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JUNE/JULY 2011
ISSUE #72

CANADIAN **Woodworking** & HOME IMPROVEMENT

Carve Your Own
PADDLE

+ The History of
Paddle Design

SHOWCASE:

The Wood Objects
Exhibition

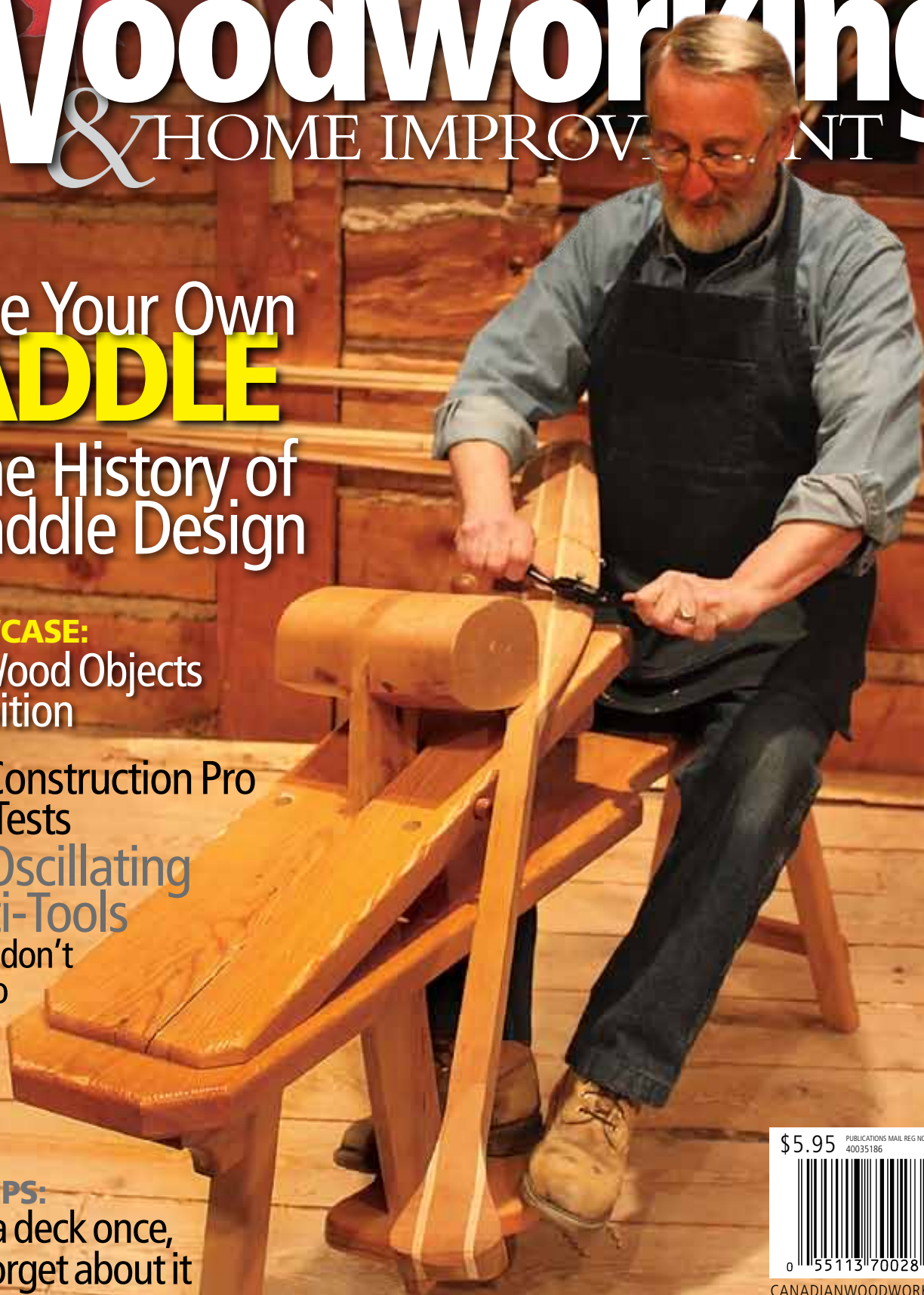
Our Construction Pro
Tests

13 Oscillating
Multi-Tools
so you don't
have to

12

PRO TIPS:

Build a deck once,
and forget about it



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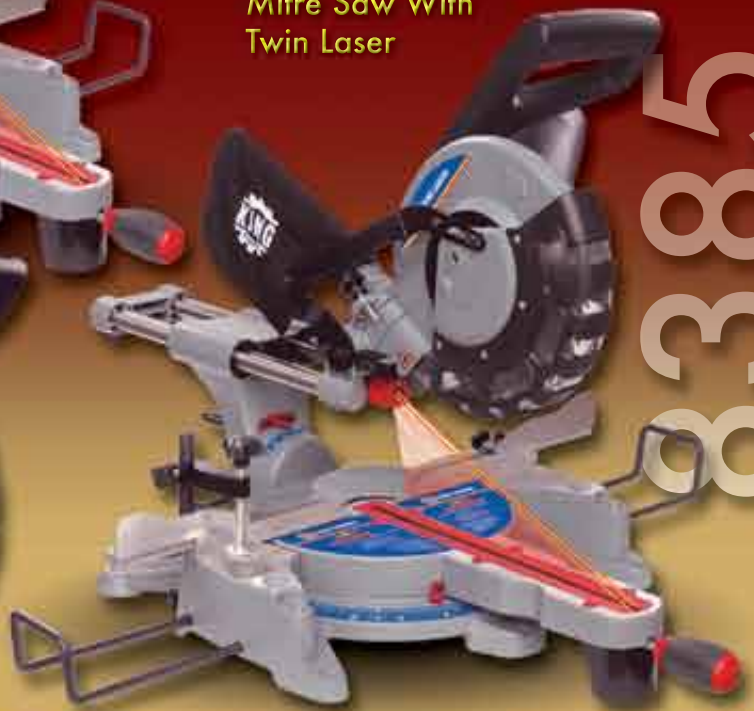
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Twin Laser



10" Sliding Dual Compound
Mitre Saw With
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12" Sliding Dual Compound
Mitre Saw With
Twin Laser



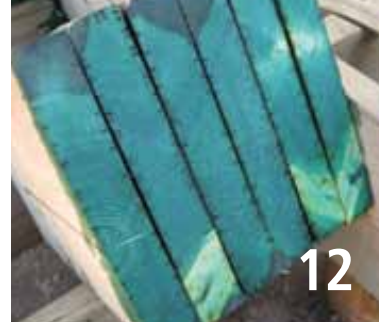
TRU-CUT
TWIN LASER GUIDE SYSTEM



KING CANADA

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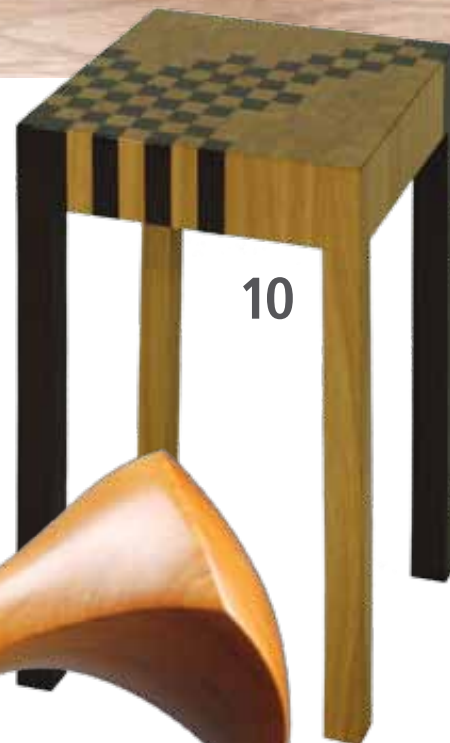
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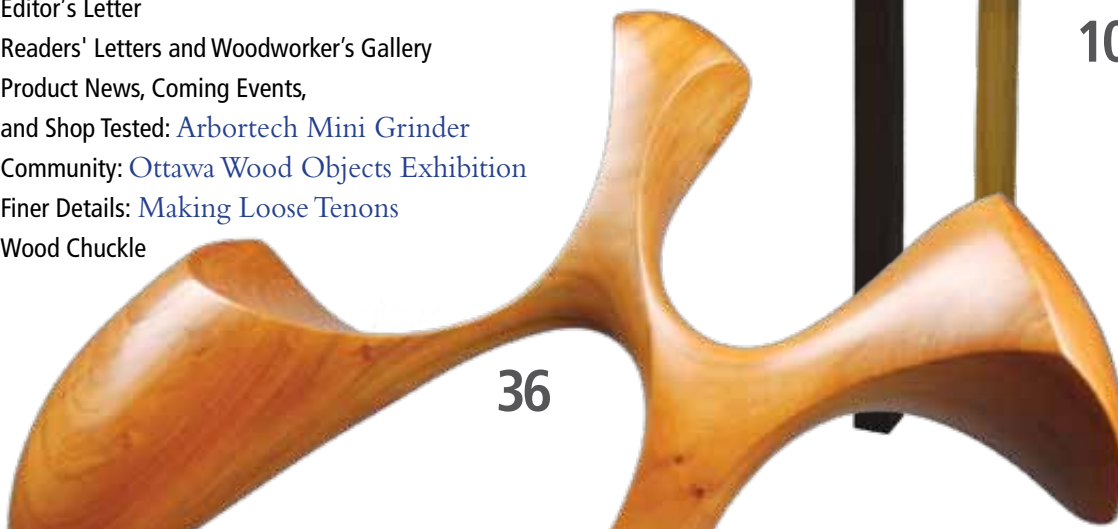
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- Built in Mobile Base
- Powder Coated Paint
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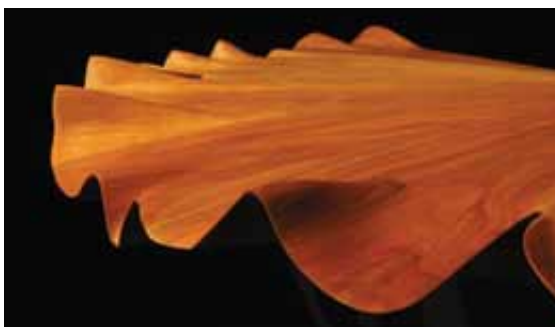
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rbrown@canadianwoodworking.com

It's rare that I come across a woodworking technique that is completely foreign to me. After 20 years in this business, I usually have at least a general idea of how something is done. Last fall, I came across West Coast wood sculptor Conrad Sarzynick and was amazed. And baffled. I pictured chisels and hammers, bandsaws and hand sanding. Boy, was I way off the mark. The tools and techniques he uses have opened a whole new world for me; I hope you glean the same insights from Conrad's article as I did. After reading his first draft, I immediately picked up some power carving tools – a grinder and a few carving blades – and got to work. My first power carving project was a hall table with a carved top inspired by the natural form of a ginkgo leaf. The learning curve was steep, but I was happy with the final piece. I'm now planning on using these power carving techniques to add decoration on flat surfaces and design new edge treatments for upcoming projects. I take no credit for the power carved edge treatment idea though, as Chris Wong brought that to my attention. Chris wrote a few tips on power carving edges in this issue, which only made Marty Schlosser's article "Giving Your Work the Edge it Deserves" that much more dynamic. My advice, as always, is to practice with scrap wood before committing new ideas to a finished piece. My "practice" ginkgo leaf table was downright ugly, but the mistakes I made taught me a lot about the process.

Also in this issue is a tribute to one of the few wooden objects that is truly Canadian – the paddle. Beth Stanley from the Canadian Canoe Museum details how to make this primitive but still very useful tool. She also discusses the different styles of blades and grips that have given paddles their unique look over the years by dipping into the extensive collection she has access to. National Canoe Day is Sunday, June 26th. There's really no better way to celebrate than by making your own paddle and getting out on our country's great waterways to enjoy the fruits of your labour with friends or family.

Rob Brown



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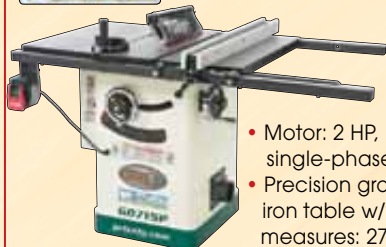
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 - Max. cutting height: 6"
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- Cutterhead dia.: 3"
- Cutterhead speed: 5000 RPM
- Cuts per minute: 20,000
- Approx. shipping weight: 500 lbs.

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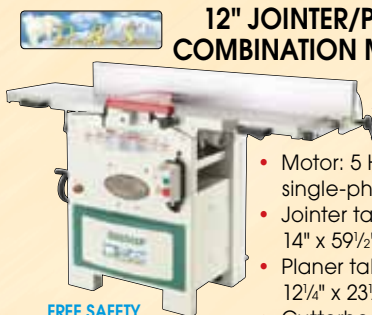
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- Static pressure at rated CFM: 1.08"
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readers' letters

Working in a Small Shop Issue

Excellent presentation of the topic! I looked forward to your treatment of the small shops topic and you did not disappoint. I am in the process of setting up my basement shop and I am always looking for ideas to incorporate in the project. Your presentation of different shop set-ups with photos gives lots of ideas that can be used in a shop set-up and could become an annual topic issue as most shops are a work in progress. I know I am always looking for ideas to improve my existing shop. To date I have built several projects that while serviceable, were not "fine furniture", but this new shop should enable me to tackle some furniture projects and the first will be a hall table. Thanks again, your approach to articles is refreshing and informative.

Regards,
Brian M
Ladysmith, B.C.

Brian

We're glad you liked our Small Shops issue. In fact, because so many of our readers have told us how much they liked it, we have decided to make it an annual issue. Photos and stories have already started to pour in, so it looks like we are going to have lots of material for the next one.



Finishing With CA Glue concern

I am very disturbed about a recent article in your magazine. This article featured an individual using and suggesting the use of cyano (crazy glue) as a great finishing material.

We as woodworkers/homeowners/hobbyists, as a rule, do not understand the dangers of much of the materials we come in contact with. Just as some woods are toxic, many of the other products we use are also dangerous. Table saws, routers, drills are all safe – that is, until the operator fails to operate them in a safe manner.

I believe cyano glue to be extremely toxic if not used properly and strongly suggest that you (and your readers) look into "cyanoacrylate allergic reactions".

Gary B.
Thamesford, ON

Thank you for your concern. We will indeed remind our readers to read the directions and use products accordingly.

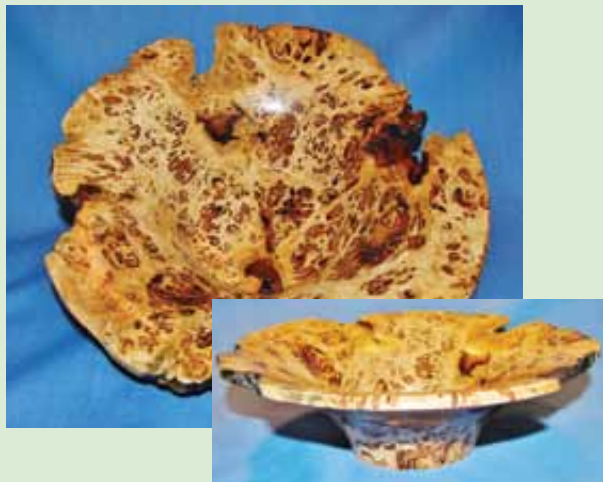
woodworkers' gallery

Maple Burl Bowl

by Dirk Hoogendoorn

Dirk Hoogendoorn of Meaford, ON was given a Maple burl by a local logger. It had been laying around for a while and was dark and wet. Like all woodworkers, Dirk saw some potential in this interesting piece of wood. "To best show the different colours and texture of the bowl, I came up with a design that still gives the outline of the burl with the irregular edges, yet also shows what the burl composition is," Dirk says of his thoughts behind the turning process.

"Keeping this piece together as I tried to get the wall thickness down is probably the most challenging aspect of turning a form like this." It took him about four hours to finish turning the bowl from rough burl and then he applied a few coats of finish.



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Profile Shown:
Round Over
(#99-760)



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Now with Freud's new, patented Premier Adjustable Rail and Stile router bit system, you are able to build any style of cabinet door in a wide range of door thicknesses and sizes! This extremely easy-to-use solution gives you unlimited creative freedom, and solves the long-standing limitations of existing frame and panel door construction.

This one of a kind solution allows you to create extended tenons for extra door joint strength, adjust groove width for different panel thicknesses and choose from a variety of material thicknesses for your stiles and rails (5/8" to 1-1/4"). Optional add-on cutters increase your bits' capabilities even more, allowing you to create glass panel and double sided profile doors.

Four profiles are available; **Round Over** (#99-760), **Ogee** (#99-761), **Round Over Bead** (#99-763), and **Bevel** (#99-764).



Standard stub tenons in regular 3/4" stock

Extended tenons for strong joints in larger doors

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Double Sided Profiles in thick stock



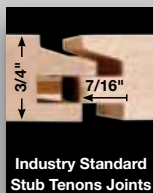
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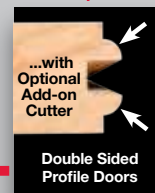
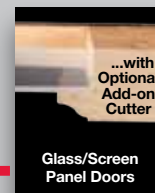
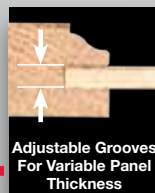
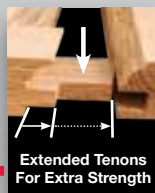
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Double Sided Profile Doors

product news

General International Pen Turning Lathe

General International's new three-speed lathe (25-010) has been designed and built specifically for turning pens and other small hobby type projects. It's equipped with a quiet 1/5 HP 110V 1.2 amp motor and features an extruded aluminum frame, head and tailstock. The maximum distance between centers is 12".

Both the tool rest and tailstock are equipped with smooth action quick lock ratchet levers for smooth, easy repositioning and positive locking action. The headstock spindle thread is $\frac{3}{4}$ " x 16 TPI with a $\frac{3}{8}$ " through-hole to accommodate a large variety of standard after-market accessories, and both the head and tailstock are fitted with a very common MT#1 Morse taper.

Factory supplied with a 6" tool rest, 2 $\frac{1}{2}$ " face plate, live center, spur center, knock-out bar, a see-through lathe guard and a pen-turning mandrel set, this mini-lathe is currently retailing for \$229.99 (pricing valid until at least August 31st, 2011) and can be ordered from most General/General International retail distributors. A complete list of distributors can be found at www.general.ca.



shop tested

Arbortech Mini Grinder



The standard 4" power carving blades work great for most large power carving projects, but they don't provide a whole lot of pinpoint accuracy. When you're working on a project that demands detailed, precise work, you may want to consider the Arbortech Mini Grinder. Its 2" diameter cutter allows you to make tighter turns, get further into corners and hollows, and because the blade is more visible, you can better see what it's doing. It would be your best choice for relief carving on flat surfaces or sculpting small-to-medium-sized objects in the round. And if you're a wood turner, the possibilities are huge; this would be a great tool to help add texture to turnings. I liked using this unit because it was easy to control and I could remove material in tight areas. Cutters very similar to the full-sized Industrial Woodcarver and Pro-4 are available for this grinder, not to mention a diamond blade for grout, etc. and a host of sanding disks. www.arbortechusa.com

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Lee Valley

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Welbeck Wood Expo

August 5 & 6, 2011

Welbeck Sawmill, 522598 Welbeck Rd.
Durham, ON www.welbecksawmill.com

For more woodworking events:
www.CanadianWoodworking.com
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Wood Objects Exhibition

Pictured on
Contents Page:
Karel Aelterman
"Side Table"

Wood Objects is a juried woodworking exhibition in the Ottawa area, held at the Ottawa Home and Garden Show from March 24-27, 2011. The exhibition comes under the auspices of the Ottawa Woodworkers Association, a not-for-profit organization that meets monthly to learn about, share and promote woodworking. This event has as three cornerstone objectives: to foster excellence in the design and crafting of wood objects, to create an opportunity for the public to experience finely crafted objects and to encourage aspiring artisans. The juried aspect of the exhibition serves to encourage woodworkers to work to the highest standards that they are able. This juried exhibition features works predominantly of wood with importance given to strong design elements, excellence in workmanship and diversity of approach.

Vic Tesolin – Vice-President of the OWA and the Chairman of Wood Objects

Ken Dixon
"Cherry Bookcase"
Black Cherry
3rd Place - Amateur



Sean Walsh
"Third Time is a Charm"
Soft Maple & Curly Maple
2nd Place - Professional



Nick Moore
"Wall Cabinet"
Cherry, Lacewood, Basswood, Aspen,
Cherry Veneer & Mother of Pearl
Honourable Mention - Professional



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Josee St-Hilaire
"Terra Nostra"
 Cocobolo, Maple & Stone
 1st Place - Amateur
 as well as People's Choice Award



Karel Aelterman
"Side Table"
 Wenge & Ash
 3rd Place - Professional
 as well as Design Award



Brian Greene
"Woodland Spider"
 Ambrosia Maple, Walnut & Acrylic
 2nd Place - Amateur

Photos by Glen Briggs



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Build it ONCE



11 Tips for a Stronger, Longer Lasting Deck

BY RYAN SHERVILL

In this article I'm going to break an average deck down into its main components and address them one at a time, giving you my tips and techniques to make sure you only have to build it once. Some of these methods cost a little more initially, but trust me, they will save you money in the long run! Let's start at the bottom and work our way up.

1 Concrete footings:

Deeper is better: Your local building department will know the minimum footing depth required in your area. I

suggest adding at least one extra foot of depth beyond the minimum to ensure you are below the frost line and avoid frost heaving. You will need a little more concrete, but going beyond the minimum is cheap insurance.

Bell-bottoms are in style! Even if not specified in your local code, it is a good idea to do a "bell footing" on the bottom of your forms. By making the footing wider at the bottom, you reduce the chances of frost heave even further, and the larger footprint means the weight of the deck is spread over a larger area, which reduces ground pressure at the bottom of the hole. Manufacturers have made this easy

with the introduction of plastic bell footings that attach to the bottom of cardboard tube forms. You just slip the footing onto the bottom of your tube and drive a couple of screws to hold it in place. You then place the entire assembly into the hole, backfill around your tube and pour your concrete.

2 Block footings:

Some free-floating decks are built on deck blocks rather than footings. It's important to note that even though these blocks look like they just sit on the ground, there is a considerable amount of work you need to do to the ground under the blocks before placing them if you want



Dig Deep – A deeper hole and bell footings on the bottom of your forms provide a rock solid foundation.



Block Footings – Dig properly sized holes and fill them in with care to give block footings a stable hold.

them to stay put. Frost and settling are the two biggest enemies when it comes to block footings, so minimize the chances of either affecting your hard work by following these steps. To start with, dig a hole at least twice the diameter of the deck block and a minimum of 1' deep wherever a block will be placed. Fill that hole within 4" of the top with granular A gravel, compacting it with a tamper as you fill the hole. Top the compacted A gravel with a good layer of limestone screenings or decomposed granite, again compacting as you go, and bring this packed material slightly proud of the surrounding ground.

Beams:

The beams are truly the backbone of your deck; don't be afraid to "overdo it" when building them. While your local code will dictate both the minimum lumber size and number of plies you must use, I prefer to go "up one" on either the number of plies (three layers instead of two) or the lumber dimension (2x10s rather than 2x8s), depending on the situation. Some people suggest putting plywood spacers between layers to aid drainage, but I prefer to laminate my lumber tight together and then cap it with a triple layer of 30lb roofing felt to prevent water from entering the laminations to begin with.

Ledgers:

The ledger (the board that attaches to the house) is where 90 percent of deck failure occurs. The reason failure occurs here is due to water sitting against the house and causing premature rot. You will read all kinds of articles about proper flashing, etc. for attaching your ledger board, but for my own decks, I prefer not to attach the ledger to the house at all.

Ledgers are most often attached to the house because it's easy and inexpensive. The house structure is already there. Why not use it? The truth is that if you are willing to put in the time and money, there is a better way to do it. On houses where it is feasible, I will dig down to the existing house footings and set 6x6 or 8x8 pressure-treated posts



Please ... Overdo it – When laying the beams Shervill recommends to either increase the width of each beam or the quantity of beams to provide a solid platform to build on.

directly on the footings, cut them to length and notch them to accept a double or triple 2x10 beam spaced 1½ to 2" from the house, and then capped with more 30lb felt. This beam now serves as the ledger to which the joists are secured. On houses where the footings are too deep for this to be feasible, extra concrete footings are poured beside the wall and the posts are rested on those. If required by code, the entire assembly is then bolted to the house with ½" galvanized threaded rod, nuts and washers passed through both the double ledger and posts. By building this way, the entire deck load is passed to ground rather than to bolts fastened to the house structure, and because the "back" of the deck is 2" from the rim joist of the house, water collection and penetration are never an issue.



Ledgers Need Some Space to Breathe

– Do your best to keep the ledgers slightly away from your home so rot will be less likely.



Don't Stick to the Minimum – Frame on 12" centers and use 2x10" pressure-treated lumber. And blocking will go a long way to resist twisting.



Hurricane Force – Forget toe-nailing altogether and stick to these handy little helpers.

Framing:

5 Materials: Most codes call for 2x8" joists on 24" centers as a minimum. This is another area where it pays to over build. Given the choice, I will frame on 12" centers and use 2x10" pressure-treated lumber. Overkill? Maybe, but the difference in cost is actually not that much and the resulting solid deck will resist flex much more effectively, keeping your fasteners tight longer. Also add blocking to the center of your span. Blocking is easy, inexpensive, and will greatly increase the rigidity of your deck as the joists are prevented from twisting.

Nails or screws?

6 I frame with hot dipped galvanized nails. Unlike “decking screws,” which seem to be popular with some, galvanized nails last years and years without rusting. I will occasionally use 3 ½" #10 coated screws if the situation warrants it (a joint that needs to be drawn together for example). As a rule, however, nails are better.

Attaching Joists to the Beam

7 Toe nailing is a no-no. The standard method of securing the joists in place on top of the beam is to “toe nail” them by driving a nail down through the side of the joist at a steep angle so it exits the bottom and enters the beam. While this is fast and easy, it opens a cavity for water to enter the joists and also pierces the waterproof cap we put on the beam earlier. I prefer to use small galvanized metal plates called “hurricane ties” to attach the joists. These little plates are inexpensive (less than 50 cents) and allow you to attach the joists to the beam by nailing to the side of the joist and the face of the beam, cutting the chances of water penetration significantly.

End cuts and Copper Chromate

8 Whenever you cut pressure treated lumber, you expose fresh wood that has not been treated with preservative, opening up a place for rot to begin. This is obvious as there won't be the tell-tale green colour on the faces of the fresh cuts. Fortunately, this is a quick and easy fix: Add your own preservative to your cut areas.

Also labelled as “end cut preservative”, this is a chemical made expressly for the purpose listed above. Pour some into a can, brush it liberally on the cut areas and allow it to dry ... too easy.

Waterproof your Deck Framing

9 Most people will spray a waterproofer on their wooden deck boards to prevent premature damage, but the deck boards aren't where the rot is most likely to occur. Before I begin laying deck boards, I like to spray the bare framing down with a quality waterproofer, ensuring that it gets into every crack, crevice, seam and nail hole. This is another one of those steps that costs a little more, but think of it as added insurance. Remember, we only want to build this once!

Choosing Decking Materials

10 The decking is the area people spend the most time and money on. After all, it's the part people see! What many fail to realize, though, is that the decking needs to become part of the overall deck system to get the longest life, and just “looking great” isn't enough. Here are some tips to get the maximum life span out of your decking:



Slap on the Preservative – When you cut pressure-treated lumber, you expose untreated areas of wood (left). By applying a healthy coat of preservative (right) you will slow rot dramatically.





Waterproof Sooner than you Think – Shervill applies waterproofing before attaching the Azek decking to stop rot where it's most likely to occur.

It sounds simple, but choose the best decking you can afford. Remember, your decking isn't only the part that you walk on; it's also the first line of protection for your framing. My first choice for decking is a PVC product sold under the name Azek, available through special order at Lowe's or www.azek.com. Unlike composites, Azek does not contain wood fibre, it works like wood, is relatively light, and is very hard. Also, because it is essentially pure plastic, it allows me to attach the deck boards from the top down with stainless steel deck screws (my preferred method) without fear of damage due to water collecting in the screw holes.

If you are set on using wooden decking, consider some of the alternative woods available (such as Ipe) before placing your order. Some of these new woods last for years with little maintenance and can be a great choice. If you choose to go with the "old standby" choices of either pressure-treated lumber or cedar, strongly consider going with lumber that is a full 1.5" thick as opposed to the 5/4 radiused-edge decking that has become so popular. Two-by lumber is generally higher quality, is definitely stronger and, in my experience, far outlasts the thinner decking.

11 Fastening Deck Boards

There are all kinds of hidden fastening systems now available, but I still prefer driving quality stainless screws down through the tops of the boards and into the joists. Why? Because by having access to the screws, individual boards can be removed easily should they become damaged or if access to the underside of the deck is required. One extra tip: if you took my advice during the framing stage and framed on 12" centers, you can attach your boards by driving screws into every-other joist with no loss of strength. Screws driven on 24" centers look great, and doing it this way reduces not only the number of fasteners required but also the number of pockets that water can collect in.

12 Let it Breathe

It's best to leave the sides of the deck open to allow air to circulate. Letting air get under the deck will help remove



Final Results – Your new deck will be strong, long-lasting and, of course, gorgeous. Just don't be afraid to get it dirty!

moisture and prevent rot throughout the entire structure. This will also allow access to space under the deck for storage.

That's it! With a little extra work and a small investment in better materials, you can build a deck that not only looks great but will be around to enjoy for a long time.



RYAN SHERVILL
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The history of **PADDLE DESIGN** and how to carve one

The paddle has a deep and rich history in Canada. With National Canoe Day on June 26th, there's no time like the present to reacquaint yourself with the thousands of lakes and rivers this great country of ours has to offer...not to mention your spokeshave.

Photos by: Beth Stanley Carving process photos by Jeremy Ward

The act of carving a canoe paddle is a great way to unleash your creativity and challenge your woodworking abilities at the bench. The process itself might appear to be sculptural, but don't be fooled: a paddle also demands symmetry, comfort and true lines that beg to be examined by the eyes and hands of admirers. Many of our students bring no prior woodworking experience, yet succeed with great results. In the end, a well-made canoe paddle can become an heirloom, but don't be afraid to also use it in the water. After all, it's a functional sculpture.

Material Selection

Given the amount of hand-carving that you'll be doing for this project, you will need to ensure that you have selected a premium, straight piece of wood without significant run-out in the grain. By purchasing 6/4" stock, you will have extra material to allow you to joint one face perfectly flat before bringing the final thickness down to 1 1/8". The preferred domestic wood species are black cherry, white ash or walnut, which combine appearance, durability and reasonable weight.

There are an almost infinite number of ways to determine overall length and the preferred shape of the paddle's blade, including copying an existing one. We recommend making your patterns from a paddle you like and making them for one half of the blade and grip so that they can be flipped on the center-line of the paddle for symmetry.

Laying Out Your Paddle

The stock should be milled to a final thickness of 1 1/8" before you begin. Your first step in laying out the paddle is to draw what will become the center-line of your finished paddle. The placement of this line is important, as it should follow the grain, while also allowing room on either side to accommodate

the width of the blade and the grip, and avoid any flaws in the stock. Using a long straight-edge and pencil, draw the center-line on your board.

Using your grip and blade patterns, position them along the center-line. The length of the blade should make up approximately 45 percent of the overall length of your paddle. This means if you are making a shorter paddle than the one you took your pattern from, you may have to decrease the scale of the blade pattern, or vice versa. When you are happy with the position of the blade and grip, trace the patterns onto the board by first tracing on one side of the center-line, then flipping the pattern and tracing it on the second half. To lay out the shaft of your paddle, draw two parallel lines, each 9/16" away from the center-line, creating a shaft that will be 1 1/8" wide. Continue these lines until they are slightly overlapping both your blade and grip patterns. You can then blend the transition from shaft to blade and shaft to grip, making sure you stay symmetrical. When you are happy with the layout, it is time to cut the paddle blank out with a bandsaw. Rough edges can be cleaned up with a block plane and spokeshave.

Adding Guidelines

Blade thickness lines:

Before you start carving, you'll have to draw some guidelines on your blank, starting with the blade thickness lines. The space between your thickness lines will end up being the thickness of your paddle at the edges of the blade. The thickness lines should be drawn 1/2" in from the edge of a 1 1/8" thick blank, creating two parallel lines that run 1/16" away from the center-point of the thickness of your blank. You can draw a center-line, or you can simply draw your two thickness lines, which will run down both edges, stopping at the tip of the blade.

Tip Thickness Lines:

Once you have drawn your blade thickness lines, you need to add another set of parallel lines around the tip of your paddle blade. Measure out an additional 1/8" from your blade



Mark Blade Thickness – With a marking gauge, scribe a line defining the blade thickness. In order to see the line better, use a pencil to darken the scribed line.



Tip Thickness – The edge of the tip should be marked a bit thicker than the edge of the rest of the blade.



Taper Line – To ensure the edge of the blade is tapered consistently, draw a taper line on the edge of the blank.

thickness lines and draw the tip thickness lines starting where the blade begins to curve into the tip and finishing in the same location on the other side.

Taper Lines:

Draw your taper lines the full length of your blade, starting from the outer edge of your blade where it starts to run into the shaft, down to the tip of your blade where they will meet the tip thickness lines. Repeat these lines on the second edge of the blade creating a wedge of wood on both faces of the blade that can be removed. Using a jointer, you can remove all the wood down to this line or, with a little more elbow grease, a hand-plane can do the same job.

Carving The Blade

Begin by drawing center-lines on both faces of your paddle blade and connect these lines across the butt of the paddle.



Remove Material – With a jointer or hand plane, start removing material from the blade, paying attention to the taper line.

It is important throughout the carving process to keep sighting along the blade edges to make sure they do not wander. You will also want to keep in mind that you should be working on all faces and sides alternately. Using a sharp spokeshave, chamfer the edges of each blade face at a 45° angle until you reach, but don't carve past the thickness lines you have drawn. Avoid the butt of the paddle in this step by pulling your spokeshave straight towards you without following the curve of the blade at the butt. When you have chamfered both edges on both faces of the blade to your thickness lines, you're ready to start thinning the rest of your blade.

Begin carving with long sweeps of the spokeshave, starting at the chamfered edge and working your way towards the center-line of the blade, being careful not to touch your blade thickness lines. Remember to lighten the cut by keeping your spokeshave skewed. Also pay attention to the direction of the grain and focus on carving the ridges off to avoid your spokeshave chattering. When you have a flat plane from the center-line to your thickness lines on all four edges of your paddle blade, you are ready to move on.

Now you can start carving away the wood at the center-line, creating an even arc from your thickness line on one edge to



Shape to an Angle – Trim the blade edge on a 45° angle to the initial scribe line.



Check the Thickness – As you work on the blade, use calipers to ensure you're removing material evenly.

the thickness line on the other. You can continue to re-draw your center-line as you carve – this will help you to keep your blade faces symmetrical as you work. A good way to determine when you have taken enough wood off the blade faces of your paddle is by using a set of calipers. Divide your paddle blade into thirds from top to bottom: at the upper line your blade should be $\frac{5}{8}$ " thick and at the lower line it should be $\frac{3}{8}$ " thick. Calipers set to the appropriate thickness should pass smoothly from one side of the blade to the other at these marks, and the gradual taper should be a smooth transition down the length of the blade. When your paddle blade is finished, the lower third will be almost flat from one thickness line to the other.

Carving the Grip

Begin by drawing center-lines around the edges and on the faces of your grip. Continue the center-line on the face around the top to meet the line on the second face. On one edge of the grip, draw a mark $\frac{1}{8}$ " out on either side of the center-line where you want your grip to be the thinnest. Draw an hour-glass shape connecting what will become the thinnest part of your grip up to the top of your grip and down to the shaft. Cut the triangular sections out with a bandsaw. Add another guide on the top of your grip by drawing a football or ellipse shape – this guide will help you keep the grip symmetrical. Using either a spokeshave with the blade set out a little further than normal or a rasp if you prefer, shape the grip by rounding all the sharp corners into smooth arcs and rounding any flat sides or ridges that remain.

Carving the Shaft

The first step in rounding the shaft of your paddle is to turn the four-sided shaft into an eight-sided shaft by carving off the corners. Begin by drawing a pencil line $\frac{3}{8}$ " in from each edge on all four faces of the shaft. Using a spokeshave, carve off each of the four corners between the lines you've drawn – the cross-section of your shaft is now an eight-sided figure. For every corner you carved away you've left two new ridges, so,



Work to your Layout Lines – As always, layout lines will guide you as you work this 3-D object.



Comfort and Looks – If the handle feels comfortable and looks good, you're done shaping it. Long paddles will not be enjoyable if the grip is uncomfortable.

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Mark and Work the Shaft – To keep the shaft straight and even, mark it with guidelines, then use a spokeshave or block plane to remove unwanted wood. Systematically remove “edges” until you end up with a symmetrical shaft.

with long passes of the spokeshave, carve these ridges off, leaving a 32-sided figure, which is so close to being round that it only needs some sanding to finish it off.

Finishing Touches

Now that the blade, grip and shaft are carved, you’ll find it easier to work on the area between the blade and the shaft and the area between the grip and the shaft by carving off any ridges, leaving smooth, rounded transitions from grip to shaft to blade.

Sand your paddle until you are satisfied that it is smooth and any carving marks have been sanded out. To finish it, start with a thinned coat of Minwax Spar Urethane, which contains UV inhibitors and will extend the life of your paddle. Cover the paddle with as many coats of urethane as you like, being careful to avoid drips.



BETH STANLEY
beth.stanley@canoemuseum.ca



Transitions – With the blade, grip and shaft complete, it will be easier to visualize what wood needs to be removed in order create a smooth transition between the three areas.



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KNOW YOUR PADDLES

The Canadian Canoe Museum is home to the largest collection of canoes and kayaks in the world, but what good are canoes without paddles? We have more than 150 paddles in our collection and the history of these paddles is just as rich and interesting as the history of canoes they powered.

Researchers have, on occasion, gone to great lengths to categorize paddles by geographic location or attribute them to a single community. If you think about it, though, most paddlers today have several paddles, suited to particular conditions of wave or water or linked to a particular canoe. Each blade shape, grip shape and combination of the two has its strengths and weaknesses. If this is true today, then surely it was no different for the earlier makers of paddles in whose footsteps we travel now. They too might have had a favourite personal paddle or one best suited to rough and rocky travel or one they preferred most for quiet use in still water.

While you may be familiar with the most popular paddle and grip styles used today, you may not know about the wide variety of historic styles, some of which are still popular today. Paddles have several distinct parts but the two that contribute the most to a particular paddle's shape and usefulness are the grip (which you hold) and the blade (which the water holds). Though some grips are most associated with particular blade styles, different grips and blades can be combined to produce a wide variety of paddle styles. Learn more at www.canoemuseum.ca.

Grips

The **T grip**, found primarily in BC, although not exclusive to the West Coast, can be carved from one piece of wood or an additional piece of wood can be added to form the grip. There are some examples of Malecite paddles from the East Coast of Canada, which feature T grips as well. This grip style is also the popular choice for today's Dragon Boat paddles.

Rectangular grips, or tapered rectangular grips, were most commonly used on the East Coast. The Passamaquoddy and Maliseet in the Maritimes, and the Montagnais and Nascapsee in Quebec, are a few communities that had different forms of rectangular grips. Rectangular grips vary from small, hand-sized sections to long tapered lengths that extend down the shaft almost reaching the blade of the paddle.

The **ball grip**, which can be found on Cree, Dogrib, Slave and Algonquin-made paddles, is often a sphere but can also be a ball with flattened faces on the front and back. The ball grip can be quite distinct or so subtle that it is really just a small swell on the end of the shaft of the paddle.

A **pole grip**, which resembles the end of a shovel handle, was found in several areas across Canada from Kutenai made paddles in the west to Mi'kmaq made paddles in the east. A Mi'kmaq paddle from New England was taken back to the UK and sketched in 1749 and features a pole grip. From a paddling perspective, it's hard to imagine what benefit a pole grip would give you; from a carving perspective, however, it would certainly be easier to make a pole grip than any other grip style. Some paddle carvers may be able to rescue their project with a pole grip after a more ambitious effort comes to grief.

A **pear-shaped grip** was used by Abinaki, Cree and Iroquois people and was also adopted as the grip of choice by many Peterborough, ON area canoe-building factories. Walter Walker, the noted canoe builder and paddle carver from Lakefield ON adopted this grip as his signature style. This is a very popular contemporary grip.





Blades

As the name suggests, a **pointed blade** comes to a sharp or rounded point at the tip of the paddle blade and often has angled edges on either side of the blade rather than a smooth arc. This was a style that was popular with Bella Coola, Tlinglit and Salish people, to name a few; when combined with a Tgrip, it creates a uniquely West-Coast-style paddle.

Another common style paddle blade has **parallel** or nearly parallel straight edges with either a rounded or pointed end. This was used by the Têtes de Boule, Cree, Ojibway, Dogrib, Kwakiutl and other communities across Canada and as far north as Alaska.

A **tear-drop-shaped** paddle blade was used by people on the East Coast, such as the Maliseet, Passamaquoddy and Penobscot, and in Ontario and Quebec by the Algonquin and Ojibway people. In a tear-drop style, the blade is widest in the bottom third of the blade. This is still a very popular blade style with paddlers today and is commonly called a beaver-tail-style paddle.

The **narrow leaf shape**, which is often longer in comparison to other paddle blades but narrower in width, features curved rather than straight edges and resembles the shape of a long, thin leaf. This style of paddle can be found across Canada and was used by the Bella Coola and Salish in the west, Beothuk and Maliseet in the east and the Ottawa in Ontario and Quebec.

An **ottertail** is the opposite of a beavertail, so the widest part of the blade is in the top third, closest to the shaft, after which it tapers down to the tip. Used by Bella Coola, Ojibway and Passamaquoddy people historically, it has been adopted as another very common paddle blade style for paddlers today.

OSCILLATING MULTI-TOOLS

Approaching Home Improvements with Precision and Ease

BY MATT DUNKIN

For years now, I've been quietly annoyed at the inability of my reciprocating saw to make anything close to controlled cuts, and frustrated by the inability of my jigsaw to plunge cut into a piece of wood without having to pre-drill a hole for the blade. As well, every time I have removed a damaged tile by scraping out the grout line surrounding it, or manually flushed cut casing and doorjamb in preparation for installing hardwood flooring, it has required a considerable amount of elbow grease. Enter stage left a solution to these situations that I'm kicking myself I didn't discover sooner: a tool with a manageable amount of power and fine blades that can plunge cut into a piece of wood at a 90° angle and keep to a straight line, chew through a grout line or a flush cut without making you break into a sweat, and fit into tight spaces all the while. In addition to this, it has the versatility to act as a sander, scraper or rasp depending on the attachments you place on it. Multi-tools are likely going to be more useful

for home renovation projects rather than for work in the shop but the versatility of the machine may lend itself occasionally to rough plunge-cutting a mortise or sanding a tight corner on a work-piece, depending on your situation.

The oscillating multi-tool is small enough to be held comfortably with one hand but deliver amazing results with very little blade travel. The attachment end of the tool oscillates back and forth only by about three degrees up to around 20,000 times per minute. So, with very little dust, fuss or potential for kickback, it can cut through a variety of woods and non-ferrous metals. The same oscillating motion can power a small triangular attachment for detailed sanding tasks, for scraping paint, adhesive or caulking or for grinding down thin-set mortar, wood or plaster.

Cordless vs. Cordless

In choosing a multi-tool, you'll be forced to decide whether you want to deal with batteries and chargers or cords. Corded multi-tools tend to offer the best value, durability, and stamina, while the advantage of cordless tools

So Much To Offer – These units excel at cutting, sanding, scraping and more. You'll be amazed at how often you reach for a multitool while working wood around your home or shop.

lies in their portability and the convenience of not having to deal with cords. The ability to plug a corded tool in and run continuously is a must for larger or repetitive tasks. Undercutting trim, for example, or sanding into the corners of an entire flight of stairs is where the corded multi-tools will shine; whereas if you need to take one up on a roof to make a specific cut, the safer and quicker unit will be cordless. Corded versions tend to be less expensive and last longer, whereas you'll pay a premium for the convenience of working without a cord, and the batteries will need replacing after a few years. It's a good idea to assess how much you'll be using a multi-tool and where before finalizing your choice. There are quite a number of competitors on the market in both categories, so there is lots of basis for comparison. To review them, I've broken them down into cordless and corded versions and tried to highlight some of the features you'll find helpful in choosing one for yourself.



Cordless Tools



Dremel Multi-Max



\$159

Extras: Two Batteries, 7 pc. set

The Dremel Multi-Max is a solid tool with great accessories. It conveniently sports two batteries and a “fuel gauge” to allow you to know how much battery charge is left when the tool begins running. It is widely accessorized with a variety of wood, metal and drywall cutting blades, specialized grout removal blades, scrapers and grinding pads. It's among only a select few tools that have on offer a carbide rasp for grinding thinset, cement, plaster and wood.



Ridgid Job-Max

\$119 for base unit, \$39-\$49 for additional heads

Extras: One Battery

Ridgid's Job-Max is a remarkable tool that can re-invent itself; additional tool-free quick-connect heads allow the motor to power a right-angle drill head, ratchet head and impact driver head. The power base features an LED light to brighten your workspace, and a unique variable speed trigger for one-handed controlled adjustment. This was the loudest of the cordless tools I tested, coming in at 90 decibels. The starter kit only includes one 12V Lithium-Ion Battery which may push you towards buying the larger kit from the beginning. And you've got to love Ridgid's lifetime service agreement.



King

\$69.99

Extras: One Battery, 30 pc. set

King Canada makes a basic oscillating multi-tool that has a 30-piece kit including sanding, cutting and scraping attachments. Unfortunately, it only comes with one battery, so when it runs out of juice you'll spend some downtime waiting for a fresh one. Speed is variably adjusted with a selector dial on the side of the tool. This is a no-frills multi-tool that is a bit heavy and, while functional enough, feels inexpensively manufactured. The advantage of this tool is its affordability and ability to do the basic job it was designed for.



Mastercraft Multi-Crafter

\$139.99

Extras: One Battery, 15 pc. set

Mastercraft's cordless offering includes one battery and has a unique means of starting up. There is a power button which turns the machine on (turning on a small task light) and then a power-up button (+) and power down button (-) send the motor through various gradations of increasing and decreasing power. I found the mechanism to be a drawback because of the slowness of it getting up to speed – each time you turn it on you need to ramp it up to your desired power level, which invariably involves wiggling the tool with each push of the button.

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Corded Tools

Rockwell Sonicrafter



\$199-\$229 (depending on attachment set)

Extras: Two Batteries, 21-100 pc. set

Rockwell's cordless Sonicrafter oscillating multi-tool is a sharp little tool with some visionary features, even on the charger. Rockwell will warranty a free battery replacement if the tool itself outlives the battery. The innovative ENERGY STAR* charger completes its charge quickly in 30 minutes while offering a built-in USB port for charging electronic gadgets. Rockwell's Sonicrafter is the only cordless unit to offer a detachable dust port for attaching to your shop vac, and it has a small task light for lighting dark areas. A removable adapter allows for expanded use of other manufacturer's blades and attachments which may be an advantage depending on where you live.

Milwaukee M12

\$199

Extras: Two Batteries, 7 pc. set, adapter

Milwaukee's M12 Multi-Tool will likely look familiar to you – it is part of a system of sub-compact specialty tools all utilizing the same 12V Lithium-Ion battery, and two come included with the tool. For these tools, ranging from cordless drivers and impact wrenches to reciprocating saws and camera kits, a 30-minute charger, and tools with battery fuel meters are standard. Featuring 12 speed settings on its dial the multi-tool also comes with an adapter which allows almost universal compatibility with its competitor's sanding, cutting and scraping attachments.



King

\$54.99

Extras: 30 pc. set

One of the most affordable tools of the bunch, King Canada's Multi-tool kit is very similar to its cordless counterpart. Its variable speed doesn't go slower than 15,000 opm, keeping it in the higher frequency end of the multi-tools. I found the nut and washer holding the blade tight kept coming loose under heavy use as I was undercutting door trim and jambs. The blades also were a bit disappointing, dulling quickly and beginning to overheat in their kerf. The cord length was about average at eight feet long.

Rok

\$54.99

Extras: 25 pc. set

Sharing many similarities to the King Canada tool, the Rok Multi-tool also doesn't oscillate lower than 15,000 opm. A heavy tool, the blades on this one also loosened periodically. Its cord is short at 6 1/2', nearly always requiring the use of an extension cord.





Haussmann

\$59.99 (\$19 for attachments)

Extras: Can purchase attachments separately

Sold by Rona, the Haussmann has a slightly larger slow start 2.2 Amp motor than the more common 1.8 Amp in most of the other tools, and perhaps for this reason was one of the quietest at 87 decibels. It is the only multi-tool to feature a built-in dust port which draws dust from around the attachment housing. My biggest frustration with this tool is its cheap hard plastic carrying case. You may spend more time trying to fit its cord and attachments back into its tiny case than you will using the tool.

Fein MultiMaster

\$239-\$429

Extras: 24-61 pc. set

Fein makes a brilliant multi-tool and there are a number of different levels of units available at different prices. There is ample storage in the solid orange case for attachments, and the extensive Fein catalogue includes circular offset blades, blades with depth stops, files, finger-shaped rasps and a unique profile sanding set for getting into six different types of grooves. The MultiMaster features a slow-start motor, a dust removal attachment, and powers a circular 4 1/2" hook and eye sanding head. Perhaps most revolutionary is a quick-release hinge for tool-free blade changes, which will speed up your work. The cord, measuring 16' in length, nearly eliminates the need for an extension cord and the cutting blades were extremely durable.



Dremel Multi-Max

\$136.99

The smallest of the corded multi-tools with a 1.5 Amp motor, the Dremel has a light feel and a respectable number of attachments available for it. You can purchase rigid and flexible scrapers, and semi-circular wood and dry-wall blades as well as diamond paper and a carbide rasp for grinding various materials. The Dremel registered as the loudest of all the tools I measured at 93 decibels. Its carrying case is light and small yet spacious, with two spindles inside for holding blades in place during transit.



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Rockwell Sonicrafter



\$79-199

Rockwell's corded Sonicrafter offers a removable dust port, and a spacious soft carrying bag. It's a small thing, but there is a place on the cord to fit the Allen key, so it's always handy. Its cord length is a respectable 10 feet long and one of the innovative attachments unique to this tool is a felt polishing pad for shiny and delicate surfaces such as chrome. This tool has plenty of power at 2.3 Amps and a variable speed dial that goes down to 11,000 opm.



Mastercraft Multi-crafter

\$99.99

Mastercraft's corded Multi-crafter is a bit bulky with a 2.5 Amp motor and a weighty feel. Like the Rockwell, it comes with an Allen key holder on its short 6 ½' cord. It seems to be a mid-to-low end offering with average blades and a limited selection of attachments, fine for general use, but without some of the specialty features or attachments you would find with more expensive models.

Conclusion

Oscillating multi-tools fill gaps in the abilities of other more conventional power tools and can tackle challenging manoeuvres like plunge cuts, fit into almost any space, and save you a lot of time and effort in the process – precisely and safely. There is only so much variation in the tools themselves – an oscillating multi-tool capitalizes on a basic oscillating function in which there is very little room for innovation. Where

the gap widens between the tools is in the attention to details, whether that's length of cord, means of changing attachments, or the overall quality and variety of the attachments.

There seem to be three categories of tools here: the industry leaders whose reputation is secured through innovative features, design and manufacturing of the highest quality, and strong warranties; the solid alternatives, which make what is perhaps the best value product



The Name Says it All – Although a multitool is perfect for many wood tasks, it also cuts non-ferrous metals, drywall and plastics, removes grout and scrapes paint without a problem.

and have a comprehensive but not exhaustive number of features and attachments without the frills; and finally the basic tools that perform the same function but generally opt for a lower level of performance and a more basic “fit and finish” in favour of being more affordable.

I would award “Best Overall” corded multi-tool to the Fein Multi-Master for the innovative advantages of the tool itself, its extensive and durable attachments, and great case. Fein has crafted an impressive professional-grade tool and invested heavily in making it as versatile as possible. Rockwell’s Sonicrafter corded multi-tool offers a smaller but still respectable number of attachments, at a much more attainable price and is therefore my choice for “Best Value”.

The Rockwell Sonicrafter cordless would be my choice for “Best Overall” cordless multi-tool for the intentional design of its charger, dust port, task light and for its battery guarantee. While there are less expensive alternatives, my choice for “Best Value” would be the Dremel Multi-Max; the less expensive tools include only one battery and with a cordless tool like this you’re going to want as much power as you can get. The Dremel Multi-Max has a wide variety of attachments available, a small but decent case, battery gauge and easy-to-use controls. Having said that, if you’re needing the features of the additional heads available for the Rigid Job-Max, then purchasing it may be the best value for you in the long run – especially if you already own another Rigid 12V battery.

The nice thing is there’s a multi-tool here for every budget and type of user, from the home improvement professional, through the dedicated do-it-yourselfer to the enthusiastic weekend warrior.



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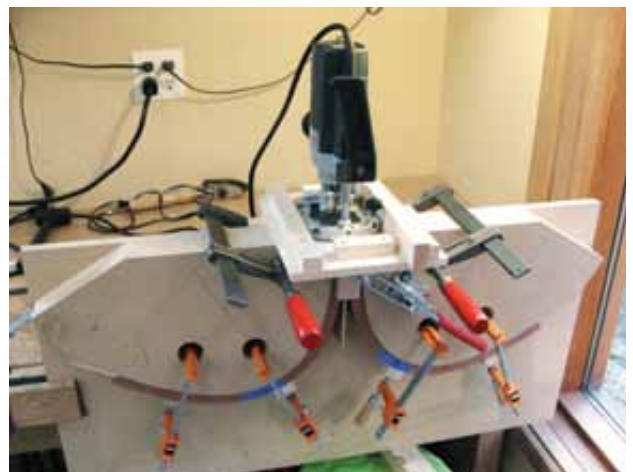
Tricky Tenons

These pillowed and wedged-through tenons make strong and eye catching joints.

BY STEVE NEIL

Since the stretchers on this coffee table are curved, it's easier to use loose tenons for all of the joints. I start by cutting mortises in the ends of each of the stretchers, using a jig that holds two stretchers in the same orientation as when they will be glued up. A plunge router with a $\frac{1}{4}$ " spiral up-cut bit cuts the mortises. To ensure the gap between the two mortises is consistent on all of the legs and stretchers, I use a jig with a $\frac{27}{32}$ " spacer to offset the router so the gap between the two mortises in the stretchers is the same as the gap between the leg mortises.

To cut the two mortises on each of the legs, I use a shop-made horizontal mortising machine with a jig to hold the leg in the correct orientation. A plunge router with a different jig could also be used. The same $\frac{27}{32}$ " spacer is used to ensure that the gap between the two mortises will mate with the stretcher mortises. In order to prevent blow out when cutting the mortises, I temporarily fasten a piece of veneer to the outside of the leg using double stick tape.



Accuracy is Everything – In order to accurately rout the mortises in the stretchers, a well thought out jig is used in conjunction with a spacer. The spacer is easily moved from one side to the other in order to position the router perfectly.



Lead Photo and Table Photo by Ingeborg Suzanne Photos by Steve Neil



Milling the Leg Mortises – A second jig positions the leg to cut mating mortises. Note the spacer on top of the workpiece. For the next cut, it will be placed below the leg.

Assembly – A jig is used to accurately position two stretchers and a leg during each stage of assembly.

This table has six legs and six stretchers, so I require 12 floating tenons. I usually make some extra just in case. The size of the tenons must match the size of the mortises in the stretchers and legs. This coffee table uses tenons that are $\frac{1}{4}$ " thick, $1\frac{1}{2}$ " wide and about 4" long. I mill up three or four pieces of stock $1\frac{1}{2}$ " wide by 24" long and just over $\frac{1}{4}$ " thick, then plane the pieces to exactly $\frac{1}{4}$ " thick. Next, I round over the edges of the strips on a router table using a $\frac{1}{8}$ " radius round-over bit and cut the strips into 4" lengths. I always lean towards quarter-sawn material, while rift-sawn stock is my second choice. During assembly, I keep the grain orientation of the tenons symmetrical, mainly for visual reasons.

To pillow the front edge of the tenons, I dry assemble each joint, making sure the tenon is fully seated in the mortise, and mark the flush location of each tenon against the face of the leg. I then cut the tenons approximately $\frac{1}{8}$ " beyond the line and pillow the ends using files and sandpaper, being careful not to shape past the pencil lines. Next, I cut two kerfs in each tenon. The legs in this table are about $1\frac{1}{2}$ " thick, so I make the kerfs about that length.

I use a $\frac{1}{4}$ " diameter chainsaw file to enlarge the mortises in the legs and make them slightly wedge shaped (wider at the front of the leg than at the back). This allows the wedges to expand the tenon at the front and mechanically lock the tenon into the leg. I make wedges using a simple 4" x 16" wedge-cutting jig made of plywood that runs against my bandsaw's fence. In the long edge of the jig I cut a $1\frac{1}{2}$ " long wedge shaped notch. Mill a block of wedge material $\frac{1}{4}$ " thick by 4" wide by $1\frac{1}{2}$ " long. Push the end of the block into the side of the wedge jig and run the jig through the bandsaw blade, cutting a wedge. Flip the block over before cutting another wedge to ensure the grain continues to run lengthwise. Pre-finish all parts prior to gluing up the table. This includes pre-finishing the ends of the tenons where they are exposed. Use blue masking tape to cover all glue surfaces.

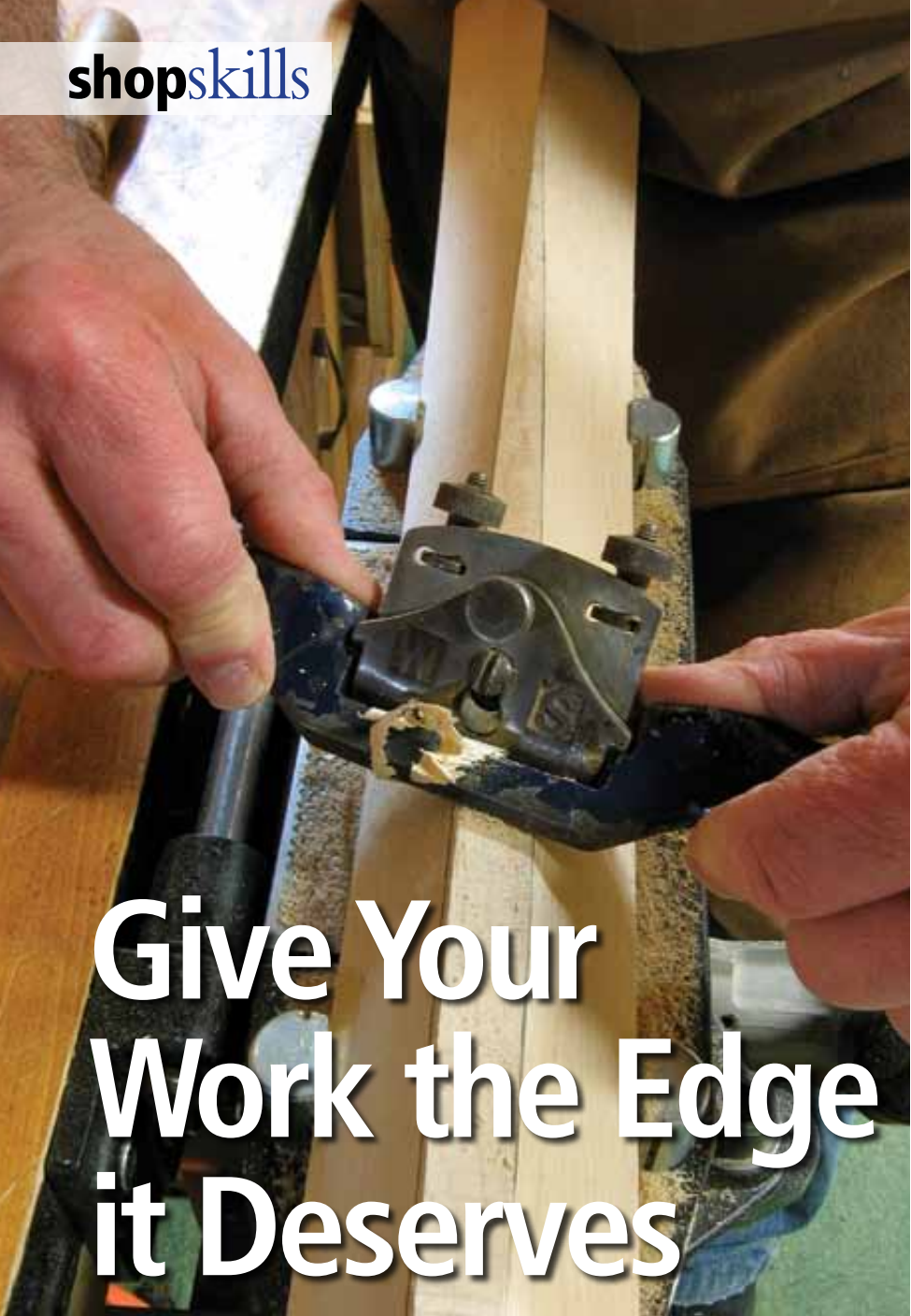
To keep the parts aligned correctly I glue two stretchers and one leg at a time, with the help of a jig. I dry fit all of the parts and wipe some wax on the pre-finished surfaces of the legs and the ends of the tenons so glue doesn't stick to any exposed surfaces. I use Claphams beeswax polish from Lee Valley. Be careful not to get any wax on the tenons or in the saw kerf for the wedges. After disassembling the joint, I apply glue to the mortises in the stretchers and to the ends of the tenons, and insert the tenons into the stretcher mortises, tapping them into place. Next, I apply glue to the mortises in the leg and a little to the ends of the tenons, and use clamps to close the joint. I immediately remove the clamps, then glue and insert the wedges with alternating mallet taps to ensure the wedges finish at the same depth before re-clamping the joint. The clamp caul I use has been relieved where it will fit over the tenon.

Once the glue has set I trim the wedges to match the pilloved tenon and remove any glue squeeze-out. Extreme care is needed not to damage the finished surface. Re-apply some finish and wax to the ends of the tenons, as required.

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Give Your Work the Edge it Deserves

Edge treatments help frame a table or cabinet's top and legs and can have a huge impact on the overall appearance of a piece. Before you reach for your router, take time to consider what message you want to convey. You'll find the return on this investment is time well spent.

BY MARTY SCHLOSSER

In this article, I'll outline the various edge treatment options available to you for both solid and veneered edges. I'll go far beyond the simple roman ogee-routed edge and explore the use of hand planes to modify routed edges as well as how to use jigs to guide routers for crafting edges that vary in thickness. Although today's shops are sometimes filled with the sound of routers, I'll also show you why there is still an important place in the craftsman's lexicon for a quieter and less dust-filled way.

Safety Considerations

Unlike their big brother the shaper, routers are not designed to hog off lots of material with a single pass. How much a router bit will remove will depend on many factors, but the type of wood you're machining, the size and profile of the bit you're using are the main two. When in doubt, remove less material with each pass. Be sure to also respect the rotation of the router bit. It may get away from you if you attempt to "climb cut". Curved or serpentine fronts are best routed freehand using router bits equipped with bearings to guide the bit along the edge.

The Basics

Fortunately for us, manufacturers responded long ago to the call by restorers to produce router bits, which mimic the hand-planed shapes championed by Stanley and others at the turn of the century. Or centuries. These traditional edge effects include: cove, oval (or round), chamfer, ogee, bead and flute, as well as many other less popular profiles.

Special Effects

When designing your furniture, be careful not to over-use these "out of the box" bits, else your pieces may appear too commercial. After all, part of the idea behind making your own furniture is to ensure it's unique and not like anything you could find at the big box stores, right? To keep this from happening, let's now explore other ways to "punch up" edge shapes.

By adding a simple fillet, which in most cases only requires you to slightly increase the router bit's depth of cut, many of these edge shapes can be gracefully modified.



Another Pass – Making multiple passes on an edge with different bits can produce interesting results.

Dropping the bit below the surface of the top by as little as $\frac{1}{8}$ " creates a shadow line, which can emphasize the thickness of the top and add depth. This is known as a fillet, and although they can be used in many edge treatments, I find them most particularly useful with the cove, oval and ogee.

You could also use hand tools and modify an already routed edge. Do you find that rounded edge of the ogee a bit too short for your liking? No big deal – take your block plane and “stretch out” the curve by planing away more of the upper section of the curve, then follow up with some judicious sanding by hand to remove any tool marks left behind by the plane blade. There are also times when you may wish to combine various bits to achieve an interesting effect. Try, for instance, following up on a filleted ogee with a cove



Modifying a Routed Edge – Don’t be afraid to take some hand tools to an edge to fine tune it.

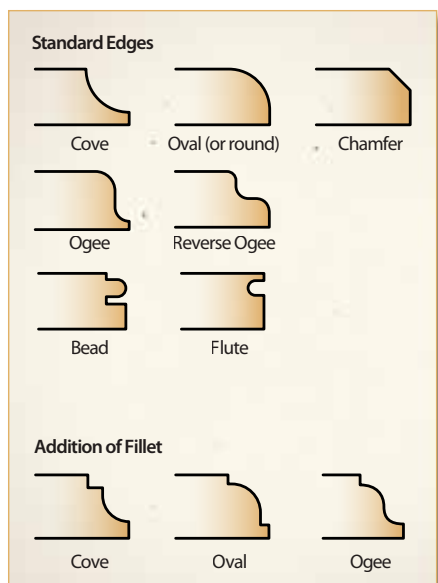
to replace the lower section of the ogee. You’ll be amazed by the number of unique edges that can be achieved from a basic set of router bits.

Advanced Effects & Techniques

Okay, so you’ve done everything you can think of using your tried and true “out-of-the-box” bits and you’re still left hungry for something more exciting. You’re ready for the big time, mon ami. Let’s explore the world of multi-profile router bits and the use of jigs to guide routers for crafting varying-thickness edges.

Multi-profile Router Bits. These bits offer more than merely another set of shapes. By simply raising or lowering the bit in your router table, a near-endless variety of shapes come into play. These bits should only be used in router tables. Like all large bits, they cannot safely be used in hand-held routers.

Jigs for Varying-thickness Edges. If you’re looking for a way to enhance the effect of an otherwise boring, straight chamfered edge, how about varying the depth of the chamfer as it moves along the edge? Simply make a curved edge guide for the bearing to follow and, voila! You can also run the router’s base



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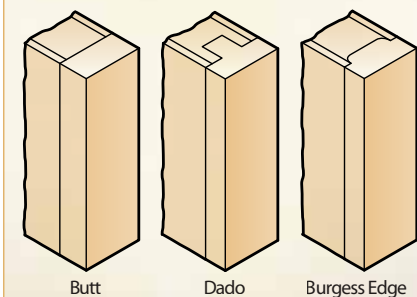
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along the curved jig if the bit doesn't have a bearing. The otherwise straight edge appears to be curved and more alive. Just remember to keep a few of those leftover pieces at hand to play around with when setting up the curved guide and adjusting the initial bit depth.

Lighten the Look

Why not rout the underside of the edge using a raised panel bit mounted in your router table? Although raised panel bits aren't usually thought of as being an edging bit, they can certainly come in handy for this specific purpose. Again, though, these large bits can only safely be used in router tables, and in all instances do not try to hog off more than your machine can comfortably handle in any single pass. How much is too much, you ask? Although a general rule of thumb is $\frac{1}{16}$ " at a time, if your router speed drops dramatically and it sounds as though it's labouring excessively, it probably is. Immediately slow down your feed speed and if the machine continues to sound like it's excessively labouring, it's telling you that you're attempting to take off more wood than it can handle. Stop; readjust the depth to take off less material, and start over.

Handling Veneered Sheet Goods

Veneered sheet goods are great time-savers wherever large, flat panels are called for. However, in most cases you don't want the core – whether it's plywood, MDF or particle board – to show at the edges. This is where built-up solid wood edging comes into play. Of course, the easiest way to go is with iron-on edging, but you can't rout such



Multi-Profile Bit – Some bits will cut many different profiles by adjusting the height of the bit.

edges without exposing the core material. You can get around this problem by butt jointing a piece of solid wood of the same (or contrasting) species thick enough to handle the router bit you're considering. There are, however, times when this joint isn't considered adequately strong, such as on a dining room table top. This is where the dado comes into play. Don't try to make the dado fit too snugly when dry, though, because when the glue swells the tongue, you may have difficulty inserting it at assembly time. The same goes for leaving some room at the bottom of the dado slot for excess glue to go; having even as little as $\frac{1}{16}$ " is enough in most cases to get you out of this "tight squeeze".

I recently had the opportunity to use the "Burgess Edge" routing bit set, which I found to offer an excellent and relatively quick way to make near-invisible built-up solid edging. The set comes with two bits, the first of which cuts a precisely-machined, rounded edge slot that leaves only the veneer

exposed at the very edge of each face. The second bit is used to machine the edge insert, which mates perfectly into the slot. There are shims and an excellent set of instructions telling you how to use the set, as well as how to adjust it for a perfect fit regardless of the thickness of the $\frac{3}{4}$ " plywood, which we all know is anything but consistently $\frac{3}{4}$ " thick. Three words describe this edging set: simple, fast and accurate. It doesn't get any easier than that when you want your veneered sheet goods to appear solid and take a handsome routed edge.



Curves Add Life – A curved template will guide the bit along an edge, leaving a unique look.



Burgess Edge – This set makes easy work of applying solid edging to sheetgoods.



Slow Things Down – In some cases, it's safer and easier to use hand tools to add details to an edge. In this case, a beading tool cuts a bead with ease. It's a nice touch.



Hand Tool Effects

There are times when routers shouldn't be your first tool of choice though. I'm speaking here of delicate veneered edges, where just one slip by a 20,000+ RPM router bit would ruin several hours of work ... to say nothing of the one-of-a-kind veneer you had waited several weeks to receive by mail. There are also those jobs where the work is on curved pieces where the flat base of a router won't be stable enough to guarantee consistent depth of cut. In such cases, there's nothing safer than unplugged tools to cut a bead, which makes for a most pleasing edge feature.

As with many woodworking effects, edges offer the craftsman the opportunity to make a subtle, yet meaningful statement. Whether your piece is of solid wood or veneered work, the edging options you have at your disposal are limited largely by your own imagination. Many of those choices would work for most pieces, but there's likely only a few that'll give your piece the wow factor it deserves. Instead of jumping right in and digging that ol' faithful router bit out of the box, why not take the time to try a few different options on some scrap wood? You might be surprised what you come up with. And your work deserves nothing less.



MARTY SCHLOSSER
MartysWoodworking.ca

Power-Carved Edges

Perhaps sculptures requiring 20 hours to carve and another 20 to sand smooth aren't for you. Maybe you're also tired of the same old edge left by your set of router bits. If furniture is more your thing, you can still put a power carver to work in your shop. A great place to start is on panels or edges where you would use a router and a bearing-guided profile bit.

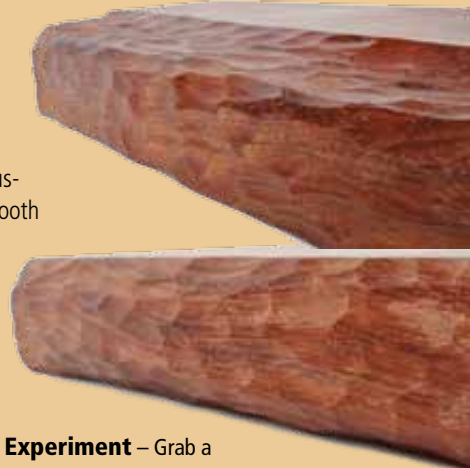
A 4" angle grinder is best suited to areas wider than 1 1/2", while the mini Arbortech or rotary tools like a Dremel work well on smaller surfaces or where more detail is desired. In harder woods, sharp tools can make a clean cut requiring no further work. For softer woods prone to leaving fuzzy surfaces or when carving smooth curves, further work with rasps, scrapers or sandpaper will be necessary.

When I was asked to carve the edges of a 2" thick waterfall bubinga table, my first step was to create some samples. Some of my ideas exploited the unique pattern of ridges and hollows left by the edge of my industrial Arbortech wheel. I also shaped some edges in a smooth wave-like curve to highlight the amazing waterfall figure and a variation of this idea was approved in the end. To shape the profile, the bulk of the waste was removed with an angle grinder and the resulting surface was refined with sanders.

These versatile tools should not be limited just to decorative treatments. An angle grinder makes quick work of hollowing out chair bottoms. When installing a vise on my bench, I needed to cut a notch on the underside. It was impractical to take the bench apart to cut it on the band saw, my jigsaw didn't have the capacity, and using a carving gouge would have been tedious. My Arbortech finished the job in a couple minutes. I've also used the tool in renovations but my favorite use of the tool is by far free-form carving. My little 4" grinder fitted with the carbide-tipped industrial Arbortech blade may just be my favourite power tool.



Complement the Piece – An appropriate carved edge will give a completely different look; something you need once in a while.



Experiment – Grab a few pieces of scrap wood and see what happens. These were two of many samples created by Wong before the client settled on the final design.



CHRIS WONG
chris@flairwoodworks.com

Power Carving



wanted to finish a sculpture instead of just having a bunch of wood chips as the only rewards for my many days of efforts. This is when I discovered power carving.

Out of the Dark Ages

I first heard of power carving through books and magazines but was under the romantic impression that hand tools were more “authentic” than using power. This idea of tool purity eventually gave way to the practicality of actually finishing a carving. I purchased a cheap angle grinder, having seen a TV program that showed someone wood-carving with this tool. What I didn’t know and what I learned the old-fashioned way is that the stone wheel that came with the grinder was not meant for wood, unless of course you like zero results while making a lot of smoke. I soon found myself at the Lee Valley Tools front counter, where I was introduced to my first important power-carving tool, the Lancelot carving disk for the angle grinder, a circle of 22 chainsaw teeth. This was exciting; the aggressiveness of a chainsaw in a compact and maneuverable tool. At first there was fear as the whirling blade spun in my grip. How am I supposed to control this thing? Am I going to slice myself into bits? What is going to happen when I actually sink the blade into wood? And this was the revelation: when the blade met wood, the wood disappeared ... gone. What had taken me minutes to do with hand tools took seconds to do with my new power carver. What had taken me hours before now took minutes. This tool would change everything for me. I

BY CONRAD SARZYNICK

When I began sculpting, I had a lot of enthusiasm, a tool kit of rusty carpenter’s chisels bought from a flea market and a rock as a budget mallet. I collected small logs or bought wood and proceeded to make piles of wood chips in my backyard, but never completed a carving. Within a few years, my kit included several Pfeil Swiss-made gouges, a couple of knives, a homemade adze (that didn’t work), two Haida-style curved blade knives (my desert island tool) and a real wooden mallet instead of a stone. With this

expanded kit, I started chipping away at some cherry wood a farmer friend had given me as well as my parents firewood pile. Lots of chips and many small logs were started but in the end I only completed a decorative spoon in cherry and a small abstract carving in walnut. My love of hardwoods meant that carving with hand tools was a very slow process, days of malleting a large gouge into dry cherry and no satisfying forms taking shape. I had partially-carved logs all over the place, all incomplete. I knew I had a passion for carving and didn’t want to stop but this wasn’t working for me. There had to be another way. There came a time in my life when I actually



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LoneWolf



The Arbortech Industrial, Arbortech Pro-4, Lancelot, and the Kutzall cutting disks. (Left three photos by manufacturer. Far right photo by Rob Brown.)

began to actually finish carvings instead of simply create woodchips.

As many woodworkers know, tools have a way of breeding in the workshop. I started off with my angle grinder and now I have a variety of power-carving and power-sanding tools, all of which make my job easier and faster. With my angle grinder or carving burrs, the speed and ease with which I can remove wood allows me to be more creative and spontaneous while carving. I can sweep out shapes with several strokes, defining and refining fluid shapes with long passes of the blade over the wood, almost like modelling with clay. I see power carving as similar to painting or clay work, more in the moment. With the gouge

and mallet, the focus is on removing the chip; with power tools, you work more directly in shapes and forms.

Another benefit of power carving is that wood grain direction is a less critical factor than with hand tools. Sometimes with hand tools, you want to carve in a certain direction but the grain of the wood makes this a challenge by splitting out. Although grain direction does affect power carving to a degree, it is a much smaller issue. Even though it appears as though the angle grinder is carving away deep grooves with a single stroke, each of these strokes is made up of hundreds of tiny cuts. These small cuts are less likely to chip out or split compared to a larger hand-powered blade. The small size of the many cuts, paired with the great speed at which they are removed, allows for cutting in all directions. In saying this, you will still find when power carving that cutting is easier in some directions than

in others. End grain may be slower and less clean than if you turn the work piece and carve with the grain. Usually by changing the angle of the tool, you will again find your sweet spot without fighting the wood. Grain direction can be especially tricky when hand carving figured woods like fiddleback or burls. The grain of figured woods goes in so many directions that almost every gouge cut can feel like it is tearing. Hand-sanding figured woods can also be a challenge; if you are not careful, you can produce a surface that undulates with the pattern of the grain. Burls are a joy to carve with power tools, probably even easier than straight grained wood. And by using power sanding to smooth a burl, a perfectly smooth surface can be achieved.

Choosing a Carving Blade

The main tool I use when carving my wood sculptures is a cutting disk powered by an angle grinder. There are several different styles of angle grinder carving wheels on the market and each of them performs a bit differently. Here are my thoughts on four popular disks: the Lancelot, the Arbortech Pro-4, the Arbortech Industrial cutter and the Kutzall carver/sander.

The Lancelot is what many first-time power-carvers start with (including myself) because they see “chainsaw” and “22 teeth” and get excited about that. I happily used this cutter for many years but it does have its drawbacks when compared to other wheels. The major issue with the Lancelot was the possibility of kickback. This occurs when the teeth dig deep and grab the wood firmly, forcing the tool to quickly jolt with force. Kickback can lead to an unwanted gash in your work and the sudden loss of control is potentially dangerous or, at the very least, a shock to the nerves. Another possible issue with the Lancelot is that it has 22 teeth, many more than other carving disks. For those with a phobia of sharpening, this can be an



Figured Wood is Sometimes Easier to Work – The twisted grain of burls and curly grain are actually easier to power carve than many straight grained woods. And the finished look is stunning.



Ready for Action – Angle grinder with Arbortech Industrial Woodcarving disk. The blade guard is in a proper and safe position.



obstacle. For those brave souls comfortable with the chainsaw file, it won't be a problem. And for those who don't want anything to do with sharpening, or if the chain becomes damaged, a replacement chain can be purchased instead of replacing the entire wheel. As for performance, the Lancelot carves well but I found that the other two Arbortech units have more control and produce a smoother finish than the Lancelot.

For someone starting out with power carving, I would more readily recommend the Arbortech Pro-4 blade. The Pro-4 carving wheel is approximately the same price as the Lancelot and for me it outperformed the chainsaw-toothed carver. It is fabricated from a single piece of steel with six "chip limiting" cutter teeth. When it comes time to sharpen, you only have to sharpen six teeth and the chip limiting greatly reduces kickback while increasing control and producing a finer finish. The Pro-4 is often sold with an optional clear plastic blade guard, probably intended for use in construction. This blade guard severely limits the manoeuvrability of the carver and it's bulky and cumbersome. I would recommend purchasing the Pro-4 without the guard in order to save money and frustration. This only pertains to the guard sold with the wheel. Always, I stress, always use the blade guard that comes with the actual angle grinder. This guard is very critical; it directs the woodchips away from your hands and, more importantly, it prevents your hands from entering the spinning blade. Everyone wants to keep their fingers.

The Arbortech Industrial Cutter is the disk I now use for my sculptures. It is three times the cost of the other carvers at around \$170 but its benefits are worth it if you plan on doing a lot of carving. The Industrial carver performs much like the Pro-4, smooth controlled carving without the fear of kickbacks. What sets the Industrial carver apart is the three carbide teeth. If you carve hardwoods or softwoods with a lot of silica this is indispensable, as the very hard carbide teeth will stay sharp for much longer. And when the blade eventually becomes sluggish, by simply loosening the screws and rotating the round cutting teeth you have a fresh sharp edge in minutes. This can be done several times per tooth, until the tooth is

eventually spent and replacement teeth need to be purchased. I have used my Industrial cutter on very hard woods over a period of seven years and I think I have only replaced the teeth twice. You can also extend tooth replacement by using a small diamond file to hone the carbide teeth.

Kutzall disks use thousands of needle-like carbide points instead of blades to abrade the wood surface. This works well with figured or problem woods and in all grain directions with no chipout. Its large surface area allows for long sweeping strokes and smooth blending and grading. Because the Kutzall disk abrades instead of cutting, deep carving can be slower than with the other carvers. Also, the Kutzall produces dust and not chips so good ventilation is necessary. There are several "grits" of Kutzall disks on the market. The most readily available is silver. In my experience, the silver Kutzalls carve well but sometimes load up with wood and resin. Because the Kutzall is made of carbide, this imbedded wood and resin can be burnt out using a propane torch, thus renewing its performance. You can do this but it might be more prudent to find yourself a coarser grit than silver. Kutzall makes an orange and a black version with coarser grits that do not clog up and cut much quicker.

Choosing a Power Grinder

During my first power carving years, I simply used the cheapest angle grinders I could find and was completely satisfied. The theory was that grinders are typically made for use on metal and concrete, and because wood is a much softer material any grinder should be able to handle the job. If I did burn out the machine or clog the works with wood dust, I was happier to replace a \$35 grinder than a \$100 one. And for the most part this is true. For the beginner, I would either recommend the grinder you already have or something inexpensive. For those that want enhanced performance, higher amps equals more power and less likelihood of the machine bogging down under aggressive carving or harder woods. I now have brand-name grinders between 8 and 10 amps but tools with higher amps than this start to get large and heavy.

Regardless of the cost of the grinder, here are some things that are important to consider when shopping. Make sure the blade guard can be fastened very securely to the unit. When carving, the guard will be repeatedly bumped and you will find that your hand will sometimes push against it, so it is critically important that it is solid to make sure your hands are protected from the spinning blade.

Each brand and model of grinder has a different feel to it and you should find the best feel for you. It should be nicely balanced and comfortable, not too heavy, and the handle should be in a position that feels right. This tool can be used for hours at a time so it is important that it is comfortable and as easy to hold as possible. And don't sacrifice comfort and ease of use for higher amps. It is not worth having a machine with higher amps if it feels awkward and heavy, so pick up a variety and give them a hold.

Another very important thing to look for when purchasing an angle grinder is the access and ease of the ON/OFF switch.

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Hold Your Hands Close – While carving, keep the grinder close to, but not overtop of any part of your body. This will give you lots of control. Sarzynick draws on the wood with a marker to help him imagine what shapes to carve.

There is nothing more frustrating (and dangerous) than trying to turn off a handheld bladed machine when the power switch is hard to find or is stuck in the ON position. A switch unintentionally sliding to the OFF position while carving is also very annoying. Test the ON/OFF switch to make sure it locks securely and releases readily in both positions and is easily accessible. A thin gap beneath the actual switch means it is less likely to trap small wood chips. A larger gap under the switch is likely to get clogged causing it to jam. I have learned this the hard way many times.

Protect Yourself

Before beginning power carving, it is important to consider your personal safety. I will begin by telling a little story of the most horrifying example of a lack of safety I have ever witnessed. I was at a local wood show where a fellow was sitting in a chair giving a demo on bowl-carving using an angle grinder. No hearing protection, no goggles, no gloves, he was sitting in a chair holding his bowl in his lap, securing it with one hand. In his other hand he held his whirling angle grinder without a blade guard. One simple mistake would be catastrophic. Everyone who walked by took a double take in bewildered fear. It still makes me cringe thinking about it.

I recommend wearing a pair of good all-leather gloves that fit you well. Gloves that are bulky and oversized should not be worn. Proper-fitting gloves will allow for a solid controlled grip with no excess material potentially getting caught by the blade. When carving with an angle grinder, a fast stream of wood chips is propelled from the cutter often directly at your hands. Leather gloves will protect your hands from the chips abrading your skin. I also recommend wearing gloves while sanding. When using rotary or belt sanders, this will protect you from an annoying burn and for hand-held vibrating sanders this will protect your hands from the possible negative effects of prolonged vibrations.



Sanding with Power – You can put a flexible resin sanding disk backed with a smaller rubber support on your grinder and easily remove most of the rough blade marks.



Lots of Versatility – Once you get accustomed to the grinder and blade, you will be able to roughly remove large amounts of material and make delicate cuts with ease.

Other essentials for power carving are a good dust mask and eye protection. When I began carving I used a silicone cartridge style mask and full-seal goggles over my glasses. Unsealed goggles are not recommended because wood chips can fly at your face from different angles getting in your eyes or trapped behind the lens. Because I carve a lot, I now use a one-piece full-face shield respirator. In addition to protecting my lungs, it protects both my eyes and entire face from flying chips.

Earplugs or earmuffs are also necessary as the tools are loud.

Angle grinder safety

Make sure the metal blade guard is securely locked in place in the proper position. This guard will keep your hands from accidentally sliding into a spinning blade. Before you plug in your tool, make sure it is in the OFF position so you won't get a surprise when the plug enters the socket.

A rule I have made for myself when carving with the angle grinder is to always make sure no part of your body is directly beneath the tool while it's running. It has never happened to me but in the unlikely case the tool slips from your hands, you do not want it to fall on your foot, leg or, if you are sitting,



your lap. And always hold the tool with both hands. This will give you a safe and fully controlled grip. And never hold or manoeuvre a work piece while the machine is on. I learned this lesson the old-fashioned way; finger tips don't grow back. I was lucky I only lost ¼" and not my hand. Safety first. Now every time I need to change the position of my wood, I turn off the grinder and move my carving safely.

Since it's very dangerous to hold a piece of wood when angle grinder carving, it's necessary to stabilize it. Whenever possible, I use clamps to secure the piece to my workbench. Longer, heavier pieces may not need to be clamped and can be stable enough by leaning it from the floor to the edge of the bench or wedging it into a corner. Make sure the piece will not move unexpectedly. Strapping it down to a surface can also be effective with oddly shaped pieces. The trough in the back of my bench is sometimes used to wedge a carving. For smaller pieces that will have a flat uncarved base, a scrap piece of 2x4 can be glued or screwed into place, this addition can then be clamped on a bench or a vise. I have also heard of people using homemade sand-bags to gently contour around a piece to stabilize it. I often use carpet underlay or other padding if I want to protect the piece against clamping pressure.

Holding the Angle Grinder while Carving

When possible, I try to hold the tool with its cord end as close to my body as I can. This allows for very stable and controlled carving as my whole body gets behind the force of the tool, not just my arms. Carving with arms extended is less

stable and, after hours of removing wood, this can become very tiring on the arms and can lead to a sore back. With the tool close to your body you can move about by shifting your legs and core, allowing for smoother controlled movements that are less fatiguing. And if you experience a kickback, you will still be able to maintain good control of the tool compared to having your arms extended.

For someone starting out with an angle grinder cutter, the easiest and most controlled carving technique can be compared to petting a cat. With the disk's flat edge facing the work piece, stroke the blade in downward passes. Start slow and gentle until you get used to how the blade cuts. In time, you will become more comfortable and will begin to work the blade into the wood in numerous ways, by making deeper edge plunges, scooping, upward strokes, side strokes, pull strokes and some you will make up yourself. The tool is very versatile and, with some practice, you will find you are roughing out shapes as well as making delicate and refined strokes. A word of caution: don't get overly confident too soon, or the tool will be sure to let you know. Sticking with the basics is the safest option, especially when learning.

Sanding Uneven Surfaces

I complete the first stage of rough sanding with a 36-grit flexible resin sanding disk backed with a smaller rubber support and powered by the angle grinder. The smaller disk support allows the disk to flex and contour to the shape of the carving. This technique very quickly sands away rough and uneven



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Sanding Workhorse

– Sarzynick uses a heavy duty flexshaft attached to a 3/4 horsepower bench grinder with a Jacobs chuck attachment to power a variety of sanding drums and disks.



surfaces, preparing the wood for more refined sanding. From there, I move to my sanding workhorse; I fitted a heavy duty flexshaft to a 3/4 horsepower benchgrinder with a Jacobs chuck attachment (both the flex shaft and the Jacobs chuck retrofit are available at Lee Valley). This powers my various sanding drums and disks. By leaving one of the stones on the grinder, a flywheel is created; the momentum of this spinning stone ensures that my sanding attachments never bog down

under heavy use. It is a joy to use. I sand through the different grits using a large pneumatic sanding drum (I have many different shapes and sizes of these very useful sanders). These drums can be made soft or hard using a bicycle air pump. This allows you to create crisp concave edges with a firm drum, as well as smooth convex surfaces with a soft drum. Depending on the size and shape of piece you're working on, you may want to use a small sponge-backed sanding disk. These come in a larger size as well. Not wanting to damage a carving by using my vise, I usually sit while sanding so I can safely support the carving with my body or lean it against some carpet underlay on my bench.

Additional smoothing with an oscillating multitool is sometimes the only way to finish sand a piece. While the sanding drums and disks are excellent, especially for removing deep scratches, these little units are good for controlling surface rippling and creating smooth flowing surfaces. This sander comes with a maximum of 240 grit. I usually like to go to 400 or 600, so I use Velcro-backed random orbit circular sander disks that come in higher grits and cut them to the shape I need.

Carving – my Personal Approach

I carve organic freeform sculptures using an intuitive process. I usually discover what I am actually making during the act of carving. An act of discovery, the end result is always a new surprise. I start by studying the wood to see what I have to work with. Is there any interesting grain? Are there cracks that I want to remove or emphasize? Does the wood lend itself to possible shapes? Do I see any ideas starting to take shape? I then quickly remove any obvious unwanted sections: distracting cracks, a section of rotten wood, or I smooth out a bumpy surface. This



"Jenna and Momma", Acacia and Burled Acacia; H 17", L 19", W 7"



"Dreaming Itself Boneless", Laburnum on Black Walnut; H 44", L 13", W 7"



"Crystalized Dreambone", Mopani on Wenge; H 15", L 7", W 5"



Getting Into Tight Places – A small sponge-backed sanding disk may come in handy, depending on the piece you're working on.



Final Step – An oscillating multitool can finish sand many uneven surfaces.

initial prep work will often produce shapes and surfaces that I will work from. Areas that I am certainly going to remove are outlined directly on the wood with a pencil or magic marker. As I start to get ideas, I will draw them on the wood to help me imagine them before I commit them to carving. I do a lot of thinking while I am carving because, once wood is removed, it's gone forever. Eventually, what I'm carving starts looking different from my original piece of wood and shapes begin to evolve. My job now is to tie together all the various elements I have started and to make it a harmonious whole.

For me, power carving is about creating sculptures. But the tools and techniques lend themselves to table edge treatments, chair making (seats and legs), bowl carving or any other element that requires more than a straight edge. As well, I use

power tools from start to finish but others may use an angle grinder to rough out a carving and then refine it or add details using hand tools. Or a furniture maker might use these techniques for a specific element in a larger creation.

Power carving changed everything for me and it allowed me to create sculptures instead of just woodchips. For those thinking of giving power carving a try ... jump in! With a little practice it just might become an addition to your bag of woodworking tricks. Whatever it takes to get it done, it's all about creating in wood.

CONRAD SARZYNICK
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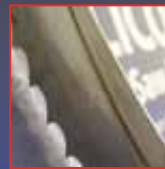
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Swords and Helmets

BY DON WILKINSON

By the time you read this column, it is quite likely that Easter will have passed. Probably by a couple of months. But in my defense, I do have a good explanation for being so late ... I forgot! Normally speaking, Easter isn't a time of year that brings to mind thoughts of carpentry and wood-working, which is rather odd considering the occupation of the man whose life and death the holiday memorializes (that would be Jesus! He was a carpenter!) But this is an Easter story as well as a wood-working story so it all ties together in some strange, vaguely coherent way.

The year my emergency-back-up-daughter was seven, she came home from Sunday School and informed me that she needed a helmet and a sword. I knew she had been having problems with a bully in her class but even I thought that stabbing him was a little drastic. Besides, if I gave her a sword then I'd be an accessory and I don't do well in jail. Needless to say, I was somewhat relieved to hear she had been cast as a Roman centurion in the church play.

Considering she was less than half the size and more than twice as cute as anyone else in her class, a truly great sword was needed to ensure she was obeyed. And a good helmet, just in case she wasn't.

I'm sure you've all seen or made swords and helmets for either yourself or your children, so you know how easy they are to make. Get a long piece of wood, make a pointy end and nail a short piece of wood to it at right angles to form a handle. Some of you might have even wrapped it in tin foil in a miserable attempt to make it look sort of

like metal.

Helmets are more tinfoil formed into a vaguely Roman-looking shape over a hockey helmet, but usually just end up looking like a hockey helmet covered in tinfoil.

None of that would be good enough for my daughter though. Only an exact, scaled-down replica of a Roman centurion sword and helmet, circa AD 1, would be good enough for my daughter. This was my idea. She didn't give a rip!

The sword was easy, of course. I found a piece of birch in my storeroom about 30" long and drew a line down the center. Using a drawknife, and some other appropriate type tools, I shaved the wood down until I had a perfect bevel from center to edge, running the length of the blade. I carved a handle and guard and mortised them to the blade. Then I sharpened it on the belt sander. After bandaging my fingers, I used the sander to dull the edges a bit. The sword truly is mightier than the flesh.

Now for the helmet. Even I couldn't hurt myself making a helmet. I searched through the burl bin and discovered a large spruce burl. Perfect! I carefully chucked it on the lathe and quickly hollowed it out to an approximate size and shape of what I imagined

my daughter's head to be. Foam rubber glued inside would account for any lumps or bumps she might have. After reversing the burl I carefully shaped the outside of the helmet, complete with a little pointy thingy on top. No idea what that's called.

I raided my wife's closet and discovered a pleated suede skirt that I'm fairly sure she seldom wore. Back in my shop I cut it down and stapled parts to the back of the helmet as a neck shield. No idea what that's called either. I'm a wood-worker, not an armoursmith.

Finally, after four and a half days of hard, painstaking and meticulous work, my daughter's outfit was complete. I proudly carried it into the house to present to her.

My wife's note read:

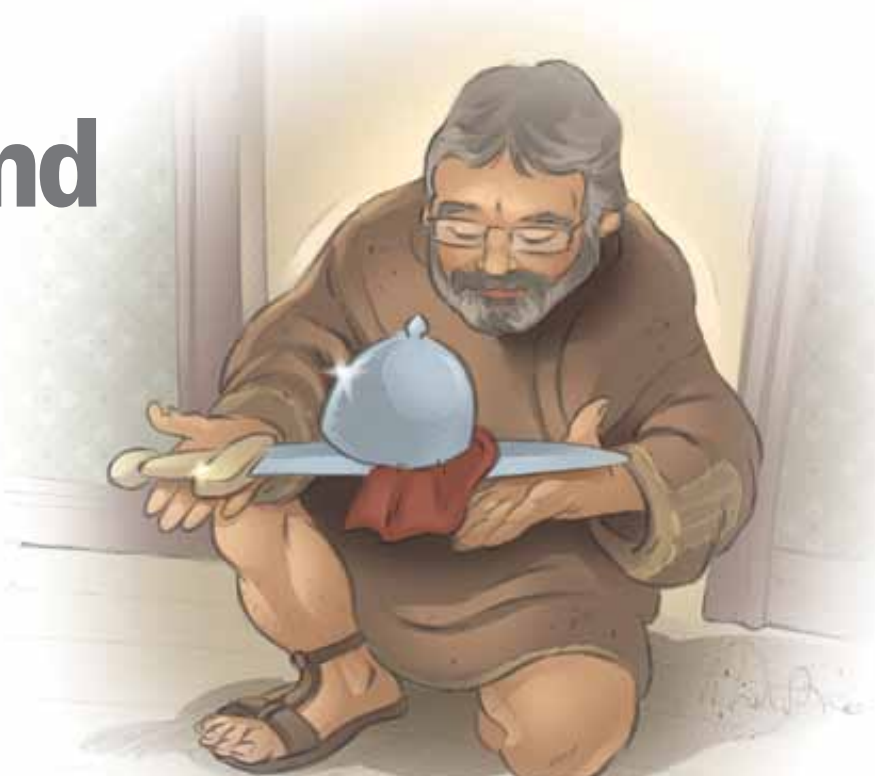
Gone to the play. I made her a sword out of a piece of wood I found and covered it with tinfoil. She used your bike helmet too. Wish you were here!

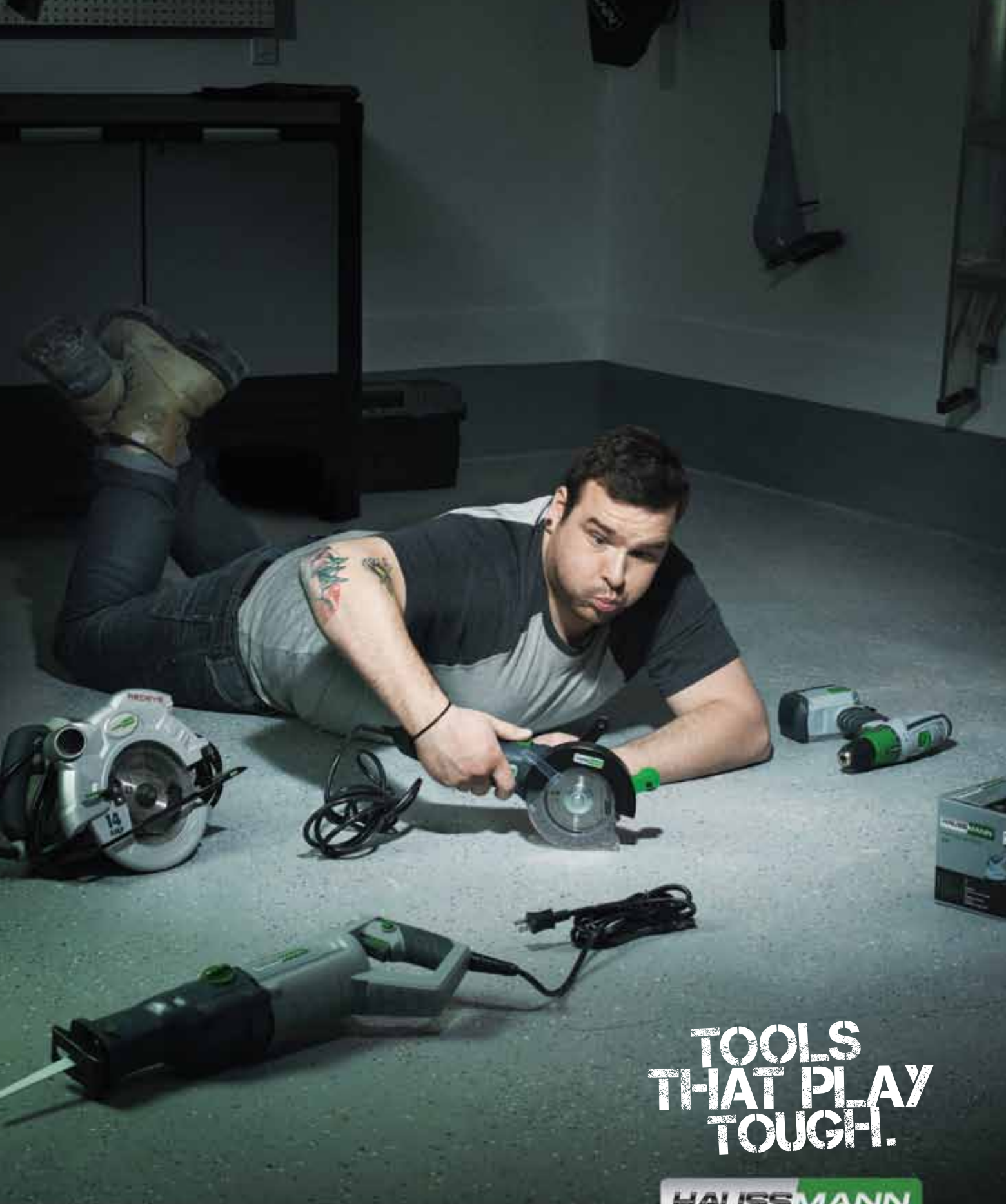
P.S. Where's my suede skirt?

DON WILKINSON
yukonwilk@gmail.com



Illustration by: Mike Del Rizzo





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