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OCTOBER/NOVEMBER 2011
ISSUE #74

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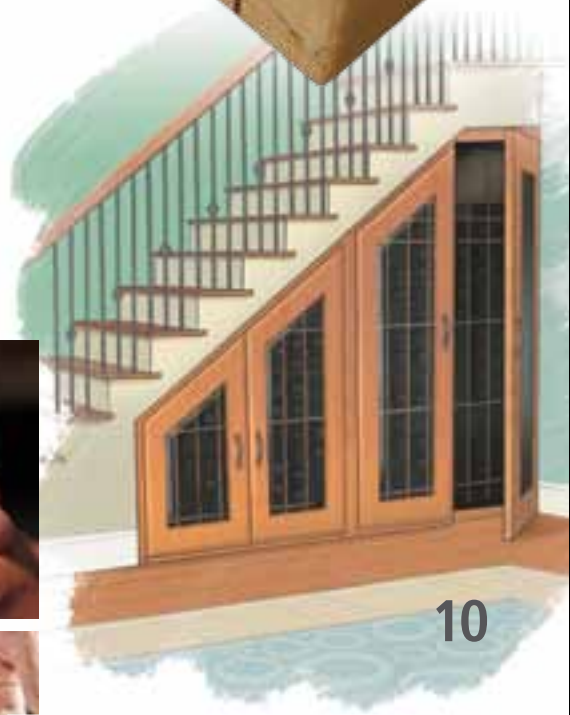

DEPARTMENTS

COVER STORY

Cover photo by: Rob Brown

editor's letter

rbrown@canadianwoodworking.com

People who love food have a new focus called the Slow Food Movement. Time is spent preparing whole foods in traditional ways – no microwaves, no flash freezing, no blowtorches. While preparing this issue, I've discovered that woodworkers have always understood the beauty that can be wrought by taking your time in the shop.

I must admit, when it comes to the hand tool vs. power tool debate, I'm more of a power tool kind of guy. Their speed and accuracy keeps me flicking the switch. But after reading Rob Cosman's article on hand planes, I tuned up an old Stanley #5 I inherited from my grandfather, and sharpened and installed one of Rob's blades. I set everything up for a light shaving and was very happy – almost giddy – with the results. Wispy shavings floated softly to the floor after each pass; it was a real joy. The most impressive part was the surface left behind. It was so smooth it reflected light. I'll be reaching for that old #5 more often.

My eyes were further opened to the merits of doing things slowly during my visit to the Hope Mill, just north of Keene, ON. I watched a group of volunteers use WWII-era equipment, and water power to joint and plane, saw and turn. Learning about what it takes to keep a place like this working smoothly was incredible. If you have a chance to visit the mill, it's well worth it. A big "thanks" goes out to the group at the mill who gave me access to some behind-the-scenes action and told me everything they could think of about its history.

In addition to a couple of projects, a home improvement article and another Finer Details column, we have two Woodchuckles for you this issue. The second is in response to Don's last column, in which he talked about women in the workshop. Cynthia White's first-hand thoughts on women in woodshops kept me laughing.

Take your time going through this issue. There's lots of info, and lots of ideas to consider.

Rob Brown

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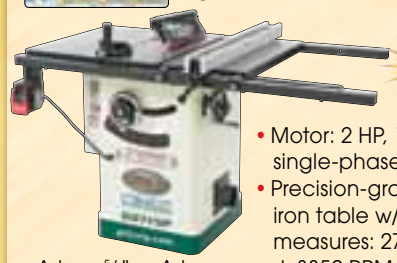

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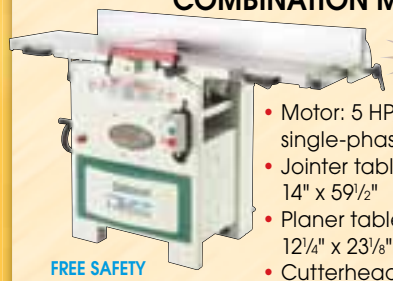

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readers' letters

Thanks for the Design

I would first like to thank you for a great magazine. I have built a few things from it and have used plenty of ideas for other projects. On page 10 of issue # 72, I saw Ken Dixon's bookcase with the bow front sides (thanks Ken). It's so basic yet adds so much to a simple project, so I thought I could use it for an end table that I had bought marble tiles for and couldn't come up with an idea I was happy with. This end table turned out so nice (I'm telling you), I made three more. I used the Kreg jig for assembly.

Ted E.
Hamilton, Ont.

Has Your Subscription REALLY Expired?

Last issue, our new mailing house made a mistake with the inserts that were mailed with the magazine. The result was that virtually all of our subscribers got a letter saying that their subscription had expired. (Hey, I could have done that myself!)

The mailing house has corrected their error, and assures me that everyone will get the right inserts from now on.

Please accept my apologies for striking such fear into your hearts by suggesting that your magazine subscription had ended. I know that must have been as stressful for you as it was for me.

I appreciate your understanding, and for future reference, your expiry date is always clearly marked on your mailing label. It reads: Customer # (6 digits) Expiry Date (shows last issue month/year).

Paul Fulcher, Publisher CWHI

woodworkers' gallery

Veneer Masterpiece
by Tim Zhao

Tim Zhao, from Toronto, spent about 30 hours perfecting his latest masterpiece of marquetry. If it looks familiar, it's because he drew heavily from Johannes Vermeer's masterpiece "Girl With a Pearl Earring" (painted in 1665). According to Zhao, the biggest challenge was with the eyes. "You can find the eyes of the original painting gazing at you, no matter what angle you are looking at her from. It took me great effort to transfer this detail to the marquetry work." He used variable species of wood, including maple, walnut, cherry, pine, and some dyed veneers, then finished it with an oil and varnish mixture and wax. The only things Zhao would change for next time is the finish; he would opt for French polish instead.

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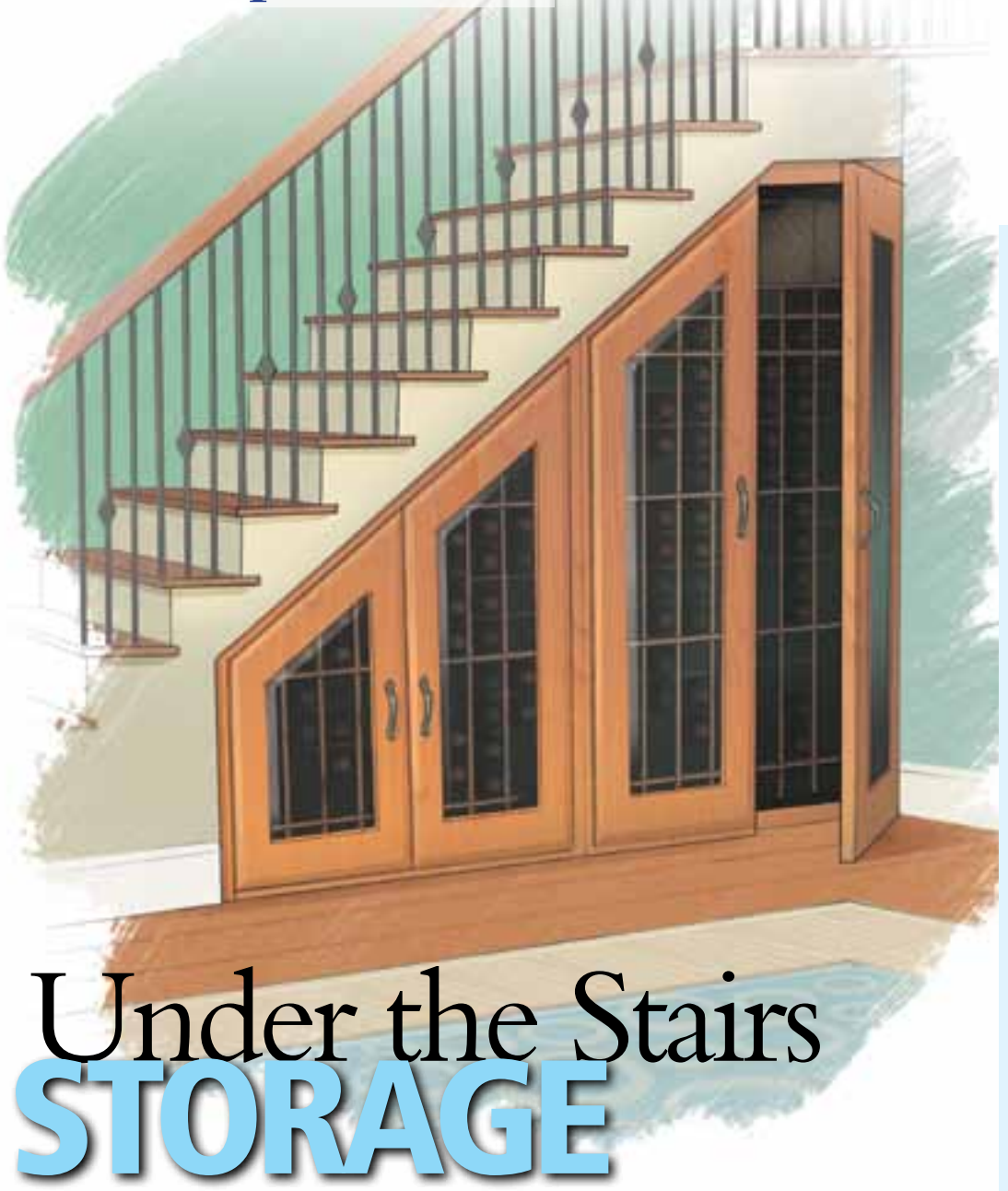


Under the Stairs STORAGE

Six Creative Ways to Make the Best Use of Space under your Stairs

BY CARL DUGUAY

Here are six ideas to make smart use of the space under your stairs. They range from the relatively easy, which any regular reader of this magazine can likely manage, to more complex projects that might require the assistance of a contractor, plumber or electrician. By-laws vary across the country, so you'll want to call your municipal Building and Planning Department to find out whether a permit is required for the type of project you plan to undertake. If the area under your stairs is open, it's unlikely you will require a permit to install removable shelving or rolling cabinets. However, if the area has been framed-in and covered with drywall, or if you intend to install a permanent fixture, then a permit may be required (see sidebar).

Regardless of the project you undertake, it's always a good idea to take the time to plan what you intend to do. Sketching out the project, ensuring that your measurements are correct, preparing a materials list and purchasing any necessary hardware before you start will help make the job go easier – and fend off frustration down the road.

Why Bother with a Permit?

Building permits aren't all about enriching the coffers of local government. While they do serve to ensure that homeowners pay their fair share of the tax burden, they also make certain that any structural, electrical or plumbing modifications to your house are done according to accepted standards. If you later sell your house, most real estate agencies will require you to sign a disclosure form, stating whether you have undertaken any unpermitted work. Don't be surprised if prospective buyers request that the unpermitted work be inspected by a contractor, at your expense. Real estate agents also caution that unpermitted work, no matter how impressive, doesn't necessarily add market value to the house – but it does raise indecision and apprehension on the part of buyers. And, if the unpermitted work is the cause of fire or water damage, you may run into problems with your insurance company when processing a claim.

Illustrations by Mike Del Rizzo

Shelving

Skill Level: **easy**

Installing basic open shelving under the stairs is an easy and straightforward project that can likely be completed over a weekend – a bit longer perhaps if you need to remove drywall and framing. You can build shelving to hold everything from books to toys to your favourite beverages, and the shelving can be either removable or built in. You can build rectangular shelving or, for a more finished look, bevel the tops of the shelves so they complement the angle of the stairs.

Rolling Cabinets

Skill Level: **intermediate**

An advantage of movable, or rolling, cabinets is that they enable you to use the full depth of the stairwell. The front panel can be built to suit the room. Be sure to use a high quality set of casters, as each cabinet will be heavy when fully loaded. This option works best if your floor is fairly flat and even as any bumps or slope will cause problems when it comes time to roll out the cabinet.

Closed Cabinets

Skill Level: intermediate

Cabinets are an option for those who don't like the look of open shelving. They can provide a much more finished look than open shelving, particularly when located on a main floor rather than the basement. Install any combination of doors and drawers that best fits your needs and complements the design of your home. The plywood framework can be installed underneath the stairs, then the doors or drawers can be made to fit. Although it's not impossible, it is more difficult to install a large bank of drawers than it is to opt for doors.

Built-In Appliances

Skill Level: intermediate

In many homes, laundry appliances are located in the basement. This can pose a problem if you have difficulty walking up and down stairs; or it can simply be a nuisance in large households where laundry is a daily chore. As for the half-bathroom option (next page), you'll need to have some plumbing and electrical work done. If you have never done either type of work before, now is not the time to give it a go – hire a professional.

Office/Study Room

Skill Level: advanced

Increasingly, people are working from home, either on an occasional basis or full-time. Even if no one in your house works from home, it's nice to have a quiet place to pay bills, check your email or browse the Canadian Woodworking forum. Children and young adults can also benefit from having access to a dedicated study room rather than the kitchen table or too-small bedroom. For either use, you'll likely want at least one electrical outlet and a wall or ceiling light. An alternative to compact fluorescent lighting for a small space is LED lighting, like the Energy Star-rated AmbientLED (philips.ca). It is more energy-efficient, doesn't generate much heat, isn't affected by cycling the power on and off, and lights up instantly. Rather than a conventional door, which requires ample space to swing into or out of a room, consider installing pocket doors – they are ideal for small spaces and are no more difficult to install than a swing door.

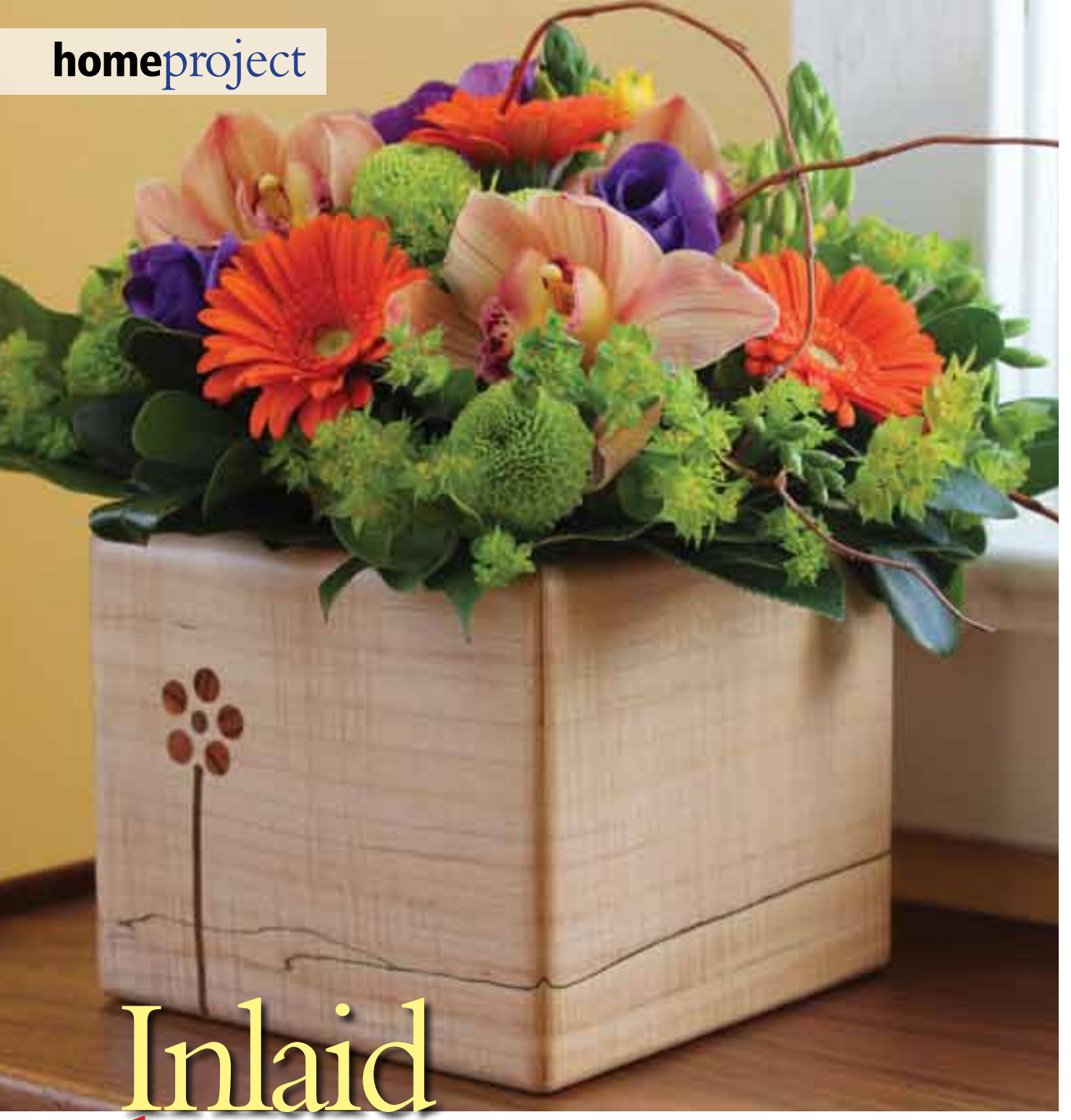
Half Bathroom

Skill Level: advanced

Having an extra bathroom, especially for families with children, can be a godsend. You won't be able to fit a full-size bathroom under the stairs, but it is ideal for a half-bathroom (or powder room), consisting of a sink and toilet. This, of course, means that some plumbing and electrical work will be required. If the bathroom will be located in the basement, consider using moisture and mold-resistant gypsum, such as Humitek (www.cgcinc.com). You might also want to consider installing a space-saving pedestal sink and toilet. High-efficiency toilets, like the Cadet 3 FloWise (americanstandard.ca) require a space of only 15 ½" x 28 ½". Of course, the issue with toilets is their somewhat extensive plumbing requirements. An alternative to the conventional toilet is an 'up-flush' toilet, like the Sanicompact 48 (www.saniflo.ca). While more expensive to purchase up-front, they are easier and less costly to install, as they require only a cold water intake and a 1" diameter discharge pipe. The toilet macerates the waste and paper and flushes it through the discharge pipe to the main drainpipe.

The key to making efficient use of the space under your stairs, as it is for any home improvement project, is preparation. Taking the time to plan things out before your begin will save you time and money, and make the job go easier. Remember: good planning makes for great home improvements.

CARL DUGUAY
carlduguay@gmail.com



Inlaid Flower Box

When the weather turns cold, you can still add some colour and life to your home with this pint-sized flower box.

Photos by: Rob Brown

BY ROB BROWN

Even though the flowers in our gardens have left us for another year, it's nice to be able to bring some inside and enjoy them. You could plant some in a regular pot but that would be too simple, wouldn't it? I made this little flower box so I could drop a pot right into it. This gave me the best of both worlds; a simple way to display flowers inside and a wooden project that I had made. When I water the flowers, I remove the plastic pot from the wooden box and let any extra water drain from the soil before dropping the flowers back into the box.

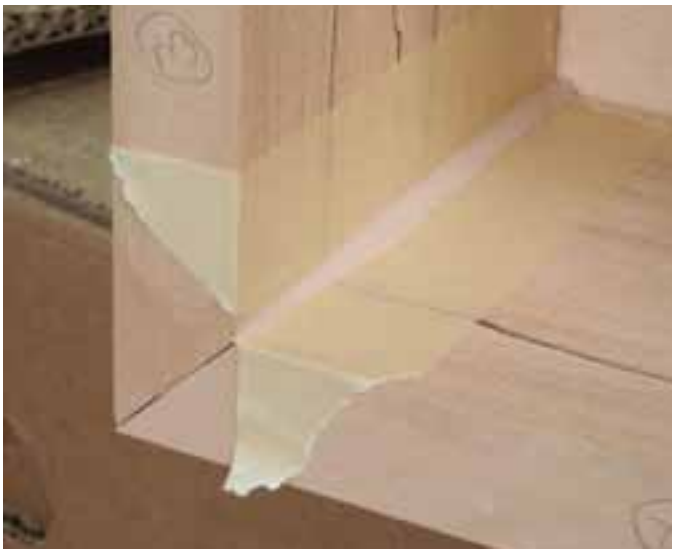
A small project like this is also a great way to try your hand at a new technique; in this case, solid wood inlay. The inlay techniques I used are quite simple and can be extrapolated for use on other larger projects like table tops, cabinet doors, drawer fronts and, well, pretty much anything really.

The box itself is really straightforward, and very similar to one Jim Sinclair made in the Dec/Jan 2011 issue of Canadian Woodworking & Home Improvement Magazine. His article covers matching grain and many other points related to box-making. I opted for mitred corners because of their simple look with a lack of visible end grain, but other methods of joinery (dovetails, box joints, etc.) would work just fine. If you wanted a challenge, try a five-sided box; or one with curved sides, though that would make the inlay a lot more difficult to complete. You could even make a box that would hold three or four pots.

No Surprises

The finished size of the box is 6 ½" sq. and 5 ½" high, but as long as a plastic pot can fit inside it with a little room to spare, everything is good. Be sure to have the pot before you start working on this project. As is the case when working with hardware, you don't want any surprises down the road. I dressed the plank to ⅝" thick, jointed one edge and ripped it to 5 ½". Before breaking the four sides apart, I machined the groove for the bottom so it would accept the ¼" plywood panel. This was because it is difficult and dangerous to work with small pieces in some circumstances. I then cut all my mitres on the end of the four side panels (see "The Myth of the Left Tilt Saw", Feb/Mar 2011 for more information on cutting mitres on a table saw). After trimming the bottom panel slightly under-sized and sanding the inside faces of the side panels, I was ready to assemble everything. With the four side panels face down and in

Large Pieces are Easier to Work With – Rather than cut each piece to size as soon as possible, you should leave them together as one piece for as long as you can. Machining large pieces is easier and safer.



Tape Works Wonders – Use masking tape not only to protect the inside of the box from squeeze-out, but also to clamp the box together during glue-up.

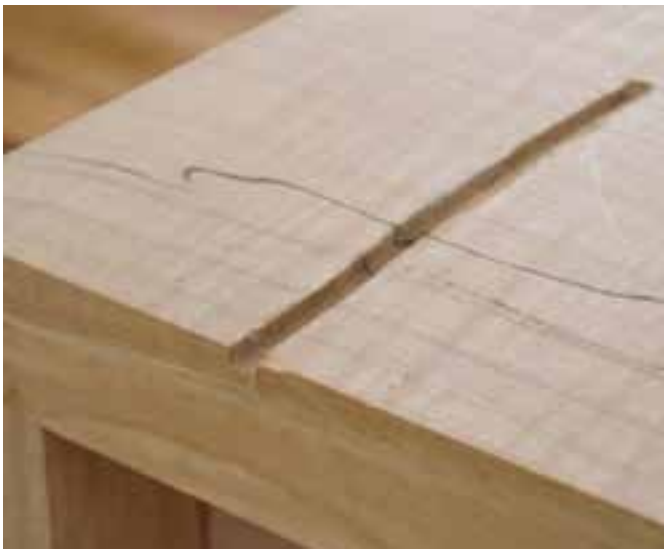
Easy Layout – With a pencil and a few plugs, you can get a good idea of what the final design will look like.

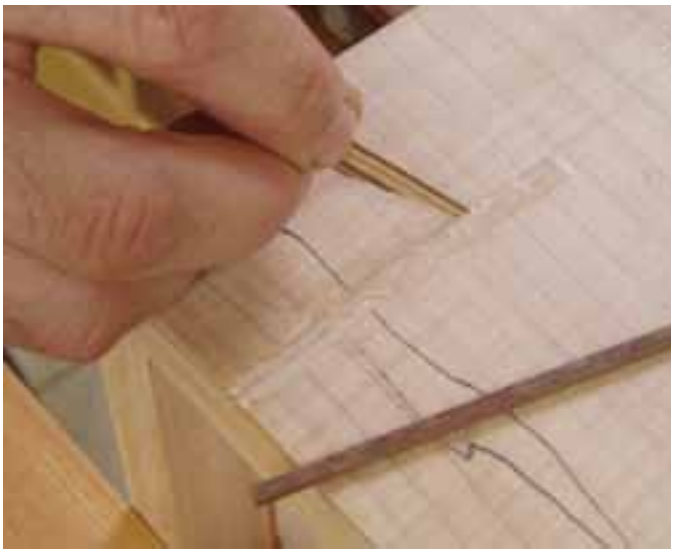
the correct order, I applied masking tape across three of the mitre joints. I then flipped the group of parts over and added eight more pieces of masking tape adjacent to the mitred joints on the inside surfaces of the side panels so any glue squeeze-out would end up on the tape and be easy to remove. I spread a light layer of glue on all the mitred surfaces, inserted the bottom panel and wrapped the four side panels together. A number of pieces of masking tape across the fourth joint held everything together until the glue dried.

After a couple of hours, I removed the inner masking tape and most of the glue squeeze-out. It's easier to do this before the glue dries hard. The last bits of glue can be removed with a sharp chisel. When completely dry, I removed the rest of the masking tape and started to lay-out the inlay design. With light maple for the box I wanted to add some rich contrast; bubinga and walnut was perfect. After cutting some $\frac{3}{8}$" bubinga plugs and one $\frac{1}{4}$" walnut plug on my drill press, I set to work deciding where to place them. People often refer to the center of a surface or plain as the "dead" center because it is the least interesting. For this reason, I wanted to place the flower off to one side. By laying the plugs on the surface and sketching the stem, I was able to get a good idea of how everything would look. After erasing lines and shifting plugs many times, I was happy with what I had.

Now came the time when things have the potential to get ruined, fast, if you're not careful. Even though I've used this sort of technique a number of times, I grabbed a piece of scrap wood and made a few test cuts just to remind me of what the router wants to do as it's machining the groove freehand. I don't want to lose control of the tool, even slightly, because that would lead to wayward grooves in the finished surface. Even though the bit I used was only $\frac{1}{8}$" wide, you have to be sure to keep the router on track. It's not really a huge safety risk, because the small bit will not grab

Free Hand or Guided? – Although the trim router above is set up to be used free-hand, you can also use a router equipped with a template guide and run the router against a pattern, below.





The Groove – You want to end up with a groove about 1/8" deep. Once you have a mating piece to fit inside the groove, coat the groove with glue, making sure it is deep inside all the corners.

the wood with much torque; it will just guide the router off track if you don't pay attention. Why do I risk it and do this freehand? Because it allows me to quickly and easily create a groove with gentle, flowing curves. If you want more dependable results, or a straight line, you can cut a template to run the routers' base plate or throat collar against. In fact, I would strongly recommend this option if you are at all worried about doing this operation freehand.

Start with the Stem

I generally run the groove before drilling for the plugs, as the groove may veer slightly from the line I intended to follow. It's easy to reposition the plugs to account for any movement after the fact. I install a sharp 1/8" diameter straight bit in my trim router and set it to cut just over 1/8" deep. With my lines clearly marked on the work piece (and after a few test cuts in scrap material), I cut the groove. While machining

Drill for Plugs – The simplest way to add some petals to the flower is to drill five 3/8" holes for the bubinga plugs and one 1/4" hole for the walnut plug. Apply glue, insert the plugs then let them dry thoroughly.

Two Different Finishes – I apply a spar varnish to the interior of the box to protect against water from the pot. Though I could apply the same finish to the exterior, I like a shellac finish for its ease of application and smooth feel after it has been waxed and buffed.

the groove, I keep a keen eye on the location of the bit, relative to the line I drew. At the end of the groove, I keep the trim router stationary and carefully turn it off, allowing it to come to a stop before I budge. If I move the router even a bit, the end of the groove will be wider than the rest of the groove.

I power-plane a strip of wood as thin as possible, but it's still not quite thin enough to fit in the 1/8"-wide groove. Even if I put an additional lower surface in my planer so I could plane a piece of wood to 1/8" in thickness, I wouldn't feel comfortable shoving a piece of wood that thin through the machine; I'm quite sure the spinning blades would shred it. Once it is as close as possible to the final width, I fine-tune it with my hand plane. It should fit into the groove with minimal pressure. In terms of height, the inlayed piece should barely protrude above the surface when glued in place.

With a sanding block, I round the end of the inlay so it fits in the groove perfectly. Things get more finicky when the piece fits into a groove that is stopped at either end. A bit more time and care will give you decent results though. You could machine the groove 1/32" deep and inlay veneer, but that

Same Technique, Different Piece of Furniture – Once you've had a chance to complete the flower box, you can use the technique to adorn larger surfaces. The stem inlay on these tabletops was made with a series of templates, which I shifted slightly each time after I made a pass with the router. The berries were added afterwards. Many different organic shapes and patterns can be used.

Simple Inlay – By flushing the surface and adding a finish to the inlay, it comes alive.

gives you much less leeway when sanding and levelling the surface; it's easy to sand through veneer.

Place an even layer of glue in the groove and work it into all the corners with a small piece of veneer or narrow sliver of wood. Press the inlay strip into the groove, making sure it seats properly in all areas. I wipe up most of the extra glue squeeze-out now, but I don't go crazy. Some of that glue will actually dry in any small cavities and help level the surface.

Add the Flower Petals

I like to temporarily put the plugs in place and, when happy with their location, trace them onto the surface. I then mark the center of each of the petals so I can line up the plug cutter more accurately. I usually have to adjust the collar of the plug cutter on the drill bit so the bit is only barely protruding from the collar. This is so I don't drill through the other side of the workpiece. Although you can use a hand-held drill for this step, a drill press is much better, as it always drills perpendicular to the surface and you can count on the depth adjustment to keep the holes from coming through the other side. With everything set, I slowly drill the holes. If the holes are fairly close together and you try to drill a bit too fast, you risk blowing out the material between neighbouring holes. Sometimes I drill and install a few of the plugs and, when they're dry, I drill the rest of the holes. For the visual effect, I used a smaller plug for the center of the flower. Coat the inside of each hole with a bit of glue and put a light layer on the sides of the plug before inserting each plug and tapping it home with a small hammer. A fine point to remember when doing this step is to orient the grain of each plug so there is some balance. I ran the grain of each plug in towards the center of the flower. When everything is completely dry, flush the inlayed wood, run a round-over bit over all the corners and sand the exterior of the box.

Add a Finish

The inside of the box will likely come in contact with some water. To protect the wood, I applied three coats of spar varnish to the interior. If you wanted some extra protection, you could line the box with some light plastic. The outside was all about show so I wiped on a number of coats of shellac. Shellac doesn't stand up well to water, but it shouldn't see much anyway. A few rubber or felt feet on the underside of the box are a nice touch. Now all that's left is to decide what flowers or plants to fill it with.

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Autumn is the perfect time to get outside and add to your garden. In fact, you'll probably have enough time to turn a garden dibbler and get outside to plant on the same weekend.

Garden Dibbler

BY ALLAN CUSWORTH

A garden dibbler is used to plant bulbs, tubers, small plants and sometimes seeds. They come in many different shapes and sizes. The garden dibbler in this article is a 9" long by 1 ½" to 1 ¾" diameter tapered round stick with a ball-shaped handle. It is used by pushing the tapered end into the garden soil to the depth required. Twisting it will help to loosen the soil.

Start by selecting a billet of wood approximately 11" long by 1 ¾" square. I like to use maple, but any wood will do, even a piece of construction lumber, as long as it's fairly dry. Mark the center on both ends and mount the blank between a spur-drive

Start with a Cylinder – Turn the blank to a cylinder between 1 ½" and 1 ¾" in diameter.

Layout – Mark transition points to locate the tip and the handle.

Photos by: Allan Cusworth

Taper the Shaft – Cut a shallow curved taper from the 7" point to the 1" point at the tailstock end of the blank.

Shape the Handle – Continue to turn the handle of the dibbler and fine-tune its overall shape. Notice no areas are turned smaller than ½" in diameter as strength is still needed for future operations.

Depth Rings – Mark and cut the depth rings at 1" increments.

Finish it Up – After perfecting the overall shape of the dibbler, apply a coat or two of finish and let it dry. You can part the dibbler off or use a handsaw to free it from the two waste ends.

center in the headstock and a live center in the tailstock of the lathe. Turn the blank to a cylinder approximately 1 ½" to 1 ¾" in diameter using a spindle roughing gouge. Measuring from the tailstock end, mark the transition points on the blank at 1", 7", and 10" and then continue the marks making rings around the cylinder.

Using a diamond-shaped parting tool, cut grooves at the 1" point and the 10" points to approximately ½" diameter. These grooves will provide reference points for removing wood when turning the garden dibbler shaft and handle. Leave the end waste pieces on to distance your hands from the headstock and tailstock. Using a skew or a spindle gouge, cut a shallow curved taper from the 7" point around the middle to the 1" point at the tailstock end of the blank. Using a spindle gouge, make a ball shape at the 10" point at the headstock end of the blank. This ball will be the handle for pressing the garden dibbler into the soil, so it needs to be smooth and comfortable. Some of the waste piece may have to be cut away to make room for the spindle gouge to shape the ball. Using a spindle gouge, make a shallow cove between the base of the ball to the 7" point. Leave the handle shaft thick to provide stability and strength in the finished piece. Rough sand all surfaces to remove tool marks using 150–180-grit sandpaper.

Mark the depth rings on the tapered shaft 1" apart and cut 1/16" 'Vs'. Do not make these grooves too big or dirt will get lodged in them when the garden dibbler is being used.

Reduce the diameter at each end to about ¼". Keep the pointed end rounded so it won't break off when the garden dibbler is being used. Follow the rounded shape of the ball handle. Smooth the newly cut areas with 150-grit sandpaper and then finish sand all surfaces using 220- then 320-grit sandpaper.

Apply a coat of boiled linseed or another oil to seal the surfaces and let it soak in for a few minutes. Wipe off any excess oil. To remove the garden dibbler from the lathe, use very light cuts with a narrow parting tool and alternate between ends starting at the tailstock end. Alternatively, remove the piece from the lathe and cut the waste pieces off with a small saw. Sand the ends by hand and rub on a little linseed oil.

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Just Plane Romance

In the age of electric machinery, some woodworkers have forgot about the simple but trusty hand plane. They have also become confused about sharpening a blade. With the right approach to sharpening, you'll be happy you took your hand plane off the shelf.

BY ROB COSMAN

During the past 10 years, I have spent most weekends teaching woodworking in various locations around North America and the UK. I cater to those interested in hand tools and hand tool methods, yet, to my surprise, the vast majority of hobby woodworkers have not discovered what I consider the most efficient tool in the shop. This "cordless" tool can turn rough lumber into perfectly flat, square and smooth beautiful boards. It can leave a surface on the most figured wood unmatched by any grit of sandpaper. It can take two raw edges and, in seconds, produce an imperceptible joint. It can move large amounts of stock, leaving you knee-deep, or peel a shaving so thin it will float in midair. All of this while the music plays softly in the background and the clean fragrant scent is enjoyed without the least bit of concern for protective equipment. The safety glasses remain in the case, the dust mask stays in the box and the earplugs hang on the wall.

I have spent 30 years working in a fully equipped commercial wood shop; wearing a dust mask when it is 30° inside and your face is drenched in perspiration/condensation is not fun. I have damaged my hearing in one ear due to the scream of a worn-out router bearing. Learning from that lesson, and trying to keep safety glasses from fogging up while wearing a dust mask and ear muffs at the same time made the end of the day a welcome relief. I got into woodworking for the love of the wood, doing it for a living under these circumstances didn't add anything to the fun factor. Shutting it all down, especially my loud dust collector, to pull out a plane and relax to the wisp of sub-thou shavings, the actual fragrant smell of the wood and the indescribable feel of fresh planed timber instantly brings me back to why I do this. If it sounds too good to be true, you may be missing the most relaxing process in woodworking. The lowly hand plane is in the early stages of regaining its stature as more folks look to avoid some of the dust, danger and noise long associated with the craft.

Photos by: John Robichaud (Lead Photo by Rob Brown)

Safe, Simple and Satisfying – Cosman teaches the good times of hand planing to many woodworkers, who are often surprised at the results that can be achieved from an old restored plane. (Photo by Rob Brown)

More Affordable Every Day

This trend started several years ago but as the premium tools made their debut, they came with a hefty price tag. For several years running, a good hand plane was going to cost you upwards of $350 before you bought the support gear. Thanks to some retailers, that entry level cost for a new premium plane has recently been cut in half, helping to make hand planes affordable to many more "part time" woodworkers. With the growing interest, I expect there will be more offerings, from more retailers, in the near future.

I spend nearly every weekend demonstrating sharpening and hand planing to classes of 20 or so enthusiasts in four-hour seminars. As I peel off half-thou shavings from a piece of figured maple with a plane just out of the box, the response is always the same: "I wouldn't believe it if I didn't see it"! For those already possessing the skill of sharpening and using planes, this is no big deal, but the recent converts from the power tool side get as giddy as kids in a candy store. Not that long ago, buying a new plane meant hours of fettling, which included flattening the sole, cleaning up rough castings, flattening and polishing the blade and fitting the cap iron. A lot of this was beyond the skill and/or interest of many woodworkers. Now with several ready-out-of-the-box brands of planes

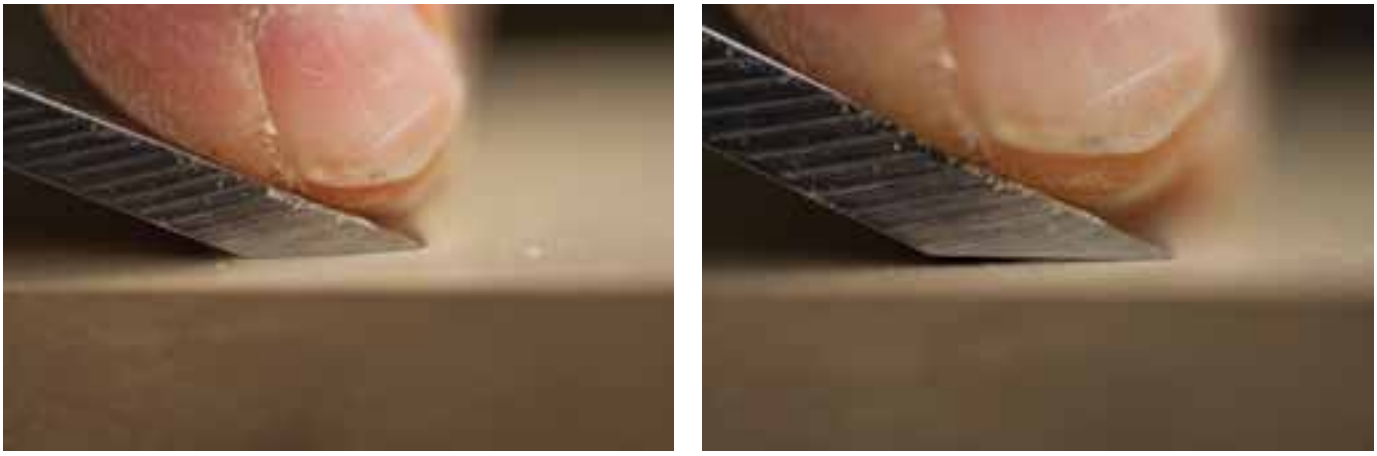
Flatten Your Stone – Starting off with a flat stone is the first step in sharpening a blade. A glass or granite surface is best.

equipped with thick pre-flattened blades and mated cap irons, the only thing required is a quick honing of the blade. That said, the latter process is what still holds so many would-be hand planers hostage. For some reason, this one procedure had been lost to so many woodworkers.

How Sharp?

Several years ago, I had the pleasure of befriending David Charlsworth, a renowned English craftsman, known for his woodworking precision and game-changing "ruler trick". The latter, combined with something called a tertiary bevel, are what liberate woodworkers from the perceived drudgery of sharpening plane blades. To best introduce this technique, an explanation of "sharp" is necessary. In the simplest terms, a cutting edge is the apex where two (usually) flat surfaces meet. When both surfaces are polished, the result is an edge that can quickly improve the surface of a board, so much so that the raw wood will reflect like a mirror. The key to the sharpening is realizing how much of the two surfaces need polishing. Since only the leading edge touches the wood when using a plane, polishing more than the smallest strip on either side is a waste of time and material. For those who have always polished the entire primary bevel, what is to be gained for all the extra work? I spend less than a minute getting from dull to sharp and have the results to prove it.

To start the task, we need some type of sharpening stone. In simple terms, stones are not much more than small measured abrasive particles held in place by some form of matrix, often made from clay. As the stone is used, the wearing breaks down the matrix and provides fresh sharp cutting particles. The downside of this is that the wearing puts the stone out of flat. Since sharpening blades require flat stones, the wearing has to be balanced with some form of flattening. This may need to be as frequent as every minute or less. This is the best reason I can think of for selecting stones that cut fast. An easy way to flatten a stone is to use wet/dry sand paper on a flat backing, such as float glass or a granite reference block. A few circles on the wet/dry paper are all it takes, providing the stone is never allowed to get seriously dished.



A Slight Shift – Register the primary bevel flat on the stones' surface (left) and make the first set of passes with a course grit. The secondary bevel is then created by titling the blade up about three or four degrees as you spend about 10 seconds moving the blade across the stone (right).

Get to Work on the Bevel

To sharpen, start on a coarse grit; 1k works well. It is easy to register the primary bevel on the stone particularly on thick blades where the bevel is usually ¼" or wider. Once registered, you raise up off that bevel about three or four degrees. Spend about 10 seconds making small circles as you move over the length of the stone; this prevents dishing and evens out the wear on the stone surface. After 10 seconds, you should feel a burr that runs corner to corner, signifying you have straightened the edge and you are ready to move to the next and final grit. This last stone should be 8k or higher. Once again, you will register the blade on the primary bevel. This time, raise up five or six degrees, a few degrees higher than on the previous stone. Providing your stone is flat and the edge of the blade is perfectly straight, the entire apex will touch the stone and, in a mere 10 seconds of honing, you will have created a very small but effective third or tertiary bevel. If I am sharpening a smoother blade, I do a few seconds of work on each corner independently. This is done at the end of the 10-second

Feel the Burr – If the secondary bevel is done properly, you should be able to feel a burr across the entire length of the back of the blade.

Look Closely – When the bevel is done there will be three visible surfaces, which get narrower as they approach the cutting edge.

Good Trick – By placing a thin ruler in line with the edge of the stone and running the back of the blade on top of it, the blade will be on a one-degree angle (above). This makes it easier and faster to work the back side of the blade. When sharpening the blade, use the opposite ½" of the stone (below).

work on the tertiary bevel. While still in motion, I press down on one corner for a few seconds, doing circles, then switch to the opposite corner for the same length of time. This creates a light feathering that prevents plane tracks when smoothing wide surfaces. The finer the grit of the last stone (or the higher the grit number), the sharper the edge; the finer the scratch pattern, the more metal there will be on the edge and the longer it will last.

Sharpen the Back

The final step is done on the back of the blade. If the back is flat (now standard for most premium blades), I create a small back bevel using a thin steel rule held flush with one edge of the stone. If you lay the blade on the rule with the bevel facing up and the sharp edge on the opposite side of the stone, moving the blade edge back and forth within a ¼" of the opposite edge of stone, you will create a less than one degree micro or back bevel.

Just Polish the End – Even though the entire back of the blade will not be polished, the blade will still work perfectly, as long as the ¼" or so near the end has been polished.

If working a blade for the first time, I follow this process starting on the 1k stone. I spend 15 seconds creating the back bevel then polish it for 15 seconds on the final stone using the same procedure. On all subsequent sharpenings, this process takes just three seconds on just the final stone to simply remove any remaining burr. What you now have is a very small, highly polished strip on the back meeting a highly polished strip on the front, creating a great cutting edge with minimal work.

Why the Ruler?

There has been some resistance to the ruler trick, which I expect is due to "that's not the way I was taught"! For those struggling with the concept, consider why we all do some form of micro-bevel on the bevel side of the blade: to reduce the surface area needing polish. Now consider the same thinking for the back of the blade, before we would flatten and polish the entire back or a large section of it just to use the very tip. With manufacturers willing to sell us pre-flattened blades, we need only polish the part we use: the very tip.

Most of us would tend to shun the extra exercise of doing it all with hand planes, and while I regularly teach that method, I think there is a smart approach that everyone can adopt. Learning to sharpen and use a hand plane can be a huge asset to your woodworking regime; your sanding can be cut in half or more by using a hand plane to eliminate the machine marks on the show surfaces. Your joinery can be tighter by using a plane to sneak up on that perfect fit, a thou at a time, lots of control. Your glue joints can be invisible by taking a few swipes with a plane after the power jointer but just before the glue and clamps. And your stress level can be lowered in just a few minutes at the bench with a sharp plane and a willing board.

Enjoy your time in the shop!

ROB COSMAN
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Better Blades, Better Skills, Better Results:

Real-world tips for getting the most out of today's best saw blade technology

While it's true that the best saws in the world are only as good as the blades they spin, this is just part of the story. The other part of success depends on you. No matter how good your tablesaw, chopsaw or radial arm saw is, success and safety still comes down to your skills equipping, setting up and wielding these fundamental power tools.

Match the Blade to the Work

Crosscutting and ripping solid wood is a different job than cutting veneered sheet goods. Sawing melamine is different than trimming particleboard. Crosscutting crown moulding is different than sawing 2x6 wall studs. This is why a complete set of traditional saw blades should include a coarse ripping blade for sawing solid wood to length, a fine-tooth blade for crosscutting, a melamine blade for chip-free cuts in factory-finished sheet goods, and a combination blade for rough, general-purpose work. And while owning a group of blades like these works well, there is now one, single blade that's capable of cutting very smoothly and efficiently in all situations. Freud's unique Premier Fusion blade creates absolutely smooth, flawless cuts in all materials – from ripping heavy hardwood to cutting veneered ply and everything in between. The entire world of saw blades will probably follow this one-blade-for-all lead, but for now, Fusion is unique.

The knife-like profile of Fusion's Hi-ATB tooth design slices wood and sheet goods exceptionally cleanly in all situations – from ripping hardwoods to mitering trim.

Match the Blade to the Machine

Today's move towards smaller, lighter tablesaws and chopsaws have made it easier to carry tools wherever the work is, but reduced cutting power is usually part of the price you pay for portability. If you have a lightweight chopsaw or portable benchtop tablesaw, you can make the most of their smaller motors by using "thin-kerf" saw blades. Kerf refers to the swath of wood removed by the blade, and thin-kerf models chew through about 30% less wood than full-kerf blades with each pass, delivering that much more cutting power to your work. Freud's Premier Fusion blade is available in both full- and thin-kerf configurations, and is one of the few thin kerf blades that includes polymer-filled, anti-vibration slots to keep the blade running true and wobble-free.

Laser-cut stabilization grooves are filled with a polymer, for greater vibration dampening action.

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The Three-Way Mitre

This classic Chinese joint is a fantastic way to add some class – and difficulty – to your next project.

BY SEAN WALSH

I don't believe you have to be a master woodworker to achieve beautiful and sound joints. Take your time and pay attention to the details and you will be surprised with the results. Make sure you take the time to consider the order of operations and follow them closely to ensure that the joint fits and looks seamless. I learned how to machine this joint from Yeung Chan at Rosewood Studio. To ensure that all pieces are square, mill all your stock at the same time and take great care when doing so. Give yourself plenty of extra length on your stock for test cuts, and make at least one, if not two, extra pieces just in case something terrible happens. It's difficult to reproduce a single piece after the fact.

Before setting to work on the actual joint, you will want to make a 45° jig for your table saw. Attach the runner to the underside of the bottom and make a cut on the edge of the bottom by simply running it past the blade. Cut the other piece of plywood so one of its corners measures exactly 90°. Attach it to the jig so it makes a 45° angle with both edges of the bottom.

Set up your table saw with a square top blade that is clean and sharp. Use a square to ensure the blade is set to 90° and don't assume the gauge on your saw is accurate. The two horizontal rails that make up this joint will be identical, while the vertical leg is slightly different. Make a 45° cut on the end of the rail. Next, rotate the rail 90° and line up your second cut to intersect at exactly the same point. Patience is required for a perfect match. Repeat with the second rail.

Put the rails aside for now and turn your attention to the leg. With the blade

Start With the Rails – With a 45° mitre jig, Walsh makes two identical cuts on the end of each rail. The guard is removed for clarity.

Sean Walsh's "Tea for Two" won first prize at the recent Wood Objects Show in Ottawa.

Photos by Diane Walsh, Lead Photo by Ray Pilon

Next is the Leg – Lower the blade to cut only half way through the stock, leaving a shoulder. Note that the work piece is referenced off the other fence on the mitre jig.

Work the Shoulder – Cut the shoulder on the leg so its corner meets at the mitred edge (left). On the rails a cavity will have to be cut to accept the legs' shoulder (right).

height set to exactly half the height of the stock make progressive cuts to create a shoulder. Rotate the stock 90° and repeat, making sure the cuts line up exactly and form a sharp tip. Finally, with the stock at 90° to the blade, trim the tenon to the point where it meets the apex of the mitre.

You will have to create a pocket in each of the rails to accept the tenon on the leg. I have found that using a sharp chisel is the easiest and safest way. Using a marking gauge, mark the location of the pocket. With your chisel, take small cuts at the point of the pocket and slowly remove the waste. Stay back from your lines at this point and just focus on roughing out the area. Once most of the material is removed, sharpen your chisel to a fine point and, with care, pare the sides to create a smooth and square pocket. Test fit the joint and make fine adjustments if needed.

Using a marking gauge, make parallel lines on all three parts to define the tenon cavities. Make sure that you are using the outside of each piece as the reference surface. Take your time on this step as this will determine the final placement of each piece and how sturdy the joint will ultimately be. Once you have marked all pieces, put your marking gauge in a safe place and don't change the setting until you have completed the final assembly; if you have to re-make a part, you will have this dimension to work from. With a combination of a small bevelled edge and paring chisel, create a slot in each piece about $^1/_8$" wide to accept a live tenon. Finally, mill a length of straight grain stock and cut the live tenons.

I strongly recommend doing a full dry run with all clamps, as this will help identify any problems before you apply glue and disaster strikes. Once glued up, you can hand-plane or sand your piece to remove any machine marks.

If you have never attempted this type of work before, make a sample corner. You will quickly realize what aspects are the most difficult for you. In addition, this will give you a sample to use when meeting with prospective clients in the future or to impress your friends.

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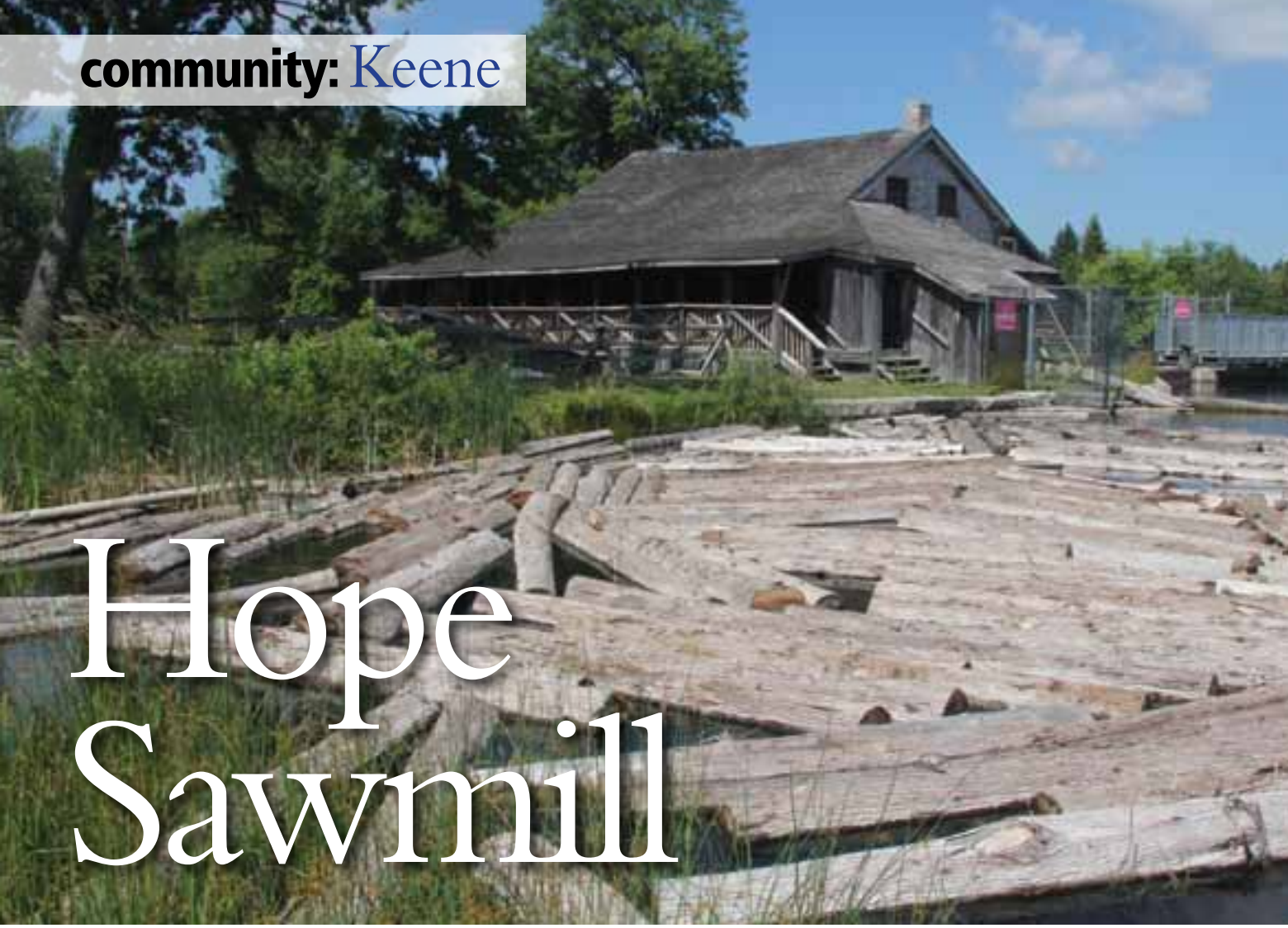
Tiny Mortises – All three pieces will have to have small mortises cut in them to help with alignment and strength; a perfect job for a $^1/_8$" wide chisel.

Three Amigos – After all that hard work, the three pieces should fit together like good friends.

Photo by Ray Pilon



Hope Sawmill

As soon as you step through the door, you turn back the clock 175 years.

BY ROB BROWN

No Ordinary Shop

As I approach the two-storey mill, the deep drone coming from the two turbines below the building gets louder and louder. The old structure is in great shape, thanks in large part to all the work that has been completed over the last decade by the Hope Mill Restoration Volunteers. Two of the walls are rich, textured 20" thick limestone, while the other walls are covered with weathered clapboard siding. I notice one of the volunteers walking through the building and underneath a group of whirring belts that transfer power throughout. I realize immediately that this is no ordinary shop. I mention this to Bob Rehder, restoration team leader, who's my guide. Smiling, he says, "every time you turn things on it's like someone is coming to life."

When I enter the old building I actually have to look at everything twice. I knew the mill was equipped with a table saw, bandsaw, jointer, planer/sticker and a lathe, as well as a few other pieces of machinery, but at first glance I don't know what any of the machines are. Dating from the 19th and early 20th centuries, the machinery looks very different from what I'm used to. After a quick look around, I start to recognize a few of the old relics. As I walk across the wooden floor, I realize that the entire building is vibrating from the power of the two large turbines below our feet.

70 Horsepower

The mill is built directly adjacent to the Indian River, just north of Keene, Ontario. This is the perfect waterway for damming, as it's too small for navigation and major log operations that would send logs smashing over the dam, but has more than enough current to power the turbines. Water from the millpond runs into the penstock below the mill and is directed toward the two turbines. These two rotating turbines transfer power to the main shaft, which in turn powers all the machines via a system of belts and pulleys. Depending on which operation is underway, the belts are adjusted and shifted, as some machines run off the same axel. To turn the lathe on, a simple wooden lever attached to a small wood beam guides the rotating belt onto another pulley. A wooden peg is inserted in the lever to hold it in place and keep the belt from moving. With a

Photos by: Rob Brown

Machinery Looks a Bit Different – All the machinery is powered by a system of belts. That, coupled with the fact these machines are around 100 years old, makes them look different from the machines most of us are used to today. The belts are joined together with lacing.

full six-foot head of water in the millpond, all of the equipment can be run simultaneously. The two turbines produce about 70 horsepower.

A horizontal crown gear is mounted on the top of the vertical fixed shaft in the center of each turbine. The rotating power of the crown gear is transferred by a bevel gear to the main shaft. A second bevel gear powers the line shaft and machinery in the workshop. To avoid the risks of metal-on-metal jamming or sparking, the "teeth" in the crown gears are made of hard maple inserts. If the gears shift out of alignment, the maple teeth will give way first and prevent more serious damage to the metal gears. Machining these inserts was quite a challenge as they taper from front to back and top to bottom.

Wooden "Ignition Switch" – To turn the lathe on, a lever has to be moved, causing the spinning belt to engage with its pulley. Once working, the 100-year-old lathe works great; especially for turning larger posts like the one standing against the wall.

Hard Times

The Hope Mill was built in the 1830s to supply the local area with lumber for the building trade. Due to World War II, the 1940s saw the demand for lumber increase, and a number of "modern" machines were added – a planer, jointer and drill press. After more than a century of strong business, the mill fell into disrepair as the boom propelled by World War II came to a halt. In the following decades, modern methods of producing lumber rendered the mill less critical and its downward spiral began.

The mill has faced many challenges over the years. Saved by the Otonabee Region Conservation Authority (ORCA), which bought the mill in 1966 and made extensive repairs, it closed in 1993 due to funding cuts. A fire decimated a portion of the building in 2001. It wasn't until 2002, when a group of 15 volunteers committed themselves to the project, that the Hope Mill was restored to its former glory. Its engineering and impressive power inspires awe in all visitors.

Hard Maple Teeth – The crown gear is attached directly to the turbine. It transfers power to smaller bevel gears, which in turn transfer power to the machinery. The gear teeth in the crown gear are made of hard maple inserts to reduce metal-on-metal jamming and sparking.

Cant Hooks – Once winched from the water, the sawyer and canter use cant hooks to position the large logs on the saw for cutting.

Making Sawdust

The first step in the process of sawing a log into lumber begins at the river's edge. A waiting log, often weighing well over 1000 lbs., is winched up the jack ladder into the saw house. Using traditional cant hooks, the sawyer and canter roll the log onto the carriage and secure it with "dogs". The carriage has small wheels and runs on a track, similar to a train. When the sawyer engages the gears on the underside of the carriage, the gears move the carriage along the track, carrying the log into contact with the saw. Once the cut has been made, the carriage is returned and the sawyer pulls another lever, shifting the log laterally the same distance as the width of the next plank to be cut, and the process is repeated.

Slice Off a Board – When the sawyer engages the gears on the underside of the carriage, the gears move the carriage along the track, carrying the log into contact with the saw.

The saw blade that's used to slice logs into lumber is 48" in diameter, and has 48 replaceable steel teeth held in by cam locks. If left perfectly flat, the blade will wobble dramatically when it rotates. It is hammered slightly concave, or bowl-shaped, so when it turns at high speeds it remains stable.

Once cut the lumber is stacked and left to dry. Today there is a solar kiln on site that does a good job of bringing the lumber down to a useable moisture content. Then it is either brought into the main section of the mill to be machined further or sold as rough planks. It's incredible to think that all this old machinery was cutting-edge when it first entered the mill. Thick, solid metal frames hold heavy gears that in many ways look like they're almost new. It is evident that these machines were built to last. Most general operations can be made; jointing and planing, ripping and moulding, drilling and turning are all done without missing a beat. It takes a little longer to set up some of these machines, but once ready they work very well.

Today, much of the wood milled is used to fill orders for local jobs. Custom milling of siding, flooring or lumber for the construction or furniture trade is available to anyone who is interested and can wait patiently for the order. The sawmill does make some income selling products, but it's mainly a museum and restoration setting. Some of the wood goes upstairs to the small shop, where a number of different volunteers turn it into small objects that can be sold to the public.

The Volunteers

The main reason the Hope Mill is up and running today is due to the volunteers who give their time, energy and wisdom. About 15 regulars show up to tune and operate the

Bigger than Most – The impressive 48" diameter blade is fitted with 48 replaceable teeth. It can cut boards up to about 20" wide.

Lateral Movement – After a cut has been made, the sawyer pulls a lever to move the log laterally. The amount of movement is set to the desired thickness of the plank.

A Working Museum – Some machines, like this planer/sticker, have many moving parts and require lots of gears for proper operation. Even though these machines are ancient, they work very well. It felt to me like the Hope Mill was a working museum.

Add Some Electricity – Some of the lumber milled goes upstairs to a small shop where the volunteers make small gifts that visitors can purchase. Electricity has found its way to this area as equipment is a mixture of old and new; numerous sets of hand planes, drill braces and hand saws are housed on the wall while a 12" lunchbox planer, contractors table saw and a sliding mitre saw are scattered around the work area. Though there's a slightly more modern feel to this area, the vibe still does wonders for a woodworker's soul.

equipment. They are all retired men who just can't get enough of the mill and the camaraderie that goes with it. Bob Rehder smiles as he thinks of everyone working there. "To each one of these guys, the mill is the greatest thing going," he says. "They can't always agree on how to do things, but things sure get done, and everyone has a great time." He tells me about each of the volunteers' impressive backgrounds and shares some of the stories that are told during a regular lunch hour. He even mentions regular visits from an osprey, which often shows up to play in the river; live entertainment the guys never tire of. When walking through the mill I meet another volunteer, "Doc" McCubbin, who tells me, "I didn't know how I would transition from retirement. I didn't know how to make new friends either, but this place has been great!"

Restoring and maintaining equipment that is more than a hundred years old requires a lot of ingenuity. There are no operating manuals to consult and parts cannot be purchased at the local big box store. A different approach is needed as they often have to make due with a part that's "close enough". Luckily some of the larger companies in the area help out with parts when they can, as this is a true community effort.

For more information about Hope Mill visit www.hopemill.ca.

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Easy **Wood Turning Tools**

by Mark Salusbury

Scrapers aren't new to woodturning; most turners have a few "high-speed steel" scrapers in their kit to refine profiles and level surface inconsistencies.

Carbide isn't new either; machine lathe cutters and power tool blades have been tipped with carbide for years, offering long service life and reduced sharpening.

What's new is this marriage of replaceable carbide tips on woodturning scrapers.

Using only a Ci1 Rougher, a Ci4 Detailer and a Ci0 Finisher, from air-dried woods I turned a small endgrain vessel from figured maple and a bowl from flat-sawn cherry. My lathe was set about 1300 rpm for pieces of this size. Both were completed easily, start to finish, without having to rotate the tips, though the cutting edges I'd used were noticeably dull once I'd completed the second piece, victims of the heat produced from turning dry wood. Turning "green" wood will yield a much longer cutter life as would a lower lathe rpm and/or light, controlled touch.

The surface left on my project pieces was perfectly acceptable, ready for sanding and turned in the same time it might have taken me using a gouge roughing and shaping.

These well made, user-friendly tools will be wonderful for beginners, those turning "green" wood, turning small projects and for those who don't want to sharpen. **www.leevalley.com**

iVac **Pro System**

by Paul Gonsalves

As a professional contractor, moving into a larger shop presented a few dust collection challenges. Namely, being able to easily turn on my 5HP cyclone easily from anywhere in the shop. The iVAC family of products easily took care of this. In my previous smaller shop, I had a centrally located magnetic switch, which was reasonably accessible. Now, with 800 sq ft. I needed a solution. To turn on the power to the cyclone, an iVAC Contactor was used due to the high initial amperage draw. A standard iVAC Pro Switch turns on the contactor and a handheld remote control turns on the iVAC Pro Switch. Simple, easy to hook up and perfect for my present needs. Smaller dust collectors could get away without the Contactor and use a combination of multiple iVAC Pro Tool modules and remotes.

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Surface Preparation

Surface preparation is about perfecting your hand skills. Three wonderful hand tools; learn how to maximize their performance and enjoy the tactile experience of fine surface preparation.

BY TED BROWN

Surface preparation is a key process in fine woodworking. This article is about techniques that are commonly used in all fine furniture shops, including some tool-tuning procedures that will make the job much more enjoyable. We will explore what happens after our wood is dimensioned using machines. What comes after the planer? I enjoy using machines, but prefer the steps that follow; where my hands and eyes do the work that makes the difference between being a technician and becoming a craftsman.

We will look at using a hand plane, a cabinet scraping plane and a card scraper. The hand plane makes quick work of machine marks but does not always do well with reversing grain. If we are working on large surfaces with complex grain patterns, the scraping plane provides the right attack angle, combined with a reference surface to maintain a flat surface. The card scraper is the best value in your shop. For $4, you have a tool that can remove old finishes, clean up torn grain, and shear small problem areas to a near perfect finish right off the tool. I still use sandpaper. Although it is a wonderful challenge to perfectly shear an entire surface and then go directly to finish, it is more efficient to get the surface in good shape, and then sand with either 320- or 400-grit paper.

Photos by: Ted Brown

Initial Pass – The first step is to remove all the machine marks with a hand plane. The shavings that result from this step are fairly wide.

Using your smoothing plane

For this article, I will assume that you have tuned your plane such that you have a razor edge, a small camber and a flat sole. You may use a #3, #4, or a #5 plane for this process. I actually prefer a Jack plane on larger surfaces, because the longer sole avoids tracking into depressions, and the longer toe section gives me a better flat reference to the surface before the iron gets to the wood.

The plane provides us with an attack angle (the angle at which the blade enters the wood) of 45°. This produces a number-one type of chip, meaning that the wood is cut at an angle whereby the chip will tend to split ahead of the blade. A plane with a flat sole will hold the wood down and reduce splitting ahead of the cutter. Keeping the frog forward, and thus a small mouth opening, will help hold the shaving down until it rolls up the blade and the chip is broken by the chip breaker.

Hand planing consists of two types of cuts. First, with initial cuts we flatten the material removing ripple and snipe left by both the jointer and planer machines. Second, we adjust the plane to make finishing cuts, to remove the scallops left by the initial cuts. Initial cuts should be wide, about ¾ of the width of your two-inch-wide blade. For those who like numbers, the thickness of the shavings should be in the range of 0.005" thick. To "eyeball" the thickness during setup, just remember that the shaving should be nearly transparent – that is, you can read text through some of the shaving – but perhaps not in the middle where the cut is the deepest.

Make a series of initial cuts along the length of the board, moving the plane laterally about ¾" between passes. I usually go over the surface twice to remove machine marks and all remnants of machine made snipe near the ends of the boards.

Finishing Shavings – To remove any marks left during the first step readjust the plane to take a very fine shaving. ¾" wide shavings will be produced as you work your way across the surface.

Now re-adjust your smoothing plane to make finishing cuts. The idea here is to take very small, very thin shavings with only the middle ½" of the blade. Make a cut, and then move the plane over by only 1/8" between passes. This will remove all of the first cut scallops left by the smoother due to the camber in the blade. When you set up for finishing cuts, the ½"-wide shaving should come from the middle of the blade, and it should be transparent (about 0.001 to 0.002" thick). I go over the entire surface twice, indexing laterally between cuts by only 1/8"! At this point, the surface will be incredibly smooth. You can actually look at the surface at an oblique angle, and see a reflection in the wood surface.

Purists, close your eyes now! I then sand the surface using 400-grit sandpaper and a softwood sanding block. Generally I use ¼ of a sheet of paper, and wrap it around a 5 x 2 x ¾" block of pine. Sand with the grain, indexing over by about one inch per pass. Lift the block between passes to avoid creating a diagonal sanding pattern.

Scraping Planes for reversing grain

The Lie Nielsen #85 scraping plane is a favourite tool of mine. I prefer it to a Stanley #80-type cabinet scraper because it offers a significantly longer sole, a thicker blade that reduces vibration, and the comfort of a small smoothing plane in use. When the attack angle exceeds 55°, the type of shaving produced is referred to as a type two shaving. Essentially, the shaving is bent to a point of breaking, right at the cutting edge. This tends to greatly reduce the amount of tear-out, and therefore provides a significant advantage when we are working on woods with fierce reversing grain such as quarter-sawn African bubinga.

The shaving from a scraping plane is not as clean as a smoothing plane, so it is a given that some sanding be done before finishing – in this case, I use 320-grit paper, followed by 400-grit. The blade on the #85 is about 1/8" thick, and made of A2 tool steel. The steel provides a very resilient cutting edge, while the thickness of the blade reduces chatter in the cut. Set up the tool with the blade against the back of the mouth and the blade will be rock solid. A small mouth on a tool that makes type-two shavings is not required.

Tuning a Scraping Plane Blade – With the help of a thin ruler, polish the back of the blade. The ruler speeds up the process by allowing material to be removed only near the cutting edge, as opposed to the entire surface of the blade. Next, hone a micro bevel, similar to any other blade. The final step is to use a burnisher to create a tiny but strong hook.

Blade preparation for the scraping plane

Blade preparation is critical to the performance of the scraping plane. Grind the primary bevel at 45°. Add some camber by spending more time at the edges of the blade when grinding. You can check your progress while grinding the camber by placing the leading edge of the blade against the stock of your engineer's square.

Use the "ruler trick" to raise the blade slightly on the wet stone, and polish the leading edge of the back face of the blade. Hone the cutting edge to a micro bevel, in the same way you would prepare a smoothing plane. Now, create a tiny hook on the blade using a scraper burnishing tool. Hold the bar of the burnishing tool flat on the primary bevel of the blade, and then raise the burnishing tool another few degrees

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Make the Hook – After filing the edge, take several passes on a stone to flatten the two broad surfaces of the card scraper. Tilt the scraper 90° and take several passes on the same stone, removing the file marks. At this stage, you're ready to create the hook on both sides of the scraper with a burnisher. Though this step takes some practice, it doesn't take long to produce a proper hook.

(two to five). Make only one pass across the leading edge of the blade, with moderate pressure. The goal is to create a hook that is tiny, yet strong, and not serrated.

Place the blade in the plane, lower it until it contacts the work surface and snug the locking screw. To advance the blade, use a tiny Japanese plane hammer and strike the back end of the blade.

Card Scrapers

Card scrapers are best used for small areas on flat surfaces to do detailed clean-up. The challenge is to hold the tool at the correct angle to clean up a torn surface. Since the card scraper has no sole, or body to hold the tool in position, care must be taken to avoid dishing the surface. Remember to "feather" the edges of an area cut with this scraper, so that you avoid a step in the surface.

Shavings, Not Dust – If you've sharpened your card scraper properly, you will produce shavings. Dust is the sign that something isn't right. Working with a card scraper takes a little experimentation.

The Pay-Off – In the end, all your hard work pays off with a gorgeous surface that begs to be touched.

Preparing a card scraper:

Joint the long edge of the card scraper, by taking six strokes with a mill bastard file. Remove any burrs by placing the broad face of the scraper on a 1000-grit stone and taking several passes on either side. Now, put the scraper on edge and move the scraper across the stone to remove the file marks.

Place your scraper in a vise, and then place the burnisher at 90° across the scraper so that you are holding the handle in your right hand and the opposite end of the burnisher in your left hand. Apply moderate pressure and move the burnisher back and forth (three times) down the length of the scraper to flare the edge. Pull the handle of the burnisher back so that it makes a 45° angle with the edge of the scraper, and lift the burnisher handle about 5°. Starting with the tip of the burnisher on the near edge of the scraper, make a pass down the length of the scraper, while advancing the burnisher across the scraper. This action rolls the hook, which becomes the cutting edge. Now, flip the scraper over and do one edge of the other side.

Grasp the scraper like you wish to break it in half, with fingers wrapped around the short ends, and thumbs touching in the middle. Flex the scaper into a bow, such that only about one-inch of the cutting edge is in contact with the wood. Your thumbs should drag on the wood and the attack angle of the card scraper should be about 45° to 60° to the wood surface.

The card scraper is the cheapest, and sometimes the fastest and most valuable tool in your shop. It is for small repairs only, as well as for clean-up on curved surfaces after bandsaw cuts. Try cleaning up a cabriole leg after it comes off the bandsaw and you will be amazed how fast this tool cleans up the rough surface.

Rounding Edges:

I use a block plane for this purpose. Set the plane for a rather aggressive cut. Place the sole on the arris (edge) at 45° and take three passes. Now alter your sole angle to the first surface from 45° to 22° and make one pass. Now alter your plane angle to 22° from the adjacent surface and take the last pass. I call this my 1-2-3, 4,5 method. It shears off the arris cleanly and avoids a wandering edge treatment since the sole of the plane does not dip into hollows. Use 400 grit sandpaper to smooth the very small facets left by the plane.

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A Woman's Place is In the Shop

BY CYNTHIA WHITE

Many thanks to Don Wilkinson for his heart-warming tribute to women in his Woodchuckle article last issue. He's right; there aren't a lot of female woodworkers. But there are a few. I'm a woman, and despite their occasional denial, I have two kids in their twenties to prove it. I took up woodworking last year at the ripe old age of 48. My friends thought I'd lost it.

I wish there were more woodworking women. Then maybe circular saws wouldn't weigh 85 pounds and table saws would be height-adjustable (I can't find any high-heeled shop boots). And machines wouldn't all be dead-frog green. I'm sure they're great tools and all, but seriously, whose idea was that green colour? Unfortunately, most of the "ladies" tools I've found aren't fit to hang a picture. I prefer the real tools, manly as they may be, thank you.

Women also face a disadvantage when purchasing materials and supplies. When I go into the local lumber supply place to buy something, the male employees talk to me as if I have the IQ of a banana. Perhaps I've arrived there by mistake – surely I must have been headed to the kitchen design place down the road. No, Einstein, I'm building my kitchen cabinets and not with your materials if you don't smarten up. And that's only after they get around to helping me, since they're first going to help every other schmo in town who walks in wearing dirty coveralls, even if I'm first at the counter. But I've found a simple solution to that problem. I've discovered that cleavage goes a long way when it comes to getting waited on faster, and I have more of it than most men.

When it comes to power tools, I don't jump and squawk but I do have a healthy fear (or respect) of all of them, especially the ones with sharp spinny parts. You see, I'm very attached to my fingers – and they're very attached to me. I observe every safety rule I can think of in hopes of hanging on to all of them. (No such luxury with fingernails; I broke three in the shop last week.)

My penchant for safety amuses my retired husband to no end. I do silly unreasonable things, like wait until the blade stops on my mitre saw before lifting the handle, or always use a clamp to hold the wood when making a cut. "That's not how we used to do it on the job," he says, erupting in violent paroxysms of laughter. "You don't know the power of the dark side," I say in my best Darth Vader imitation through my respirator.

Regardless of gender, every woodworker should get his or her priorities straight, and the most important thing in my wood shop is the bed for my shop dog. He also gets the one shop heater I have. My production slowed to a crawl this past winter because the only warm spot in the shop was the dog bed. Instead of working on my bookcase project, I spent most of the winter having coffee and donuts while bonding with my dog on his cot.

It's hard for women to learn woodworking if they have no one to teach them. My high school home economics class didn't include units on sharpening chisels or buying lumber. Many of you guys reading this magazine learned from fathers or uncles or brothers or teachers. I bet you built step stools, boxes, tables and forts. My dad and uncle taught me about the five great Bordeaux wines, the history of the free world and how to play gin rummy. No woodworking help there.

The one skill I have that has prepared me for woodworking is sewing. Go ahead and laugh. I'm an expert quilter, and woodworking is a lot like quilting, just dustier and with more splinters. Quilting requires planning, accurate and precise cutting of materials, and understanding how the material behaves and moves under different conditions. Doesn't that sound familiar? Seriously, if you guys want to be better woodworkers, take up sewing. I'd be glad to help you. Just don't show up with a dead-frog green sewing machine. And bring some treats for my shop dog, will ya?

CYNTHIA WHITE
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Illustration by: Christina Chan

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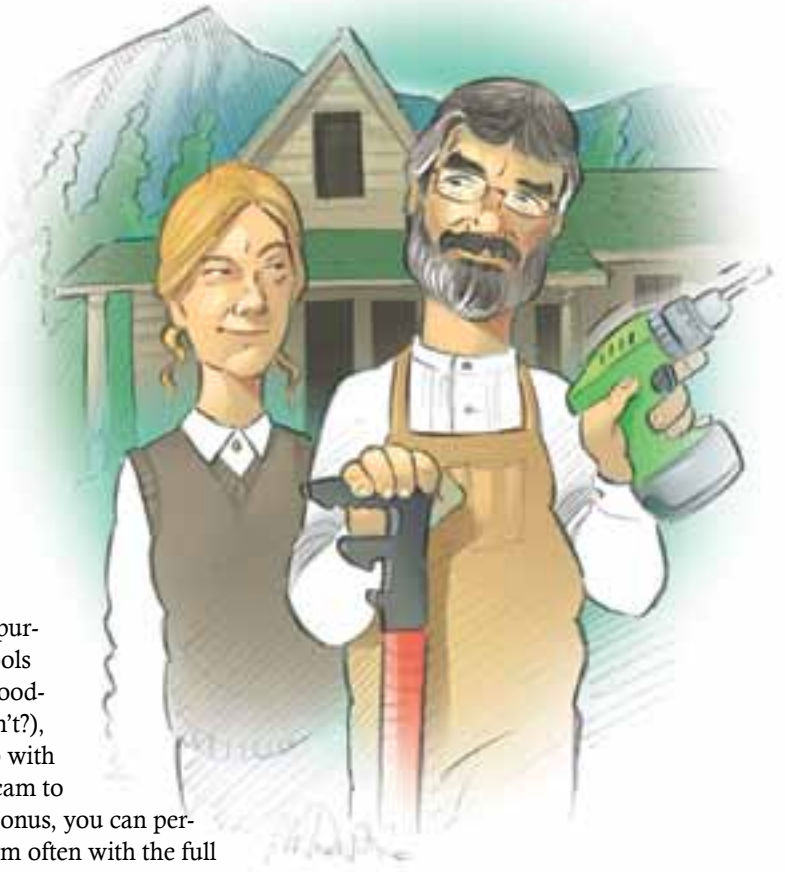
Hobbies



BY DON WILKINSON

Have you ever noticed that very few people manage to turn their hobby into a professional, money-making endeavour? That might be because they have really lame hobbies, but really, how many hobbies lend themselves to professional status? Woodworking does and I was one of the few lucky enough to make the transition. And survive!

Walk into almost any woodworker's shop and you will see a stack of well-thumbed magazines. Usually the professional's collection dates back to his days as a hobbyist and you won't see anything newer than the month he first opened for business. The reason for this is because the professional seldom has time to read magazines. A case in point is the magazine you hold in your hot, eager little hands. (Hint! *Canadian Woodworking & Home Improvement* Magazine.) Unfortunately, just reading the title takes up so much time that only retired woodworkers manage to read the rest of the magazine.

I was different than other professional woodworkers and held subscriptions to many different magazines. My justification was that I could write them off as resource material. The purchase of new tools was likewise justified. Unfortunately, my shop never actually needed the write-offs but I really needed something to do during the long, lonely nights in the Yukon.

Nowadays, my skills are more often put to use as a hobbyist and new home owner. I recently moved to the "Beautiful Sunny Okanagan" (anyone who has visited the place will fully understand why I capitalized it) and renovations have taken precedence.

But for those of you who like to periodically purchase new tools (and what woodworker doesn't?), I've come up with the perfect scam to do so. As a bonus, you can perform this scam often with the full approval of your loved one.

All you have to do is move!

As anyone who has ever moved will tell you, no woman is ever completely satisfied with her new house. Even if she was the one who designed it. Renovations are always desired, even if not strictly necessary, so take this opportunity and plan some large, intricate and/or expensive changes to improve your new home for your special loved one. Moving is an ideal opportunity (or excuse) to "lose" old tools or "accidentally forget" them back at the old house, thus lending you the perfect excuse to head down to the local Lee Valley, Home Hardware, Rona, etc. for replacements. Works a charm as long as you insist that the renos are all about her. (Or him. I got in trouble recently from a reader for not making my column gender-neutral. Apparently there are women out there who woodwork as well.)

So far, since we moved to BC, I've had to pick up a number of replacement tools, all of which I swear or otherwise affirm were absolutely necessary to complete the job at hand or in the near or possibly sometime distant future. They are: a wet/dry tile cutter needed to install a heated tile floor in her new en-suite, a wrecking bar so I could enlarge her clothes closet, tubing cutters and propane torch for her corner shower installation and laundry room switch-over, a 435-piece set of screwdrivers of every conceivable size and shape (and a few I have no frigging idea what they could ever possibly be used for) and a new cordless drill/screwdriver I needed to open all the neat wooden boxes I had packed my tools in for safe shipping. (So that's where I put that saw, hammer, cat, screwdriver and/or spare child). I'll probably need to get a new lawn mower and a bigger and better compressor because my son-in-law (who was supposed to bring them out for me has discovered a better use for them at his place). And, to top it all off, the piece-de-resistance … a new truck to carry all the lumber, drywall and new tools with. All so that I can better demonstrate my love by doing all these great new renovations, just for her.

Because it's ALL about her!

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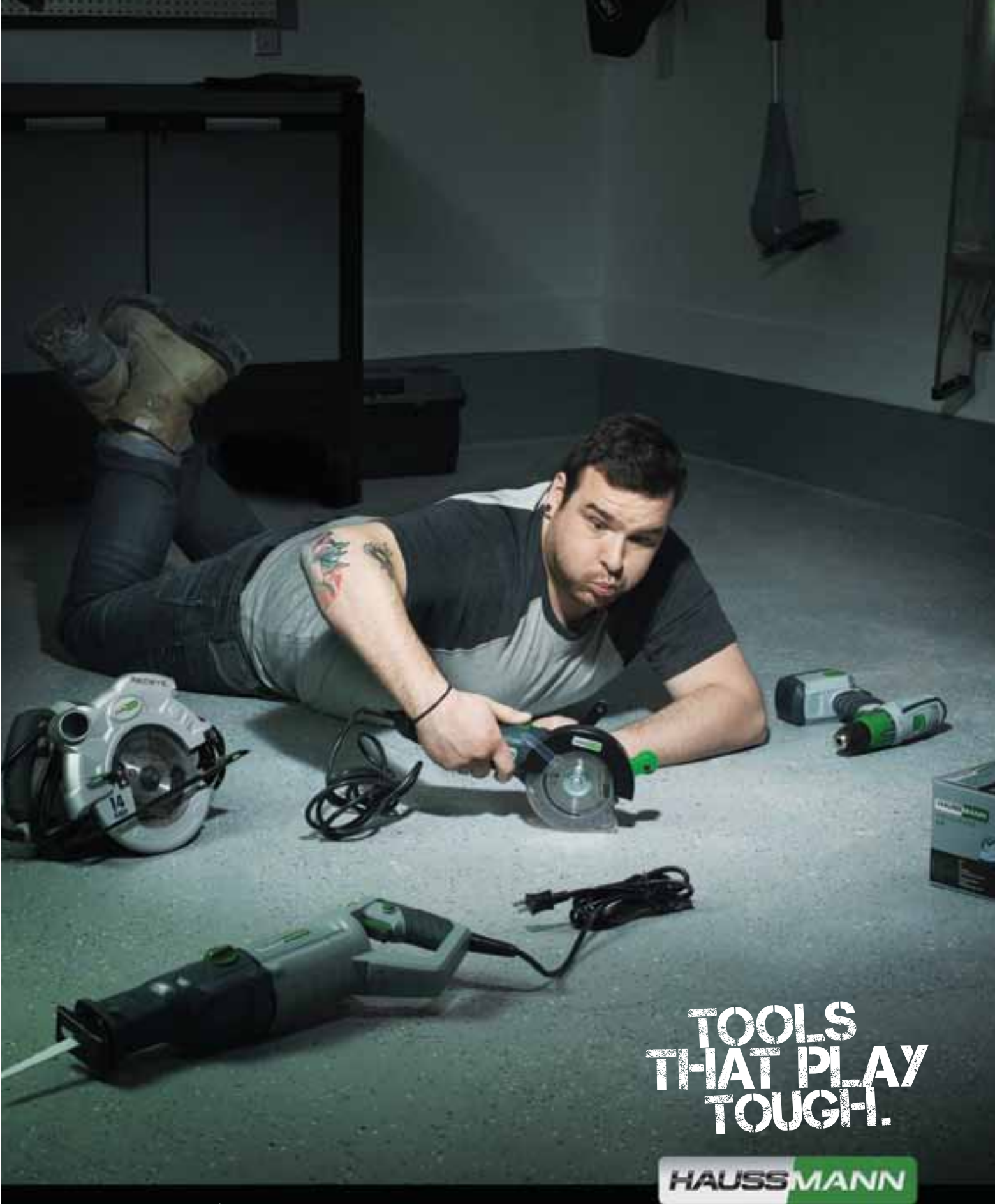
Illustration by: Mike Del Rizzo



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