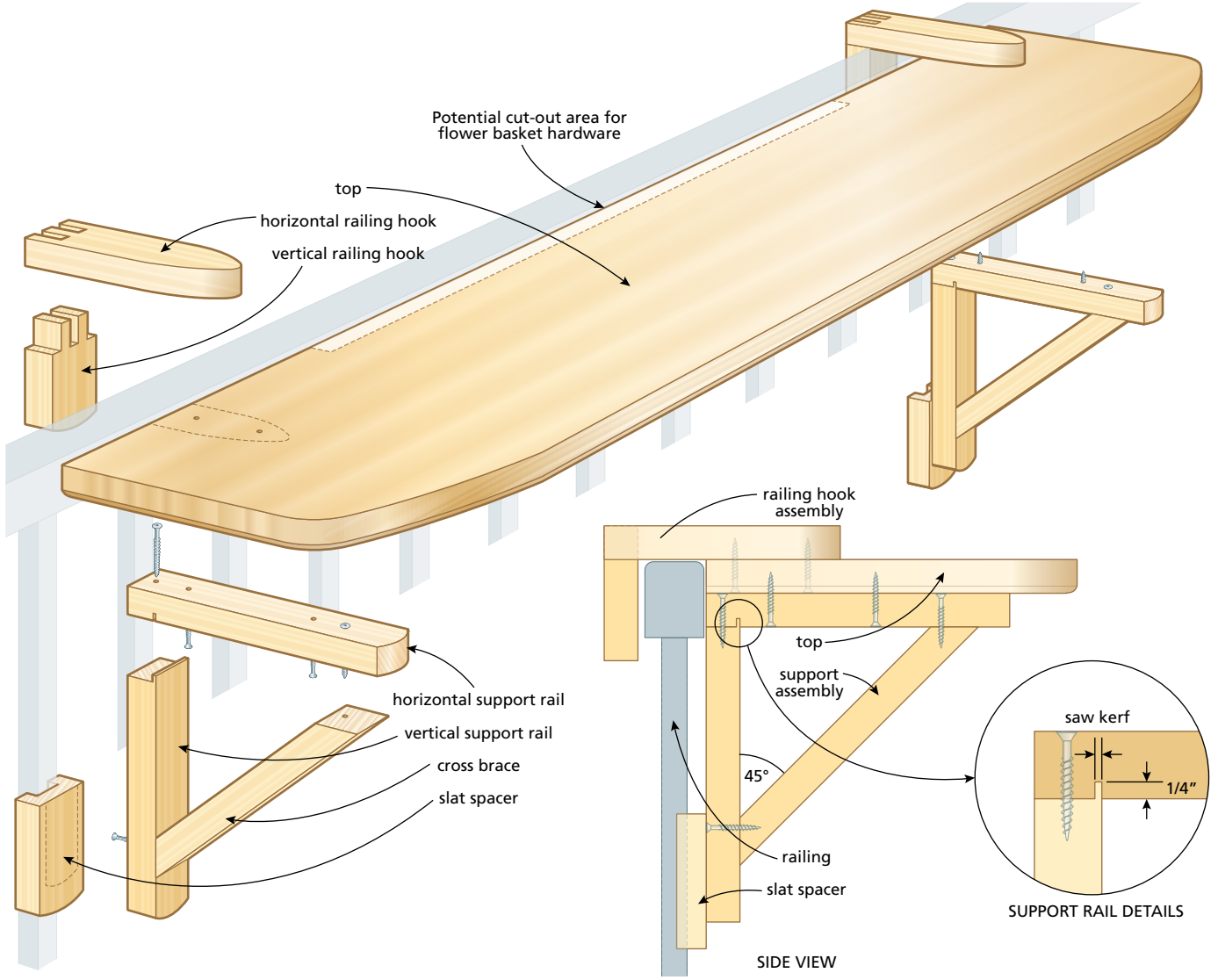
Ease the Edge – Brown routed a round over profile into the underside of the surface. He didn't rout the rear edge.

A Blade Kerf – A blade kerf is all that was needed in the horizontal support rails. Position one edge of the kerf so once the mating tenon is machined the rear faces of the two parts are flush.

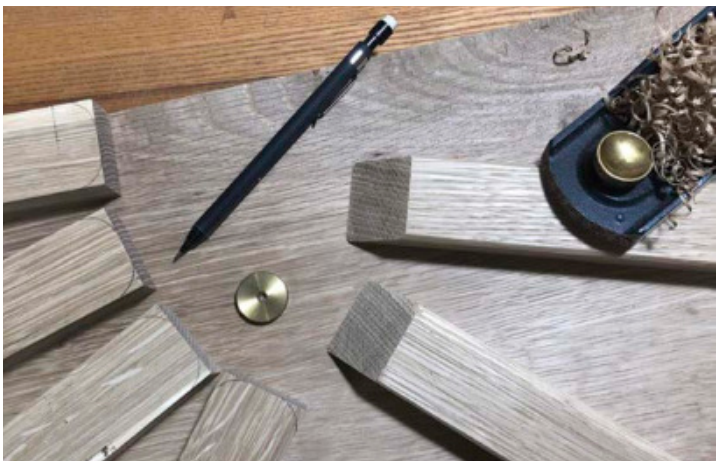
With the railing bar surface dimensions determined, machine the surface. I laminated two planks of white oak to give me enough width to work with. Next, I added a curve to both front corners. I sketched a shape onto the surface then faired the curve with a French curve template. A bandsaw or jigsaw will remove most of the waste and a belt or edge sander will smooth the cut edge. I added a round over to the underside of the surface at this stage. There will be a bit more work to do on the surface, but I saved that for after I had a chance to work out a few other details.

The support assemblies

I made two support assemblies to keep the bar surface square to the railing and assist in supporting it. The exact dimensions of these parts aren't critical as long as they will fit underneath the top without becoming an eyesore. Because these parts are on the small side, and there are multiple parts that are exactly the same,



Small But Mighty – Now that the mating tenon has been machined on the vertical support rail workpiece, these pieces can be ripped in half to form the two support brackets.



Ease Their Ends – The ends of the horizontal and vertical support rails can have their ends rounded so when users sit at the bar they won't hit their knees on any sharp edges.

I machined a blank that was just over twice the width of the finished parts, machined the joinery, then ripped them to final width. I cut the parts to finished length, then ran a small blade kerf toward the ends of the horizontal support rails. This kerf would eventually accept a tenon from the vertical support rails and only needed to be about 1/4" deep and the width of a blade. The location of the kerf

Materials List

Part	Qty	T	W	L	Material
Top	1	1	11	56	White Oak
Horizontal Support Rails	2	1	1-1/2	9	White Oak
Vertical Support Rails	2	1	1-1/2	9	White Oak
Cross Braces	2	1	1-1/2	10	White Oak
Slat Spacer	2	7/8	2	4	White Oak
Horizontal Railing Hooks	2	1	2	7	White Oak
Vertical Railing Hooks	2	1	2	4	White Oak

Pilot Holes – With the horizontal and vertical support rails clamped together and the cross brace in place, drill a pilot hole through the rails and into the cross brace at both ends. Next, remove the cross brace and countersink the holes in the horizontal and vertical support rails so the screwheads sit flush.

needs to be positioned so when the horizontal support rails mate with the vertical support rails, the vertical support rails are flush with the ends of the horizontal support rails.

Next, machine a tenon on the ends of the vertical support rails to fit into the kerf. At this point you can rip the workpieces in half. Dry assemble the support brackets and obtain the length of the cross braces. Cut these so the horizontal and vertical support rails finish an inch or so beyond the cross braces.

Mark small arcs on the ends of the horizontal and vertical support rails, then cut and sand their ends. This is to ease the sharp corners in case anyone bangs their knee on them in use.

Drill a pilot hole through the horizontal and vertical support rails into the cross braces, then counter sink the holes in the horizontal and vertical support rails. At this stage it's a good idea to mark all the parts so you'll know how they fit back together.

Once the parts are sanded, and you've broken any sharp edges, glue and screw the supports together.

Finally, build the slat spacer to make up the difference between the inner face of the slats and the inner face of your railing. This will allow the supports to sit close to flush with the rear edge of the surface, but still come into contact with the slats. This was 5/8" in

Slat Spacer – In order for the support to come into contact with the slats and support the surface properly, a spacer needs to be attached to the rear of the support bracket. The thickness of the slat spacer underneath the groove should be equal to the setback of the slats from the railing.

Jig for Notching – Brown started the finger joint by machining the two outer notches in the vertical portion of the railing hooks.

my case. These pieces are essentially rectangular pieces with a dado in them slightly wider than the width of the slats.

The railing hooks

The railing hooks are high on the list of importance to the success of this project. They need to be strong enough to support the surface and whatever force users add to it.

Small pieces are harder to machine, so I left the blanks long enough to obtain two parts from. I broke out two blanks that each contained a horizontal and a vertical railing hook combination.

It's important to note that while the two blanks each have one horizontal railing hook and one vertical railing hook, the joint cut on one blank will actually mate with a joint cut onto the other blank. This is just so you can test fit each joint while it's in a longer, more easily machined, blank. It's obviously impossible to test a joint's fit with the mating part if that mating part is connected to the other end of that blank.

Although other joints could be used to connect these two pieces, a finger joint provides lots of glue surface area and will create a strong joint. I started by cutting the outer finger notches in the vertical railing hooks. With a jig that held the parts at 90° to the blade

Perfectly Centred – After machining the two outer notches, Brown adjusted the jig to machine another notch as close to centre as possible. After making one pass he rotated the workpiece and ran it again, ensuring the notch would be perfectly centred on the workpiece.

Fingers Are Ready – The finished workpieces that make up the railing hooks are now complete. Notice how each workpiece is the same, and mating parts will have to be cut from this blank to make each arm hook.

and a dado blade in my table saw, I adjusted the jig to cut a notch in one side of the workpiece, then rotated the part to notch the other side. I repeated this for the other vertical railing hook.

After adjusting the jig to cut another notch as close to centre as possible, I machined the centre notch. Then, to ensure the notch was perfectly centred on the workpiece, I rotated the workpiece 180° and recut it.

Next, the mating finger joints were cut in the horizontal railing hooks. I started by marking the locations for the finger notches on the workpiece. Use a dado blade that's a bit narrower than the finger notch you need to cut. Adjust the jig to machine the outer

The Tape Trick – While machining the mating finger joints, Brown needed to move the workpiece ever so slightly to one side. Rather than trying to adjust the jig very slightly, he applied a piece of masking tape to the edge of the jig's fence, moving the workpiece slightly to obtain a properly fitting joint.

Clamp Them Up – Ample glue will keep these finger joints together and act as the main joint keeping the railing bar in place for many years.

face of the joint first. You can check this setup by making a pass and then laying both parts of the joint edge-down on a flat surface and bringing them together. When they align you can cut the other workpiece, then rotate both workpieces and machine the other finger notch on the opposite side of the joint. If you're going to err on either side, I would leave a bit of extra material on the joint, as you can always shave it down with a shoulder plane or chisel. Gluing on a piece of material to make up for a gap is possible, but it takes more time.

Adjust the jig to cut the inner sides of the finger notches and run the parts over the blade. The final fit should be snug, but not super tight. Sand the inner faces of the parts and glue up the railing hooks. When dry, mark the curves on their ends then cut and sand them smooth.

You can now screw the railing hooks to the surface. The gap between the rear edge of the surface and the inner face of the hooks should be 1/8" more than the width of your railing. Just screw them in place for now.

Shapely Arms – The railing hooks are now assembled and their upper ends are being rounded. This could have been done before they were assembled.

Glue Groove – Brown carved a shallow groove into the glue surface of the railing hooks so squeeze-out would be minimized.

Test fit

At this stage it's time to head to the patio and check for fit. If you're like me, you've probably done this earlier in the building process, too. A helper is very handy. I had to notch the rear edge of the main surface so it would fit around some metal brackets holding up a planter box. Otherwise, it fit perfectly and I could confidently move forward.

Final details

Back in the shop I notched the rear edge of the surface for the planter box hardware and sanded all the surfaces. The arm hook-to-surface joint needed to be strong. Because I didn't want glue squeezing out when I glued the arm hook onto the surface, I carved a shallow groove in the glue surface of the arm hook. This groove caught any excess glue before it squeezed out.

Finally, I added a few contrasting plugs in the surface. This was strictly for aesthetics.

Apply a finish

Like I said previously, there are many options when it comes to what finish you could apply. Test any finish you select on a piece of scrap before committing to the entire project to ensure you like the colour and final look. I went with a product called Ligna Hybri-deck from Evo Home Finishing (EvoFinition.ca). It's formulated to stand up to the moisture outdoors.

Protection From UV Rays – A finish that will protect against UV rays is critical for wood that will be used outdoors. Here, Brown applies Evo UVIO to the wood to offer a lot of UV protection. Once it dried, he applied another Evo product called Ligna Hybri-deck to stain and further protect the wood.

Make Way – Brown had to cut a shallow notch in the rear edge of his surface to make room for a few brackets that hold a planter box on the railing.

The colour I choose (Maple Sugar) didn't have the UV protection I needed so I applied a coat of Evo's UVIO first. I brushed it on, waited four hours, then applied two coats, separated by less than 30 minutes of Hybri-deck on top of it. It was a simple process that has so far stood up to what Mother Nature has thrown at it.

With the cured Hybri-deck product, if the finish gets 10 hours or so of sunlight per day, you should reapply the same Hybri-deck after two years after a basic cleaning. If the finish gets less sunlight the need to reapply will be greatly reduced.

Once the finish has cured, and the railing bar has been installed, it's time for the payoff. Grab a snack and a drink and say hi to passersby.

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We, wood
WHO WOULD UNCOVER A CENTURY OF HISTORY IN LESS THAN A DAY?
Who would demand to never hide a single flaw or imperfection? Who would not spend time, but take time to completely reclaim even the smallest piece of furniture to reveal its real beauty? And who would choose to restore everything from picture frames to harvest tables in just one coat? The DIYers, the crafters and the masters. We, wood.
Varathane
SINCE 1956
POLY EFFECTS
WOOD GRAIN

kid's project

INFO: DIFFICULTY – **1/5,** LENGTH/TIME – **2/5,** COST – **2/5**

Build a Plywood Bike Jump

Photos by Rob Brown, Illustration by Len Churchill

Riding a bike is a great way to get outside and enjoy the great outdoors. And a jump or some other obstacles can provide a fun challenge and allow you to take your skills to the next level.

BY ROB'S KIDS

Riding bikes is a whole lot of fun for kids, and this jump will crank up the fun even more. Although medium-sized, this jump could be made smaller for younger or less experienced jumpers or larger for more experienced jumpers. If you're a beginner jumper this is likely a bit too large for you, though it's possible for a rider who's new to jumping to launch off the side, rather than the end of the jump.

Materials

We used 5/8" thick sheathing plywood for this jump. If the person using this jump is well over 100 pounds it would be a good idea to use 3/4" thick plywood. Another option to add a bit more strength is to add more cross rails under the top to beef up the support.

You'll need two 2×4×8s for this jump. You'll also need slightly more than one half sheet of sheathing plywood. You could get away with purchasing only a half sheet for the top and sides, then use other material you already have for the small end panel. The only caveat is that the end panel provides all the racking strength in this jump, so ensure the material you use is strong enough and will protect against racking. Some sort of angled cross braces would work for this, though a piece of sheet good is much simpler.

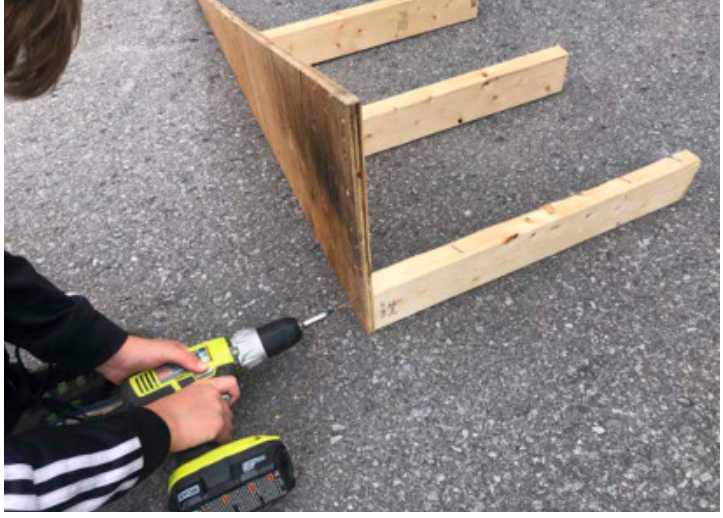
To secure all of the parts, we used #8 × 2-1/2" exterior screws. You can use exterior adhesive if you'd like, but we didn't and our jump is very stable and strong.

Start with the plywood sides

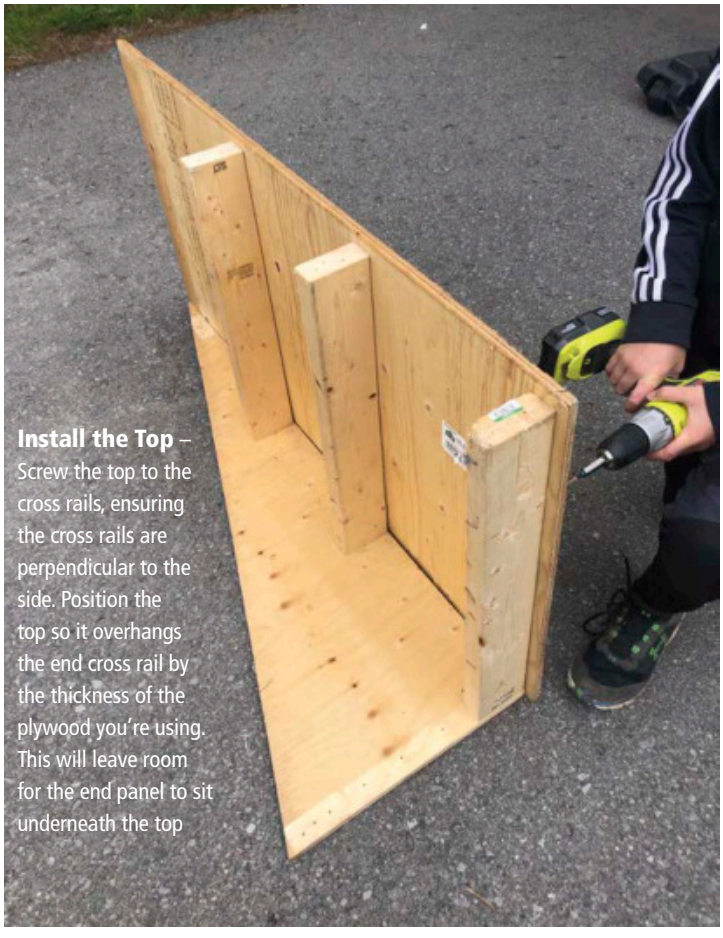
A track saw will quickly and accurately cut plywood straight, but a circular saw that runs against a straight 2×4 clamped to the plywood will also work well. Even a jigsaw that runs against a clamped 2×4 will give you a straight enough cut. Just be sure to offset the 2×4 by the distance between the edge of your blade and the edge of the saw's base.

It's easiest to cut a blank that will provide you with enough material for the two sides, then cut the two sides from that blank. Cut your sheet to give you a piece of plywood 16" wide by 48" long. Next, cut that piece from one corner to the opposite corner, giving you two long triangles for the sides.

Next, cut the top and end panel to finished size. The end panel will be 24" wide by the length of the shortest side of the triangular sides. In theory, this should be very close to 16", but if not, adjust the end panel to be the same length. The top has to be the length of the second longest side of the triangle, plus the thickness of the end panel. This is because the top will overhang the end panel after everything is assembled.



The First Joints – Once the triangular sides have been cut to size and the cross rails have been cut to length, screw the cross rails to the side so their narrow edge is flush with the medium-length side of the triangle. Don't install the cross rail near the narrow point of the triangle just yet. And the cross rail at the take-off end of the jump (that's being installed here) needs to be positioned so its outer face is flush with the short edge of the triangle.

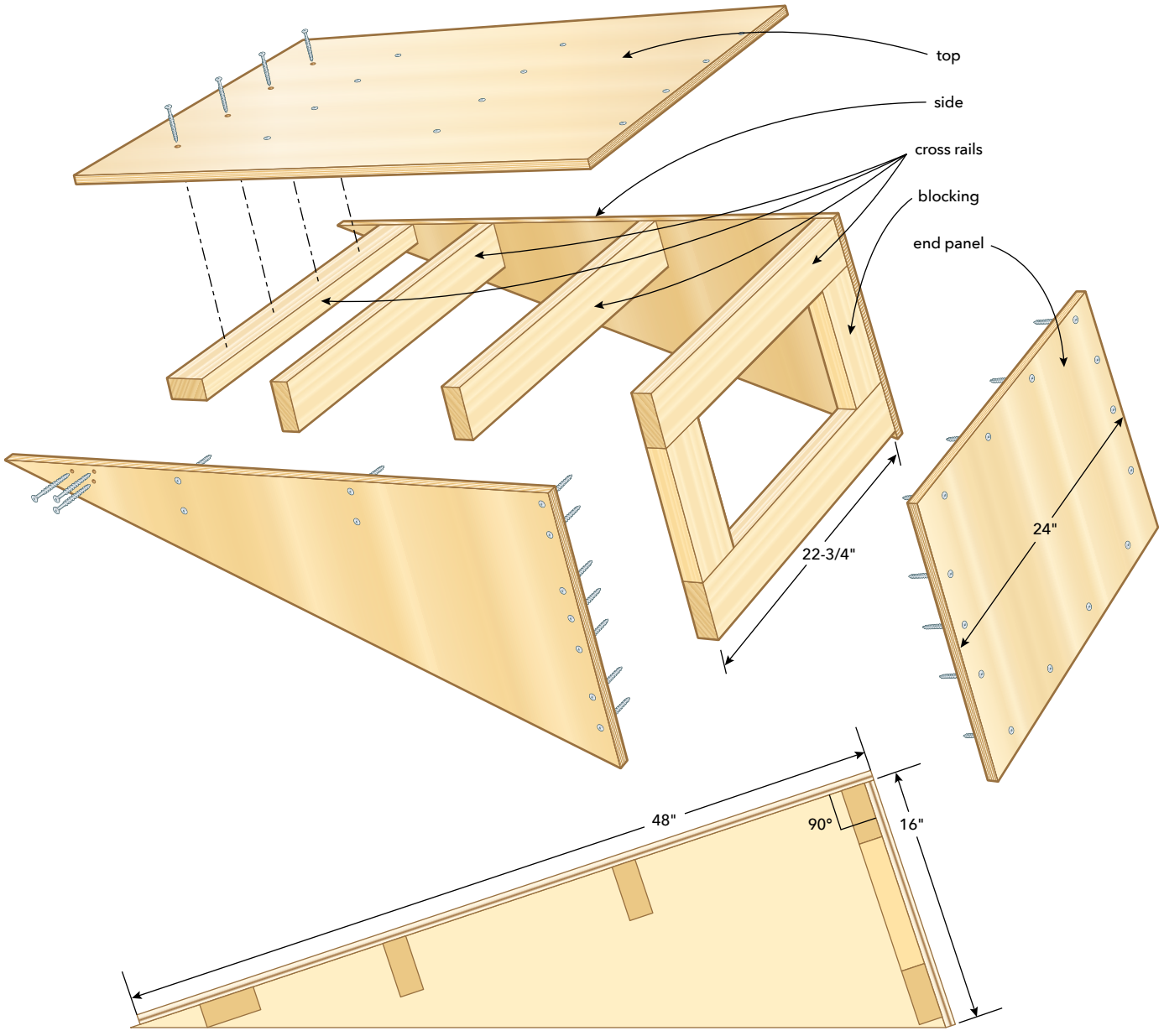


Install the Top – Screw the top to the cross rails, ensuring the cross rails are perpendicular to the side. Position the top so it overhangs the end cross rail by the thickness of the plywood you're using. This will leave room for the end panel to sit underneath the top

Cross rails

We used five cross rails for our jump; four directly supporting the top and one on the bottom of the jump, at the end. If the rider is over 100 pounds, or you're making a longer jump, add an addition rail (or two) directly underneath the top for extra support. This is especially true towards the entrance end of the ramp.

Cut the cross rails to length. They need to be equal the width of the top, minus twice the thickness of the sides. Although four will



SIDE VIEW

eventually be spaced out evenly to directly support the top, the one closest to the start of the jump won't be installed until later. You can screw the other three to the side so the upper edge of each cross rail is flush with the upper edge of the triangular side. The cross rail at the take-off end of the jump will also need to be secured so its face is flush with the shortest edge of the triangular side.

Add the top and end panel

The top will now get screwed to the cross rails. It should be positioned so its long edge is flush with the outer face of the side, and so the take-off end of the top overhangs the cross rail at the take-off end by the thickness of the end panel. This will allow the end panel to tuck in nicely underneath the top later.

The end panel can now be screwed in place. Its long edge gets screwed to the end cross rail and will be weak until we add the next few pieces.

Add the End Panel – Screw the end panel to the end cross rail. Though the jump is pictured upside down in this photo, notice how the top now overhangs the end panel.

Materials List

Part	Qty	T	W	L	Material
Top	1	5/8	24	48	Sheathing Plywood
Cross Rails	5	1-1/2	3-1/2	22-3/4	2×4s
End Panel	1	5/8	24	16	Sheathing Plywood
Sides	2	5/8	16	48	Sheathing Plywood
Blocking	2	1-1/2	3-1/2	To Fit	2×4s

Second last cross rail and blocking

The lower cross rail can now be added. Screw through the side into this cross rail, then through the end panel into the cross rail. Height-wise, position the cross rail so its lower corner is flush with the lowermost edge of the triangular side. This edge, and the lower edge of the side, will sit directly on the ground in use, so they need to be in the same plane.

Add two pieces of blocking (short pieces of 2×4 material) to increase the strength of the end of the jump. Cut two pieces to fit between the lower cross rail you just installed and the end-most cross rail. Screw through both the sides and end panel to secure the first piece of blocking at the junction of the side and end panel. The second piece of blocking will have to be screwed to the end panel so its outer edge is flush with the ends of the two cross rails.

Add the second side

The second side should fit nicely in place now, and can be screwed to all the cross rails and blocking.

The last cross rail

The final cross rail will support the take-off end of the jump. It needs to be positioned so it sits flush with the undersides of both side panels and sits flat on the ground when the jump is in use. Ours didn't sit perfectly so we had to shave some material off one end of the lower edge so it sat flush with both sides. This cross rail will provide a lot of support while a rider first

Lower Cross Rail – Be sure to position the lower cross rail so its lower edge is in the same plane as the lower edge of both the end panel and the triangular side. This will allow the jump to sit flat when its complete.

More Fun Features

Mountain biking is all about the challenge of riding over obstacles while following flowing trails. Jumps are one part of the sport, but many other skills come together to make for a great ride. You can always go to the trails to practice, but there are times when being able to practice a single skill in a controlled manner will allow someone to get comfortable with that basic skill before needing to do it on a trail. These obstacles can be set up in a circuit so they can be practiced in your yard.

A fallen tree is a common obstacle on a mountain bike trail. With a bit of practice, it's surprisingly easy to ride over a fallen 10" diameter tree. A few scrap 4×4s coupled with a medium-sized section of a branch will give you a fake fallen tree trunk to practice on. Be sure to make this obstacle wider and heavier than you think, as it's so much easier to ride over if it doesn't move. The key to getting over a feature like this is to raise your front wheel onto the feature (with your weight back) then move your weight forward and ride over the obstacle. It's critical to keep pedalling as you try to get over the feature. It might be best to start with a pair of 4×4s screwed together so you only have to clear a 3-1/2" high obstacle, then adding another 4×4 or branch on top of that when you need a bigger challenge. It might even be best to start some young riders with a 2×4 lying flat on its face. Small tires make it hard to ride over large obstacles, and once small successes have been enjoyed, moving up in stages is a good approach.

A teeter-totter isn't something you'll often come across, though many man-made trails do have them. Even if you don't find this feature on your local trail, the skills to be able to enter onto a teeter-totter and control your bike while riding over it are valuable to have. It's also a lot of fun, especially with kids around. Using a 2×8 is going to be fairly easy, while a 2×4 is going to be a lot more challenging. A 2×6 is a nice middle ground. Fixing a shorter length of 2×6 on edge under it will provide the fulcrum. A few additional pieces of wood will be needed to act as blocking near the fulcrum. Add the fulcrum slightly off centre (lengthwise) so the teeter-totter will always return to the starting position so the next rider can enter it. It also helps to ease the front edge of the 2×6 so entering the teeter-totter is smooth.

Other Obstacles – A teeter-totter and a "log over" are a few other biking projects any woodworker can build. These obstacles will allow young or new mountain bikers to practice a skill in a more controlled environment before they tackle these challenges on trails.

Blocking – To protect against racking, the end panel must be securely fastened in place. Blocking between the end panel and the two sides will go a long way to keeping the jump strong

The Second Side – Screw the second side to the rest of the jump. Ensure ample screws are driven into the cross rails and blocking. Overtightening the screws may cause the screw to strip the cross rails, as screwing into end grain isn't as strong as screwing into face grain. Longer screws can also help with this.

hits the jump, so it needs to fit properly. If you're adding extra cross rails they should be installed now.

Ensure screws are added wherever possible, as they are what provide the holding power for all the joints.

Using the jump

A first step might be to look around your neighbourhood for things to jump off. You'll likely find small rises here and there to get an idea of how your bike handles when it hits a jump.

If your plywood jump sits on a flat surface without rocking you've done a great job. If not, you might want to shave a bit of material off the lower edges of the sides and possibly the front and back cross rails and end panel. It doesn't need to sit perfectly flat, but there shouldn't be much rocking. Placing this jump on the grass might also help it sit still, though it might take a few runs over the jump to press it into the soil a bit. And let's face it, if you happen to crash, grass is a lot more forgiving than asphalt to land on. And always wear a helmet when riding.

Front Cross Rail – The final piece to install is the frontmost cross rail. In order to support the rider when they first enter the jump, ensure this cross rail is positioned so its lower edge is flush with the lower edges of the sides. If you look closely you'll see that the taper the lower edge of this cross rail had to be chamfered on an angle so the jump would sit flat during use.

To use this jump you can start out by entering the jump at its thin edge but going off its side. The closer towards the end you exit the jump, the higher you will be, obviously. Working up the skills (and nerve) to exit the jump at its end might take some time.

Since this jump has a flat top it's going to allow the user to go far (if they have speed) but it's not great at getting a lot of "air."

Mark and Screw – Mark the locations of the cross rails onto both edges of the top, draw a straight line between these points, then drive screws to secure the top.

Start off by lowering your seat slightly to give you a bit more room around your bike to work with. The main thing you want to avoid is for your bike to do a nose dive when you exit the jump. You can protect against this by pulling up on your handle bars just before your front wheel goes off the jump. You should aim to have your wheels equidistant from the ground while you're in the air. You should also move your hips back over the rear wheel as you jump to help keep the front wheel from dropping downward.

Once you're comfortable with this approach you can start to press into your rear wheel just before it goes off the jump. This will give you extra height and, in turn, distance. It's at this point that you'll be getting a better feel for how the jump affects your bike and what you can do to keep control of the bike when on the jump and in the air.

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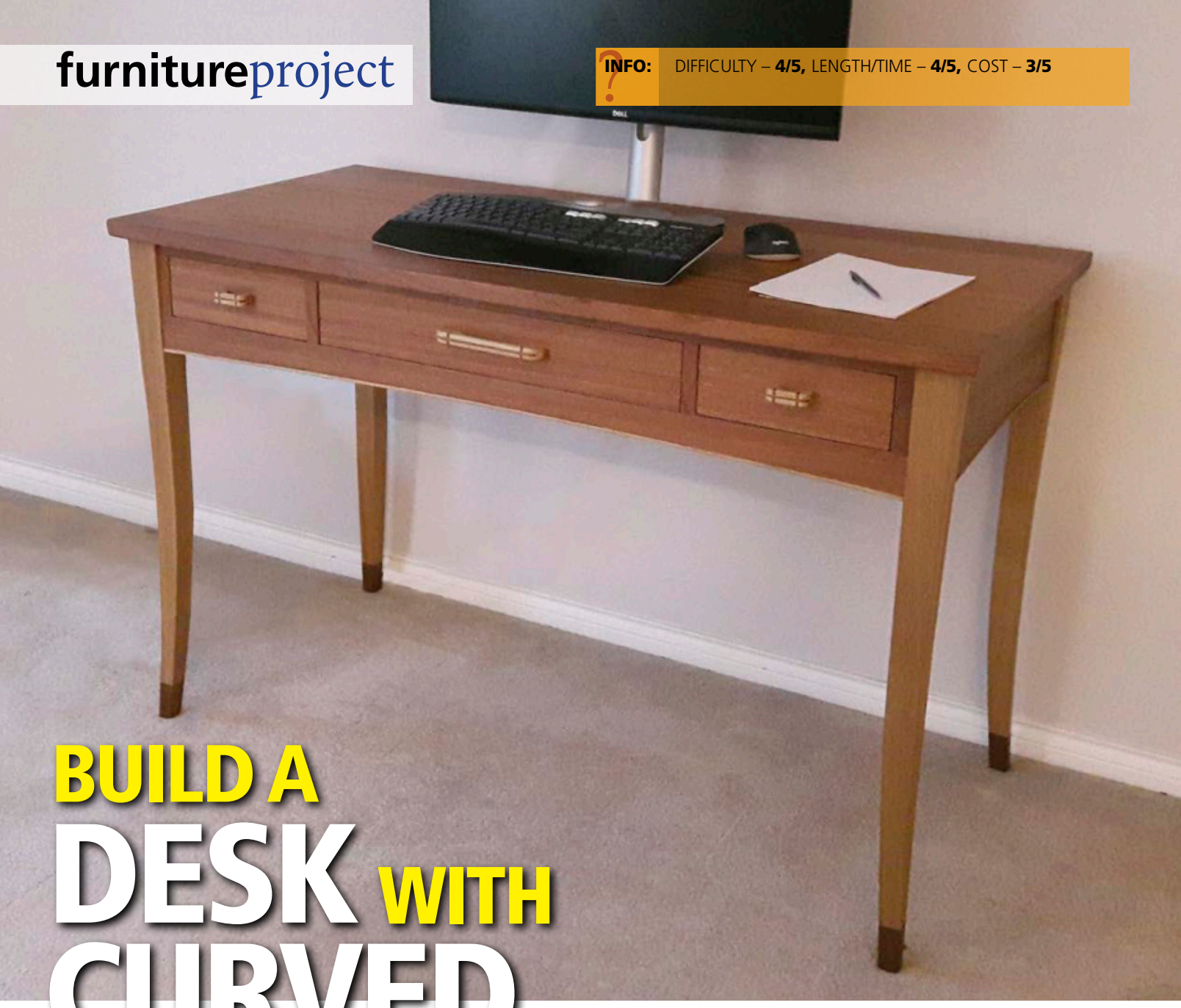
INFO: DIFFICULTY – **4/5,** LENGTH/TIME – **4/5,** COST – **3/5**



BUILD A DESK WITH CURVED LEGS

This simple design will work well in any home office.

BY CARL DUGUAY

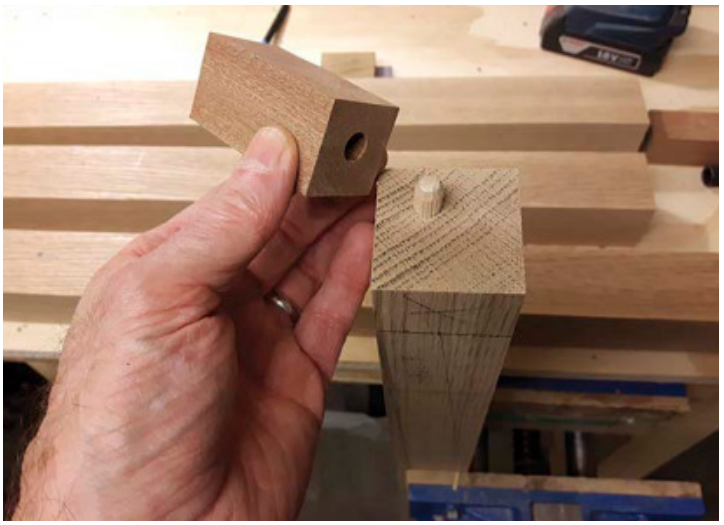
The choice of wood for any project is almost always a matter of personal preference. For this desk the client wanted sapele and white oak. I used sapele for the aprons, face frame, feet and drawer fronts, and white oak for the legs and drawer sides. For the face frame I used alder. Any secondary wood, including poplar, pine and maple, would also be good choices.

Start at the bottom

The bottom section consists of four legs, a back apron and two side aprons. I chose to curve the legs on all four sides. Alternately you could curve two sides, taper them or leave them straight. I also put a slight curve on the bottom of the aprons. Floating tenons connect the aprons to the legs. Other choices include mortise and tenons, dowels, Dominos, or biscuits. Whichever joinery method you

Photos by Carl Duguay Illustration by Len Churchill

Leg-to-Apron Joint – Duguay chose to use floating tenons to connect the aprons to the legs, though there are many other options to choose from.



Add a Foot – In order to add a bit of flair to this desk, Duguay added contrasting feet to each leg. A dowel helps position the foot and adds strength to the joint, which is otherwise just an end grain joint.

choose make sure to cut the joinery before shaping the legs. I like to add a foot made of contrasting wood on each leg. If you decide to do this, add the foot before you shape the legs.

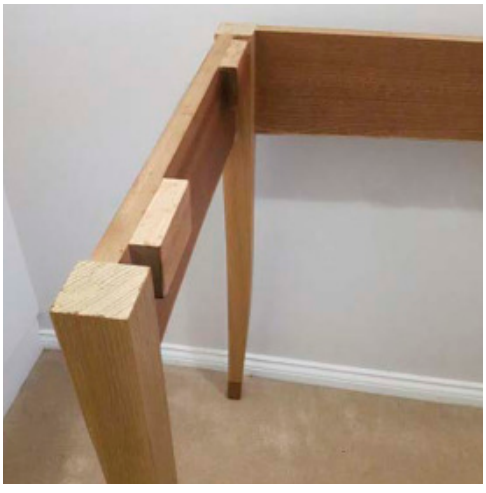
I find curves more appealing than straight lines. If I were making legs for a production run of tables, desks or chairs I'd do the shaping on a router table. However, for a single desk, shaping the legs by hand is quick and easy, and much more enjoyable. I started by making a template using 1/8" hardboard or MDF. After tracing the shape onto the legs, I bandsawed the two outside faces, then the two other surfaces. Final shaping was done with spokeshave, file, block plane and scraper. To add some visual interest, I glued a thin 1/8" strip of oak beading to the bottom of the aprons.

Make a web frame

For this desk I didn't attach front dividers to the legs. Rather, I made a web frame to house the drawers, added a face frame to the web frame and then screwed and glued the unit to glue blocks that I installed on the side aprons. I've used this method frequently over the past few decades and it's proven to be very effective.

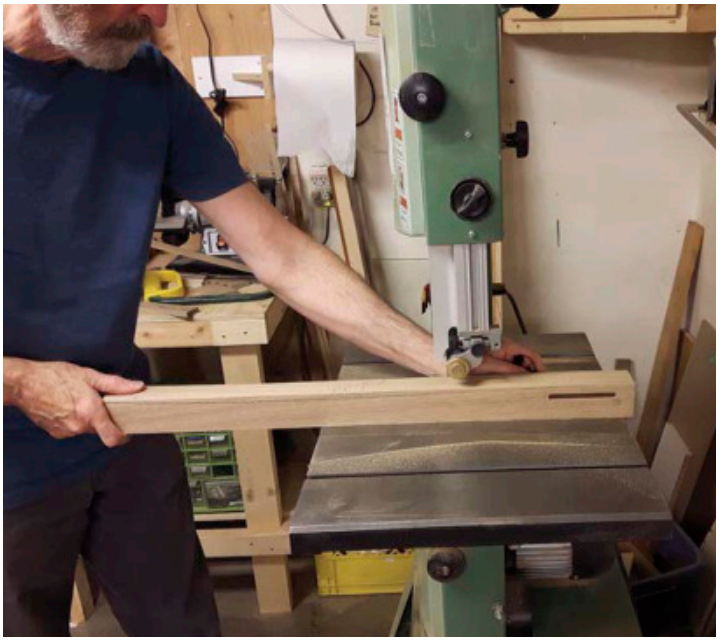
I routed elongated holes in the front and back rails. These are needed to secure the top to the web frame.

The runners, which are screwed and glued to the dividers, enable the drawers to glide smoothly in and out.

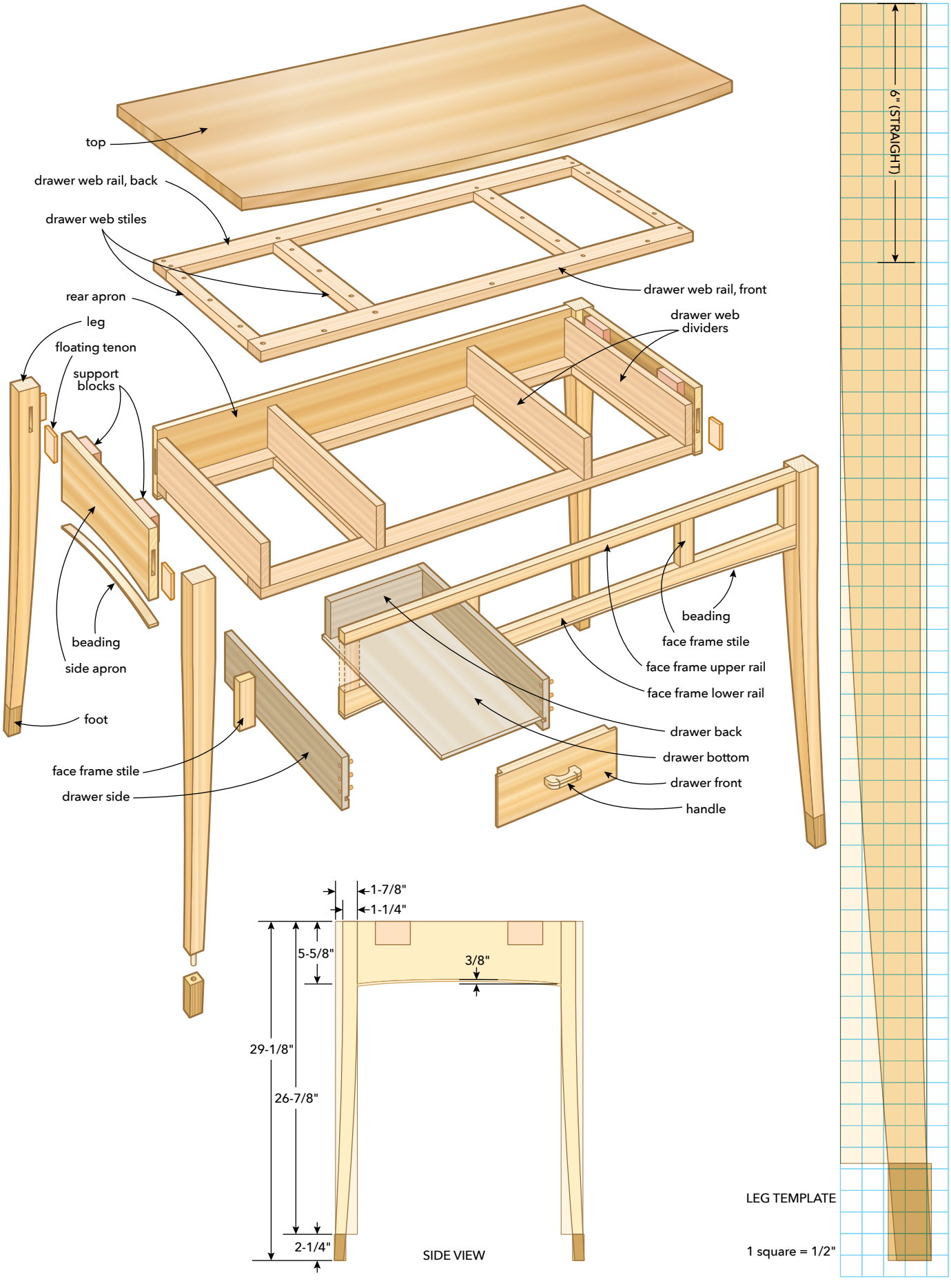


The First Assembly – The apron and leg assembly are now ready to measure for the web frame.

Template Time – With the feet attached, make a template and mark the curves on all the legs. A template ensures the legs are all marked similarly.



Joinery First – Duguay removes most of the waste with a bandsaw. Notice the mortise in the leg was cut before any curves were cut into the leg. Cutting joints in parts that are straight is much easier and more accurate than trying to secure and machine curved parts.


top
drawer web rail, back
drawer web stiles
drawer web rail, front
rear apron
leg
floating tenon
support blocks
drawer web dividers
beading
side apron
foot
face frame stile
drawer side
beading
face frame stile
face frame upper rail
face frame lower rail
drawer back
drawer bottom
drawer front
handle
6" (STRAIGHT)
1-7/8"
1-1/4"
5-5/8"
3/8"
29-1/8"
26-7/8"
2-1/4"
SIDE VIEW
LEG TEMPLATE
1 square = 1/2"

Materials List

Part	Qty	T	W	L	Material
Top	1	7/8	23	47	Sapele
Legs	4	1-7/8	1-7/8	26-7/8	Oak
Feet	4	1	1	2-1/4	Sapele
Side aprons	2	3/4	5-3/8	17-1/2	Sapele
Rear apron	1	3/4	5-3/8	41-5/8	Sapele
Support blocks	f	3/4	2	3	Hardwood
Floating tenons	8			Hardwood sized to suit	
Drawer Web					
Dividers	4	3/4	3-3/8	18-1/2	Hardwood
Lower& upper rear rail	2	3/4	2-1/2	41-5/8	Hardwood
Lower & upper front rail	2	3/4	1-3/8	41-5/8	Hardwood
Lower outside stiles	2	3/4	1-1/8	15-1/4	Hardwood
Lower inside stiles	2	3/4	1-1/2	15-1/4	Hardwood
Upper outside stiles	2	3/4	1-1/8	14-5/8	Hardwood
Upper inside stiles	2	3/4	1-1/2	14-5/8	Hardwood
Face Frame					
Upper rail	1	3/4	1-3/8	41-5/8	Sapele
Lower rail	1	3/4	1-3/4	41-5/8	Sapele
Stiles	4	3/4	1-3/8	3	Sapele
Beading	4	1/8	7/8	17-1/2 (2)	Oak
				41-5/8 (2)	
Drawers					
Fronts	3	3/4	3-3/8	17-1/8	Sapele
Backs	3	3/4	2-5/8	17-1/8	Oak
Sides	6	1/2	3-3/8	17-1/8	Oak
Bottoms	3	1/4	8-1/2 x2	17-3/8	Oak
			20 × 1		Plywood

Web Frame Assembly – The web frame, which makes up the bulk of the work in this desk, must be machined accurately as it needs to fit into the apron and leg assembly nicely. Most of the web frame was made with a secondary wood, though the face frame was built with a primary wood; in this case, sapele.

A Nice Fit – The web frame is shown attached to the apron and leg assembly, here. Drawers can now be made to fit the three drawer openings in the web frame assembly. Notice the three holes in the long, rear piece of the web frame, as well as the three elongated holes in the long, front member of the web frame. These holes will allow connectors to be used to secure the top to the base. The elongated holes at the front will allow the solid wood top to move with the seasons.

Quick Connect – Install Quick-Connect inserts in the underside of the top, aligned with the holes in the web frame. Bolts can be driven up through the web frame into the connectors to secure the top.

Once installed, I applied a liberal coat of wax on the runners.

All the parts are countersunk screwed and glued together. It's a simple enough arrangement, but the key is to measure carefully and keep things as square as possible so the frame slips in between the legs ever so snugly, and the drawers glide smoothly into the frame without binding.

Face the frame

The face frame pieces are made from the same species as for the aprons (sapele on this desk) and simply glued to the face frame. I curved the lower rail to match the curves on the rear apron and glued an oak bead to the bottom of the rail.

Drawers and handles

The drawers are straightforward to make. To keep costs down I used dowels to secure the drawer sides to the front and back. To ensure a snug fit I made the drawers marginally wider and taller than the opening and hand planed them to fit.

While you can purchase drawer handles, they're easy to make and designs are unlimited.

Custom Pulls – While it's possible to purchase pulls, it's also not difficult to make your own. Duguay inlaid sapele into white oak, then shaped the pulls.

Top it off

Once the top is made, place it on the web frame and mark the location of the elongated holes that were cut in the front and back rails. Then install Quick-Connect insert nuts into the underside of the top and bolt it to the frame. The elongated holes will accommodate any wood movement due to seasonal fluctuations in humidity.

Apply a finish

To keep the wood as natural looking as possible, yet afford decent abrasion and moisture resistance, I applied two coats of OSMO Polyx Hardwax Oil. I've used this product with great success over the past five years.

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shopnotes

Bessey Mini-Vise Clamp

Sponsored: The portable S-10 Mini-Vise clamp is ideal for holding square, round, rectangular and odd-shaped objects. The non-marring jaws are glue resistant. You can clamp the S-10 to flat work surfaces using the included TK-6 table clamps if you need a more secure way of mounting your work. Parallel clamping is made possible by the two integrated guide rods and makes the S-10 Mini-Vise ideal for small jobs that need parallel clamping. If clamping at an angle is preferred, then remove the guide rods and the small vise is instantly a versatile tool for clamping at angles. Visit **BesseyTools.com** for more information.

Exterior Painting Essentials

A fresh coat of paint is an economical way to boost your home's curb appeal and help protect it from the elements.

BY CARL DUGUAY

A number of factors have an impact on how often you might want to repaint your house, including the type of siding, the quality of paint used, the location of your house, its exposure to natural elements and how you feel about the house's overall appearance. The obvious signs that a paint job is in your near future include peeling, cracking, flaking or fading paint, and gaps in wood siding or in caulking around windows and doors. And if you plan to move, a fresh coat of paint is one of the most cost-effective ways to spruce it up.

Don't begrudge a new coat of paint. It not only increases the appearance and value of your house, but provides enhanced protection from the natural elements, removes mould and mildew buildup, and increases the lifespan of siding. The good news is that almost any homeowner can repaint their house.

Types of paint

The two most widely used outdoor paint types today are latex and acrylic. I canvassed six professional painters with an average of 16 years experience, and all nominated acrylic paint as their choice for exterior painting projects. Though acrylic paint is chemical-based, and needs to be cleaned up with paint thinners, it's durable, long-lasting and has excellent resistance to fading caused by exposure to the sun. Because it expands

Photos by Adobe Stock

and contracts with the material it's painted on, it's less prone to cracking or flaking. Temperature extremes have less of an effect on acrylic paint than latex or oil-based paint. Acrylic paint is more expensive than latex paint, but because it's more durable it might be worth the cost in the long term.

Latex paint is water-based. It's easy to brush or roll, dries quickly, cleans up with water, is the least toxic and is typically less expensive than other types of paint. It's not quite as flexible as acrylic paint, but it's still unlikely to flake or crack. Latex paint usually has slightly better coverage than acrylic paint and has fewer VOCs (volatile organic compounds) than other paints. Latex is also the cheapest paint to purchase.

Oil-based paint is durable, dries hard and shrinks less than other paint, but is not as widely used because of its high level of VOCs and also because it's more prone to cracking and fading.

Exterior paint is typically available in flat, satin and gloss sheens. A flat sheen tends to leave a chalky appearance and is more prone to damage from abrasive cleaners or power washers. Satin paint is somewhat glossier than flat yet relatively low in reflection so it's better able to hide any imperfections in the siding. For a very durable finish with more visible shine and greater resistance to cleaners, choose a glossy paint.

Regardless of which type of paint you select, choose one that provides resistance to blistering, peeling, chalking, fading and dirt pickup, is self-priming, and can be applied in temperatures down to 10°C. In the bigger scheme of things price shouldn't be a major factor when buying paint. Get the best quality paint you can afford – it'll look better for longer.

When to paint

While spring or fall is touted as the best time to paint your house, it's not always the most convenient time for many homeowners. Not to fret, though, as you can safely paint during the summer as long as the weather forecaster predicts a stretch of warm (not hot), dry weather. The length of time it will take to paint your house depends on a slew of factors, including the square footage and height of your house, how much prep work needs to be done, the number of people who will do the painting, how much experience they have, how many hours a day you'll work at the task, how the paint will be applied, the quality of paint you'll be using and the vagaries of weather. I suggest you aim for a period when the weather is expected to be dry for at least two weeks and you can dedicate at least a week of your time to work on the task. To reduce stress ensure you have everything you need on hand beforehand.

In any event, make sure you read and understand the application instructions for the brand of paint you select. Some paints dry in as little as 30 minutes while others take several hours. Some can be applied in temperatures as high as 50°C, others at a maximum of 30°C. Generally, you're safe to paint when humidity levels are under about 70%. It's also a good idea to keep an eye on wind speed. Too much wind can not only dry the paint too quickly, but it can also result in dust and debris settling on freshly painted surfaces. In reality, you're unlikely to find a two-week stretch of weather that has the perfect temperature, humidity levels and wind speed. Take a look at the long-term forecast before starting. And as you work, if a day will be windy or be hotter than normal, just don't paint that day.

Spray Time? – Spray equipment can make the task of painting a surface a lot easier. It might not make sense to spray paint on if you only have a small area to do and you don't already have the equipment. For larger surfaces it can be a serious time-saver, though. (Photo by Fuji)

Protect Yourself – Spraying comes with the necessity to protect yourself in different ways. Your lungs and face are two obvious considerations, though overspray on other parts of the house or objects in the area can also be a challenge on a windy day.

What you need to paint

You can paint the whole house with a couple of good quality polyester brushes – a 3" to 4" wide brush for siding and a 1" to 1-1/2" for trim. If you want to speed things up use a roller. Choose a 3/8" or so nap for smooth surfaces and around 1/2" for rough surfaces.

The fastest method is with a paint sprayer. There are three types (airless, pneumatic and HVLP) and most can be rented at your local box store. Whichever type you choose ensure you understand how it works. If you've never used one before you'll want to put aside some time to practice before you commit to painting your house. With spray painting there is more prep and aftercare work involved and you'll use more paint. Where you might get up to 400 square feet brushing, expect to get around 150 square feet spraying. You'll need to mask off trim work, outlets, cables, gas or electrical meters and anything else you don't want sprayed over. And don't

Choose Your Equipment Carefully – The right type of roller or brush can make a big difference to how smoothly the job goes and how successful the final results are. A good roller for concrete might not make a good roller for wood siding or other surfaces.

forget to lay drop cloths over plants that are in close proximity to the house.

Apart from paint and primer, here is a basic list of what you'll likely need for a brush and/or roller job: wide and narrow polyester brushes; roller frame and covers; paint tray; drop cloth; ladder or scaffolding; painter's tape; scraper; sandpaper; and caulking gun and caulk.

Preparing to paint

A few days before you intend to start painting it's a good idea to get the prep work done. The first thing you want to do is wash your house with an abrasive cleaner to remove mould, mildew, dirt and grime. Painting over dirty siding or peeling paint will significantly reduce the lifespan of your paint job. Use a long-reach wash brush or a low-pressure washer, otherwise you could damage your siding and the seal around windows and doors.

Follow this up with a visual inspection. You might need to scrape away peeling paint or replace damaged siding or rotten wood trim. For small areas a paint scraper works well, but for large areas use a random orbit or 1/4 sheet palm sander. Remove any damaged caulk around windows and doors and countersink any protruding nail heads. Re-caulk as needed. Finally, tape over (or remove where feasible) any items you don't want painted (house number sign, mailbox, electrical outlets, hardware and the like).

Application tips

There are no hard and fast rules when it comes to where you begin painting. However, pro contractors who have learned the art of painting efficiently typically begin by painting the soffits, fascia and trimwork. They next do the walls, working from the top downward, leaving window frames and doors for last.

Many of the problems that people encounter when painting have little to do with the paint or the tools they're using, but more to do with attitude. If you approach it as an onerous job that needs to be completed as quickly as possible, your results may be disappointing.

Where to Start? – Starting with the soffit and fascia is a common approach, though your situation may be different. Think through the steps involved before starting.

Mask It – It might be worth your time to mask off finished areas before moving on to the next stage. This is especially true when spraying a surface.

A key to a successful paint job is patience and attention to detail.

If you've not done much or any interior or exterior painting before, it's worth the time to practice painting on some scrap plywood or large sections of cardboard. Start every brush stroke in an unpainted section and brush toward the painted area. Sweep the brush up and off the work surface in the same movement. If you stop the brush and then lift it off or set the brush down on a finished area to start the stroke, it will leave extra paint, which shows up as a brush mark or darker spot. To avoid lap marks it's best to paint reasonably small sections at a time so that you always maintain a wet edge.

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Faux Tenons

Sometimes introducing a decorative element to a joint is all that's needed to add beauty to a project. Learn how to make a joint look even more attractive with these simple steps.

BY ROB BROWN

Joints are selected for many reasons. Strength is certainly high on the list, but it's not the only factor. Aesthetics play a large role in joint selection and can add that extra focal point a piece may benefit from.

I'm not suggesting joint strength should ever be seriously compromised for looks. The amount of strength a joint provides can't be faked and always has to be ample for the specific situation you're dealing with. Adding a decorative element to a joint is just that: an addition to an otherwise strong enough joint. And notice I said "strong enough." Some joints are tasked with keeping a large, heavy piece of furniture together, while others just need to provide enough strength to keep two pieces of wood together under minimal stress. Though there are many examples, the first one that comes to mind is a picture frame. All situations call for a different level of strength, and once that level is met the basic necessity of a joint is met. It's at that point you can consider embellishing a joint. In my instance, I made a walnut mirror frame for a small bathroom, so lots of strength wasn't needed.

And sometimes a strong joint just doesn't look as nice as a weaker one. A half-lap joint can be incredibly strong, though it's not always eye-catching, and adding a faux tenon might enhance the overall look of the piece.

Strong woodworking joints were more necessary in the past, as adhesives weren't overly strong and durable. These joints are what draw the eye today, but with the advanced adhesives we have at our disposal we often don't need to spend the time or energy to machine joints like they did back then. That's not to say a good adhesive will fix a weak joint, but a good adhesive can allow you to use different joints in many instances. But if you still want a more traditional look, adding faux tenons might be your answer.

Photos by Rob Brown

Is a faux tenon strictly for looks?

That might be a trick question. By definition, a faux tenon is strictly for the purpose of adding a decorative feature, as the word "faux" implies. On the other hand, a very similar approach to machining can be taken to create a deeper mortise and add a longer slip tenon to a joint, which increases both mechanical strength and face grain glue surface area. The bottom line: each situation is different. The faux tenons I made for this article are strictly for looks, but if the mortises are machined deeper, and the tenons are cut longer, they can overlap both workpieces that make up each mitre joint and strength can be added to the joint.

This general approach could also be used to conceal a simpler fastener like common wood screws. By sinking the screws well below the surface of the workpiece, then machining the mortise directly over top of the screws, the faux tenon would hide the screws and provide a point of interest. You'd obviously have to be sure not to machine into the screwheads while machining the mortise.

Start with the mortise

There are three main ways to create the mortise in the piece. Which one you choose depends on the tooling you have and how comfortable you are with each approach. The mortise is generally created first, as it's almost always easier to machine the tenons to fit the mortises than the other way around.

Using a plunge router is a good option, mainly because the dimensions of the mortise can be easily customized. Bits of all various diameters are available, so the faux tenon can be just about whatever thickness you want and any length of mortise can be routed, too. When plunge routing the mortises just be sure to support the base of the router properly so it doesn't tilt while in use. Clamping a length of material to either face of a workpiece, flush with the face you're routing, is an easy way to increase support for your router. And if the mortise needs to be machined on the face of a workpiece, a simple straightedge clamped to the workpiece, with a piece of wood clamped to the workpiece at either end to act as a stop, will guide the router while making the mortise.

Hand tools can also be used to create a mortise for the faux tenon to fit into. Sharp chisels, quality layout and marking tools, followed by accurate hand work, can leave you with a good mortise to insert the faux tenon into. Some also use a drill to remove much of the waste in the centre of the mortise.

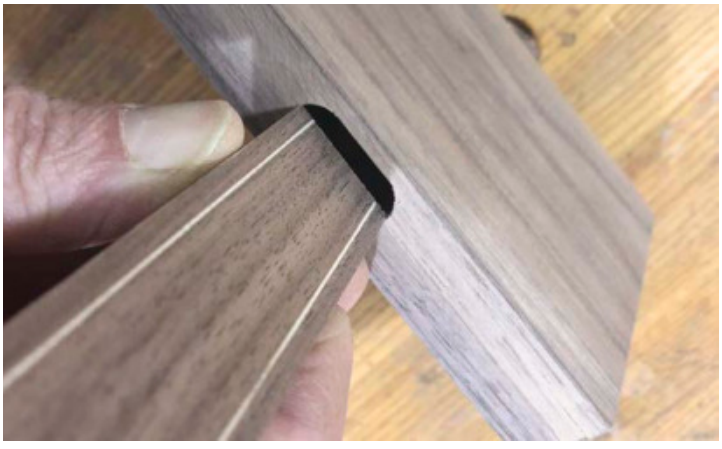
The final method, and the one I find fastest and easiest, is using a Festool Domino to machine the mortise. It's very quick and easy, though there is the obvious added expense if you don't already have a Festool Domino. Another downfall is the fact that this method isn't as flexible when it comes to sizing both the thickness and width of the tenon. My Domino XL machines a mortise about 1" wide, and came with bits that are 12mm and 14mm in diameter. The standard Domino has narrower bits.

With the router and Domino approach, the resulting mortise will naturally have rounded ends. They could be squared up if you want tenons with square edges.

Contrasting faux tenons

As always, what to do in this situation is up to the maker. I generally prefer including at least a bit of contrast when I make faux tenons, though every situation is different. I often use the same species to make the majority of the faux tenons from, but add a few layers of contrasting veneer to the tenons. I determine the size of the tenon, and then laminate a few strips of solid wood, separated by contrasting veneer, for the tenon material, spacing the contrasting pieces of veneer in an aesthetically pleasing way. I also leave the tenons in one long blank for now, as it's easier and safer to machine.

Keep Them Aligned – When cutting the strips to width the centre one should be cut so the contrasting wood strips will look good when the tenons are installed. This means the width should be approximately equal to the width of the flat portion of the mortise. If you look closely at the end grain, you'll notice Brown ripped the pieces from the board and kept them in order so the grain would align and the colour would be even across the tenon.



Trim to Width – Not only does the faux tenon material need to be cut to the correct width, but it also has to have equal amounts of material on the left and right ends of the tenon if you're using contrasting strips of material to make the tenons.

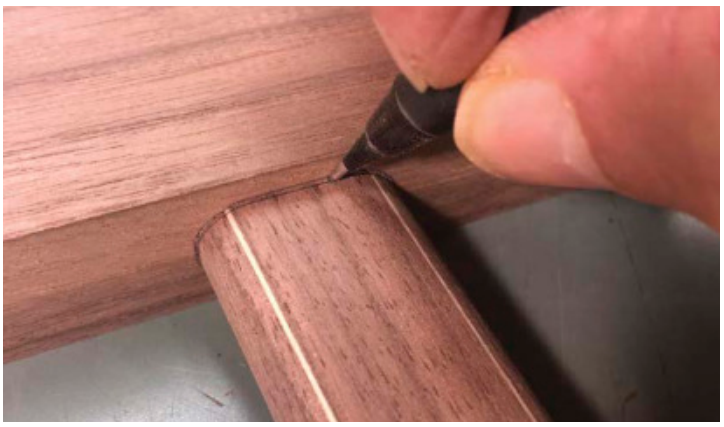
When laminating contrasting species keep in mind you will see only the end grain of the tenon once it's assembled. For this reason, I always rip strips of wood from one blank and reassemble them in the same orientation so the end grain has the same colour and grain pattern.

With the mortise complete, machine the tenon blank on a round-edged tenon to width so it's ever so slightly wider than the mortise. No more than 1/64" wider is what I aim for. A square-edged tenon can be ripped to width so it's the same width as the mortise. Next, dress the blank to thickness so it fits in the mortise. A friction fit is what you're after, as any thinner means a small gap will be visible around the perimeter of the faux tenon after it's installed.

Rounded corners

I prefer a rounded tenon, though the choice is yours. I chuck in a router bit with the same radius as the mortise and carefully set it up in

Round Their Edges – Since Brown decided to use a round tenon on this project, he used a router bit with a radius that was as close as possible to half the dimension of the thickness of the tenon. It likely won't be exact so some hand sanding might be needed to fair the rounded edges and create a gap-free fit.



Insert and Mark – With the tenon length fitting in the mortises, Brown inserts one end, then adds a light pencil mark where the face of the workpiece meets the tenon. Further trimming and shaping of the faux tenon will reference off this pencil mark.

my router table so I can round over the four edges of the tenon stock. Some test passes are helpful in setting up the height of the bit and location of the fence to round the edges over so they fit the round mortises nicely. I leave the width of the faux tenons slightly wider than the mortises because it's hard to machine the rounded edges perfectly, so I have to hand sand the tenons to fit more accurately. And there are many times when I don't even have a round over router bit the same diameter as the bit I used to machine the mortise, so the mortises have to fine-tuned by hand to fit properly.

A fit that's slightly too snug is preferable at this stage, as the tenon can always be sanded or machined to fit better. Sometimes a few passes with a medium grit sanding block is enough to remove enough material for a good fit.

Cut them to length

Working with a long length of tenon material, I insert one end into a mortise as far as it will go and mark a light pencil line around the tenon where the parts meet. This line will help guide me when pillowing the visible end of the tenon. If the mortises aren't all exactly the same depth, mark the tenons so they can fit back into the correct mortise. Now is also the time I make sure the tenons fit into the mortises properly. A bit of hand sanding at this stage might be needed.

Thicker tenons can protrude further from the mating surface, though once again there are no hard and fast rules here. The tenons pictured in many of these images are 12mm thick and protrude 1/4" from the mortise.

There's nothing wrong with creating flush tenons, rather than pillowing their ends. It's a lot easier and faster. It all depends on the look you're going for.

I marked a line 1/4" beyond the pencil line and cut the tenon to length. Using a belt sander tilted on its edge, I evenly rounded the ends of the tenon, being sure to leave the pencil line completely intact. Next, I used a hand sanding block to smooth the tenon ends and create a pillowed end that looks and feels evenly rounded. At this stage you can erase the pencil mark around the tenon, where the tenon meets the mating piece, then lightly sand that area to ensure the lines are gone. Finally, sand the rounded end of the tenon smooth, as once it's glued in place you'll apply a finish.

Pillowed Tenons – Working towards the pencil line, Brown first rounds the wider faces of the tenon on a belt sander. This process should be completed slowly, as it's very easy to remove too much material quickly and ruin the overall pillowed effect.

Rounded Corners – Once an even radius is machined into the two wider edges Brown lightly pillows the ends of the faux tenons. Once the ends are pillowed the final shaping involves fairing the four transitions between the wider faces and the ends of each faux tenon. This step is best done with some coarse grit sandpaper and a hand sanding block, as a belt sander would remove material too quickly.

A Different Approach

There are many slight variations on this general approach. I've used Baltic birch plywood as tenon material in the past. I was happy to discover a piece of 1/2" thick Baltic birch plywood is the same thickness as my 12mm Domino cutter. I just needed to rip the material to width, round the edges, fit the tenon with some hand sanding and cut it to length.

One very simple option is to drill a hole with a sharp drill bit (I prefer a brad point bit for this task) and glue in a length of contrasting solid wood dowel. You can even pillow the end of the dowel by chucking the piece of dowel into a drill, pulling the trigger and shaping it with some sandpaper.

Baltic Birch Tenons – 1/2" Baltic birch make for a nice size of tenon. These mortises were machined through the gable and into the top of this cabinet so the tenon adds a bit of mechanical strength, as well as additional gluing surface.

Dowel Tenons – In this case, Brown bored a hole through the vertical piece into the horizontal piece so the dowels would add some strength to this joint.

Get Fancy – Tenons don't have to be simple. Here, Brown laminated multiple layers of maple and wenge veneer between the mahogany solid to provide a strong visual.

A Bit of Glue – With the face of the workpiece sanded smooth, and the faux tenons evenly pillowed, some glue added to the inner face of the mortise is all that's needed to keep the faux tenon in place. Any glue added to the tenon will almost certainly squeeze out, causing problems once a finish is applied.

At this point don't insert the tenon fully, as it should be snug enough that you won't be able to get it out.

At first, it's tricky to evenly round the ends of the tenons with a belt sander or other machine, so you might be smart to test your skills with a practice faux tenon. Create a mortise in some scrap, drill a hole from the base of the mortise to the other side of the scrap so you can stick a screwdriver or something through it to push the practice faux tenon out, then get to work. Sand a bit then check for fit and repeat. Your first one might be awful, though you will improve with practice.

Glue them in

Before you glue in the tenons, don't forget to sand the area around where the tenon will protrude, as it will get in the way of you sanding that surface later.

The end grain of the tenon naturally soaks up a bit more of any finish you apply to the project, and will need a few extra coats. You can choose to apply a few coats of finish to the pillowed ends of the tenons before installing them, or just apply a bit of extra finish to the protruding tenons while you finish the project.

Apply glue to the inner surface of the mortise, coating it just about to the outer, visible surface. You don't want too much glue in the mortise because it will squeeze out once you tap the tenon into place, making a mess. Really, you shouldn't need much glue to keep the tenon in place. I always leave the edges of the tenon free from glue, as it will surely squeeze out while the tenon is being inserted. Gently tap each faux tenon home and let it dry before applying a finish on the project.

Small, fancy details like these are one of woodworking's greatest pleasures, so be sure to pat yourself on the back for a job well done.

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INFO: DIFFICULTY – **2/5,** LENGTH/TIME – **2/5,** COST – **1/5**

BUILD A MODERN PLANTER

The simple lines of this planter will suit just about any yard, though you can slightly modify the look depending on the finish you apply.

BY ROB BROWN

An attractive wooden planter for your yard can be a good way to highlight a combination of colourful flowers. A nice, simple planter is a great project for woodworkers of all skill levels and will allow you to display your work to your neighbours.

There are a few general approaches on how to use a wooden planter. One option is to build it, fill it with soil, plant the flowers and enjoy. The problem with this approach is the soil may eventually seep out any cracks or gaps, and the wood will weather or rot quickly, making the planter look less "modern" and more "country" before you know it. If that's the look you're after, go for it.

Photos by Rob Brown Illustration by Len Churchill

A second approach is to purchase a rigid plastic liner and build your wooden planter around it. It's best to aim to have the top of the wooden planter finish just above the top of the liner for aesthetic reasons. Soil and moisture will stay away from the wood and the planter will look newer for longer.

A third option is to place plastic or terra cotta pots directly in the planter. In this case, it's also best to build the planter so its upper edge is just above the height of the pots.

A fourth option, and the one I chose, is to make the planter then line it with a layer of flexible plastic to keep soil in and moisture away from the wood. If you do it carefully, you could use anything from vapor barrier to a garbage bag to line the planter. As long as the gaps between the wood are narrow and the plastic doesn't protrude above the top of the planter it will look great.

No matter what approach you take, ensure water has a way to drain out of the planter by lining up the holes in the base of the planter with the holes in whatever type of liner you choose.

With all of this in mind, you may want to adjust the size of this planter to fit the type of liner you decide on.

Start with a 2×4

I made two planters, both the same size. While they were both made from cedar 2×4 material, one length was knotty and one was mostly clear. Not surprisingly, the knotty one looks more rustic than the clear cedar planter. In both cases, the process to make the planter was identical. I added some milk paint to the knotty planter, which suited it. I'll talk more about that later.

I set the rip fence to about 5/8" and ripped off one strip of the 2×4. I then moved the rip fence in to make cuts at 1/2" wide. Removing a first strip allowed me to rotate the piece end-for-end and remove the rounded edges on the first strip. I then ripped my lengths of 1/2" wide material from the 2×4.

Because the pieces to make the planter are relatively short, I was able to find all the parts I needed while removing some of the smaller knots from the clearer blank. I then cut enough parts to rough length.

Mitre the ends

With my table saw blade tilted to 45°, I used my mitre gauge to crosscut the parts to length so they had mitres on both ends. Ten short pieces and 10 long pieces make up each planter.

Corner blocks

Machine the four corner blocks to finished dimension then add a large chamfer to the two inner top edges. I used my mitre gauge and chamfered them on the table saw with the blade tilted at 45°.

Add tape and wrap them up

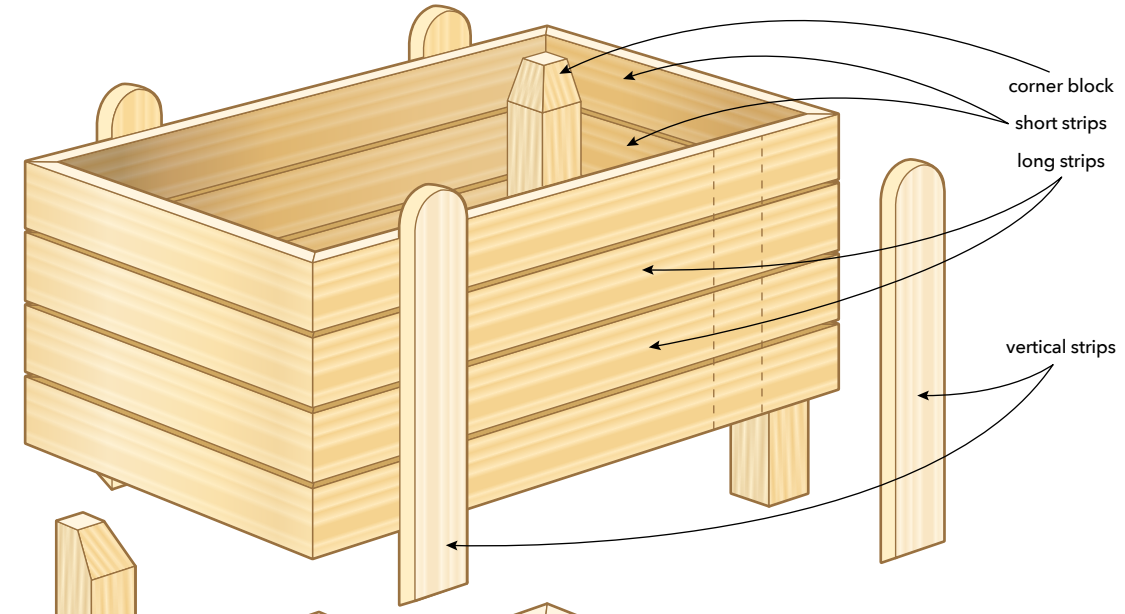
Ease the edges of each of the parts with a few passes of a block plane. I didn't spend any time sanding the parts, as the visible faces and edges weren't too rough, and I didn't mind the surface they had from the saw. It's also an exterior project that doesn't need to look as fine as an interior project.

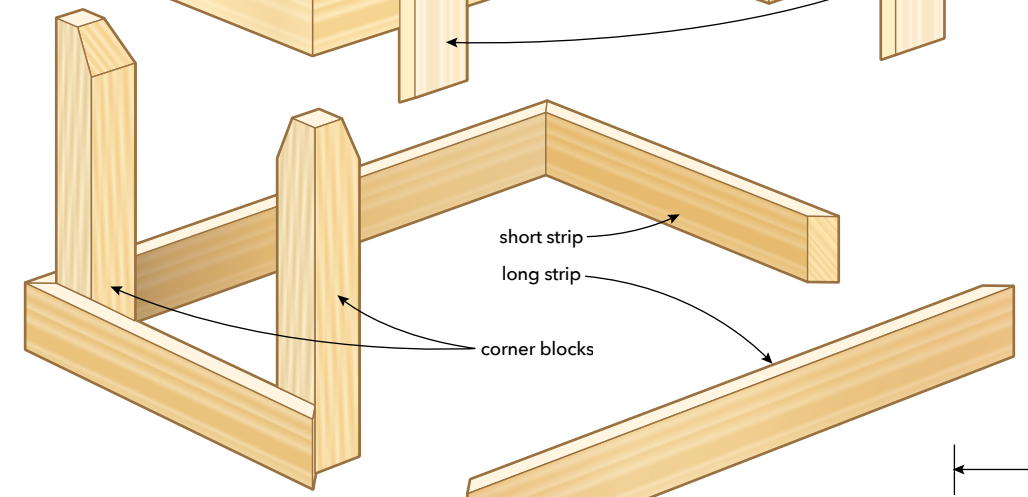
While assembling the first planter I laid the parts out end-for-end, so each group of four had a long-short-long-short pattern. Masking tape across the three mating joints keeps them together and acts as a hinge until the glue dries. With the five groups taped and ready for glue, I flipped them face down, applied glue to the first foursome, wrapped them together, taped their final end, and then brad nailed the four corner blocks in place. The trouble with this method is that after about three levels of slats were assembled and fixed to the four corner blocks it was obvious the corner blocks weren't straight. I needed a new approach.

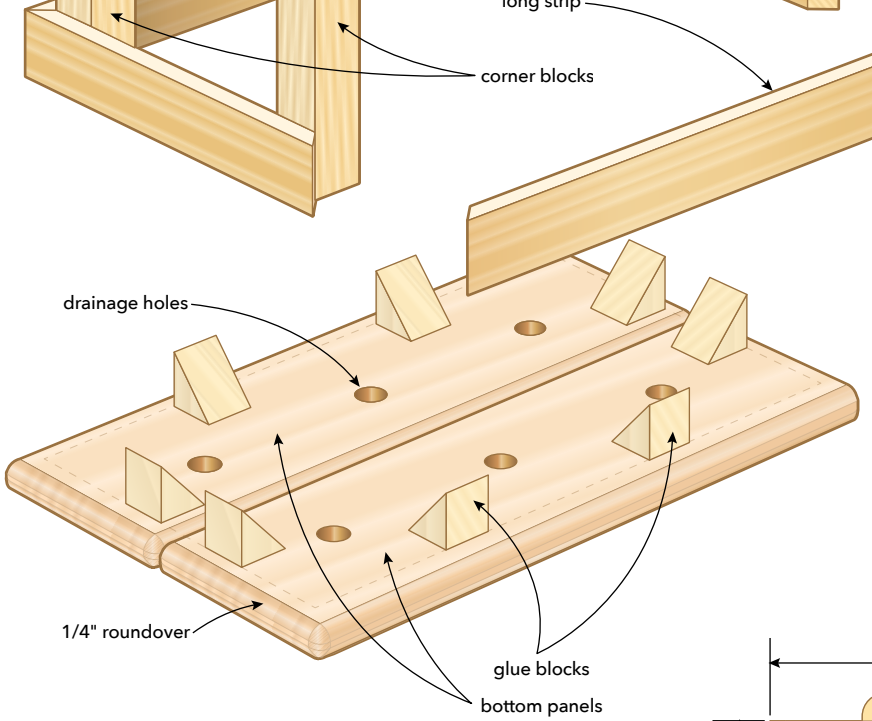
Remove the Knots – Brown used cedar that was nearly clear for one of his planters, and removed the knots when cutting the mitres on the ends of the slats. Leaving the knots in would provide you with a rustic planter and make better use of your material.

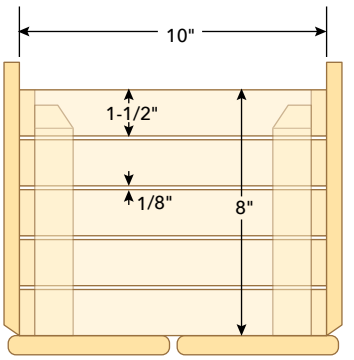
Masking Tape Is Magic – Masking tape applied across the mitred joints will hold the joints together once they're glued and wrapped together. Brown joined the five individual horizontal sections together with masking tape, then prepared to add the glue and assemble the planter box in an efficient manner.

For the second planter box I got organized worked quickly and efficiently. The plan was to glue and tape the five layers, then lay them on top of each other like they would be when assembled, add some glue to the corner blocks and use a brad nailer to lightly secure everything in place. Because I wanted a gap of about 1/8" between the layers I used #8 screws as spacers between each layer. Alternatively, you could use 1/8" strips of wood between each layer.

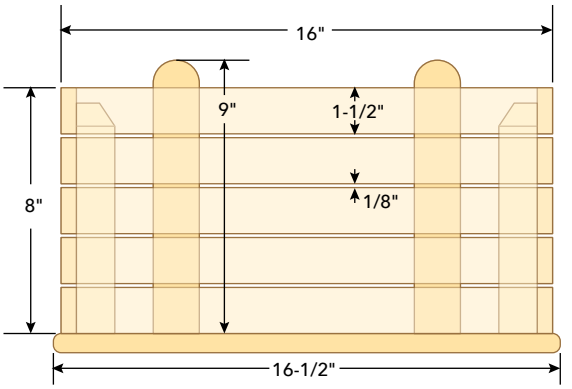








SIDE VIEW



FRONT/BACK VIEW

Materials List

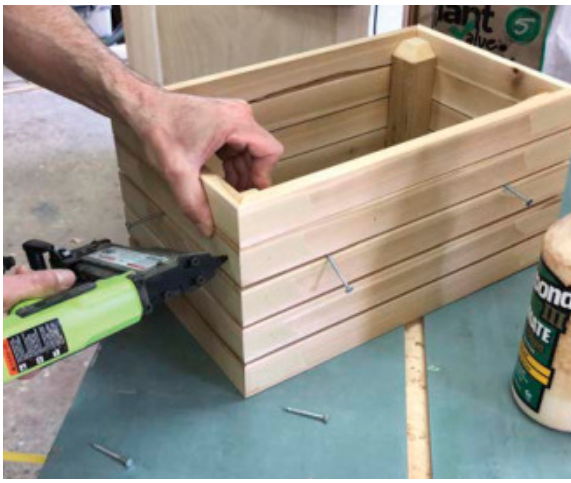
Part	Qty	T	W	L	Material
Long Strips	10	1/2	1-1/2	16	Cedar
Short Strips	10	1/2	1-1/2	10	Cedar
Corner Blocks	4	1-1/4	1-1/4	7-1/2	Cedar
Bottom Panels	2	5/8	5-1/4	16-1/2	Cedar
Vertical Strips	4	1/2	1-1/2	9	Cedar
Glue Blocks		To Suit			Cedar

Almost There – Working quickly, Brown tapes up the final joint of the glued slat sections before bringing them together and attaching them all to the corner posts.

Glue the Corner Posts – The final corner post gets some glue before the five sections get pinned and clamped to them.

Working quickly, I glued and wrapped together each of the five layers, brought the four glued corner blocks in place and added a brad nail in the lower layer, into the corner blocks. I then used a few screws to create the gaps between the lower and second layer and brad nailed the second layer in place. Working upwards, I added one brad nail in each of the four corners of each layer.

At this stage I used a few cauls and clamps to bring each corner together



Simple Spacers – Working quickly, Brown reached for some #8 screws to act as spacers. A few pieces of 1/8" thick wood might have been a better approach.

nicely. A little bit of glue squeeze-out on the inside of the planter let me know I had enough glue on each corner block. The entire assembly took me just over 10 minutes. Much longer than about 15 minutes and the glue would start to cure. Having said that, every glue is a bit different, so choosing a slower setting glue is advantageous here. Another option is using 24-hour epoxy, though that can get messy.

Time for a bottom

A few lengths of 1×6 cedar are used for the bottom. Leave a gap of about 1/4" between the boards. The ends of the boards can be heavily eased before assembly. I did this with a block plane and some rough sandpaper.

After applying glue to the bottom edges of the lower mitred layer, add a few brad nails

Finishing Your Planter for a Different Look

I enjoy working with milk paint as it brings a whole new level to the finish of a project. One of the things milk paint is great at is adding an aged appearance to a project. Unlike latex paint, milk paint can be removed with sandpaper to create a rustic look. You can even layer complementary colours of milk paint on top of one another so when you hit it with sandpaper all of the colours are visible. You can also put it on thinly and remove the majority of it, leaving the milk paint just in the recesses. The number of different approaches to applying milk paint for an aged look are endless. Play around to get the look you want.

Base Colour – Brown started with white milk paint, brushing it on in the nooks and crannies of the planter box.

Nice Contrast – A bit of rusty brown milk paint went on over the initial white milk paint. Brown added this darker colour over most of the areas that got the first coat of white paint.

I decided to use milk paint on both planters. I wanted to see what effect I could create by adding different colours.

I started by applying a bit of white on some areas of the planters. Once it was dry, I applied a rusty brown over some of the white areas on the knotty planter. Once that was dry, I sanded the paint to see how the aged effect was coming along. I decided to apply just a bit more white over some of the rusty brown to give a more layered effect.

When the paint was dry, I used 120 grit sandpaper to smooth the edges of the milk paint and ease the overall look. In some areas I removed most of the paint I applied. I played around until I was happy with the look. At this point, I could even apply more paint if I wanted. Even introducing additional colours wouldn't be a problem. Layer it on in any way you'd like.

The topcoat

I first applied a coat of tung oil to the knotty planter. The tung oil brings out the colours of the milk paint and makes the whole look pop a bit more.

After applying the first coat of milk paint on the clear cedar planter I tried to imagine what it would look like when it was finished. However, I liked the simpler, more modern look of the clear cedar, and found the milk paint competed with its simple form and grain. I decided to sand the milk paint off, then applied a couple coats of tung oil to it. Although I wasn't able to get every last bit of milk paint off in some of the recesses, it was fine.

Now I had two distinctly different planters even though the construction process was identical. We placed the modern planter in the front yard, and the rustic planter in the backyard, as the home and front yard lend itself to a more modern look.

Both approaches resulted in great looking planter boxes.

More White – To add just a bit more depth to the finish, Brown added more white paint over the rusty brown. The layers of milk paint don't need to go on evenly or perfectly, as the next step will remove much of the milk paint and change the look a fair bit.

Sand It Back – Sanding the dried milk paint with 120 grit sandpaper allows you to give some visual age to the overall look of the finish. When you're sanding, spend more time on the edges and corners, as those would naturally be the areas where more wear would occur.

Backtrack – Brown liked the milk paint look on the knotty cedar planter, but felt it detracted from the clear cedar planter, so he removed most of the paint with a sander. The resulting planter has a more modern look to it.

Clamp It All Up – Clamps and cauls bring the five slat sections and four corner posts together.

Vertical Pieces – After marking where the glue should be, Brown pins the vertical pieces in place and clamps them.

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to position the bottom planks. Bore a pilot hole and countersink through each bottom plank, up into each corner block, then add screws.

Vertical slats

The vertical slats are mostly for decoration, though they do provide some added strength to the planters. Made of the same material used for the horizontal slats, they have a slight radius on their top ends and a small chamfer on their lower ends. Once cut to size, add glue and clamp them in place. A brad nail or two will help keep them from moving while setting the clamps in place. Just be sure to sand off any glue that seeped out of the mitred corner joints during assembly, as it will be harder to remove once the vertical slats are glued into place.

A few glue blocks on the inside, lower corner, between the horizontal slats and the bottom pieces, will help strengthen the whole assembly. Once the glue blocks are dry you can bore a few holes in the bottom panels to ensure excess water can drain away from the planter, and not damage plant roots or cause the wooden planter to rot.

Apply a finish

An exterior finish has to stand up to sun and moisture. There are many options, but I chose a penetrating oil. I find a film finish, like an exterior varnish or polyurethane, looks fantastic for the first year or two but eventually peels off if you don't sand the wood and reapply the finish.

I wiped on two coats of tung oil, leaving it wet for about 10 minutes so it could soak in, then wiped off any excess. In the future I can just reapply a coat every year or so to keep the look fairly fresh. It will age, of course, but it won't require sanding or stripping.

In order to keep the planter off the ground I added a 5mm press-in bumper to each corner. You could even glue a thin piece of wood near the four corners to keep the majority of the planter off the ground so it doesn't soak up any extra water.

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Einhell Rassaro 36V 17" Cordless Push Lawn Mower Kit – Brushless

BY ROB BROWN

Cutting grass is a chore that just about every homeowner needs to take care of regularly. In fact, sometimes I feel like I spend more time with my lawnmower than I do with my plunge router or block plane. All the more reason to simplify your mowing.

I've used electric and gas mowers over the years, but there are downsides to each. An electric extension cord following me around the yard is an experience I want to forget. And although a gas mower is great for a large lawn or long grass, I don't (usually) have either. I also have some short but steep hills on our property and a gas mower is heavier to maneuver up and down them. As an aside, I once watched in horror as my gas mower got away from me on one of those slopes and headed straight for a vehicle travelling at 60 km/h. That wasn't fun.

Back to the Rassaro. Battery-powered mowers are great for small- to mid-sized lawns, and if your lawn has steep slopes, they're lightweight and easy to operate on them. Battery-powered mowers are also light and simple enough to pack up, throw in your trunk and take across town to mow someone else's grass, if the need arises.

Main photo by Einhell; photos opposite page by Rob Brown

Collection Bag – This 45-litre collection bag stores the clippings; an indicator on the bag will let you know when the bag is full. The indicator flap remains up (or open) when there's still room in the bag. When the bag is full airflow is impeded, causing the indicator flap to lower.

Mulching Plug – If you want to mulch the clippings, insert the mulching plug. Grass clippings will be cut repeatedly, allowing them to more quickly compost on the lawn. The plug can be removed and the collection bag left off for rear-eject mowing, an approach Brown prefers.

Collapsible Handle – Cam levers where the handle connects to the base and at the centre of the handle allow the mower to fold into a compact size for storage and transportation. When the ejection door is closed, cut grass ejects onto the ground in front of the user.

Einhell's Rassaro 36V 17" Cordless Push Lawn Mower Kit – Brushless is now available across Canada. The company is new to Canada and has a wide range of both woodworking and home improvement power tools, not to mention an extensive line of outdoor yard tools. A single battery platform they call Power X-Change will power each of their cordless tools.

A quick and easy setup was complete in about two minutes. This Einhell mower offers a few clipping collection options. A 45-litre collection bag is included, and it works well, though I usually don't use a collection bag when I mow and let the grass clippings compost on the lawn. If you use this collection bag, you'll be pleased to know there's a filling indicator to let you know when the bag needs to be emptied. There's also a mulching plug included, which is easy to install. It ensures the grass clippings get broken down even more before remaining on the lawn. I generally leave both the collection bag and mulching plug off the mower and allow the longer clippings to fall where they may. They get evenly ejected onto the path of the mower without making too much of a mess of my pants and shoes.

The height-adjustable handle is relatively easy to collapse and expand for storage or moving. For the purposes of this review, I packed the mower up, put it in my vehicle, set it back up and mowed a few other lawns about six times. It's an easy process, and the carry handle ensures the mower is balanced and easy to handle. The Rassaro will easily fit in all but an extremely small trunk.

The double-battery system on this mower powers the blade nicely, even on medium-length grass. If grass is very long, or is wet, the motor will bog down a bit, but that's to be expected from a battery-powered mower. It's always best to cut your grass regularly, so it doesn't get too long, and only when it's relatively dry. I wish the clear housing protecting the batteries stayed in an open position on its own while I installed the batteries, but I got used to this tiny shortcoming quickly. The brushless motor ensures efficient power transfer.

In use, the large rear wheels make moving the mower around easy, and the six height-adjustment settings allowed me to easily and quickly dial in the cutting height of the grass to between 25mm and 75mm. On top of this, near-edge cutting reduced the time I needed to spend with my string trimmer.

This quiet, light-weight and easy-to-operate mower has the power and run-time to mow small- and medium-sized lawns with ease. And the charger will have your batteries back to full strength quickly if you're mowing a large lawn. Although I still prefer using my block plane, this mower will have me back in the shop quicker than ever this summer.

Einhell Rassaro 36V 17" Cordless Push Lawn Mower Kit – Brushless

MSRP: $519.99 (Currently $399; a promotion until August 31, 2023)

Website: Einhell.ca

Tester: Rob Brown

Lots of Power – The 4.0 Ah batteries included with the mower provided a decent run time and the necessary power to easily deal with a medium-sized lawn that hadn't been mowed for a week. You can use the three-light indicator system to tell how much power is left in the batteries.

Safely On – Once the upper button is depressed, you can squeeze the lower lever to turn the mower on. If the mower isn't in use you can remove the safety key directly above the battery slots.

Festool KAPEX KSC 60 EB Cordless Mitre Saw

BY CARL DUGUAY

Mitre saws excel at making straight, mitre, bevel and compound crosscuts for trim work, framing, flooring, furniture and a range of other woodworking applications. Large, heavy-duty corded mitre saws have been the mainstay for decades, but with advances in battery technology and the advent of brushless motors, the new crop of brushless, cordless mitre saws pack a powerful punch.

Festool's new **KSC 60 EB** mitre saw has a range of features that, in my view, make it a viable choice for anyone who wants a premium compact mitre saw that can run for the better part of a work day on a full dual battery charge, that delivers excellent accuracy with repeatable precision, and has the capacity to handle stock up to 2-3/8" × 12".

I have a small shop, so floor space is precious. The KSC 60 EB takes up less than six square feet (33" from the wall to the end of the locking handle and 32" side-to-side). At just over 40 pounds (with batteries installed) it's light enough for me to cart around without having to plan a visit to my chiropractor. And with an average 78.4 dB noise level it's certainly not the loudest power tool in my shop.

The KSC 60 EB operates on one or two 4 Ah or higher batteries. With only one battery installed you'll get a maximum blade speed of 1,800 RPM. With two batteries speed increases to 3,500 RPM. Runtime depends on the amp-hour of the battery you use, the thickness and density of wood you cut, and how frequently you use the saw throughout the workday. For the kind of work I do – making furniture and small cabinets – I recharge the batteries about every third day.

The head glides wobble- and vibration-free on dual 1" diameter stainless steel guide rails. The 9" of rail travel, coupled with the 8-1/2" blade, allows for a full 12" crosscut capacity at 90° (and 8-15/32" at 45°). A feature I've used only a few times, but am glad to have, is the cutting depth limitre that enables you to cut flat grooves in your stock at a pre-set depth. It's surprisingly easy to use.

Setting a mitre angle is very quick and there are standard detents for the commonly used angles. The mitre range is a generous 60° left and right. Setting the bevel angle is more time consuming. The bevel scale is small and harder to read, and there isn't a fine adjustment to help you set the exact angle. I use a digital angle gauge to speed things up. The bevel range is 47° left and 46° right. If you do much in the way of renovation or carpentry work you'll love the angle transfer device that comes with this saw. You use the device to replicate an inside or outside angle and then transfer the angle to the saw without having to make any complicated calculations. It works like a charm.

Aligning the blade to your cut line couldn't be easier. A button on the handle enables you to switch an LED on whenever needed. The light projects the saw blade shadow onto your stock so you can position your cut line precisely. The light turns off when you press the button a second time or after one hour. It's a super-effective feature I've come to depend on.

An electronic brake stops the blade in about two seconds. I like this feature, as on any mitre saw you should wait until

Dial in the Depth – A small knob, easily accessible to the user, can be adjusted to set the depth of the cut. This feature can be very helpful when making dadoes or other non-through cuts.

Compound Cuts – Making both bevel and mitre cuts, often at the same time, is what a mitre saw excels at. Mitre cuts can be adjusted up to 60° in both directions and the bevel cuts are adjustable to just over 45° in both left and right directions. The saw is shown here making a compound cut.

Simple Angle Transfer – A bevel accessory tool is included with the Kapex KSC 60 EB. This makes the measurement of interior and exterior angles, and subsequent transfer to the saw, simple and accurate.

Top photo by Festool; bottom photos this page and opposite page by Carl Duguay

the blade stops spinning before raising the head. This eliminates the prospect of a cut-off being flung towards you, particularly to your face. The KSC 60 EB comes with an over-the-top hold-down clamp that can be mounted on either side of the saw head and in back and front of the fences.

Mitre saws kick up a lot of dust, and the KSC 60 EB is no exception. The dust bag isn't overly effective but connect the saw to a dust extractor and you can expect to collect the lion's share of dust and debris.

The KSC 60 EB comes with a decent 36-tooth general-purpose blade. A 60-tooth blade along with specialty blades for aluminum/plastics and laminates/HPL are also on offer.

Nothing on the saw feels flimsy. The fit and finish are super, and the levers and knobs are easy to reach and manipulate. There isn't much I can grumble about. As you'll find on all mitre saws, the slot in the kerf plate is pretty wide, which leads to some inevitable chipping when making mitre cuts. You could replace it with a commercial or shop-made zero-clearance insert plate that you remove when making bevel or compound cuts, or, as I often do, just place a sacrificial piece of 1/4" MDF under the stock. I also find the 2-1/4" fences (what Festool calls "stop runners") a tad low. However, I plan to add taller removable sub-fences that will also effectively serve as a zero-clearance fence.

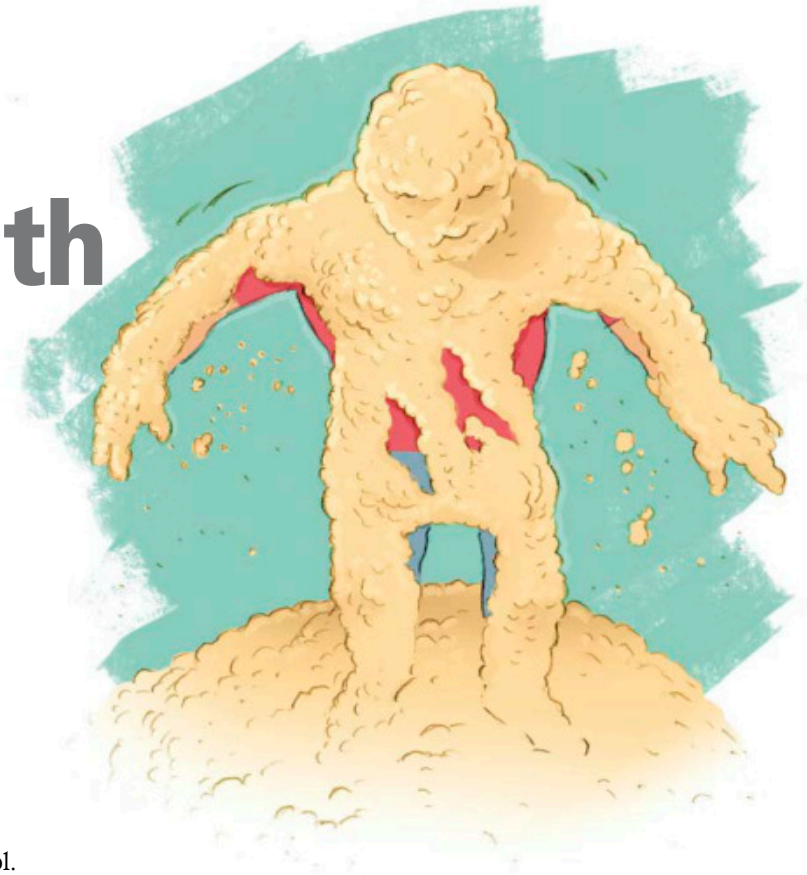
Easy on the Eyes – Reading the simple mitre scale is easy, and reduces mistakes and increases speed.

The Basic KSC 60 EB includes a 36-tooth ATB blade, dust bag, angle transfer device, elevation feet and screw (hold down) clamp. The Plus model adds two 5.0 Ah batteries, dual charger and Systainer. Also available is a compact underframe – a mobile stand that you can use in the shop or on the jobsite. A range of other accessories is also available.

Stand Up – A stand to support and move the Kapex KSC 60 EB is available. It makes using the saw, as well as moving the saw around, even easier.

Festool KAPEX KSC 60 EB
MSRP: $1,299 (Basic) $1,699 (Plus)
Website: FestoolCanada.ca
Tester: Carl Duguay

The Dirty Truth About Dust Control



It's way more important than a lot of newcomers expect.

BY JAMES JACKSON

Okay, I think it's time we talked about dust control. Someone new to the craft of woodworking may underestimate just how important good dust control is - not only for maintaining a clean and tidy shop, but for keeping clean and tidy lungs.

Up until a few months ago the vast majority of my woodworking experience was in my father's shop, and let me tell you he's got a great dust collection setup. Metal piping crisscrosses one of the walls and there's a remote control attached to his woodworking apron that he clicks to effortlessly start the suction.

On top of that there's an air filter mounted to his shop ceiling to trap any stray particles in the air, and a couple of separate vacuum systems for his orbital sanders. I won't go so far as to say there isn't a speck of dust in the shop, but it's pretty darn clean.

I also thought the setup was a little bit overkill in my earlier woodworking days. Sure, the vacuum systems and piping made sense, but did he really need the air filter, too?

Well, I'm here to say it's not overkill. At the start of 2023 I began my own side business of selling laser-engraved walnut charcuterie boards, trays and more. The boards need a ton of sanding to get them buttery smooth, and for the first few weeks I was just using my battery-operated orbital sander with the crummy little dust bag that comes with the tool.

No vacuum suction, no air purifier, no dust collection whatsoever. And it didn't go well.

At the end of every day I'd emerge from my workshop looking like I'd just survived a volcanic eruption with all the dust caked to my work jacket and pants. All that loose dust was also having an impact on my final finish since those fine particles that were landing on the piece were getting ground into the wood and causing swirl marks and scratches.

I was also worried about the impact it could potentially have on my long-term health, even though I was wearing a woodworking dust mask with a HEPA filter the entire time. According to the Canadian Centre for Occupational Health and Safety, wood dust "is associated with toxic effects, irritation of the eyes, nose and throat, dermatitis, and respiratory system effects which include decreased lung capacity and allergic reaction."

I decided I'd had enough and bit the bullet and bought an expensive new sander with a fancy dust collection hose and vacuum attachment. But the most amazing thing to me was the new mesh sandpaper that allows the fine particles to be sucked into the machine. I couldn't believe how much of a game changer it was compared to the cheaper paper I'd been using.

"You spoiled brat," my father-in-law (also a hobbyist woodworker) said jokingly the first time he saw it in action.

I liked it so much I started to use the vacuum attachment on other tools, like my table saw, planer and jointer, but the chips quickly filled up the bags so I needed to find a different method.

One day my dad took me up to the attic above his workshop and he dug out the old portable dust collector he got with his first table saw. It has a 60 hz induction motor that groans every time you start it up and sometimes pops the GFCI outlet in my shop. The manufacture date only has the first three digits (199) meaning it's probably at least 25 years old, but it works. The 4" diameter hose offers plenty of suction for my planer and jointer.

Woodworkers may debate the merits of certain tools, specific brands or varying techniques, but I think it's safe to say that no one should doubt the importance of ample dust collection in the shop. It can save your workpieces, and might just save your lungs.

JAMES JACKSON
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Illustration by Mike Del Rizzo

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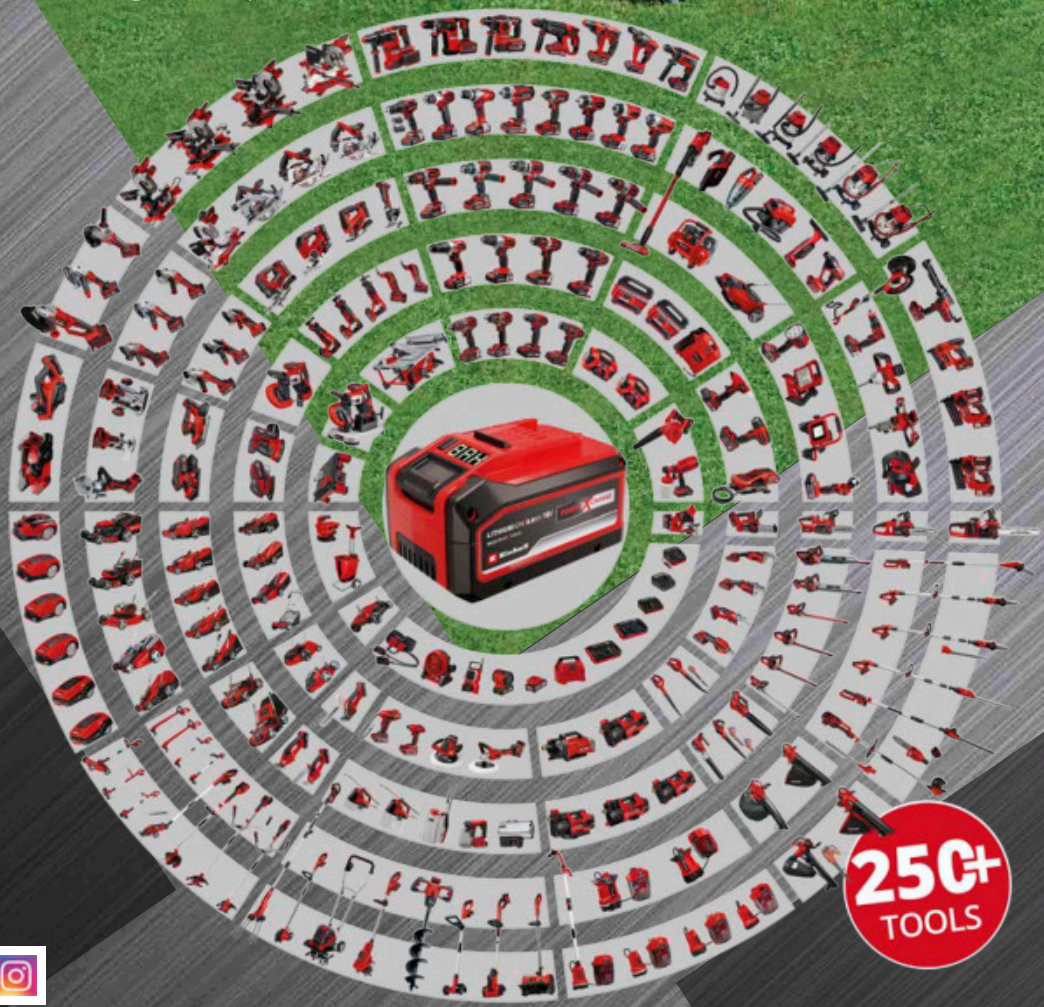

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Sandra Carr

Side Chair

This chair was made entirely with hand tools using greenwood techniques from a single length of newly felled ash. The parts were riven, shaved, turned and steam bent using traditional chair-making techniques. Carr is interested in the elegance of green woodworking, particularly using the wood's inherent properties to create light, strong structures. The seat is woven elm bark.

Turn to page 12 for more quotes.
(Photo by Allan Shook)