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FINE
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ISSUE #137
APRIL/MAY 2022

CANADIAN Woodworking & HOME IMPROVEMENT

Build a Wave-Edge Deck

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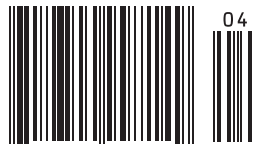
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Know Your Tools: Angle Grinders p.8

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4 WAYS
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BY CARL DUGUAY

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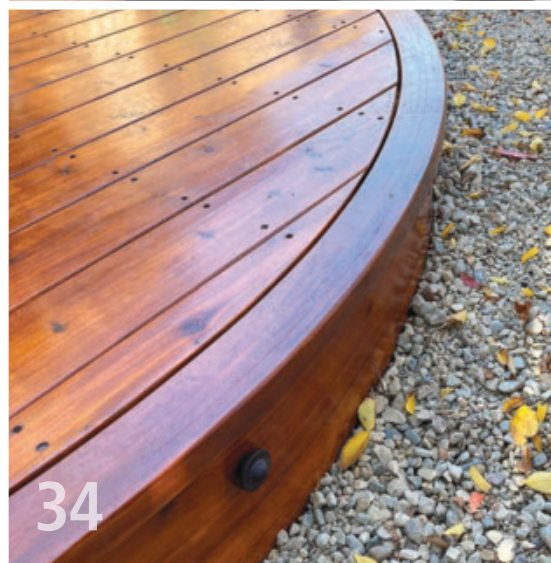
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COVER STORY

Cover photo by Christian Jensen

34 Wave-Edge Cedar Deck

Add beautiful curves to your backyard and reap the benefits for years to come. BY CHRISTIAN JENSEN

editor's letter

Spring is just about here, which means different things to different woodworkers and DIYers. Some of us are well accustomed to many months of hunkering down in our basement shops, building furniture and other woodworking projects, while others are considering what their next project will be once it's warm enough to work wood in their unheated garages. And if it's outdoor projects you're planning, this is certainly the time to start considering a plan of attack. Pretty soon the snow will be gone, the flowers will be coming up and we'll all want to spend more time enjoying ourselves outside.

If you're open to doing some outdoor projects over the coming months, few are more functional, beautiful and satisfying than building a deck. If a deck that turns heads and draws you outdoors is what you're after, a wave-edge approach is certainly a great option. The majority of the deck is constructed with a standard approach, but the magic happens where the deck and the rest of the yard meet. Our cover story takes you through designing and building this stunning project. When broken down into manageable steps, anyone can turn a regular deck project into something really special.

If a simpler challenge is on your horizon, check out our article on how to build a step stool. This article is written by 13-year-old Evan from Toronto, and is part of my ongoing push to bring more kids into woodworking. But don't worry; this fun and functional project is great for woodworkers of all ages. Evan covers the basic build using dowels, but if inlay, exposed mortise and tenon joinery or chip carving intrigue you, this might be the perfect project to start honing those skills. Even adding a textured top to this stool could turn this simple project into a showpiece.

I always enjoy being inspired by other woodworkers' finished projects. Last year's graduating class of Camosun College students in B.C. put on an exhibition of their finished work, and we have included a gallery-style article in this issue. All the pieces included reclaimed arbutus and Garry oak in a theme of seating. I especially like the clean lines of Emily Wilson's "YYJ Chair" and the graceful curves of Alexander Finch Harper's "Curse of the Curves." After seeing this collection, I think I might try my hand at another chair one of these days. — Rob Brown



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letters

Hooray for kids' articles!

I read your "Letters to the Editor" section in the Feb/Mar 2022 issue. The letter you bravely published from the reader who hated the "Kids' Corner" was disappointing to read. It's a shame some people don't see the benefits of simple projects that kids can get involved in. I'm a huge fan of the section as it gives me great ideas to get my kids involved in making things. We made a large number of wooden tags for Christmas and the kids were really proud of them.

I'm an avid reader of your magazine and love the articles. You have a wide range of topics and skill levels. I look forward to its arrival each month.

Keep up the great work!

Dave Wilkinson

Via email



Hi Dave,

I'm very glad to see you and your kids were able to get into your shop and make some wooden gift tags for Christmas. They look great! I hope our readers will use these projects to get their kids familiar with the joys of woodworking and can also see that these kids' projects are also great fun for more experienced adults.

I hope your kids will be interested in building some of our other great kids' projects I have planned for the future. Keep up the good work! — Rob Brown, Editor

Woodworking article about tools for kids

I recently ran across your article "Top 10 Tools to Teach Your Kids to Use" (Aug/Sept 2017). I'm the editor of a local woodworking club newsletter for the Wisconsin Woodworkers Guild, and we've been discussing how to get the next generation of woodworkers involved in the craft. I was excited to see your article and thought it may be a good first step toward realizing our objective. I would like to get your permission to place the article in our monthly newsletter to our members.

Floyd McNally

Wisconsin Woodworkers Guild

Hi Floyd,

You're welcome to include the article in your next newsletter. I think getting kids into woodworking is great on so many levels. Many kids have a natural desire to make things; just look at the success of LEGO and other kids' products around the world that include building of some sort. You might also want to share "Top 10 Ways to Teach Young Woodworkers" from our Dec/Jan 2022 issue, too.

Good luck with this initiative, and please let me know how it goes!

— Rob Brown, Editor

Tung oil article

I just read "Tung Oil: Debunking the Myths" (June/July 2012)

Excellent article! You got right to the useful information without any self-promotion or delay. You didn't waste my time. To me, truly good writing leaves the writer as a transparent piece of glass. The reader has a clear view of the knowledge without even noticing the lens. You drew so little attention to yourself that I had no idea if you were male or female. I see that as a mark of an excellent writer.

I used tung oil back in the '80s on a furniture-making project and loved



it. Recently, I was looking at purchasing some, but realized I knew nothing about its origin nor the possible degraded form or alternatives and comparisons of them. Your article thoroughly informed me of all these.

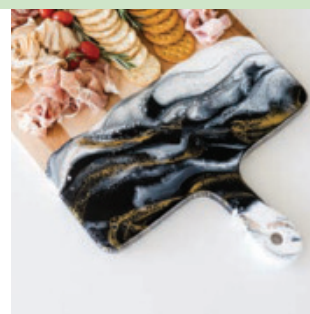
Robert Scott

Via email

shopnotes

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Tool Reviews

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Carving Championship and Wood
Art Competition**
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CanadianNational.net
(Photo – African Pygmy Falcon,
Bruce Lepper, Ontario)



Product Watch

Brink's Push Pull Rotate Door Locks

Who hasn't been there – juggling and contorting to open a door with hands dirty from working in the garden or arms loaded down with laundry? The new door levers, locks and handsets from Brinks are unique in that you can open a door three different ways - traditionally or by pushing or pulling on the knob or lever. No need to put everything down to open the door or make multiple trips.
brinksprr.com



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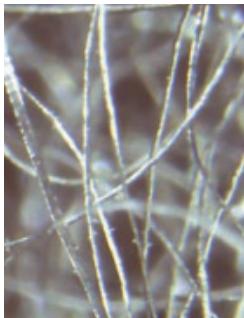
canadianwoodworking.com/videos

Canadian Quotes:
Yorgo Liapis



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 June/July issue.



Previous issue:
Air exhaust

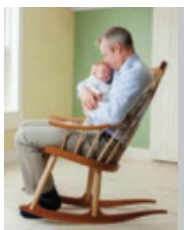
Best Build



Check out the **Woodworking** section of our forum for our latest "Best Build" thread, a hall table with inlay. This month's winner, Craig Medvecky, wins a **Veritas Dual Marking Gauge** from Lee Valley.



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



Free Plan

Craft a Timeless Rocking Chair

A rocker is on just about every woodworker's "bucket list." If you can appreciate smooth, subtle curves and are up for a challenge, this design might be perfect for you.
canadianwoodworking.com/free-plans

Forum Thread

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

- **Alternative to tile saw?** – If a single tile needs to be trimmed and renting a saw is too expensive, what's the best approach? Our members had some good ideas.
- **Flattening concrete floors** – One of our forum members will be installing a floor in their basement, but they can't do that until their concrete floor has been levelled. Read about some options for this situation.
- **Adding bookcase-style shelves to a closet – need guidance** – In order to make better use of closet space, one member wanted to know how to add some shelves. Our members provided thoughts on materials, design and construction techniques.

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



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Angle Grinders



The wide range of accessories available for angle grinders make them a “go-to” tool on the jobsite and around the home. They’re classified by the maximum diameter of the accessory they can accommodate, with the most popular grinder sizes being 4", 4-1/2" and 5". You can purchase grinders in three power source options – corded, cordless and pneumatic. Some grinders have an on/off (a.k.a. slide or lock-on) switch, while others use a paddle switch. The paddle switch is integrated into the handle. Grip the handle and squeeze the paddle to turn the grinder on, release the paddle to turn it off. Some grinders with paddle switches also have a lock-on button. All angle grinders employ a lock nut and backing flange installed in different configurations to accommodate different accessories. The specific accessory to use with an angle grinder depends on both the type of material you’ll be working with – wood, metal or masonry – and what you need to do with the material – shape, cut, grind, strip, sand or polish. Angle grinders are not difficult tools to use, but they can result in severe injuries if not used properly. Ensure you understand how to use the tool and its accessory safely.

Price: \$40 to \$1,000
Power source: 110V (corded), battery, pneumatic
Power output: 12V, 18V, 40V, 60V (battery)
 5 to 16.7 amps (corded)
No load speed: 5,000 – 12,000 RPM
Accessory capacity (diameter): 2" to 9"
Weight: 4 to 13 pounds

Get the Most Out of Your Angle Grinder

Don't be a know-it-all

Don't assume that you know how to use an angle grinder properly just because you've used other power tools. Read the user guide that comes with your angle grinder.

Protect yourself

If not used properly, an angle grinder can inflict serious damage to your head, face or legs. The most common causes of injury are wheel breakage, kickback and contact with projectiles. Wear all proper PPE when using a grinder.

Use the right accessory

You'll get better results and reduce the risk of an accident when using the right accessory. For example, don't use a cut off wheel for grinding. Not all accessories should be run at the same speed. Check the manufacturer's recommended speed setting and don't exceed it.

Use the guard and side handle

Always position the guard so it deflects debris and sparks away from you. Keep both hands on the grinder when in use so you can control it in the event of kickback and torque reaction. Always secure the item you're working on.

Let the tool do the work

While you do need to apply some downward pressure when cutting or grinding, there is no need to apply excessive force. This can cause an accessory to break or catch on the workpiece, or it can cause the motor to overheat.

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SINCE 1958

Top**10** Ways to Amp Up Your Clamping Game

Clamping pieces of wood together is central to working wood. Clamps are usually the answer. Having enough of the right type on hand and knowing how to use them will pay off.

BY ROB BROWN

1 Have many types of clamps on hand — “F,” “C,” spring, bar/pipe, parallel, band and trigger are all different types of clamps that operate differently. They all have their strengths and weaknesses, so having some of each is a smart approach. Be familiar with what each type of clamp can do.

2 Vary the lengths — Some woodworking tasks require a short, small clamp, while others require a very long clamp. Most clamps are available in short- and medium-length versions; bar/pipe and parallel clamps usually come in much longer versions. Unless you build only small projects, it's good to have a variety.

3 Always apply force perpendicular to the joint — Usually this is the most obvious way to apply force, but when working with curves and angles this can be harder to do. Jigs and angled cauls are the answer.

4 Don't under tighten — Not applying enough pressure will cause a weak bond. Generally speaking, softwoods need less pressure than hardwoods. Also keep in mind the strength of the clamp. It's easier to apply a lot of force using “C,” pipe/bar and parallel clamps. On the other hand, a trigger clamp won't be sufficient when edge gluing large planks.

5 Don't over tighten — Applying too much force will cause a starved joint, may distort the project while it's drying and may cause damage to the wood fibres it comes in direct contact with. There's a correct clamp for every job, and a different amount of hand strength is needed to appropriately tighten each type of clamp.



6 Use enough clamps — Just because a pipe/bar clamp can produce a lot of force doesn't mean two are enough for a 48" edge joint. Space clamps evenly across a longer glue edge so the entire length has pressure applied to it. More clamps, each applying less pressure, is usually a better approach.

7 Use cauls — Essentially just a collection of different-sized solid wood and plywood offcuts, shop-made cauls can help spread clamping pressure across a larger area. They also help protect the workpieces from getting dented and damaged by the heads of the clamps.

8 Store your clamps properly — Storing clamps on wall-hung racks is the most common approach, though there are others. Ease of access is important when reaching for a clamp. And the fact that a properly hung clamp won't get knocked over is a huge plus.

9 Use accessories — Clamp supports, bench dogs, 90° clamping squares and many other accessories make a tough clamping situation easier. My personal favourite? Iron couplings can be used to extend the length of my pipe clamps indefinitely.

10 Create sub-assemblies — Medium- and large-sized projects need to be broken into sub-assemblies to be successful. Glue dries quickly, things can go wrong and if you try to bite off too much at once you'll find the glue too dry to properly work, a nightmare scenario that's avoided with sub-assemblies.

ROB BROWN

rbrown@canadianwoodworking.com



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RELATED ARTICLES: Make a Set of Clamping Cauls (Apr/May 2015), Top 10 “Must-Have” Clamps (Apr/May 2014)



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Yorgo Liapis

...on small-batch furniture, hand shaping and dancing in the shop.

BY ROB BROWN

What sort of furniture do you specialize in?
Sculptural and functional pieces.

Do you prefer hand tools or power tools?
Hand tools all the way.

Solid wood or veneer?
Solid wood usually, though shop-sawn veneer is great at times. It's all about the material's function.

Figured wood or straight grain?
Both.

Flowing curves or geometric shapes?
Flowing curves are a big part of my work.

Favourite wood?
The more I work with wood, the more woods I like. Ebony is beautiful but it's too expensive and not environmentally sound.

Least favourite wood?
I don't have a least favourite wood. I couldn't say that about any wood. I even like 2x4s. There's beauty in them, too. Even pine can be great.



Ficus Table — Liapis spent some time in Yasuni National Park in Ecuador, and was inspired to make this piece on his return. The roots of the ficus tree are partially above ground, leading to the design of the base. The top sections have relief-carved leaves and figs.



Photos by Chris Pinchbeck (Lead Photo by Mickal Aranha)

Location & size of studio – Toronto, Ontario,
co-op wood studio with six makers

Education – Central Tech High School, Toronto;
Center for Furniture Craftsmanship (C.F.C.), Maine

quotes

I usually start around 10 a.m. and leave the shop around 10 p.m., but I'm fine with taking a long lunch break as well as a 5 p.m. break to recharge. The studio is my leisure time.



Taking woodworking at Central Tech High School was a changing point in my life. Until then I had no direction.



I'm an artist. I'm not going to go near small-batch furniture. I couldn't last a month making 25 of the same tables.



I've developed the "Jaguar" collection, with a number of different pieces in that style.



I often sketch for an hour in the morning while listening to music while I drink some coffee. I also like to dance if nobody is there. I have a weird routine. I'm not your average furniture maker.



I've been inspired more by art than woodworking and furniture.



A shape or idea sometimes comes to me first, then I turn that into a design I can work with.

I usually have an idea in my sketchbook for years before it gets made. It's only as I'm going about my life that I can fine-tune an idea. There's a lot of mental energy that goes into the idea, and how I turn the idea into a design.



My "Ficus Table" was inspired by a trip to the Amazon. The roots of that tree are largely above ground.



Adrian Ferrazzutti has made some great pieces. I really love his cabinet titled "Secretary of State." Michael Fortune's technical skills are incredible. Reed Hansuld is a good friend of mine and a great artist.



I'm working on a "poster" about Dennis Rodman right now. It's a huge challenge for me.



My "Roots" chair is one of my pieces I'm most proud of. It really pushed my boundaries as a furniture maker.



With the "Roots" chair I drew one back leg. I then developed the rest of it through sketches and mockups. It all started from the back leg.



Jaguar Credenza – Also inspired by his time in Ecuador, where jaguars inhabit, this credenza has ebony and European walnut marquetry. Liapis has made a number of pieces in this collection.

I love the design aspect, but shaping wood with hand planes, spokeshaves, chisels and rasps is great.



I love the idea of a bowl. I like tackling folk art and making it contemporary. I think a huge part of humanity wants to make a bowl. I called mine "Seeds by Sol." To make it I built a plywood form with a spinning piece in the middle that helped me lay out each cedar "seed" at 137.5° to the previous seed, just like the seeds of a sunflower.



I enjoy life so much because of my work. It's all worth it.



Listening to music, being in that rhythm and losing yourself in the shaping process with hand tools is the best part of woodworking.



Yuri Kobayashi is the best woodworker I've ever seen in my life. She's a legendary character and maker who helps people so much. She guided me while I was designing the "Ficus Table," and I was very grateful she did.



When I went to C.F.C. I didn't need the technical skills. I wanted to figure out who I was as a woodworker and artist.



ROB BROWN

rbrown@
canadianwoodworking.com



Go Online for More

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

RELATED ARTICLES: Adrian Ferrazzutti (Apr/May 2015), Reed Hansuld (Dec/Jan 2014)

An Arbutiful Life:

Camosun Fine Furniture Grads Exhibit Year-end Project

Photos by Allan Shook, Camosun College

In the past year, 15 Camosun students graduated with a certificate in fine furniture and joinery. To celebrate, they showcased their final projects in a public exhibit entitled “An Arbutiful Life: Seating in Arbutus and Garry Oak” at the Arts Centre at Cedar Hill Recreation Centre, in Victoria, B.C.

BY ROB BROWN

“Our students have shown a lot of commitment,” says Camosun Fine Furniture instructor Sandra Carr. “They successfully completed their certificate program on campus during the pandemic and turned out some outstanding work.”

For over 34 years Camosun’s Fine Furniture program has been at the forefront of Vancouver Island’s woodworking and furniture-making industry. “2020 was the only year in the three decades of our program that an exhibition had not been held,” she explains. “We were excited to be able to showcase their talents in 2021. This capstone project

allowed students to push their skills in the areas of furniture design, construction and finishing. The exhibition promoted the fact that high quality, well-designed furniture is being made right here in Victoria out of our local wood resources.”

The students designed and crafted a variety of seating out of reclaimed arbutus and Garry oak wood supplied by the Vancouver Island Woodworker’s Guild wood recovery program.

The main focus of Camosun’s Fine Furniture student exhibition was seating, with a selection of other student works also on display for the public to enjoy.



Fergus Hudson
“Z Lounger”
Arbutus, bloodwood

Kenneth Anthony Makichuh
“Enid #1”
Arbutus, gumwood



Kurtis Watters
“Diamanten in Blau”
Arbutus, nylon static rope





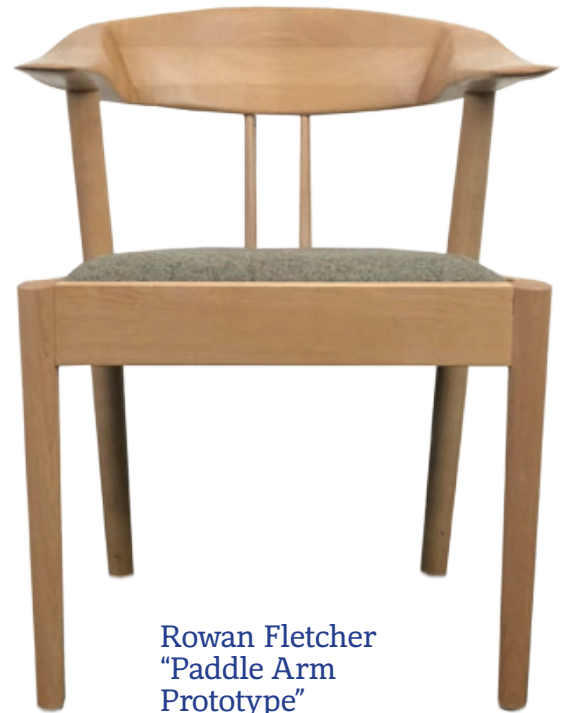
Quinn Androsoff
"Porch Dweller"
Garry oak, elm, walnut



Willem Sims
"Madrona Lounge Chair"
Arbutus, brass, cotton cord



Myles Miller
"Stige Lounge Chair"
Arbutus, fibre rush



Rowan Fletcher
"Paddle Arm
Prototype"
Arbutus, wool upholstery
(Photo by Rowan Fletcher)

Nathan Lynn
"MacCumhail's Chair"
Arbutus, rattan



Meaghan Kusk
"Nuna"
Arbutus





Ben King-Eagles
"Ambition"
Arbutus, jatoba, wenge



Claire Hodge
"Leo"
Arbutus, yellow cedar,
plexiglass, LED lights



Alexander Finch
Harper
"Curse of the
Curves"
Garry oak, ash, brass rod



Emily Wilson
"YYJ Chair"
Arbutus, Baltic birch,
yoga mat



Erin Winchur
"Arbutus 2.0"
Arbutus, bending
plywood, mahogany
veneer

Gerlinde Weimer-Stuckmann
"Schnitzelpferd" (Slow Motion)
Western maple



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Medullary Rays

One of the most common characteristics of the Arts and Crafts Movement is the strong visual of medullary rays in white oak. Learn what medullary rays are and how you can make the most of their striking look to create eye-catching furniture.

BY PETER MAC SWEEN

The Arts and Crafts Movement emerged in England during the mid 1800s. It was built on a philosophy that opposed industrialization and emphasized the importance of craftsmanship. These principles soon reached North America where famed furniture maker Gustav Stickley and others built on the Arts and Crafts style by adding a unique North American perspective called Mission Style.

Furniture crafted from these concepts emphasized simple rectilinear designs. The mortice and tenon joint was a prominent feature and it was often exposed to show the skill of the craftsman. The use of exotic woods with fancy figures and other visual ornamentation was discouraged. Arts and Crafts makers wanted to construct simple, well-made furniture for all people.

White oak was the wood of choice for the Arts and Crafts movement, both here and abroad. It was locally available, strong and

sturdy. When quarter sawn, vertical grain is revealed, which complemented the linear design elements. Quartered white oak lumber also shows the silver flake figure. This figure, which is found in all white oak trees, added an interesting visual character on the lumber faces.

What are the specific structural features of the white oak that visually influenced the Arts and Crafts Movement?

Quarter sawn material

The flake figure is always present in the wood of the white oak. It is only revealed by the maker when the wood is cut or sliced on the quarter. This makes the figure a consistent part of the beauty of the wood and also reveals the work of the craftsmen which fits the Arts and Crafts philosophy.

The flake figure is produced by the medullary rays of the tree. The medullary rays are made up of specialized cells organized in a radial direction from the pith of the tree to its circumference similar

to spokes on a wheel. Functionally, they serve the tree by moving nutrients between growth rings. They also store sugars for the tree in the winter months.

Medullary cells are present in all trees. In the softwoods they are microscopic, not seen by the unaided eye. In the hardwoods they show a wide diversity in size. The rays in basswood are very small and are inconsequential visually. Ray cells are often stacked vertically and can form large bands of tissue in the wood. These cells are largest in the white oaks where they can reach 4" in height.

Since the medullary rays are orientated radially, they are fully exposed when quarter cut or sliced. The size of the medullary rays is maximized in this orientation with the growth rings perpendicular to the sawn or sliced face. As we move away from 90°, the rays will progressively change in shape and get smaller in size. When we reach the flat sawn or tangential surface, the medullary rays present as small, thin greyish vertical lines.

While white oak was the choice for the Arts and Crafts makers, there are other species with outstanding medullary rays. Those of the Australian lacewood produce the namesake lace-like pattern of small "buttons." This figure shows best with material cut slightly off of 90°. Leopardwood from South America shows a similar pattern.

There are some notable North American species as well. Domestic sycamore, when quartered, produces a ray figure that reminds me of snakeskin. Quartered hard maple has small medullary rays, but when they are grouped together they can result in a metallic shimmer. Similar figure appears in quartered black cherry and quartered beech.

Working with medullary rays

I can't emphasize enough the importance of taking your time when selecting quartered material for ray flake. Examining the end grain will allow you to pick the boards that are sawn the closest to 90°. Most mills call everything sawed with growth rings between 60° and 90° from the face quartered. As a result, you will be presented with a wide range of flake sizes to choose from. Check both ends of the board. Trees rarely grow straight, and the ray pattern can change from one end to the other.

Quartered woods are small in size. Chances are that at some point you will have to glue up several boards to make up a larger piece. Most lumber dealers will have a mixture of boards from different trees, and they will have a different colouration. Bring a block plane to allow you to assess the colour of a board by planing off some of the board's rough surface.

Medullary rays also affect how lumber dries. The rays inhibit the



Red Oak End Grain – You can see the long, more pronounced rays in the end grain of this piece of 8/4 red oak. Red oak has pronounced rays, but white oak's rays are wider and more pronounced, especially when the face grain is viewed. Notice how only one face of this board will showcase the rays, as the other face is too far from being perfectly quarter cut.



Leopardwood – One of the most pronounced ray presentations in the world can be found in leopardwood. It provides a very strong visual when cut and used carefully. This sample is veneer, which is usually cut from the best quality trees. (Photo by Ella Mac Sween)

shrinkage of the wood and also act as planes of weakness. Quarter sawn woods can show internal honeycombing as a result during the drying process. Quarter sawn wood also dries more slowly and less predictably than flat sawn material. Combine the two and a stack of quarter sawn material will have a fair bit of warped wood. Choose your lumber carefully to avoid a high waste factor.

shopnotes

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One face per board

Since the rays are a radial phenomenon, the ray flake will show up only on opposite faces of a board. If you want to see flake on all four sides of a chair leg, for example, you will have to get creative. One method is to glue veneer on the edges which show little flake. You could also mill up four pieces and glue them up using a lock miter joint. Check out Issue 130 of *CW&HI* for some tips and ideas regarding the use of lock miters.

The best examples of flake figure will show up in veneer. Veneer logs are of a higher quality than saw logs, so the veneer mills start with an advantage. The process by which veneer is manufactured allows us to precisely control the angle the log is sliced at. Quartered veneer is as close to 90° from the growth rings as you can get. While not common in the Arts and Crafts movement, veneering is an appropriate technique when working large surfaces.

Bookmatching can be a challenge when dealing with flake. While ribbons of flake can be large, they are also thin. If you are resawing to bookmatch, you can easily lose some flake in the kerf of the saw cut. All is not lost, though. The basic vertical grain of the background will be there. Just be prepared to see flakes popping into and out of view on either side of the bookmatch.

Choosing a finish

Since the flakes present as a slight depression on the surface, they will have to be filled if you want a glass-like surface. However, the filler can obscure the flake, giving it a plastic-like look. I agree with the approach taken by the original Arts and Crafts makers. A stain



Rays in Maple – This radial face of maple shows small rays. Although the rays in maple aren't as visible as in oak, they provide an almost shiny look.

to emphasize the rays followed by either an oil or very light film finish is a good approach to follow.

Working with ray figure should not only be considered an exercise in reviving the Arts and Crafts movement. Ray figure can visually enhance many contemporary furniture pieces, as well. One of the legacies of the Arts and Crafts movement is to respect the materials you work with. Learning the techniques of working with what the wood gives you will help make your woodworking journey an even more enjoyable one.

PETER MAC SWEEN
pmacsween56@gmail.com



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Build a Step Stool

This step stool can be used for many different everyday tasks. If you're thinking of buying a step stool, why not build one that's durable and looks awesome? It can be a fun family project, especially for kids.

Photos by Evan Illustration by Len Churchill

BY EVAN

The dimensions I used for this stool are 11" × 11" × 9" high. Once you decide on the measurements, you'll need to pick your wood. I suggest using a hardwood like walnut, oak, cherry or maple. Using a soft wood, such as pine, will show wear with use, but as long as your joinery is well made it will stay together for a long time. For my stool, I used scrap walnut pieces, but if you're buying wood, I suggest buying a piece of lumber that's 72" × 6" × 1". I always buy a little more than I need, just in case mistakes are made.

During the design phase, work out details like joinery, whether the stool will be painted or stained and any other things you would like to do to make it your own. Once you figure out your plan, now you can begin the fun stage of building.

Breakout

I suggest starting with the top part first because if you're gluing two pieces together, like I did, you'll want to let the glue dry overnight while you work on the base. Keep in mind that if you use wood that's not milled, you'll likely need to use a jointer, planer and bandsaw or table saw to square up the lumber.

For the top part of the stool, I cut two pieces of wood, roughly 12" × 5 1/2", and glued them together using clamps, wood glue and two dowels to make sure the two pieces didn't shift in the clamps while drying. Using dowels isn't necessary for strength, but it will assist with alignment. I also alternated the end grain to keep the top of the stool flat over the long-term. I then set



Mill It Flat – A jointer is a great way to flatten one face of a piece of rough lumber before planing it to thickness and machining further joinery.



Glue Up the Top – With the boards that make up the top milled to rough size, glue and clamp the edges together and let the assembly dry overnight.

the clamped-up top aside to dry overnight.

For the stretchers that make up most of the base, I cut two 6-7/8" pieces on my miter saw with a stop block to make sure the two pieces were the same length. If you don't have a miter saw, a hand saw will work. Once complete, rip these two pieces into eight separate pieces, each 1-1/4" wide. These eight pieces will become the stretchers for the base. For the legs, I cut four separate 1-5/8" square pieces to 8" long using my miter saw with the stop block. For both the stretchers and legs, it's also an option to rip a longer length to width, then cut the parts from that blank. It's sometimes easier to rip one long length as opposed to many short lengths of wood. After all the pieces for the base are cut to size, ensure that they line up with your plan and there are no mistakes.

Joinery

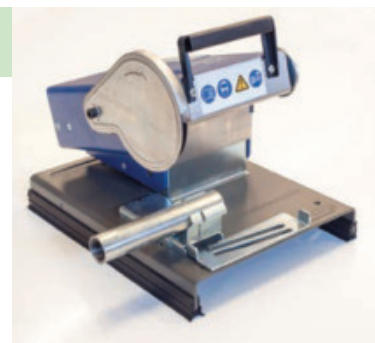
I marked each piece so I knew what face was out and up, and also where the dowels would be placed. I used 5/16" diameter dowels for this project, but 3/8" would be even stronger. Dowels only 1/4" in diameter would be on the weak side. I located the dowels towards the front face of each stretcher and leg so they wouldn't interfere with the dowels in the other face of each leg.

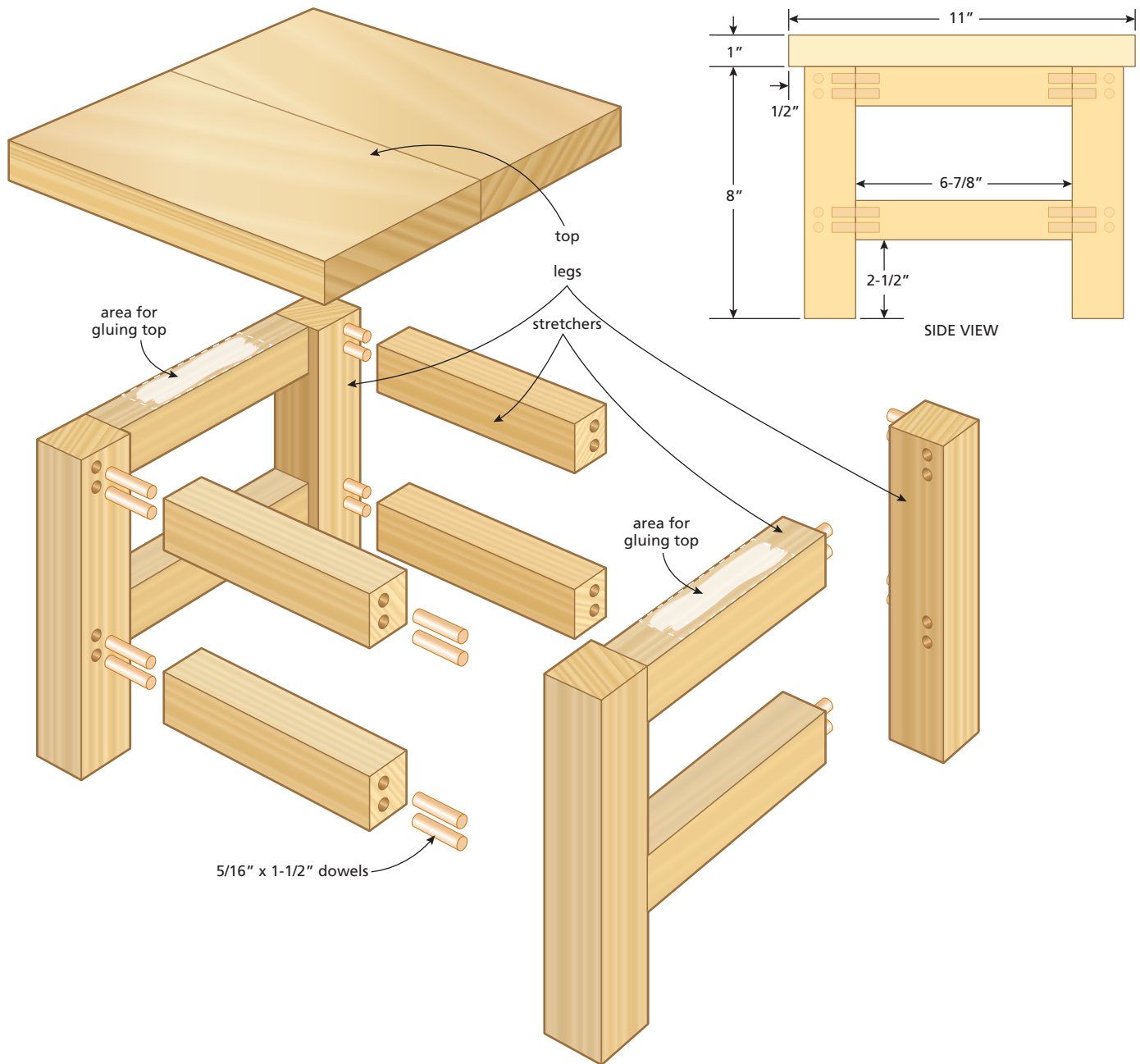
Adding dowels was the most time-consuming part of this build. In addition to adding strength, dowels also make gluing the base together easier, as they help locate each joint during assembly. There are many different ways you can join the base together. Using dowels is just one cost-effective option.

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Materials List

Part	Qty	T	W	L	Material
Top	1	11	11	1	Black Walnut
Legs	4	1-5/8	1-5/8	8	Black Walnut
Stretchers	8	1-1/4	1-1/4	6-7/8	Black Walnut



A Helping Hand – A dowel jig will improve accuracy and speed the process when drilling holes for the dowels that will keep the stool together for years to come.



One Big Assembly – Evan glued the entire base up at one time, though it's also possible to glue the base up in assemblies to make the process less stressful.



Sand It Smooth – Power sanders work great for large, flat surfaces, though at some point hand sanding will have to be used.

I used a dowel jig to help me carefully locate and drill all the holes for the dowels. It speeds the process and improves accuracy. Dowel centers can be used, but it's hard to accurately drill a hole into end grain when using dowel centers. Since the holes all need to be drilled accurately, I wouldn't recommend this approach.

Sand the base parts

To prepare for assembly, sand each piece of the base before gluing and clamping them together. I suggest sanding each piece to 150 grit, though that decision is up to you. Start with low grit sandpaper like 60 or 80 and work your way up to achieve the desired smoothness. As always, sand with the grain.

Assembly

A base like this which has many parts can be glued up in stages or all at once. Gluing it up in stages is easier and less stressful, but takes longer. To glue the base in stages, you can glue up a pair of legs between two stretchers first and repeat that same process for the other two legs. Next, when those two assemblies are dry, bring them together with the final four stretchers between them.

When gluing together the parts of the base, don't be shy with the number of clamps you use. For example, for my stool I used eight clamps, as I glued all the base parts up at once. If you glue the base up in stages, you'll need to use two clamps for the first two glue-ups, though four clamps will be needed for the final glue-up.

Once you apply the glue to the dowels and the dowel holes and the clamps are applied, check to make sure all the joints are square. This is true whether you're gluing the base up in stages or all at once. This is a very important step because you don't want a lop-sided stool. As with clamping the top part, you'll want to leave the legs to dry overnight in the clamps.

Once dried and removed from the clamps, remove any glue that has squeezed out with a chisel and some sandpaper.

Route a round-over

For my stool, I applied a 3/8" round-over on all exterior edges of the base using a router table, followed by sanding them by hand. Although a router table makes it easier to machine the round-over, it's possible to do this step safely with a hand-held router if you have a steady hand and are comfortable with using a router.

Incorporating a round-over isn't a necessary step, but it does add a little extra style to the stool. Install the bit in your router or router table and ease all the edges. Moving too slowly will cause the bit to burn the wood. Moving too quickly may cause tear-out. If this operation is new to you, practice on a piece of scrap first.

Return to the top

Once the base is complete, go back to working on the top part of the stool. Cut the top part to its final size, which is 11" x 11", using either a miter saw, table saw or hand saw. Once complete, you can machine a 3/8" round-over to the edges if you want to, followed by sanding, using the same process as for the base.

Finally, I glued the top part to the base, leaving a 1/2" overhang on each side. Solid wood moves with the changing seasons, swelling in the summer and shrinking in the winter. These forces are strong, yet mainly affect the width of a piece of wood. The length (the dimension parallel to the grain) is virtually unaffected by the changing seasons. If the top gets glued to all four upper base stretchers, seasonal movement could possibly cause the stool's joints to become loose and weak.

To counteract this, yet still keep the top fixed to the base, there are two options. L-bracket hardware can be used to secure the top to the base, or you can apply glue just to the center 4" or so of two opposing stretchers, towards the end grain of the top. This is the approach I used. This will allow the width of the top to expand and contract, yet keep it anchored in place for years to come.

Once you glue and clamp the stool together, leave it to dry overnight.



Apply a Finish – A finish will both enhance the look of the stool and protect it from wear down the road. Evan hand-applied a penetrating oil finish to his stool, but there are many options when it comes to the approach you could use.

Finishing

Applying the finish is my favourite part. Before applying the finish of your choice, make sure there's no dust on the stool. There are different ways to remove dust. You can use a tack cloth, paper towel, air compressor or vacuum. You can then apply your finish. I recommend using an all-natural oil finish because you may have young children or pets that lick or chew the stool. These types of finishes are often called penetrating oil finishes. Apply at least one coat of finish, though more will give the stool's surface added durability. Wipe the finish on with a rag, making sure to evenly apply the finish to all the parts.

Oil-soaked rags can spontaneously combust, catching fire if left to dry in a tight ball. After you apply a coat of oil finish, lay the rag flat on the floor to dry for a few days, away from anything else combustible.

The final step is to attach rubber feet to the bottom of the legs. This ensures the stool doesn't scratch the floor and, more importantly, will prevent the stool from slipping when it's used.

Evan is a 13-year-old woodworker from Toronto. He started his business when he was 10 years old and donates a portion of each of his sales to SickKids Foundation. When he's not busy in school or in the shop, he loves to go to camp.



EVAN

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Turn a LIDDED CHALICE

A lidded chalice is an interesting switch in the production of vessels on a woodturning lathe. It expands the process of hollowing, as well as lid fitting. It also allows a box to be made with a decorative finial.



Photos by Allan Cusworth

I've always been interested in turning lidded vessels. Over the past few years I've turned a lot of goblets, other lidded bowls and boxes with many types of decorative elements incorporated into their design. A lidded chalice on a pedestal with a decorative finial adorning the top presents some unique design opportunities.

Uses for a lidded chalice can be quite varied – holding jewelry, other trinkets, or even nuts or candies for the coffee table. The choice is up to you.

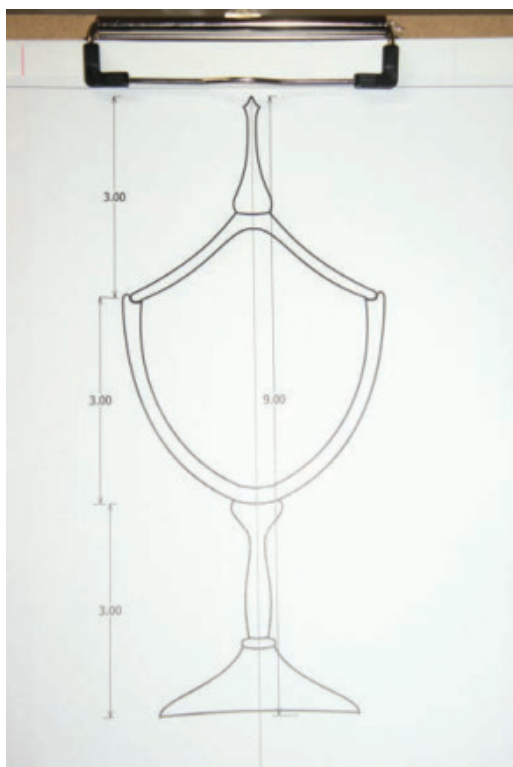
This is a good project to help expand your woodturning skills and creativity. However, I do suggest that basic turning skills and intermediate turning experience are required.

Design

My first step was to sketch out what I wanted to create. It's a lot easier to make design changes with an eraser than with a chisel. I used the Creative Woodturner computer program from Britain (creative-woodturner.com) to help me with this, but it can easily be done by hand as well.

To make the design more appealing, I used the "Golden Ratio," or "Rule of Thirds" concept to create most of the dimensions for my chalice. Describing these concepts is beyond the scope of this article, but there's a lot of information on the internet on this topic. Suffice it to say that dividing overall dimensions into three similar sections has been pleasing to the human eye for centuries.

I created several drawings before settling on one for my basic design. This is a concept picture only; the design details will be developed as the project is made. I may even make some design changes as I proceed. The size of the finished chalice will be about 4" in diameter and about 9" tall.



Sketch It Out –

A drawing will help work out proportions and details before you start to turn the chalice. Cusworth used the "Rule of Thirds" to work out the overall proportions.



Divide It Up – With the stock turned round, Cusworth marked where the three main segments would be located.



Cut the Top Off – Here, Cusworth parts off the lidded section and sets it aside while he focuses on the main cup and base sections.

Set up

Select a stable piece of dry hardwood for this project. If green or wet wood is used, it will be difficult to fit the lid since the wood will be changing shape as it dries when you turn it. I chose a billet of dry British Columbia big leaf maple a little larger than 4" square by 10" long, but you can use any species of hardwood.

I squared up the ends of the block on the bandsaw, then located and dimpled the centers of the ends.

Basic shaping

It's a good idea to check the grain direction, wood colour and any features in the piece to decide which end of the block will be the top of the chalice. Mount the block between centers with the top end facing the headstock. I used a multi-prong drive center in the headstock and a live center in the tailstock. Round the block to 4" in diameter.

Turn a tenon at the tailstock end of the block to fit a scroll chuck with the largest set of jaws possible. Be aware that some scroll chucks require a beveled tenon and others require a straight one. Make sure you know which type of tenon your chuck uses and cut this one accordingly. Using large jaws will help in securing the strongest grip on the block when turning it later. I used 100mm (4") jaws in my SuperNova2 chuck.

Reverse the block and mount it in the scroll chuck and tighten firmly.

Measure and mark the three major sections of the chalice: 1) top (lid); 2) body (cup); and 3) stem (base). This is where the "Golden Ratio" or "Rule of Thirds" concept is used.



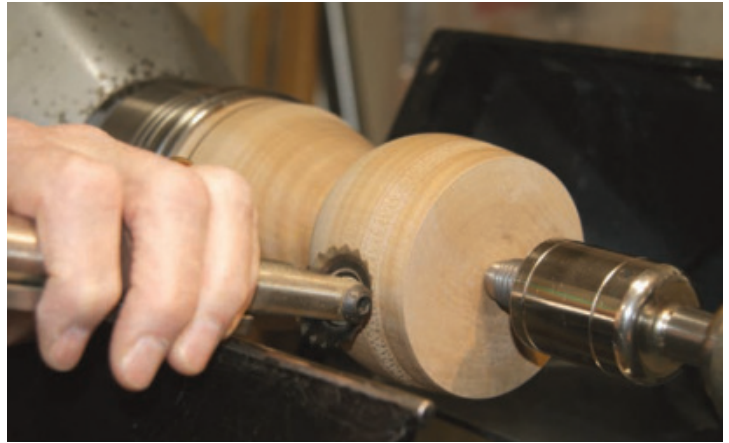
Start Shaping – Working from the drawing, shape the outside of the chalice. You don't need to add all the details yet.

Turn a tenon to fit your chuck on the tailstock end of the block. This will be used to mount the piece to make the lid section later. I used smaller jaws for this section since this is a smaller piece. The same jaws as used for the body section will also work. Part off the top section and set it aside.

Shaping the body

Bring the tailstock with a live center up to support the blank and start to form the outside shape of the chalice. This will help to visualize a line for hollowing the inside of the cup. Leave a lot of wood where the stem/base starts in order to support the cup while hollowing in the next step. If you want to add any details to the outside of the cup, it must be done before you hollow it out to prevent the cup walls from flexing from the pressure of a texturing tool.

I decided to add a 3/8" wide textured band about 1/2" below the rim. I measured and marked the location of the edge rings and grooved them with my skew. The texturing was done with my Sorby texturing tool. I used an alcohol-based brown dye to color the textured band. In order to prevent the dye from penetrating the adjoining edges of the grooves I burned the grooves with a burning tool that I made from piece of guitar string and two



Add Texture – Though there are lots of options for adding texture to turnings, Cusworth used his Sorby texturing tool to create a textured band around this chalice.

pieces of dowel. This process seals the pores of the wood and the dye didn't migrate. I then proceeded to dye the band with a small artist's paint brush.

Forming the inside of the cup and lip

The area for the lid is designed so the chalice can be used with one hand. The edge of the cup has a 1/4" ledge/lip on the inside, and the lid will be made with a lift-off fit. I cut the lip very carefully with a 3/8" Bedan tool and finished it with a 3/4" skew on its side. I didn't want to sand it because that would distort the edges and cause the lip to fit poorly.

Hollow the inside of the cup. I used a 5/8" diameter bowl gouge to rough it out and a 3/4" reverse rake scraper to smooth the surface.

Sand the inside of the cup through the grits from 80 to 400 grit. I finished the inside of the cup with food-safe Tried and True Original Finish, which is a mixture of beeswax and boiled linseed oil that penetrates the wood and cures. I selected this finish in case the chalice is used for edible items. If you choose to use a film finish like polyurethane, you may want to finish the chalice off the lathe when the project is completed.



Burn a Barrier – In order to define the edges of the textured band and keep the brown dye from migrating beyond the border, Cusworth used a homemade burning tool – a guitar string and two dowels.



Hollow the Inside – Cusworth used a 5/8" diameter bowl gouge to rough out the cup cavity and a 3/4" reverse rake scraper to leave a smooth surface.



Finish the Inside – While the chalice is still on the lathe, apply a finish to the inside of the cup.

Forming the outside of the cup, the stem and the base

Since the inside has been finished, the top edge has to be protected while turning it. I attached a large cone to the live center in the tailstock, made a pad of paper towel to cover the surface of the cone to reduce the chance of marring the edge of the cup lip and brought the cone up to support the chalice for the next step.

Shape the outside of the cup while checking the wall thickness with calipers. Shape the decorative beads and coves of the stem area. Sand and finish the outside surfaces the same way as the inside of the cup. Remove the chalice from the chuck and set it aside.

Making the lid

Mount the lid section in the chuck. Orient the bottom of the lid towards the tailstock. True up the face of the blank.

The inside dimension of the chalice lip needs to be transferred to the base of the lid blank. Using a pair of dividers, measure that



Shape the Outside – Fine tune the outside shape of the cup and add details through the stem area.



A Nice Finish – Apply a finish to the outside of the cup and stem area while the chalice is still on the lathe.

dimension and open the dividers a little larger so there will be some wood to make the fitting cuts later. Transfer this measurement by placing a tool rest on center near the face of the blank. With the lathe turning very slowly, (100 rpm), touch the left point only on



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Measure Carefully – Though the finished lid rim will fit inside the lip on the chalice, it's best to start on the large side and take light cuts to fit the lid perfectly.



Transfer to the Lid – Take the dimension on the calipers and mark it on the underside of the lid. Be very careful to keep the point on the right-hand side, away from the turning lid.



Turned and Finished – The lid is now turned to final diameter and a finish has been added to the underside of the lid.

the blank and watch where the right point comes close to the groove made. Don't let the right point touch the wood or you will get a real surprise. I like to darken the groove with a pencil.

Measure the depth of the inside of the lip of the chalice and mark that dimension on the edge surface of the lid blank. At that mark, cut away the corner to create a flange that will fit into the top of the chalice. To fit the lid, use a skew flat on its side to creep up on the fit. Use the chalice to frequently check to make sure you do not overshoot. This is when you choose the type of fit you want.

Hollow the inside of the lid with a bowl gouge. Add any decorative beads, coves or other elements as desired. Form the top surface of the lid, leaving a lot of extra wood in the finial area. The finial will be formed later. Sand and finish the inside of the lid as before. Remove the lid from the lathe and set it aside.

Making the finial

To reverse the lid blank on the lathe, make a jam chuck from a piece of scrap and fit it tightly to the inside of the lid flange. Mount the lid on the jam chuck and bring the tailstock/live center up for support.

Form the finial with the design elements as desired. Sand and finish the outside of the lid and finial as before. Remove the lid from the jam chuck and set it aside.

Complete the bottom of the body

Rework the jam chuck or make a new one to fit the opening in the chalice cup. Mount the chalice onto the jam chuck and bring the tailstock/live center up for support. Remove the waste wood and tenon from the bottom using light cuts and form a slightly

Almost There – With the rim of the lid almost turned to size, you can bring the chalice to mate with the lid to check sizing.



Shape the Finial – A jam chuck will allow you to attach your lid to the lathe so you can turn the finial.



Finish the Base – A second jam chuck will help you turn the base of the chalice to its final size and shape.

concave surface on the bottom of the base so it won't rock on the table. Add any decorative rings, etc. as desired. The little nubbin left at the center will be removed later. Sand the base as before; add any decorative details as desired. I like to make three rings on the bottom and sign the creation.

Finish the base as before. Remove the chalice from the jam chuck and slice the little nubbin off with a sharp knife. Hand sand that area and add a little finish for the final touch.



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WAVE-EDGE CEDAR DECK



Make some waves: Add beautiful curves and solid craftsmanship to a backyard deck that you'll enjoy with family and friends for decades to come.

BY CHRISTIAN JENSEN

After living in our house for two summers we realized that most of the yard, while quite beautiful, really wasn't being used; not an uncommon situation. We had a solid concrete patio and a basic dining set, but it just wasn't too inviting. In rethinking the space, the main things we desired were: 1) a permanent social fire pit; 2) a dining area with umbrella; and 3) an area for lounging.

Design

The basic design of the deck we decided on was the product of style and necessity. If the deck edge was straight, either the fire pit or the dining area wouldn't have been workable. Perhaps angled corners might have worked, but that aesthetic wasn't right for the space. However, by using a "three circles" approach, the deck would harmonize spatially, not only with a circular fire pit and round dining table, but also with a curving path to the garage.

Material choices

While composite materials are nothing short of miraculous in many ways, natural products offer a different attraction, and there are fewer common woods more beautiful and appropriate for outdoor use than cedar. Regardless, standard treated lumber wasn't an option for the wave edge we wanted due to its unsuitability to being planed or significantly sanded. With the house and garage being vinyl sided, cedar would give a warm organic contrast that would be worth the few hours of re-staining every few years. The structure of the deck, of course, uses standard treated lumber, deck blocks and ties. The focus of this article is the curved front edge of the deck.

The plans

Being a graphic designer, I have the Adobe suite of software, and I used Adobe Illustrator to draw up the plans for this project, although there are a number of other software options that people could utilize. I always use a computer for even the smallest projects as it takes out all the guesswork and allows me to factor in every possible consideration down to the millimetre. This project, being very geometrical and large, lends itself to accuracy from the start. This software, in combination with Microsoft Excel, was also invaluable in compiling a materials' list.

The build

The first step of the build was to prepare the yard. We removed the topsoil from the entire area to accommodate the gravel for the fire pit and provide space beneath the joists. This is essentially a "floating deck," so its primary structure is deck blocks, 2×8 beams and 2×6 joists; pretty basic.

The next step was trenching a recess for the blocks and beams. After the beams were positioned and levelled, they were temporarily removed from the blocks, and landscape fabric was installed on the entire area and gravel brought in. The gravel application was approximately 3" to 4" deep in the fire pit area, and approximately 1" under the deck as best practices dictate.

Once the beams were replaced, the joists were then installed with extra length being left at the wave edge to be trimmed to fit later. Because there was no traditional end joist, secondary concrete blocking was placed under every second joist at the wave edge. One important thing about a project like this is don't even think about doing it without an impact driver, preferably a decent one. They drive and remove screws far better than your drill, weigh much less and clip to your belt with ease.

Planning the wave edge

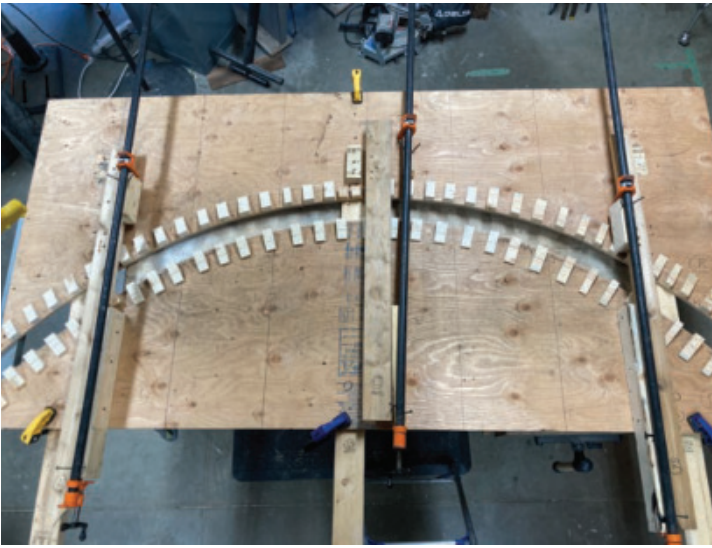
It was far more efficient to use a single curved form for the three sections required for the curved edge. To plan this out required much experimentation by trying out various sizes and radius options that would suit the functional requirements and join smoothly. Once the right combination was found, it was transferred to a 3/4" sheet of plywood and the curved-edge lamination form was made.

Fabricating the wave edge

The final wave edge uses three sections of curve. Each curved section measures 3-1/2" × 1-3/8" × 10' before being trimmed. The 3-1/2" width of the sections are made from 1/2" thick laminated strips that were ripped from clear cedar 2×4 stock. It's important to note that clear cedar is not the same as the cedar deck boards; this is much more expensive, but the absence of knots really was mandatory for this wave edge. Each of the three sections was made from seven strips, so 21 were required in total. Taking into account the kerf, four 10' 2×4s were needed for the three final curved sections.

Making the curved-edge lamination form

With the curve specifications determined, the curved form needed to be built. The profile of the curve was drawn out on 3/4" plywood and cut out with a jigsaw. The waste removed from the area where the lamination would be clamped up was discarded. Because the final part would be 1-3/8" thick and the plywood was only 3/4" thick, supplemental edging blocks were added on both halves of the press every few inches or so. These were nailed and glued. Another option would be to glue two layers of plywood together to form the full thickness needed. The second layer of plywood could be flushed up with a flush trim router bit.



The Bending Form – A 4'x8' sheet of 3/4" thick plywood makes a good form. A few 6' long pipe clamps bring the two halves of the form together once the laminations are glued and inserted between the halves.

As the two halves of the press needed to be brought together with some force without bending, 2x4s were added as stiffeners and guides to keep the two halves in line. Three 6' bar clamps along with a few other smaller clamps were used to keep the two halves aligned where required.

Pre-bending the strips

Even though the individual strips used to laminate the wave edges would be only 1/2", I decided to do a pre-bend process so that there would be as minimal stress on the laminations as possible; this would also minimize spring back. I soaked the strips for 24 hours, then pressed them into the form without glue for another 24 hours. They would need to dry thoroughly so the moisture content would be low enough to not compromise the bond of the epoxy, but I needed to maintain the bend I had created so far.

To achieve this, I placed the strips across my garage door rails and strapped suitable weight to the middle so they would have the approximate bend needed, and they were left to dry. This could be done in tandem with work on the deck structure so the final parts would be ready when the joists were complete. Not a quick process, but critical for long-term success and ease of laminating.

There's a chance that soaking the laminations wasn't needed, which would have sped up the process a great deal. Although 1/2" thick softwood will bend somewhat easily, everyone has their preferences as to how to best bend wood.

Time to press the strips up

After the laminations were all pre-curved and dry enough, I moved on to the actual laminating. Each strip was first wiped with acetone (isopropyl alcohol could also be used) to remove oils from the surface. A respirator and gloves were used for this step. I also sanded the surfaces with some 80-grit sandpaper to give a slightly textured surface for the epoxy to better adhere to. West System slow-cure epoxy resin was applied, and the strips placed in the press.



Pre-Bend the Strips – In order to make the bending process go more smoothly, the laminations are clamped up in the form long enough to "pre-curve" them slightly. This stops the laminations from fighting against you when the epoxy is applied to the strips.

Once the bar clamps were tight, I looked for any gaps and tapped in shims where required. To prevent any potential damage due to epoxy being trapped under the shims, I cut some small pieces of thick poly to use as barriers. Epoxy is used to laminate the strips instead of traditional carpentry glue as it is perfectly suited to exterior carpentry. It's waterproof like Titebond III, but its gap-filling properties also mean it doesn't need a super-tight, cabinetry-level fit for a strong and permanent bond. In addition, the extended working time of the slow-cure resin (several hours depending on temperature) was very welcome and might well have been a critical factor to success. I sure didn't want to find out the hard way that carpentry glue had dried on the first boards before I could get all of the laminations in the press.

Go back outside

Once all three sections were laminated, they were taken out to the deck area to work out the final positions according to the plans. I thought it was best to do this before planing and sanding them, as it seemed a good bet that they would get inadvertently battered a bit in the positioning process, which turned out to be (most likely) a self-fulfilling prophecy.

The process of finishing the sections involved belt sanding the top and bottom to remove most of the epoxy to help prevent damage to the planer blades. A little elbow grease while going through the planer was required with the curved profile.



Cut to Length – With the epoxy dry, Jensen brought the three wave-edge laminations to the deck to mark where they would be trimmed to length.

From here, the two mid-deck butt joints were cut while the outside ends were left untrimmed for now. I added biscuits to the two mid-deck butt joints, mainly to assist with aligning the joints once I was eventually able to assemble and epoxy them. The final position of the edge nearest the house could now be marked on the joists.

Decking

Just a few notes on the decking as this portion of the project was fairly standard, with a couple of exceptions.

As with any deck, planking begins from the front and works toward the back of the deck so as to not wind up with thin strips of



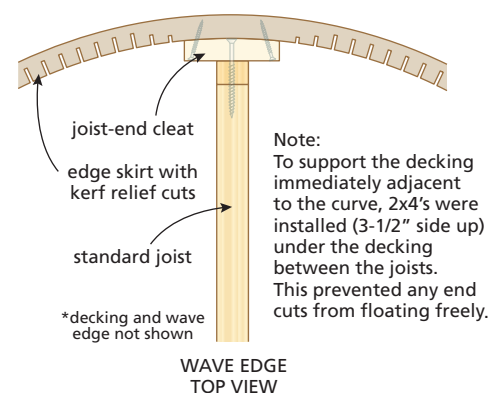
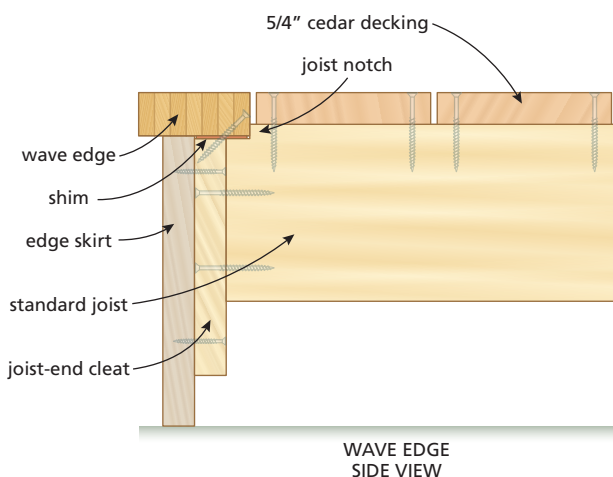
Notched Out
– The deck boards are thinner than the wave edge, so Jensen had to notch the joists to accept the wave edge. Since slight variations can occur between the joists, he cut the notches about 1/8" deeper than needed so a customized shim could be used to account for any variations.

decking at the front. Obviously, the same applies here, and I didn't want to wind up with, for example, a very narrow board adjacent to any point on the curved edge.

The solution was to take about half a dozen deck boards and some actual gap spacers that I would be using, then placing them tightly together to get a measurement. This "real-world" measurement would then allow me to have complete control over where the curve would have to end up to ensure the end planks were of suitable width. I was aiming for a minimum of 3" wide for the front-most board.

The reference datum for this measurement was decided as follows: I wanted the point on the wave edge nearest house to cut into a deck plank by about a third the width of the plank. The plank was placed as such and its position marked. It was this plank that all the others were referenced from, and the final positions of the left and right of the curves could now be manipulated to ensure the desired plank width.

It's for this reason that I was able to deck almost the entire surface and plank the front edge last. In the photos you can see how I've planked up to the last board before the datum board. All decking screws were pre-drilled and countersunk to give a clean appearance. This also reduced the risk of splinters and tear-outs.





Perfect Match – A few short pieces of lumber were all it took for Jensen to raise the wave edge directly upward, slide the deck boards underneath the wave edge and mark the curve on to the deck boards. Once the deck boards were cut, they matched the curve of the wave edge perfectly.

Trimming and notching the joists

With the curved profile marked, each joist was notched and trimmed at the marked angle. The notches and end cleats provide a solid bed and take the primary loads for the wave edge.

As variances can occur in joist height, and because the top of the curved edge needed to be very accurately aligned with the decking tops, I wanted to keep my options open. As a result, I cut the bottoms of the notches 1/8" deeper than required. This ensured I could precisely manage the variance with epoxy and a spacer. With a selection of different spacer thicknesses, it was simple to ensure accurate alignment of the future finished decking and the top surface of the wave edge by using a sample of the 5/4" decking for test fitting.

Scribing the wave edge onto the deck planks

I wasn't sure how I was going to cut all the deck edge pieces to cleanly match the edge curve without spending many days custom fitting all the pieces. The method I came up with was quite simple and very accurate. What I decided to do was raise the wave edge exactly vertically in place in order to slide the corresponding decking piece(s) underneath to enable an accurate profile transfer.

I created simple jigs that butted up against the wave edge, and were perfectly vertical. These were temporarily attached to selected joist end cleats. The wave edge, resting against the jig, could then



Overall Details – This view gives a good idea of the overall construction approach. Here, the wave edge is positioned and traced onto the deck boards below it without ending up with a deck board that is too narrow where the wave edge protrudes into it.

be raised vertically and clamped as required to the jig. Using a 1/8" spacer to represent the board gap, a quick pencil line was made, and that deck board was ready for the jigsaw and edge sand. These shaped edge planks were then numbered and set aside for installation after the wave edge was installed and secured.

Curved edge skirt

Like the wave edge, this portion is also made from three sections. Each section is 5/4" stock and, due to the sloping yard, ranges in depth from 8-1/2" to 12". The 5-1/4" wide boards were laminated with Titebond III. Once the sections were laminated and planed (face side only), kerf cuts were made on the back to accommodate dry bending. These were cut with a circular saw approximately every 1/2" keeping a minimum 3/16" away from the front face. These didn't need to be spaced carefully or perfectly straight; there would be plenty of opportunities ahead where obsession with perfection would actually pay dividends.

You'll notice there are spots where the skirt board has no kerfs. This is so screws can be driven into solid material near the ends of the joists. Note that approaching each solid area, the kerf depths are graduated, being made increasingly more shallow leading up to the solid area. This prevents the board from snapping from a sudden change from thick to thin.



Kerfs for Easy Bending – A series of kerfs cut into the rear faces of the skirt boards will allow them to bend to the required curve. The closer and deeper the kerfs, the more the board will bend and the weaker it will become.



Leave Some Solid Sections – Kerfs aren't added where the skirts meet with a joist, as the extra material is needed for securing each skirt. Also, Jensen cut fewer and shallower kerfs near the solid area to avoid a specific weak point in the skirt.

For attaching the skirt to the joists, I wanted to have a clean front face showing no fasteners. The joists don't contact the skirt, but rather they facilitate a cleat plate that, in turn, fastens to the skirt from behind. This format allows for hidden fastening with the screws (supported by epoxy) being driven into the skirt from the back. This cleat plate format is also required because where the skirt sections meet end-to-end, a substantial backer is required to fix both skirt boards. A joist-end alone would be insufficient.



Lots of Joint Options – Jensen used mitered half-lap joints with biscuits where the wave-edge corner joints met the straight trim pieces. Many other joints would also work here.



Holes for LED deck lights were then drilled and each section test fitted, particularly to be sure of ground clearance. Once installed and secured with screws and epoxy, I used Great Stuff Pro expanding foam underneath the skirt to keep the deeper gravel on the fire pit side from migrating under the skirt.

Completing the wave edge

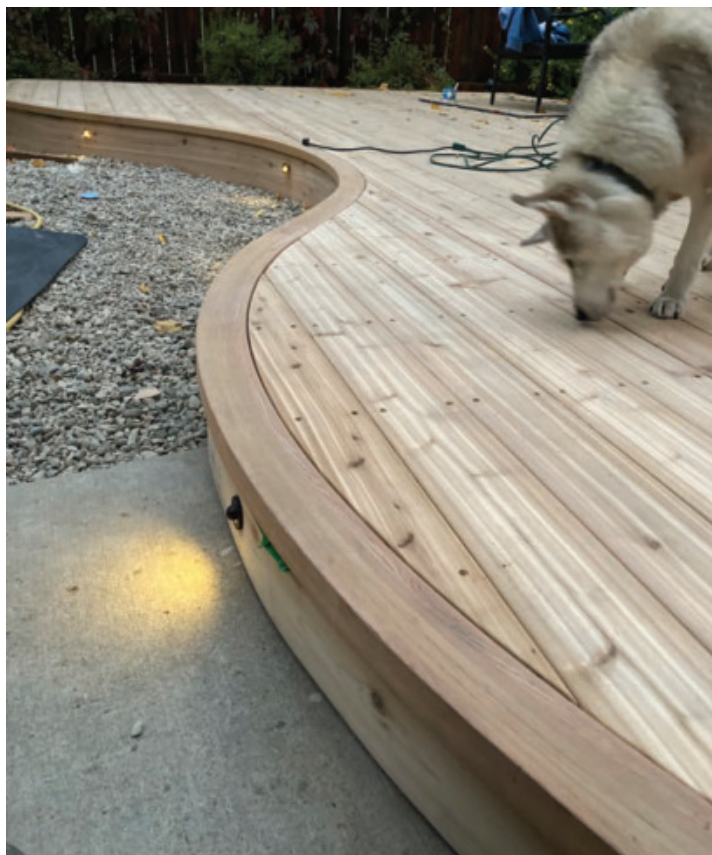
Once the edge deck planks were all cut and numbered, I was able to install the wave edge. With the wave edge position fixed, I marked where the left and right trims would be. I could have done a simple mitered butt joint for these, but I settled on an epoxied mitered half-lap with a biscuit for good measure.

I also wanted to use matching clear cedar for the straight edge sections, but due to its enormous cost, I was willing to put in some extra work to economize. The edge pieces only needed to be 1" thick to match the decking thickness. (Remember, the wave edge is 1-3/8", plus 1/8" spacer, and sits in a 1/2" notch in the joists). I ripped 2x4 clear cedar lumber in half, giving me two 5/8" x 3-1/2" pieces after a pass through the planer.

I then used Titebond III to laminate each of these to 3/8" x 1-1/2" spruce pieces to give me a final 1" x 3-1/2" edge piece. It wasn't a concern that the dissimilar lamination would be seen as the sides of the deck have no cosmetic considerations. These pieces were installed using 16-gauge 2" toenails and PL Premium Construction adhesive.

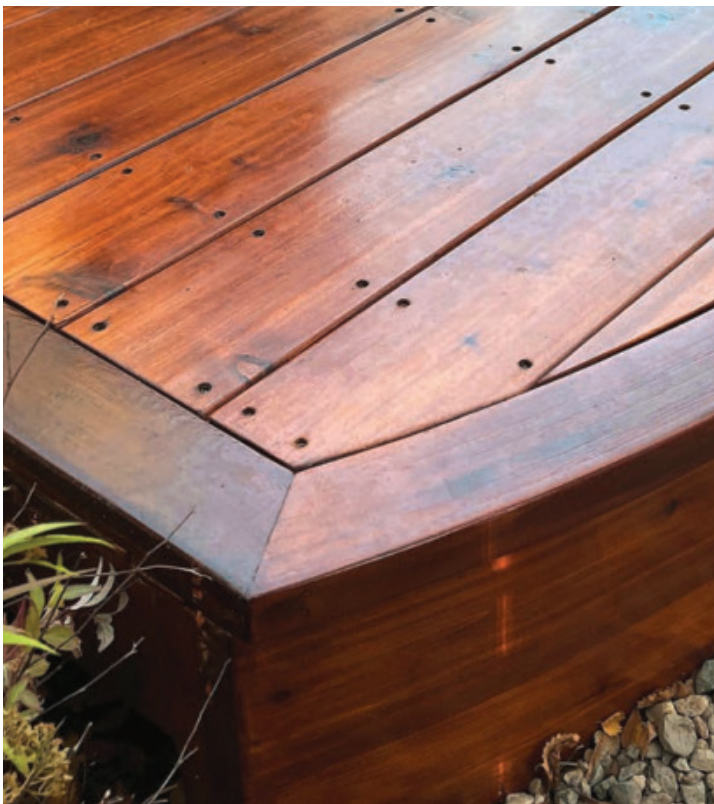


Almost There – Here, the deck boards have been installed from the datum board back towards the house and the skirt is fixed in place. Installing the wave edge and final deck boards are next.



Final Check – Though it's not installed yet, the wave edge fits perfectly. It will be toenailed through its 1-1/2" thick edge into the joists and epoxied in place shortly.

Light It Up – Before the rest of the deck boards were installed, Jensen drilled for and installed small lights.



All Finished – A stain was applied to the exposed parts. This will help protect the wood from UV rays, water and snow. Future applications of the finish will maintain the look of the deck.

With the edging now permanently in place, the last thing to do before completing the decking was to add blocking between the joists immediately adjacent to the wave edge. This was needed not only for extra lateral stiffening, but primarily as a bed for planking that terminated between joists. I then installed the remaining pre-shaped deck planks at the wave edge and finalized fitting.

Finishing

Before staining, any edges that hadn't received smoothing were dressed. I sanded the entire deck with 80 grit where required and then finished with 120 grit.

I applied two coats of stain by brush and after a week or so was enjoying a beer on our new deck.

Christian Jensen is a visual communications designer/fabricator in Saskatoon. Besides doing as much woodworking as possible, he has worked with steel, fibre-glass and foam. His design and communications portfolio can be seen at studiojensen.design.



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WAX FINISHES

Finish your finish with a wax topcoat for a soft luster and a silky-smooth feel.

BY CARL DUGUAY

Beeswax mixed with turpentine (to keep the wax from hardening) and perhaps with linseed oil (to enhance the wood grain) was a traditional wood finish used for eons. Over time other waxes such as carnauba (made from the leaves of a palm tree) and paraffin (made from saturated hydrocarbons) were added to the brew while linseed oil was replaced with boiled linseed oil (linseed oil to which dryers are added).

While modern film and penetrating oil finishes offer super protection and durability, wax finishes still have their use today both as a finish on bare wood or as a topcoat over any other finish. Wax finishes are best used on pieces that won't be exposed to excessive handling and wear, such as carvings, woodturnings, display cases, picture frames, shelving and other low-wear items.

As a finish or topcoat, wax reduces friction to give a wonderfully silky-smooth feel, enhances the sheen on wood surfaces (especially when buffed to a rich, glossy shine), helps hide fine scratch marks

and other minor imperfections, makes dusting furniture easier, and adds some protection against moisture. You can even mildly alter the hue of wood by using a coloured wax.

The major drawback to wax is that it isn't durable and requires regular (at least annual) maintenance.

Easy going

Wax is the easiest finish to apply. Basically, you wipe it on (sparingly), have a coffee, and then buff it off. The key is to apply sparingly. You want to use a little dab each time rather than plopping down a gob and spreading it around. Typically, you'll let the wax dry between 10 and 15 minutes then buff with a clean cloth or even a high-speed buffer like the King Canada 8369N (kingcanada.com). If you choose to apply a second coat wait until the wax hardens. Overnight will do.

There are dozens of different waxes on the market. I tested these six popular brands, applying them to an unfinished Douglas fir board. After laying on a thin coat I left the wax to dry as per the manufacturer's instructions and then buffed it out. I repeated the



Sample Panel – Duguay prepared a Douglas fir sample panel and tested the waxes. He found all the waxes to be similar, but with a few small differences between the brands. The OSMO product, which is a hardwax-oil finish, is a stand-alone topcoat that provides protection and durability similar to a penetrating oil finish. Although it has wax in it, it's not a product that's directly comparable to the other waxes in this article. (Photo by Carl Duguay)

process the following day. If you apply wax over a film or penetrating oil finish you can expect to obtain a higher sheen than on unfinished wood.

I didn't find a substantial difference in application and appearance between the waxes. All six were easy enough to apply and buff. The Lee Valley, Mohawk Blue Label and the Minwax barely changed the colour of the Douglas fir while the other three waxes left a slight yellowish tinge, which I didn't find unappealing.



Briwax Original

\$32.95/400 grams (\$8.24 per 100 grams)

Briwax.com (available from KtProducts.com)

Briwax contains a blend of beeswax, carnauba, naphtha and toluene (which gives it an extraordinarily strong odour). It has a soft texture and can liquify above 65°F (put it in the refrigerator to re-harden). However, it can be applied in a liquified form as the toluene dissolves the wax completely. I found it slightly tacky to rub out, though it buffed to a glossy sheen (slightly less glossy than the Minwax). It has a VOC level of 663 grams/liter and is available in



Add Some Power – A buffing machine like this King Canada 8369N makes large waxing jobs a lot easier. (Photo by Carl Duguay)

natural (clear) and 18 colour tones. Also available in a toluene-free formula that contains xylene and mineral spirits (which I would recommend over the Original version). Made in the U.K.



Clapham's Beeswax Polish

\$22.50/200 grams
(\$11.25 per 100 grams)
Claphams.com

Clapham's contains a mixture of beeswax, carnauba and deodorized mineral spirits. It has a soft creamy texture and

Not just a topcoat

There are, of course, other uses for wax in the shop. Dipping screws in wax makes it easier to drive them into wood. A thin layer of wax on wooden drawer runners makes them slide like a breeze. Likewise, a thin layer of wax on the sole of your hand planes will make them glide across wood surfaces without compromising the plane's cutting efficiency. For this application, make sure you use a silicone-free wax like Veritas Tool Wax (\$15.50/125 ml, LeeValley.com).



appearance making it easy to apply and quick to buff. Because it's so soft you might apply more than is necessary – remember the mantra “sparingly.” It has virtually no odour, although it's also available scented with essential oil of lavender. Along with Walrus Oil, Clapham's is one of the most natural wax finishes you can get (it was a favourite of James Krenov). It gave more of a satin sheen than the other waxes. The twist cap makes it easy to open and close the

Useful for repair work

Wax filler sticks, like those from Trade Secret (tradese-cret.ca), are useful when you need to make minor repairs to finishes. Use them on fine scratches, small nicks and shallow cracks and gouges. They're available in a wide range of hues. Unlike putty, the wax won't shrink. Simply rub on, wipe off and buff.



container. Clapham's doesn't state how long it takes to fully cure, but I would assume within a week or so given there is no oil in the product and mineral spirits evaporates quickly. While the VOC level isn't specified, I expect it's insignificant. Also available in 50 gram and 1,134 gram sizes. Made in Canada.



Lee Valley Blue Label Paste Wax

#80K4906

\$37.50/454 grams (\$8.26 per 100 grams)

LeeValley.com

Mohawk Blue Label Paste Wax

#M860-12435

\$29.95/454 grams (\$6.60 per 100 grams)

Ardec.ca

I've listed these two together because they are essentially the same product, manufactured by Mohawk in the U.S. (The Blue Label brand was originally made by Behlen.) Blue Label wax is made of carnauba, paraffin, turpentine and mineral spirits. It has a noticeable odour, but much less so than Briwax. The wax goes on easily and buffs out with no trouble. It has a pleasing satin sheen and barely changed the tone of the sample board. Blue Label wax is available in natural and brown tones. VOC level of 615 grams/liter and a three-year shelf life.

Make your own wax finish

Yes, you can make your own wax polish. You'll need a block of refined beeswax, boiled linseed oil and turpentine. Break the beeswax into chunks, place them in a Pyrex bowl, and then place the bowl over a pot of boiling water. Once the beeswax has melted pour it into a glass container along with equal amounts of the boiled linseed oil and turpentine (the ratio is 1:1:1). Let the concoction settle for a day or two before using.



Minwax Paste Finishing Wax

\$14.95/450 grams (\$3.32 per 100 grams)

Minwax.ca



Minwax is made of paraffin, mineral spirits and turpentine. While the company mentions



A Simple Twist – Like Clapham wax, the Walrus Oil wax has a twist-off lid that's easy to use.
(Photo by Carl Duguay)

carnauba as an ingredient it doesn't appear in the material data sheet. In the can Minwax has a dark appearance and a hard consistency (less so than Walrus Oil). It emits an odour similar to the Blue Label wax. The Minwax was easy to apply in a thin layer and it buffed out quickly, producing a higher-than-average sheen. The least expensive of the waxes I tested, it has a VOC level of 615 grams/litre and a three-year shelf life. It's available in a natural and a dark tone. Made in the U.S.



Walrus Oil Furniture Wax

\$17.50/85 grams
(\$20.00 per 100 grams)

WalrusOil.com (available through JeffMackSupply.com)

Made in the U.S., Walrus Oil is hand-crafted from carnauba, candelilla, polymerized safflower oil, hemp seed oil, tung oil and perilla seed oil. It also contains a dash of lime for freshness. It's a solvent-free, odour-free, super hard wax, which means you're unlikely to load your pad too heavily. A little goes a long way. It also left a slight yellow cast and cured to a super smooth, matte sheen. Walrus Oil takes up to four weeks to fully cure (likely because of the natural oils). It has about a two-year shelf life (the expiry date is printed on the can). Like Clapham's wax, the Walrus Oil container has a twist lid that makes it easier to open and close than paint can lids. My preferred wax finish for drawers and cabinet interiors.



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4 Ways to Keep Your House Cool

Summers are getting hotter right across Canada. We list a variety of options that can help you keep your cool.

Photos by Adobe Stock

According to “Canada’s Changing Climate Report” (changingclimate.ca), six of the 10 warmest years have occurred during the last 15 years, while the annual average temperature in Canada has increased at roughly twice the global mean rate. The report underlines that the effects of widespread warming are evident in many parts of Canada and are projected to intensify in the future.

In practical terms, it means our summers are getting hotter. Last year, B.C. towns had significantly more days above 30°C than ever before. And so did towns across Manitoba, Ontario and Quebec. Even in Atlantic Canada, there were more 30°C days than normal.

We’ve reviewed recent research into home cooling and talked to several HVAC (heating, ventilation and air conditioning) professionals to provide you with a range of options for keeping your castle cool.

Air conditioners

When it comes to keeping our homes cool, an air conditioner (AC) is likely the first option that comes to mind. Right now, about half of all Canadian homes have some form of stand-alone or central air conditioners. There are four popular types of AC for you to choose from: central, window, wall-through and portable.

Central ACs

If you have a detached or semi-detached house or a townhouse with ductwork, a central air (whole home) conditioner is the most cost-effective choice. There are single-stage units that operate continually until turned off. These are the least expensive and the least efficient. Two-stage units operate at either full power like a single-stage unit, or at a lower capacity when the temperature is more moderate. Variable speed units operate at variable speeds depending on the temperature in the home. They are the most expensive but the least costly to operate and the most efficient at maintaining consistent cooling levels.

Central ACs consist of an outdoor unit that houses a compressor, condenser coil, fan and some electrical components. An evaporator coil is usually installed on the furnace in the home, while a refrigerant flows between the two via piping. The system draws warm air out of the house, cools the air and removes moisture, and then disperses the cooled air through the ductwork. The more common refrigerant, halogenated chlorofluorocarbons (HCFCs), is being phased out and replaced by ozone-safe hydrofluorocarbons (HFCs). You really do need the services of a HVAC professional when selecting a central AC because there are a lot of factors to consider, apart for the square footage of the house.

Ductless mini-split ACs

If your home doesn’t have ductwork, a good alternative is a ductless mini-split conditioner. These units consist of two components – an evaporator (a.k.a. “air handler”) is installed inside the home (on a wall or ceiling or freestanding on the floor) while a compressor/condenser is installed outside the home. Tubing between the two carries the refrigerant, power and water runoff. Similar to central ACs, mini-splits are classed by their BTU cooling output rating. The larger the square footage of a room the higher the BTU rating needed. Large homes typically require multiple air handlers, usually connected to a single compressor.



Central Air Units – Adding a central air conditioning unit to your home is the most efficient way to cool a larger area. Two units may be needed in large homes or homes in hotter areas. They’re usually placed in areas that are less visible.



Ductless Mini-Split – Great for homes without ductwork, a mini-split is efficient and can also provide heat in the cooler months.

Mini-splits are highly energy efficient, the air handler has a small footprint and they operate very quietly. They have the added advantage of being able to provide heat during cold seasons. Choosing the correct mini-split for your home is best done with the help of an HVAC professional.

Window ACs

When you need to cool a single room, a window AC can be a good choice. Most are designed to fit inside standard double-hung windows and include a slide-out chassis and mounting sleeve to stabilize and secure the unit. Window ACs with cooling capacities of around 15,000 BTU or lower can be plugged into a standard 110V outlet. For larger capacity units you’ll need to install a 220V receptacle. Look for a CEER rating (combined energy efficiency rating) that’s at least 12.

Window ACs can also be very noisy (both inside and outside the house). Those with a higher BTU rating will be louder. The quietest window ACs are in the 44 to 52dB level (for comparison, normal conversation has a decibel level of around 60dB, while most

refrigerators run at about 50dB). Some models have built-in heaters, remote controls or are Wi-Fi enabled.

Wall-through (built-in) ACs

You'll get better energy savings and better cooling performance from a wall-through (or in-wall) AC than a window AC. Essentially, it's a window AC that's permanently installed in your home's exterior wall. Because a good portion of the unit is located outside the wall, they're less obtrusive and quieter than window ACs. They come in a wide range of sizes, cooling capacities and prices. Features to look for include variable speed, built-in heaters, remote control and Wi-Fi connectivity. They do require the installation of a wall sleeve and support to accommodate the weight of the unit. Homeowners with advanced DIY skills can install a wall-through AC, though it's advisable to have an electrician do the electrical work.

Portable ACs

Portable ACs are free-standing units that require venting through a window. They're typically more expensive than window ACs of the same cooling capacity. They're also less efficient and noisier than window units and they take up more floor space.

Fans

Fans don't cool the air, rather they circulate air to help it evaporate perspiration from the skin. They work best when placed to maximize air flow. You can use fans in conjunction with an air conditioner running on a low setting to more efficiently circulate cold air around a room and from room to room. The most common types are window, ceiling, floor / table and whole-house fans.

Optimally, window fans should be used in pairs. Position one fan on the shaded side of the house or on the windward side (the direction from which the wind typically blows toward the house) to pull air into the house, and, if feasible, locate a second fan on the opposite side of the room to push air out. In a multi-storey house have the fans pulling air in on the first floor and fans pushing air out on the upper floors. When the outdoor temperature is higher than the indoor temperature window fans become ineffective. During the hottest part of the summer they should be used later at night or early in the morning when the outside temperature typically drops.

Size ceiling fans for the room in which they're installed. An oversized fan will create an uncomfortable amount of airflow. In general, wider and longer blades will move more air. Remember to switch ceiling fans to rotate in a counterclockwise direction during the summer so that air is pushed downward. And because they cool by means of evaporation, it's a waste of energy to keep them running when you leave a room. The new crop of smart ceiling fans can cycle on or off automatically based on room temperature, whether a room is occupied, or according to a personalized schedule. Some can also be connected to a home's smart thermostat.

Floor and table fans offer the convenience of being easily moved around the house as needed. Variable speed allows you to adjust the fan's output while a tilting head enables you to better direct air where it's most needed.

Whole-house fans have been in use since the early 20th century. Mounted on top of a roof, they pull air in through open windows and exhaust it through the roof. During the hot summer months,



Portable Air Conditioner – The upside of a portable air conditioner is that they're easy to install, as they just need a window to vent out. The downside is they're less efficient and louder than some other types of air conditioners. (Photo by Black & Decker)

they're best used at night or early in the morning on days when the outside air temperature is lower than the temperature inside the house. Newer models have self-sealing insulated shutters that automatically close when the fan is turned off. Selecting the right size is best done in consultation with a HVAC professional.

Evaporative Coolers

The basic components of an evaporative cooler are a fan, an absorption pad and water. The pad absorbs water from a reservoir in the unit, and as warm air is pulled through the pad by the fan, water molecules on the pad evaporate, reducing the temperature of the air, which is then blown into the room. Some evaporative coolers have air filters to reduce allergens, oscillate to better distribute cool air, variable speed fans and remote controls. While they're very energy efficient, they work best in areas where the outdoor relative humidity is below 30%, making them a less attractive option for most Canadian cities.



Portable Fans – Although a fan only cools the interior of a house if the exterior air around the house is cooler than the interior temperature, they always have the added benefit of offering a "wind chill" that makes it feel cooler inside. Placing two fans on either side of a room or house will offer strong cross-ventilation.



Ceiling Fans – Although stationary, a ceiling fan can do a lot to move around the air in a room and make it feel cooler inside. (Photo by Big Ass Fans)



Cover the Windows – Closing blinds or curtains, especially during a sunny day, can go a long way to keeping the interior temperature of a house or room lower. And as long as you already have window coverings, it's free.

Practical tips

- Whenever purchasing air-cooling products it's advisable to select those that have the ENERGY STAR symbol. These products are certified as high efficiency.
- Bright sunlight brings a lot of heat into your home. There are several options to consider to reduce heat infiltration, including the use of window film (see "Window Film," December/January 2020), insulated window shades and curtains, exterior shutters (see "Window Shutters," October/November 2008) and awnings.
- Keep windows and window coverings closed during the day to reduce heat infiltration and block the sun's heat.
- Hot air can seep into your home through gaps around windows and doors. Weather stripping and caulking doesn't last indefinitely, and should be inspected annually and replaced as needed.
- Ensure that you have the right amount of insulation in your attic and that your attic is well ventilated. This will reduce the temperature in the attic and consequently put less of a strain on your air conditioner.
- Strategic landscaping can help reduce heat infiltration by shading your house.
- Replace older windows and doors with energy-efficient units.
- If you replace your roof, use a light-coloured material to help reflect heat.



CARL DUGUAY
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shopnotes

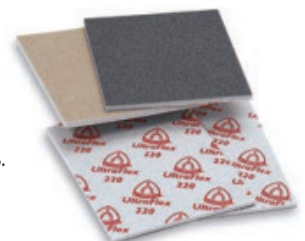
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Reviews

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

Veritas Side-Clamping and Short-Blade Honing Guides
Right to the Point When Sharpening

Record Power SC2 2-1/2" Chuck and Dome Jaws
Get a Great Grip on Small Workpieces

Veritas Side-Clamping and Short-Blade Honing Guides

BY CARL DUGUAY

Sharp tools make for easier, more accurate and more enjoyable woodworking. They require much less effort to use and the cuts they make are precise, crisp and clean. Whether you're a novice or accomplished woodworker, using a honing guide with your bench stones is a fast and efficient way to get super-sharp cutting tools.

The Veritas Mk.II Standard Honing Guide (#05M0901) has long been one of the most popular guides on the market for good reason. It's very easy to use and gives you bang-on bevel angles and micro-bevels every time. Lee Valley has introduced two new honing guides: one that will likely appeal to woodworkers looking for a basic guide at a very attractive price; and another designed primarily for honing short blades.

The **Veritas Side-Clamping Honing Guide** (#05M0940) is an upscale version of the traditional

Eclipse-style honing guide that's been around in one form or another for umpteen decades (or perhaps it's a scaled-down version of the venerable Veritas Mk.II). The guide consists of a durable black zinc-coated aluminum alloy body with stainless steel guide rods and threaded rod, along with a brass roller and clamping nut. It has a three-point clamping system that secures blades from 1/8" to 2-1/2" wide. Most blades and chisels can be clamped into either the upper or lower position on the jig. However, I found the thicker 3/16" blades were easier to secure in the upper position (furthest from the guide rods). I also found it much easier to position the jig with the roller facing down when clamping a blade in place. This kept the three points of contact with the jig firmly on the blade. Lee Valley supplies a paper scale for setting blade projection, although aligning a blade to a line on the paper scale isn't very accurate. You're better off making your own registration jig.



Straightforward Sharpening – The Veritas Side-Clamping Honing Guide will hold all sorts of blade widths at a right angle to the stone.

Photo by Lee Valley



Set the Angle – A measurement scale is included with the Side-Clamping Honing Guide. It can be adhered to a block of wood for easy use.

I think most woodworkers will find this new side-clamping guide to be very easy to use and, more importantly, appreciate that it can accommodate just about any width of blade or chisel.

If you have several short blades, then the **Veritas Short-Blade Honing Guide** (#05M0930) is a worthwhile addition to your honing arsenal. Made of the same durable material as the side-clamping guide, it's designed to hone blades and chisels at either 25° or 30°. The guide comes with a registration jig and a shim that enable you to hone blades that are 1/8", 3/16" or 1/4" thick and up to 2-1/2" wide. Two metal holding fingers secure the blade firmly in the guide. Because the end of the blade rests flush on the registration jig it's guaranteed to be at the proper angle. The included shim enables you to create a micro bevel on blades. I found the guide easy to set up



For Unique Blades – When sharpening short blades or sharpening at an angle, the Veritas Short-Blade Honing Guide gets right to the point.



An Accurate Jig – The guide's roller gets positioned in a machined groove when clamping blades to the guide. This will allow the user to set the blade square to the stone and obtain the sharpening angle they want.

and handle. It's particularly useful for honing skewed blades, which can't be done on the side-clamping guide, and requires the purchase of an accessory jig for use with the Mk.II. It'll also make quick work honing the narrow side rabbet and combination plane blades.

While the roller on both of these guide is only 1" wide (versus 2-1/8" on the Mk.II), I found it didn't make the jig any less stable during honing. And the narrower roller does make it a tad easier to rock the guide slightly to create a camber, if that's the approach you're taking.

Veritas Side-Clamping Honing Guide (#05M0940)

MSRP: \$49.50

Veritas Short-Blade Honing Guide (#05M0930)

MSRP: \$79.00

LeeValley.com

Tester: Carl Duguay

Record Power SC2 2-1/2" Chuck and Dome Jaws

BY RICH KELLER

When I opened the new **Record Power SC2 2-1/2" Chuck** I was surprised how small this chuck is. Even though it's small, it's quite well made. I was pleased with how smooth the chuck operated and how well it's machined. Usually less expensive tools are a bit sloppy, but I'm pretty impressed with this chuck. It's made for Record's line of lathes, so it has a 1-1/4" 8TPI thread, the same as the bench lathe I looked at a short time ago. At first, I wasn't sure I was a fan of the small size, but it has enough range that it would take care of most things I usually turn. I made a couple of handles and I found the chuck had a good grip on the work, even with the shallow



Photos by Record Power

jaws it came with. I had to drill out the center of my handles and I was able to hold my blank in the chuck and drill it out with the tailstock without the blank coming loose or wobbling. The jaws that come with this chuck are dovetailed on the outside, so they would have lots of holding power to hold a small bowl inside a recess in the base.

I quickly discovered the chuck's small size was an advantage when working on a small piece like a handle. Without a big chuck in the way, it's easier to access the work from all directions.

Record Power makes a range of chuck sizes, so there are lots of options. There's one smaller than the chuck I tested, as well as several larger ones. There are also a number of different jaws available for these chucks, which make them very versatile. Stockroom Supply (StockroomSupply.com) is the sole Canadian distributor and has a wide selection of products on hand.

I had a set of domed jaws to try, and these jaws let you work on some very small pieces. The smooth shape of the jaws means I can get my hands right next to the chuck and work without worrying about getting caught by a sharp rotating edge. There are also pen jaws and pin jaws available. This chuck is also available in a 1" 8TPI thread to fit bench top lathes not made by Record Power.

Record Power SC2 2-1/2" Chuck and Dome Jaws

MSRP: \$129.99 (SC2 2-1/2" Chuck Package), \$49.99 (Dome Jaws for Mini Chuck)

Website: RecordPower.com / StockroomSupply.com

Tester: Rich Keller



A Nice Size – The SC2 chuck is smaller than many chucks, but that can often work to your advantage. Keller found it has a good range and has a solid grasp on the workpiece.

Photo by Rich Keller



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A Few Loose Screws

My decision to enter the computer era of woodworking wasn't as easy as I envisioned.

BY JAMES JACKSON

Slowly, and somewhat begrudgingly, my workshop has entered the computer age with the recent addition of a computer-operated CNC machine and a laser cutter.

Some of you purists may be rushing to fill my email inbox or the online comment section with scathing remarks about this decision. I struggled with the decision, too, but not as much as I struggled to put the machines together.

I was never much of a tinkerer in my youth. Sure, I loved my LEGO sets, but I can firmly recall my parents buying me a metal Meccano set for my birthday when I was about 10 years old, and instead of building something cool like a race car, train set or Ferris wheel, I took a long straight piece and bolted a shorter straight piece to it to make the shape of a sword.

I then promptly lost most of the small bolts and washers, and lost interest in the set a few weeks later.

You can imagine my frustration when I ordered my new CNC machine and it arrived in several hundred different pieces. Nothing in the box came pre-assembled. The manufacturer boasted on its website that "if you can put together IKEA furniture," then building this machine should be a "breeze."

I hate assembling Ikea furniture.

"Assembly only takes a few hours," the site continued, and I really like the liberal use of the word "few" because I can tell you right now, my idea of "few" is different from theirs.

I ordered it last January and the box – about 5' long and weighing about 50 pounds – arrived a few weeks later. I took it down to the basement and it sat unopened for the next six months as I dreaded the assembly process. I finally took the plunge and opened it up, only to realize the instructions were 110 pages long. I knew I was in trouble.

Three hours and 28 pages later I finally reached the end of Part One (of seven) and the section ended with a darkly comedic question: "That was fun, wasn't it?"

One of the toughest parts was wrapping my head around the idea

of the Y-axis, the X-axis and the Z-axis. Math never was my strong suit and I'm still not quite sure I've got it sorted out in my head.

Eventually, I got to the point where I anxiously wired it up and got it running. But right away something was wrong; one of the gears that moved the Y axis (at least I think it was the Y axis) back and forth was binding and catching on something. It took two hours, and ordering a new coupler that attached the gear to the motor, to fix the problem.

After spending hours watching woodworkers demonstrate just how powerful and precise these machines can be, I'm excited by my decision to add the CNC to my workshop toolkit.

So excited, in fact, that I went out a few weeks later and bought a laser engraver. Actually, it was my wife who suggested I buy one since she follows many of the current design trends and said laser-cut gifts are very popular right now.

I started small and ordered an entry-level laser for about \$1,000. Its cutting surface is about 18" square and fortunately it was a lot easier to assemble than the CNC and only took about 40 minutes to screw the aluminum body together.

The laser didn't work right away, either. Whenever I tried engraving on a piece of wood it would leave the occasional line of unburned material behind, kind of like when a printer is running out of ink.

I went online to troubleshoot and even emailed the company. They responded within a few hours and suggested I try tightening a few screws and updating the software. I did both, and it ended up being a loose screw that was the problem.

And if the metal Meccano swords of my youth are any indication, I'm pretty good at just tightening the occasional screw.

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Illustration by Mike Del Rizzo

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Yorgo Liapis

Roots Barstool

This barstool was one of the most challenging pieces Liapis has ever made, and started with a pencil sketch of the rear leg. Once he showed it to Reed Hansuld, his friend and mentor, Hansuld encouraged Liapis to build the stool. Liapis was in his element while hand shaping all of the parts that make up this complex, yet beautiful, chair.



Turn to page 12 for more quotes.
(Photo by Mickal Aranha)