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CANADIAN Home workshop

THE DO IT YOURSELF MAGAZINE

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PAGE 25

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25 Pro Tips for Building *your* Ultimate Deck

QUICK & EASY PATIO REPAIR
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CANADIAN Home workshop

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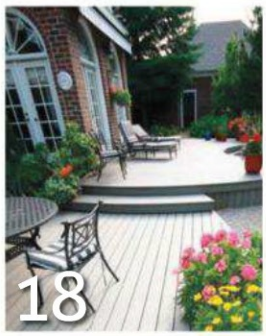

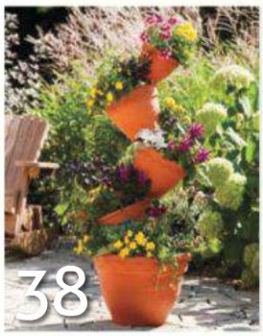

DECK SECTION

HOME IMPROVEMENT

DIY PROJECTS

DEPARTMENTS

Shop Talk New tool reviews, time-saving tips, expert how-to advice and workshop news

COVER PHOTOGRAPHY: ROGER YIP

CANADIAN
Home workshop

APRIL/MAY 2013 VOLUME 36, NUMBER 4

Canadian Home Workshop® is published by
Cottage Life Media, a division of Blue Ant Media Partnership
President Al Zikovitz
Chief Operating Officer Terry Sellwood
Director of Content Development Penny Caldwell
Assistant to the President Rena Bennett
Controller Laureen Chung
Senior Accountant Albena Ianakieva
Accounts-Receivable Administrator Theresa Cressatti
Junior Accountant & Office Assistant Jennie Monuik
Office & Merchandise Manager Dawn Yager
Editorial Consultant Wendela Roberts

Canadian Home Workshop (ISSN 1485-8509) is published six times a year (Winter, March, April/May, Summer, September and October) by Cottage Life Media Inc.

Subscription rates: Canada $24 for 1 year (6 issues) plus tax; U.S., add $15 per year; foreign, add $35 per year. Single-copy price: $5.95. Send name, address and cheque or money order to:
Canadian Home Workshop, P.O. Box 715
Markham, ON L3P 7V1

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Telephone: 1-800-465-6183 (Canada and U.S.)
Toronto (905) 946-0406
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54 St. Patrick St., Toronto, ON M5T 1V1
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Email: letters@canadianhomeworkshop.com

CANADIAN POSTMASTER: Return undeliverable
Canadian addresses to Canadian Home Workshop, P.O. Box 715, Markham, ON L3P 7V1

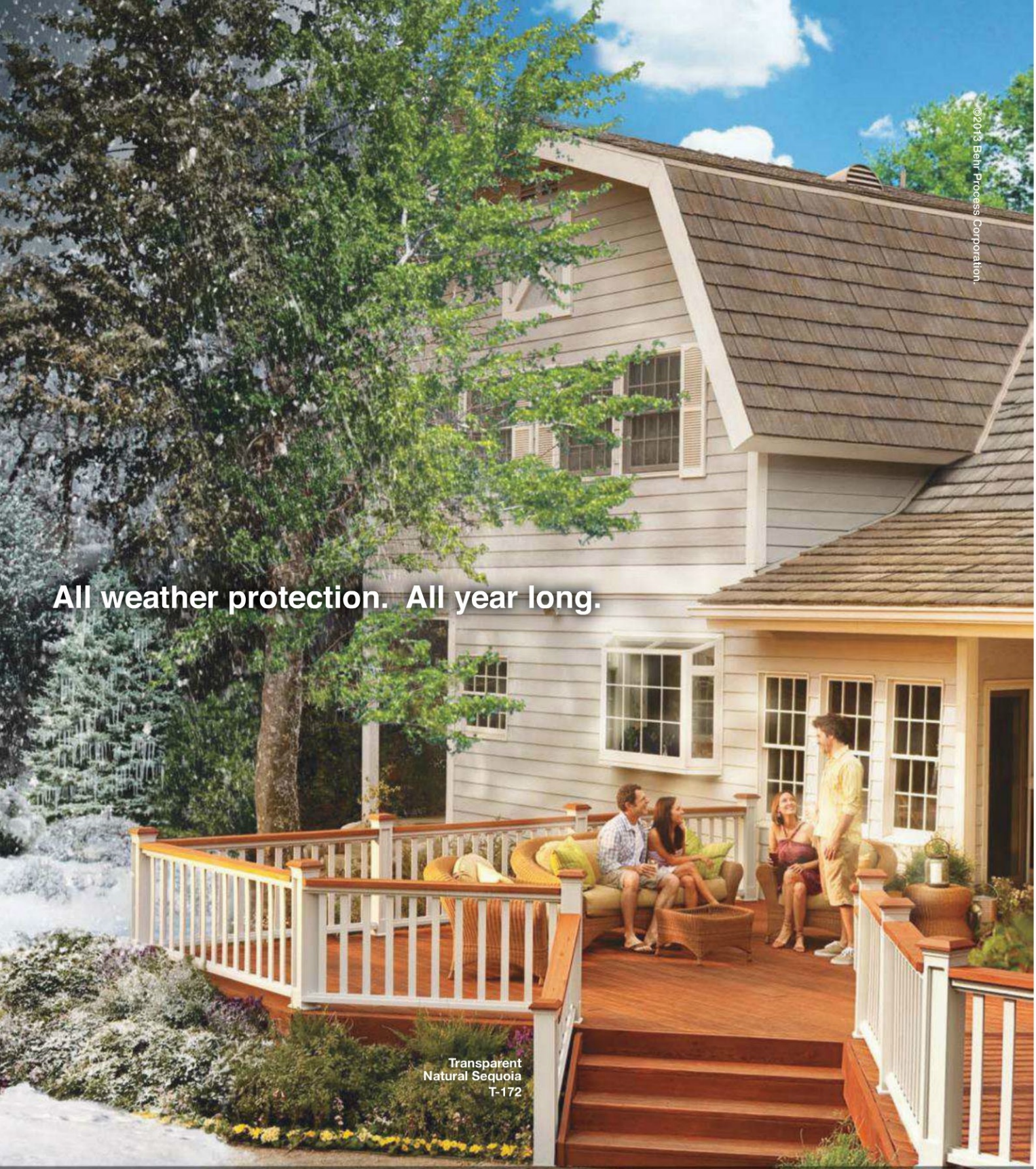
Canada
We acknowledge the financial support of the Government of Canada through the Canada Periodical Fund (CPF) of the Department of Canadian Heritage.

canadianhomeworkshop.com

Printed in Canada
Distributed by Coast to Coast Newsstand Services Ltd.

Publications Mail Agreement No. 41927026
GST Registration #815439914

Magazines Canada | CSME Canadian Society of Magazine Editors | CCAB BPA Worldwide



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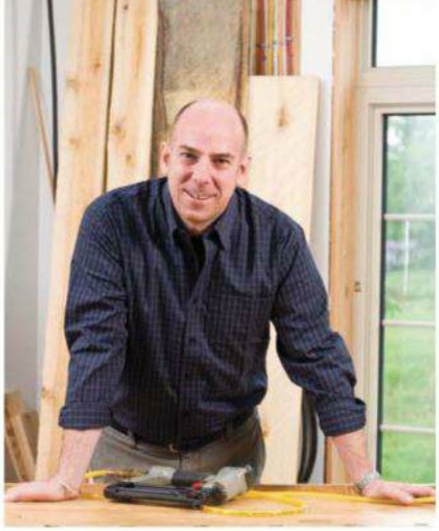

Editor's Notebook

BY **DOUGLAS THOMSON**

> "You also are likely to know the value and sense of accomplishment you get from working with your hands"

Those Who **Do,** and Those Who **Don't**

Are we losing our capacity to do it ourselves?

I'M ALWAYS SURPRISED when I meet someone who doesn't know the basics of doing things for themself. I say "things" because I don't mean just fixing or building projects. In my experience the sensibilities of doing things for yourself typically go further than that. Most of the people I know who can figure out how to make a simple mechanical repair are the same people who can figure out how to work with their hands. I think there are two types of people: those who do (or, at least try) and those who don't.

And according to recent stats, we Canadians are losing our instinct to build and create with our hands. In fact, people who make a living working with their hands are a declining percentage of our workforce.

When I graduated from high school in the 1980s, it seemed that most of the kids who were going into a trade had parents who already worked in a trade. Apparently, that trend has continued over the past 30 years, with a declining percentage of Canadian high-school students choosing to pursue a career in a skilled trade. Combine this trend with the fact that the population of employed tradespeople is aging; the average age of a Canadian welder is 56, for instance. Skills learned by years on the job are in danger of not being passed on to the next generation of tradespeople.

Exactly why the interest in working with our hands has continued to decline, I'm not sure. Perhaps because, as a society, we don't aspire to work with our hands? Or maybe it's because graduating students don't know how well skilled work pays? (FYI, a skilled framer can earn north of $100,000 a year). Whatever the cause, it does seem obvious that the next generation of doers is not being encouraged to pursue this valuable and lucrative work.

My guess is that if you're reading this, you're likely a doer. You also probably know the value and sense of accomplishment you get from working with your hands. So, I hope you'll encourage a young person in your life to pursue a career working with their hands.

It would be a shame to become a nation of those who don't.

ARE YOU A DOER?

Built a project from the pages of *CHW* lately? We'd love to see a picture of it! Please send us an email at editorial@canadianhomeworkshop.com and we'll randomly select a respondent to win Porter-Cable's cool new 20-volt drill/driver.

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Vroom, **Vroom!**

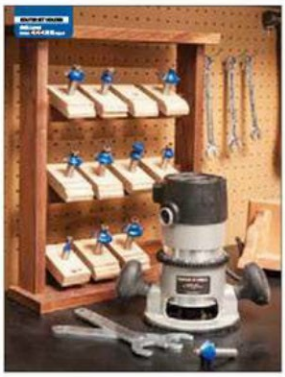
A LOT OF labour—and sanding time—went into these two motorbikes (Winter 2013), and I have requests to make more. I enjoy woodworking and the magazine. Keep up the good work. I'm waiting for the next inspiring project.

Hector Courchesne
Alban, Ont.

Editor's note: Hector tells us he'll be turning 80 in April. Happy birthday, Hector!

GOOD TIMING

As a longtime subscriber to *Canadian Home Workshop*, I have been looking for some time for a router-bit storage system to suit my particular needs. When the March 2013 issue of your magazine arrived in the mail today, Ryan Shervill's article grabbed my attention right away.



Congratulations! This system really hits the jackpot for me. It displays the bits well, is easily expandable and the concept of copying the bit profile on the front of each holder is excellent. I am heading to my shop right now to get started on it. Keep up the great work.

Richard Hollies
via email

ENERGY ISSUE

An article in your March 2013 edition gives the impression that dimmer switches conserve energy. I'd just like to point out that using a dimmer switch does not reduce energy consumption; it simply limits the energy to the fixture. The rest of the power stays in the switch itself, which is why dimmer switches get hot.

Travis Grant
via email

Editor's note: According to Lutron Electronics Co., a large manufacturer of electrical dimmers, during normal operation, wall-box dimmer efficiency is typically around 99 per cent. The other one per cent is dissipated in the dimmer as heat. So, a 600-watt load on a 600-watt dimmer would produce around six watts of heat. This is approximately the heat generated by a small nightlight. Operating on the rated load, Lutron dimmers will stay below the UL limits of 140°F (60°C).

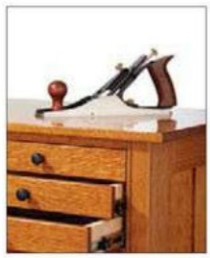
SOLE PLANE?

OK, so it has been said that we should never lay our planes down on their soles. I've been taught that, too. But why? All of my planes sit on their soles side by side. This way, they do not hit each other as they are moved about. It seems that soft wood is easier on them than steel.

Please tell me why I am a monster here.

I've been reading your magazine for decades (possibly from the first one). Tells you what I think of your magazine. Yes?

John Miller
via email



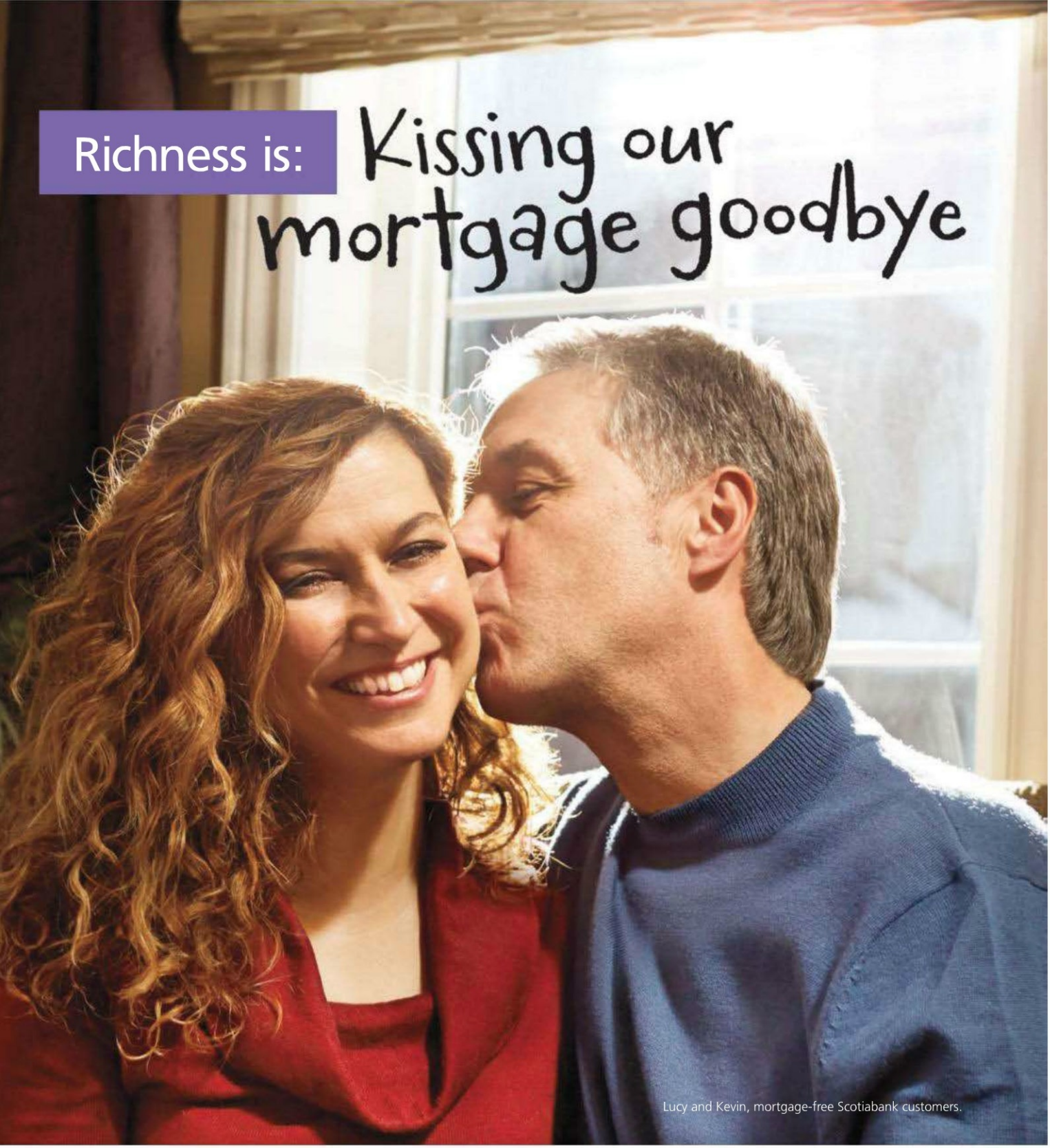
I also store hand planes sole down, even with the blades set up for the next use. They just look better all lined up like that. But store them on a shelf made of wood, MDF or other material that won't damage them. On metal surfaces, I lay them on their sides.

—Hendrik Varju
CHW *contributing editor*

SHOP DREAMS

I have always enjoyed woodworking, and your magazine has always been there for many of my projects. "Build Your Dream Shop" (March 2013) is great. I just bought a new home and I have the room now (15 x 40 feet) for a workshop. I have already started to plan the space. Thanks for the ideas and help.

Mike Hamel
via Facebook



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Curve Cutter

It was the hand-powered version of this tool that first gave jigsaw puzzles their name. The powered version was invented in 1946 by Albert Kaufmann, an engineer with Scintilla AG in Switzerland, when Kaufmann replaced the needle on his wife's sewing machine with a saw blade. Not long after, Scintilla (later owned by Bosch) created the first version of this powerful and versatile tool. The jigsaw has been the portable go-to solution for cutting curves ever since.

PHOTOGRAPHY BY JUAN LUNA

The experts give you the right advice for your DIY and woodworking projects

askapro

Dan Dicaire

Dicaire, a host of HGTV's *House Hazards*, holds a degree in chemical engineering from the University of Ottawa. Dicaire is also passionate about green building and is currently an energy efficiency and sustainability officer at Ottawa Community Housing Corporation.

QUESTION FOR DAN DICAIRE

I've heard that wood dust can accumulate in a workshop to the point that a small spark from something as small as an electrical motor starting could cause an explosion. Is this actually possible?

Joseph Fobert
Orleans, Ont.

When we think of a dust explosion, we typically imagine an industrial-scale granary or sawmill. But if we are not careful, we can recreate the same explosive conditions within our home or workshop. Wood is composed of very long chains of hydrocarbons densely packed together in a solid state. To make a fire, we need a combustible fuel (in this case, wood), oxygen (also referred to as an "oxidizing agent") and an ignition source. When the wood burns (also referred

+CONTINUED ON PAGE 12

GRATE: DAVE STARRETT

Testimony

Who's the Boss?

A heavy-duty cable stapler that's perfect for tight corners

GARDNER BENDER CABLE BOSS
Secure NM electrical cable with ease

Price: $45

THE AVERAGE DO-IT-YOURSELF electrical project calls for securing cable to studs, joists and other structures. Regular metal cable staples are inexpensive, easy to use and foolproof, but setting them generally requires two hands and room to swing a hammer. While recently running a new circuit through a very low, cramped crawlspace, I armed myself with a Cable Boss stapler from Gardner Bender.

This tool resembles a manual heavy-duty stapler in most respects, but the staples it drives are designed for securing NM (non-metallic sheathed) electrical cable to wood components. There are three sizes of staples available. I shot the middle size, securing regular 14/2 NM. The stapler worked very well for me within the tight confines and was twice as fast as a hammer would have been.

I did identify a limitation, however. While this tool works flawlessly stapling cable along the sides or edges of studs or joists, when its front and rear ends are solidly supported by the wood, using it to secure cable across a stud or joist is trickier. In this case, you need to hold down the front of the stapler firmly with one hand while activating the mechanism with the other. As the rear of the tool is not supported by the structure you are nailing to, generating leverage and concentrating on holding the cable in place can be challenging. A misfire into a cable's conductors would be a costly, time-consuming error, so I did switch to regular, hammer-driven staples when required.

On the whole, I was very happy with the Gardner Bender Cable Boss. It's a specialty tool, for sure, that I usually reserve for special situations, but it made a difficult job easier and allowed me to finish faster—and spend less time with the spiders. For more information, visit **gardnerbender.com**.

—Michel Roy

A GRATE DECK IDEA

WE LOVE IT when any item from a home-reno project can be creatively diverted from the landfill. That's why this clever boot scraper has remained top of mind since last year's deck issue (April/May 2012). Our 2011 deck contest winner, Kevin Bibby, set this ornate, old heating vent into the deck boards just outside the French doors that lead inside. With two busy boys, it's a last attempt to get the mud off their feet before they enter the house.

Sealed & Sound

A process using steam helps preserve old windows

WITH ENERGY EFFICIENCY a key consideration for most renovation plans, it's no wonder we always think we need to send the old materials to a landfill and buy something new. Ottawa-based renovator Paul Denys (denys.ca) prefers to maintain the character of an old home, so he's been saving old windows from the trash heap and restoring them instead. Since 2005, Denys has been using a process called "steam stripping," a healthier way to soften and remove existing paint than mechanical scraping, chemical or dry-heat techniques. The associated costs for steam stripping are about the same as a new window, says Denys. Add a bit of weather stripping and they can be almost as energy efficient, too (within five to 10 per cent of new windows).

Other benefits of restoring old windows include: easily repairable mortise-and-tenon construction; antique windows were built using old-growth timber, which is denser and more resistant to decay; older homes tend to shift, which could prevent a new window from sealing properly; and there is no actual seal to fail.

"Sometimes high tech is not that great," says Denys. "Drop a cellphone and you have a very expensive paper weight. Drop a hammer, no worries. The simplest technology is sometimes the most durable and easiest to fix."

—Tara Nolan

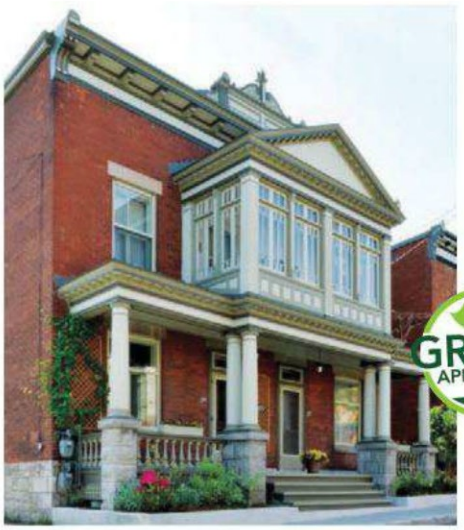


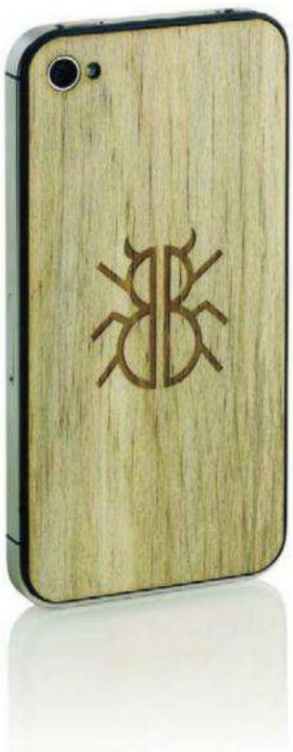
PHOTO: GORDON KING

DENYS RESTORED the porch windows of the historic Alexandre Taché House in Gatineau, Que.

Beetle Mania

A destructive pest leaves beautiful wood in its wake

WOODWORKERS ARE NO stranger to the unique patterns and colours of spalted wood. But across North America, a nasty little bug is inadvertently doing the spalting—and decimating forests in the process. The mountain pine beetle spreads a blue-stain fungi when it bores into the bark of pine trees to lay its eggs. Generally, the remedy is to cut down these trees and burn them to stop the spread. However, a new company called Bad Beetle (badbeetle.com), which refers to the mountain pine beetle as "nature's graffiti artist," is turning the silvery blue-hued wood into Apple accessories. The products may be sharp-looking, but they also serve as a reminder of the fragility of our forests and our duty to protect them. **—Tara Nolan**



to as "oxidization"), it reacts with oxygen to produce free-flowing gas molecules such as CO_2 and H_2O, which take up more room than solid wood as they are heated and expanding. By the time an incinerated 2x4 is done burning, it might take up a space 20 times its original volume. But when we throw a 2x4 in the fire, it doesn't explode, so how could a pile of sawdust from cutting 2x4s ever create an explosion? It happens when the dust is stirred into an airborne cloud. Instead of the wood burning slowly (because it takes a long time to expose each molecule to the sufficient oxygen and ignition source), imagine the same 2x4 pulverized into a dust cloud in which oxygen is available to each molecule. If that cloud meets an ignition source, such as a spark from a small motor, the entire weight of the 2x4 can rapidly combust, instantly expanding into heated gases, pushing everything out of their way. That would clear the workshop in a hurry! The extra-tricky thing is that a small cloud of dust (stirred up when you drop your toolbox) meeting a small ignition source can instantly expand and kick up more dust while supplying the ignition source to make a larger explosion that, in turn, will make an even larger explosion—creating a chain reaction that will consume all the dust in the workshop and

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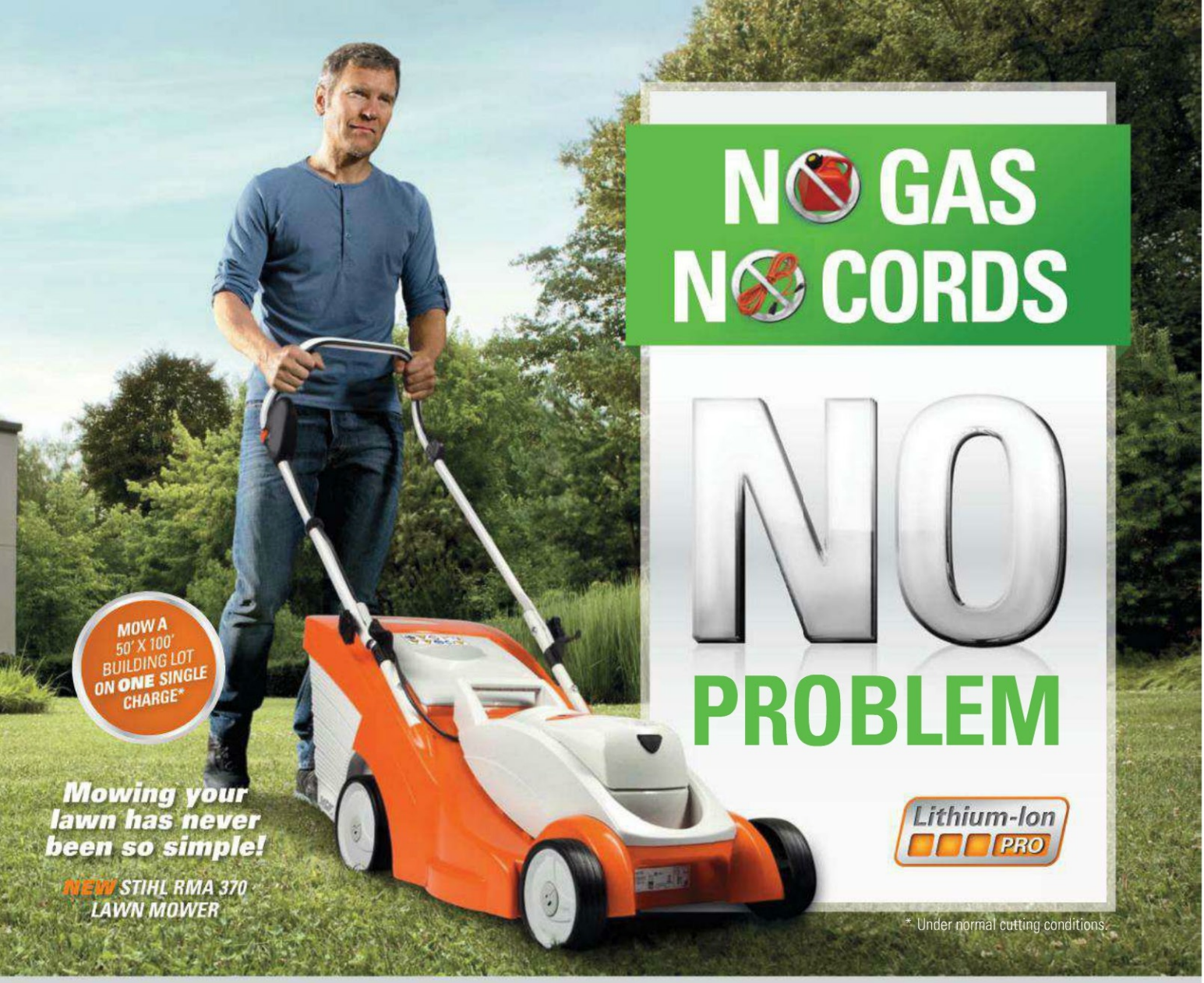

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Testimony

Go-To Glue

A reliable adhesive for quick fixes

I'M OFTEN SKEPTICAL about products I see demonstrated on TV or at consumer shows. A few years ago, at the Canadian Home Workshop show, I couldn't resist trying RapidFix glue.

I since have used it on hundreds of repairs, and I'm still using the original bottle. The glue is a two-part system. Use the liquid glue as you would regular superglue—it sets very quickly and the hold is almost instant. For open-air repairs, the wet glue hardens after covering it with a micro-fine powder (Part 2), which creates an instant, rock-hard epoxy. Multiple layers can be applied to build up more strength.

RAPIDFIX DUAL ADHESIVE SYSTEM
Durable liquid glue for quick fixes

Price: $20

My glue is still liquid after many instances of leaving the cap off for days at a time. I recently bought another set of glue bottles for my office and was impressed with the new bottle design, which has a long, thin spout, making it easier to apply a tiny drop to a pinpoint.

The product comes with a DVD of impressive demos, including repairing a drilled hole in a high-pressure metal pipe. While the initial investment is more than you may want to spend on a bottle of glue, you will use every drop. The savings in time and money on repairs will repay you repeatedly. For more information, visit **rapid-fix.com**.

—Ravi Shah

Give your Garden a Lift

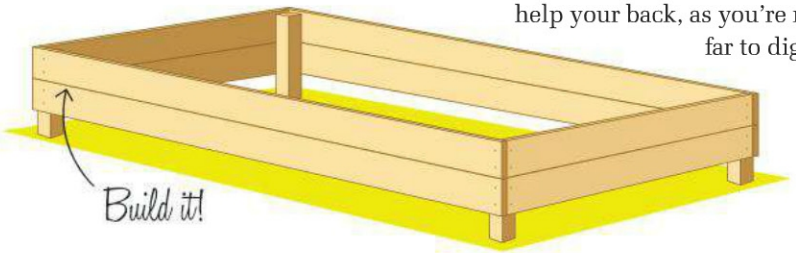
Neaten your veggie plot with raised beds

I LOVE HEADING out into the garden on a warm summer day to pick a ripe tomato or snip a fresh bunch of herbs. That's why the vegetable garden was one of my first priorities in our new yard. My husband and I love the neat, organized look of raised garden beds, so, last autumn, he built two. Be sure to use untreated wood (we chose cedar), especially if you are growing food, so the chemicals don't leach into the soil. For each raised bed, cut two 4x8s in half for the ends and use four 4x8s for the two longer sides, stacking them two high. The boards were all attached to 4x4 posts in the corners with outdoor screws. A few inches were left on the ends of the posts to anchor the raised beds into the ground. Now, the beds just need to be filled with soil and compost this spring.

There are some benefits to raised beds: your growing season can start a bit earlier because, typically, the soil in the beds warms faster than the ground; they provide sufficient drainage; they help prevent pests such as slugs from munching on the plants; you can put tidy pathways of mulch or gravel in between; and they also can help your back, as you're not leaning over as far to dig and weed.

Bon appétit!

—Tara Nolan



probably blow out the windows as it goes. Lastly, our workshops tend to be full of spilled fuel or oil, potentially adding volatile accelerants to an already dangerous situation. A workshop dust explosion is definitely possible, and the best way to avoid it is to keep our workshops clean.

—Dan Dicaire

BE SAW-BLADE SAVVY

After a few weeks of use in the shop, my saw blades and router bits become gummed up. I'm sure this affects blade performance, but I'm not really sure how to clean them properly. Can you tell me the best way to keep my blades and bits running clean and true?

—Donna Parkhill, via email

No matter what kind of wood you work with, inevitably, all circular-saw blades eventually get gummed up with burned resin and pitch. When it happens before you're ready to send a blade out for professional resharpening, you consistently need to remove the gunk to keep cutting efficiently.

The problem with blade gunk is twofold: it makes the body of the blade thicker, causing friction that leads to more buildup; also, gunk that develops on and around teeth can prevent the proper flow of chips during a cut. If an otherwise sharp blade doesn't cut as well as it

used to, gunk buildup is usually the cause.

Household ammonia (sold at grocery and hardware stores) is the solvent traditionally used for cleaning dirty blades. While this stuff is cheap and effective, it also is caustic and gives off powerful fumes. Always use it outdoors. Wear gloves and eye protection while brushing ammonia on the blade—and while scrubbing it off. Then rinse the blade thoroughly with water when you're done.

There are special saw-blade cleaning solvents that are more expensive than household ammonia, but they typically do their job without the harmful fumes. All the types I've used work well. Soaking is the key to success. Pour just enough solvent to submerge the blade in a wide, shallow metal pan. Let the blade sit as long as necessary to soften the deposits before scrubbing the blade clean with an old toothbrush. Coating the blade with a friction-reducing spray when it's completely dry reduces gum buildup during future use.

Steve Maxwell is *CHW*'s technical editor

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Alfresco Refresh

Products to get your deck and patio ready for outdoor entertaining

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1. Extend the life of your deck

If you're ready for a redo, but you'd like to stretch a few more years out of your current deck, consider using Behr's new wood and concrete resurfacer to revive old deck boards by filling in small cracks and preventing splinters.

Behr Premium DeckOver Wood & Concrete Resurfacer
PRICE: $45 ➔ behr.com

2. Wood that looks like wood

Timber Specialties is bringing brown-coloured, pressure-treated wood to Canada. It's low-VOC and safe for playground structures. Look for the name MicroPro Sienna at a lumber retailer near you.

MicroPro Sienna Treated Wood
PRICE: Varies by dimensions
➔ microprosienna.com

3. Set up a stylish outdoor fire

Pull up your deck chairs to one of these glass-reinforced concrete Eldorado Outdoor Artisan fire bowls on a chilly evening. Available in four colours and two finishes, the fire bowl comes with CSA-certified lava rock and gas components.

Eldorado Outdoor Artisan Fire Bowls
PRICE: $2,500 ➔ eldoradostone.com

4. Spring clean your deck

After a cold, wet winter, give your deck some TLC by scrubbing it with this mould-fighting wash from Concrobium that's Canadian-made, non-toxic and bleach-free.

Concrobium House & Deck Wash
PRICE: $14 ➔ planetpeopleco.com

5. Enhance your outdoor kitchen

How great would it be to grab a cold one without heading into the house? The undercounter fridge from True Professional Series is the perfect addition to your outdoor kitchen.

True 15" Undercounter Refrigerator
PRICE: $3,250 ➔ true-residential.com

Toolbox
BY **STEVE MAXWELL**

> Cutting metal with a chopsaw is an option that too few workshoppers know about

Metalworking in the **Home Workshop**

Set up your workshop to work safely with metal

PRECISION AND speed are the biggest advantages of this cordless electric hacksaw

STEP BITS make it easier and safer to drill metal, thick and thin

DRILLING HOLES in metal requires tough drill bits. The set shown here is made especially for hard metals such as steel

Cutting, shaping and joining. These are the three basic woodworking processes. Often, I find myself extending them beyond wood to metal. Materials such as mild steel, brass, copper and aluminum offer practical and creative possibilities that wood can't match. Looking back over the past year, I've cleared my workshop to make room for fabricating metal brackets for hydronic heating pumps, modified metal rods for supporting a sliding video camera setup, built metal benches and fixtures for woodworking machines and re-machined the worn edges on a chainsaw bar. I even gave the exhaust system on my old F150 pickup a new lease on life right outside my workshop doors. In the time it would take me to drive to a muffler shop, I was enjoying that good, old feeling of self-reliance that kicks in when you save money using your own hands.

Before I fill you in on the basics of how I work with metal, you need to think about safety. This is the most important thing to keep in mind when it comes to metalworking. Safety means three things: protect your eyes, protect your ears and never do any metalworking operation that generates heat or sparks near wood or finishing materials.

SIMPLE METAL-CUTTING OPTIONS

For years, I used a hand-operated hacksaw for general cutting of metal rods, pipe, tubing and narrow pieces of steel. Now, a small, simple and highly effective power tool allows me to work more accurately and effectively.

Portable power hacksaws have been around for a while, but the little Milwaukee 2429-20 12V cordless model has become my tool of choice for cross cutting most metal parts up to 1¾" wide. It's small, light, quiet and highly controllable. Most importantly, this tool lets me cut much more accurately than with any handheld hacksaw.

Cutting metal with a chopsaw is an option that too few workshoppers know about. Blades are made that allow ordinary chopsaws to cross cut thick, non-ferrous metals such as aluminum or brass. A sliding compound mitre saw also is an excellent tool for cutting the thin aluminum used for soffit and fascia work. Specialized, slow-speed chopsaws are made to spin carbide blades that create cool, smooth, burr-free cuts on mild steel rods, tubing and pipe.

PHOTOGRAPHY: STEVE MAXWELL

For more information on working with metal, visit **canadianhomeworkshop.com** and type "welding" into the search bar.

SHAPING AND DRILLING

A grinder, hand files and a drillpress are the tools I use most often for shaping metal. When it comes to drilling holes, you also need more than just ordinary twist bits. Even those that work well on wood may dull quickly on metal. My favourite high-performance twist bits are the Irwin cobalt models. They easily chew through steel and last a long time. Invest in a small bottle of cutting oil to extend the life of your drill bits. Cutting oil is different than lubricating oil, so never substitute one for the other.

The best way to drill holes in metal thicker than 3⁄16" is incrementally, boring with slightly larger bits until you work up to the finished hole size you need. Drilling big holes in metal all in one go is an invitation to injury because the bit is likely to catch the metal as it exits the bottom of the hole. This is where step bits come in handy. They are the only safe way to drill big holes in sheet metal. Each step bit is made incrementally larger along its length, allowing holes to be drilled progressively, without the need to change bits all the time. More slender, tapered step bits are ideal for drilling through thick steel with a drillpress.

JOINING METAL

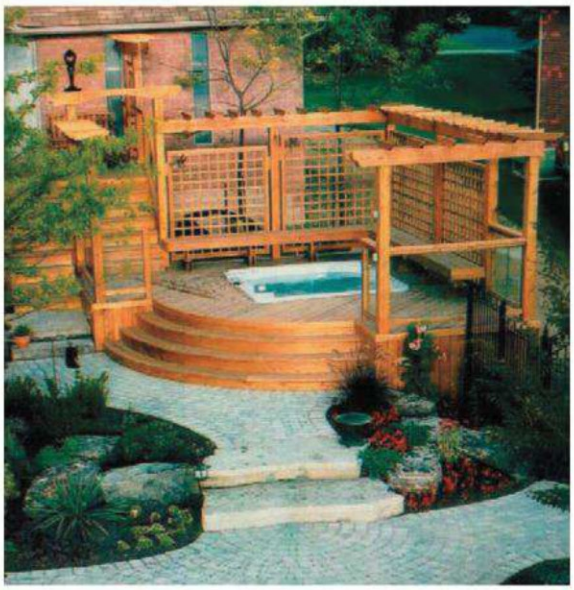
I usually turn to my Lincoln Power MIG 180 wire-feed MIG welder for joining steel because it works so well. Even if you have experience with traditional arc welders, you'll be amazed at the beauty of a good wire-feed weld. The handiest models combine an electric arc with inert gas flowing over the weld area to make a beautiful, smooth, blemish-free weld bead even if you have little or no experience. Wire-feed welders can join metal ranging from 1⁄16" thick up to more than 1⁄2" thick. Machines like this come ready to weld steel, but accessories also allow easy, neat welding of aluminum.

If you have a little woodworking experience, then you're halfway to success with metal. Give this material a try—you'll probably find it a natural, useful and satisfying little sideline, like I do.

Steve Maxwell *is a woodworking expert and* CHW*'s technical editor.*

FORGING BASICS

FORGING IS THE process of heating metal red-hot, then pounding it with a hammer on an anvil while it's still soft. I learned to forge in 1987, while earning my diploma as a farrier, and the forge I have today rounds out my metalworking options nicely. It's a Canadian-built, propane-fired unit made by Mighty Forge (mightyforge.com) that sits on a rolling, metal thickness-planer bench that I modified. This forge heats even, thick billets of metal red-hot in less than 10 minutes, and my 125-lbs. anvil provides a solid surface on which to shape steel. I use three different tongs to hold hot metal, each made to grip different thicknesses. Besides basic shaping operations, a forge also allows you to harden and temper your own woodworking chisels.



Cutting Corners

Tips and tricks for building a curved multi-level deck BY **STEVE MAXWELL**

THERE ARE DECKS, and then there are decks. While design is the thing that separates the ordinary from the extraordinary in the deck world, of all the premium design features out there, curves are one of the most challenging and rewarding. Although each curved deck is unique, there are transferrable construction principles you can apply to any project. Here are four essentials to help you build curves and layers into your deck regardless of the size, shape or location.

EVERY SIXTH board is tapered on the perimeter of this deck to create the curved shape

DECK ABOVE: YOURDECK.CA; DECK AT RIGHT: ROGER YIP

"The main difference between a linear deck and a curved one is how the edges of the floor frames end"

THE SOFT, curved lines of this deck (built by Todd Mounsey of Your Deck Company, with Trex decking) complement the natural surroundings so it feels more natural to the setting. One of the challenges, however, was fitting the deck's edges tight around the circumference of the hot tub (above left), as well as around the existing stone steps (right)

DECK PHOTOS PROVIDED BY YOURDECK.CA

UNDERSTAND THE BASICS

The main difference between a linear deck and a curved one is how the edges of the floor frames end. That's obvious enough, but it's worth bringing to mind because that's where your most important work happens. In the image pictured above, at right, you'll see three important things.

First, there's more than one level. Curved deck edges are one thing, but they don't reach their full visual potential without the help of multiple deck layers.

Second, although deck-floor frames are curved, the underlying support beams are not. Floor joists that extend by varying amounts past the beams that support them are a necessary part of construction. Also, take a look at the ends of the floor joists in the photo below, at left. See how they're cut to match the angle of the curve at that point? More on this later.

And, finally, curved decks typically use horizontal, solid-wood blocking between the ends of the floor joists, to create continuous support for the curved headers that bend around the edges of the deck.

CURVED BLOCKING is sawn to shape after installation, spanning the space between the floor joists

DEFINE YOUR DESIGN

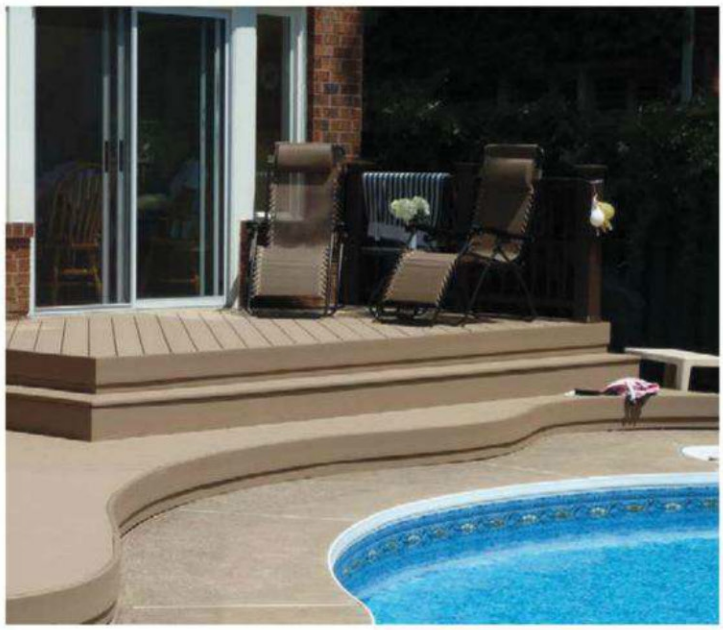
Most straight decks are built successfully without a plan, but a curved and layered deck is something else. It's one thing to realize that a 10' x 30' straight deck on the back of your house will work well and look good; but very few people can properly envision the look and feel created by the shapes and layers that are possible with a curved plan. The variables are too great, and that's why you should use cardboard and ¼"-thick foam board to model the details of the curve radii, widths and layers before you start to build.

FRAME IT SQUARE; CUT IT CURVED

Start by building the lower layers of your deck, extending each floor joist out beyond its final length but resting on its support beam. The idea is to create a somewhat greater extension of floor frame than you need, allowing enough extra length for cutting the curves. With your floor joists in place and secured to the underlying beam with screws or metal brackets, mark the curve on the top edges of the floor joists using a string and pencil as a compass. This is where your earlier design work with the model pays off.

The next step is to cut pieces of 2x6, 2x8 or 2x10 lumber as needed to fit at right angles between the edges of the floor joists on their flat, extending slightly past the outline of the curve you just marked. (See centre photo, page 21.) The width of wood required varies depending on the degree of curve at that point, so use your judgment. All that's

CONSTRUCTION PHOTOS: JOHN AND ERIK HECKMAN



A LOW cedar deck, built by Todd Mounsey (above, left), blends in with the lagoon style of the pool. A proper drainage system lies unseen beneath it. The custom-curved iron rail (bottom, left) leads the eye into the main focal point of the yard and away from the cedar hedge. These curves match the contours of the pool (above, right) and create a seamless transition to the concrete patio

required is that the lumber extend beyond the outline of the curve, with at least 3" remaining as part of the deck on the inside. Use your string and pencil again to draw the curve on the top faces of these edge boards, matching what's on top of the joists.

If your curve is gentle enough, use a circular saw to cut it. Setting the depth of cut only for what's required to cut through the lumber and no more allows the greatest degree of curve to be cut. If the curve is too tight for a circular saw, an orbital jigsaw with a coarse blade will work, too.

Either way, the objective is to cut curves in the top boards, while also cutting partway down each floor joist. Complete the vertical floor-joist cuts with a handsaw, following the angle established by the power-saw cuts you just completed. Finish up by brushing wood preservative on the fresh cuts.

INSTALL THE CURVED HEADER & DECK BOARDS

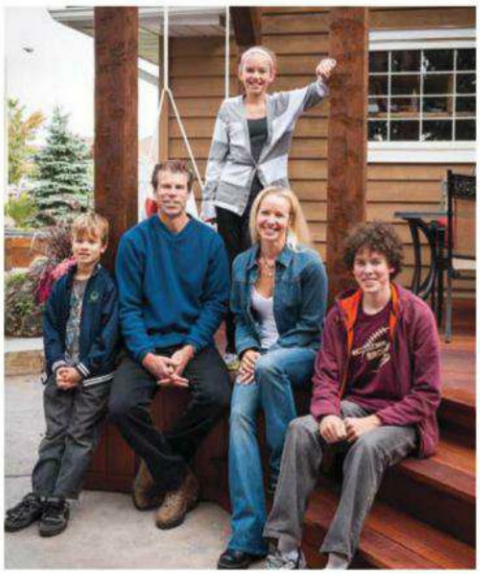
A header is the board that defines the edge of a deck-floor frame, and

WITH THE ends of floor joists angled to match the curvature of the deck, preservative has been applied to all cut surfaces

it's the only place where this kind of curved deck requires bent wood. The photo at lower right shows a curved header being installed. Start with some ¾"-thick lumber that's free of large knots, then create saw cuts partway through the inside face of each board, to aid in bending. These are called "kerfs," and a handheld circular saw with the blade extended by about ¼" works well. Have the saw follow a guide to keep these kerfs square to the board's edges. You'll find 1" to 3" spacing works in most situations. Dry-fit the kerfed boards along the edges of the deck, using clamps to pull them in tight. Use construction-grade adhesive and screws to fasten the curved headers (below). Finish up by fastening deck boards on top of the curved frame, then use your string compass to mark them for sawing.

A curved and layered deck won't cost much more in materials than a straight one, but it could easily take two to three times as long to build. That's often the way it is with quality, and not everyone finds it worthwhile. But if you're the kind of person who feels the urge to create the finer things in life, then there's not much to think about.

SAW CUTS partway through the rear faces of the header boards allow them to bend to the curved edge of the deck

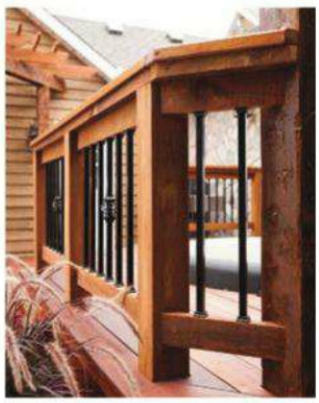


Dream Deck **Winners**

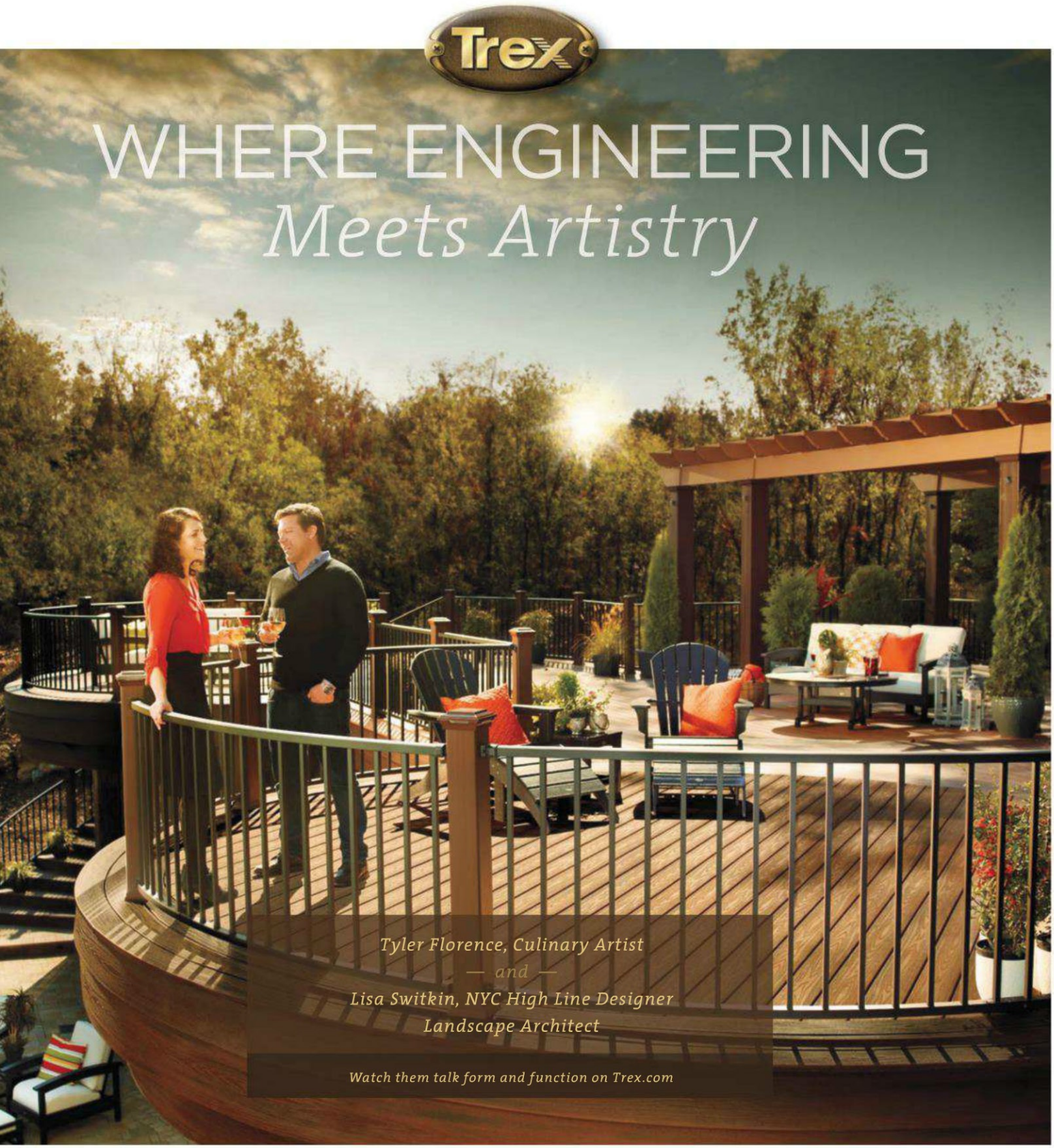
A prizewinning deck project brought to life

SHOW-STOPPING IS A fitting expression to describe this impressive project built by the Hutson family after they won the *Canadian Home Workshop* Dream Deck contest last year. Project leader Dad, a.k.a., Wayne, asked each member of the family what special feature they wanted to include and then incorporated each request into the design. A hot tub, a swing and an eating area were all included in the final project—certainly a fun way to create a project the whole family could be proud of.

THE DAPPLED SHADE under the pergola makes for an ideal place for a relaxing swing. Or is a soak in the hot tub (below, left) more your speed? Or maybe a tasty meal al fresco? This prizewinning deck project has an inviting place for everybody



PHOTOGRAPHY: ROGER YIP



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5 Decks that Rock

Canada's favourite deck builder talks about some of his best decks BY **JAY SOMERSET**

IF CANADA HAD a minister of decking, it would be Paul Lafrance. Since forming his company, Cutting Edge Construction and Design, 17 years ago, the Pickering, Ont., native has designed and built thousands of decks, at home and abroad. He looks familiar because he's part of four television shows on HGTV, including *Decked Out* and his new show, *Disaster Decks*. "My goal is basic: to create something that invokes an emotional response," says Lafrance, who, when he's not sawing and hammering, hangs out with his four daughters. "A deck isn't just an extension of your house; it's a private getaway, an inviting oasis that can whisk you away in an instant." With this in mind, we asked Lafrance to discuss five of his favourite creations.

CONTEMPORARY DECK

With huge surrounding walls and a garage, sitting in this backyard "felt like you were inside a fortress," says Lafrance. The goal: make those walls disappear. The pergola acts as a dropped ceiling, drawing the eye and making the space feel cosy and, tied in with the glass walls, gives it a contemporary feel. Built from an extra-hard Brazilian hardwood, the deck features two sunken areas, one of which is a kids' sandbox that will eventually become a small garden. "Sitting at that big table, under the pergola, you can't believe it's the same backyard."

PHOTOS CURTESY OF HGTV CANADA

COTTAGE DECK

Designed to replicate the feeling of a cottage, the homeowners wanted a backyard "that recreated the feeling of being away," says Lafrance. A reading nook with a retractable awning provides shade or sun. Geometric shapes, including the backdrop beside the firepit at the back of the yard, add drama and make the deck seem much bigger. Sitting by the fire and facing the deck, it feels like you're at the end of a dock.

HOCKEY RINK DECK

This backyard has it all: hot tub, bar, three-season room, firepit, shed and year-round hockey rink made from a special plastic that you can skate on. "Space was tight, so I made use of the oft-neglected space at the side of the house," says Lafrance. "Upstairs, I built a serene, bug-free sunroom; and then, when you walk down the stairs, it's playtime."

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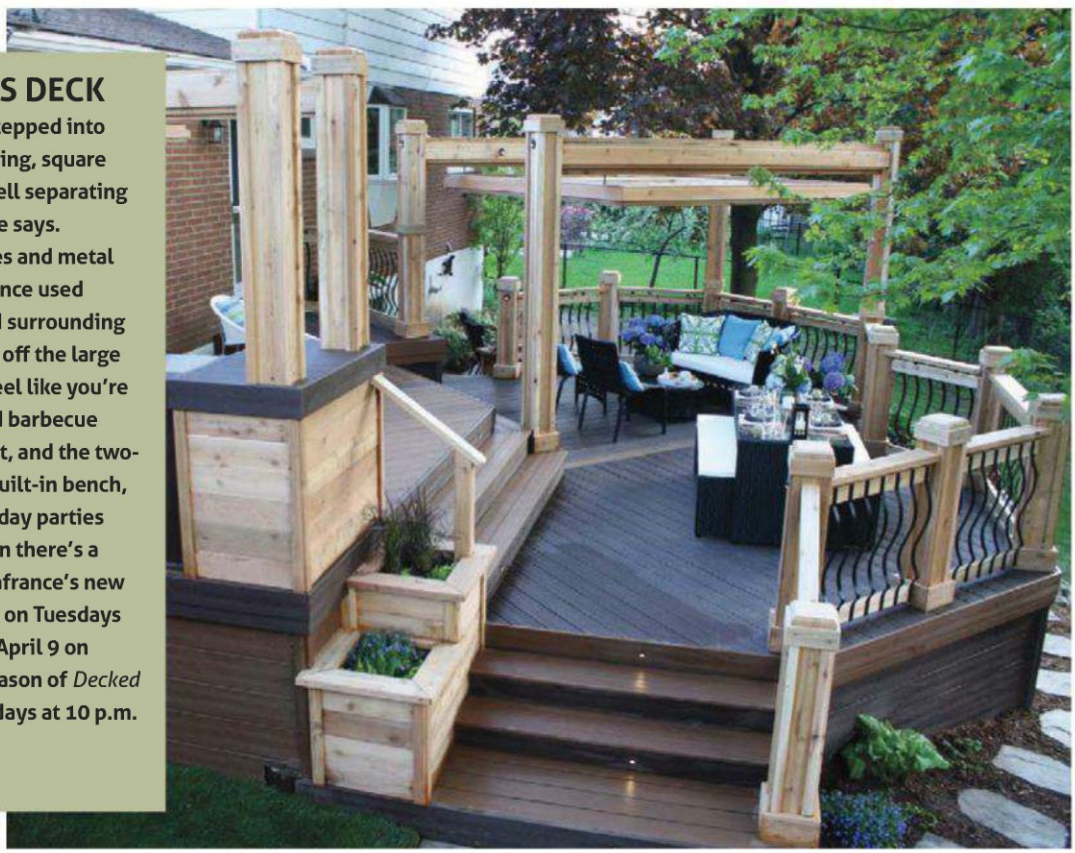
OASIS DECK After a fire devastated this backyard, the homeowners wanted something "that made them completely forget what happened," says Lafrance. Designing around a pre-existing pool, the new space features a sunken hot tub ("Hot tubs and barbecues are so ugly freestanding") under a pergola and graceful, curved steps built from a composite called Trex Trancend. "We had to cook the boards in something resembling an Easy-Bake oven and then bend them into shape. It's laborious, but the curves add such a nice, signature touch." Of course, backing onto a golf course, as this house does, adds to the appeal too.

ENTERTAINER'S DECK

When Lafrance first stepped into this backyard, the boring, square deck was "like a jail cell separating you from the yard," he says. Combining composites and metal rails with wood, Lafrance used geometric shapes and surrounding landscaping that play off the large tree and "make you feel like you're floating." A dedicated barbecue area keeps things neat, and the two-step rise doubles as built-in bench, perfect for kids' birthday parties or casual seating when there's a crowd. You can see Lafrance's new series, *Disaster Decks,* on Tuesdays at 10 p.m. beginning April 9 on HGTV, and the new season of *Decked Out* will run on Thursdays at 10 p.m. beginning May 2.



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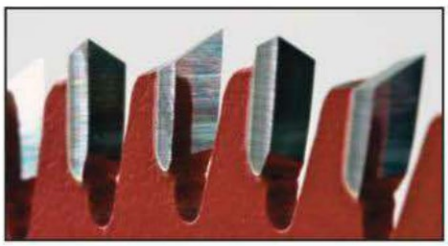
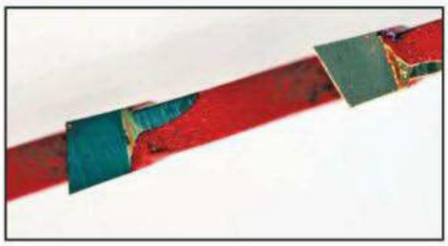
Sharp, steeply-angled teeth. This is what PRECISION SHEAR POINT™ means. These teeth are like remarkably honed knives, made to slice wood with virtually no tearout. This goes even for chip-prone veneered ply and melamine. Even just picking this blade up you can feel the difference.



AXIAL SHEAR FACE™ GRIND (ASFG)

Angled cutters slice wood better because they shear. This is the genius behind the AXIAL SHEAR FACE™ GRIND tooth pattern. Look down on the teeth from above and you'll see how each tooth face angles one way or the other from the direction of travel. This is more challenging to manufacture, but the results are worth it.



"I never would have thought that a blade could cut this smoothly. No chipped edges, even on veneered ply. This blade works just as well in a chopsaw as it does in a tablesaw, and it even handles heavy cuts well."

Robert Walton – Cabinetmaker

The NEW ULTIMATE FLAWLESS FINISH BLADES are available in 10" x 90-tooth and 12" x 100-tooth models and are ideal for tablesaws and all types of mitre saws.

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FOLDING TRAY/TABLE

Skill Level
Novice Expert

"The steps to complete the latticework are not overly complicated, but your workmanship needs to be precise at every stage of the process"

Serve & Fold

Workshop skills raise outdoor eating to new heights BY **RICK CAMPBELL**

THAT FIRST CUP of coffee in the morning never tastes better than when it's served outdoors. This versatile, folding tray/table makes breakfast an easy and elegant affair. The attractive lattice top lifts off to become a handy serving tray for transporting food and beverages between kitchen and patio, and a matching shelf at the bottom provides a convenient place to stash the newspaper after checking the latest sports scores. At the end of the outdoor season, the table folds flat for compact winter storage.

LATTICEWORK

Whenever I build projects, I like to get the most challenging parts out of the way first. For this project, that would be the lattice panels for the tray and the shelf. These panels are made of a criss-cross pattern of ½"-square cedar strips, connected with half-lap joints where they intersect. Start by making two identical lattice frames that are slightly oversized, then trim the edges to achieve the final dimensions needed for each panel. The steps to complete the latticework are

PHOTOGRAPHY: ROGER YIP

STRONG, STYLISH and easy to fold, this outdoor table delivers features that store-bought options can't match

You Will Need

PART	MATERIAL	SIZE (T x W x L*)	QTY.
Legs	cedar	3/4" x 3" x 27"	4
Long upper/lower braces	cedar	3/4" x 1 1/4" x 13 3/4"	2
Short upper brace	cedar	3/4" x 1 1/4" x 12 1/8"	1
Tray supports	cedar	3/4" x 2" x 16 1/2"	2
Upper tray sides	cedar	3/4" x 2 1/4" x 18"	4
Lower shelf long sides	cedar	3/4" x 2 1/4" x 16"	2
Lower shelf short sides	cedar	3/4" x 2 1/4" x 12"	2
Lattice panel strips	cedar	1/2" x 1/2" x 19 1/2"	76
Leg pivot bolts	stainless steel	1/4"-diameter x 1 1/2"	2
Shelf pivot bolts	stainless steel	1/4"-diameter x 2"	2

*Length indicates grain direction

RECOMMENDED TOOLS

Planer, jointer, tablesaw, jigsaw or bandsaw, table-mounted router, drillpress, flush-trim saw

STRENGTH AND elegance: Although this table folds, it's solid enough to support serving trays and gardening supplies (left). The notched bottom tray (above) swivels down to interlock with the lower brace, holding the table in the open position

not overly complicated, but your workmanship needs to be precise at every stage of the process. Small errors can add up to big differences whenever a lot of parts are involved. Don't be discouraged; I'll be offering tips along the way to improve your chances for success. Besides, at the end of the work, there's a way we can cheat a bit to make the panels fit, even if the final dimensions are not exactly what you were shooting for.

To begin, prepare enough wide stock to yield the 76 strips required to make two lattice frames, plus a dozen spares just in case you run into difficulties. Reduce the thickness of the stock to ½" with the surface planer, joint the edges, then cut the boards into 19½" lengths on your tablesaw. I used manufactured setup blocks to verify the thickness of my material, but a precise set of calipers will also give you an accurate reading. When you cut the boards to length, rather than measuring each one, clamp a stop block to the fence of your mitre gauge to set the correct distance to the blade. This method ensures all the blanks turn out to be exactly the same length. (These are a couple of those precision tips I mentioned earlier that will take your workmanship to the next level, while also saving time and trouble.)

Here's one more tip to improve accuracy: save time, boost safety and reduce the chances of alignment errors by preparing dados for the half-lap joints in the wide boards before cutting the narrow strips to width. The only tricky part here is achieving a uniform ½" gap between the slots. The solution is to make a simple jig that indexes the cuts, similar to the type of jig you would use to make box or finger joints. The jig starts with a board that is roughly 2" wide x 48" long. Use a dado blade to cut a ½"-wide x ¼"-deep dado in the centre of the bottom edge. Cut the indexing pin by ripping a ¼"-wide strip from one of the ½"-thick blanks you set aside for the lattice slats. Slice a piece from the strip that is approximately 3" long and glue it in the notch on the bottom of the jig. When situated correctly, the pin protrudes from the front of the board and sits flush at the back. Reinstall your ½" dado blade and

➔ PLANS FOR THE FOLDING TRAY/TABLE

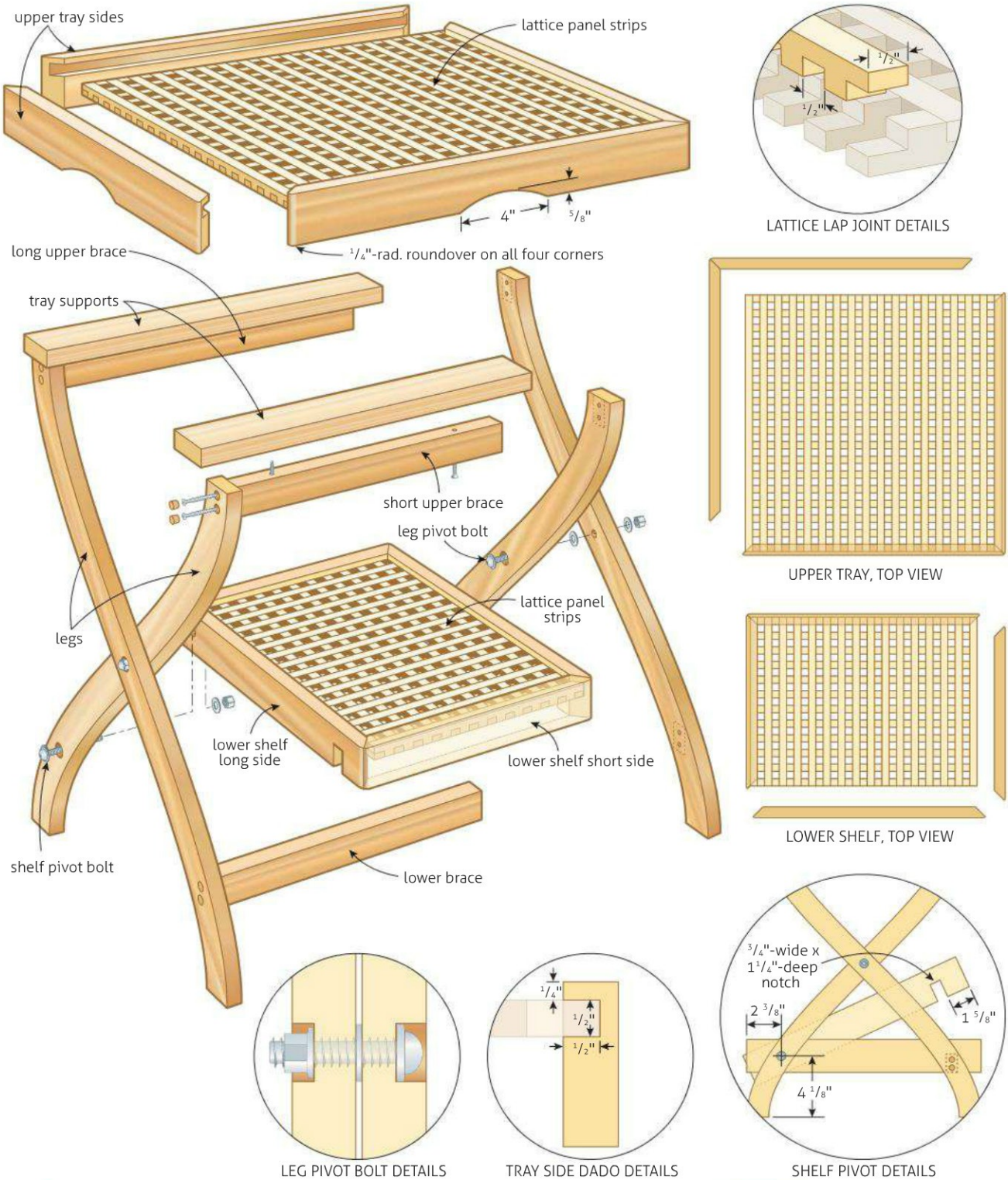

ILLUSTRATION: LEN CHURCHILL

readjust the height to cut a ¼"-deep dado. Secure the jig to your fence with the pin positioned exactly ½" from the blade. This is another place where those setup blocks come in handy. After using a test piece to check the setup, you're ready to start milling dados in the lattice blanks.

Complete the first pass over the blade with the end of a workpiece resting flush against the side of the indexing pin. Next, reposition the workpiece so the resulting dado is engaged over the pin, and then proceed to cut the next dado in the sequence. Repeat the entire procedure until dados have been milled along the entire length of the workpiece. When all is said and done, you should end up with a lattice strip that has 19 evenly spaced slots across one face. After completing this procedure for all the lattice strips, it's time to cut them to width.

To check the fit of the half-lap joints, cut a couple of ½"-wide test strips from scrap wood of the same species you've been working with. If everything looks good, prepare the rest of the segments. If the half-lap joints are too tight or too loose, make the necessary adjustments by nudging the tablesaw's fence to alter the width of the lattice strips.

At this stage, you should have a huge pile of notched lattice strips. Now it's time to get out the glue bottle and begin assembling the strips into grids. Using a glue brush, spread a little bit of adhesive in the dados and then snap the interlocking strips. Lay sheets of waxed paper over the completed assemblies and stack heavy books on top to keep the joint surfaces in contact while the glue dries.

After leaving the assemblies overnight, prepare to trim the panels to size. Your objective is to end up with lattice frameworks of the required dimensions that have a continuous ½"-wide strip running along all four sides. In a perfect world, the finished proportions of the tray panel will be 16½" square and the shelf will measure 10½"

CURVED LEGS are more challenging to build, but they make the table look so much better. Each pair of legs is connected with pivot bolts, with another set of bolts allowing the tray to swivel upward

wide x 14½" long. However, as I mentioned earlier, the repeated variations in the width of the slat segments and the gaps between the rows may give you slightly different results. Simply adjust the project dimensions to compensate for the discrepancies. Don't be tempted to make corrections by trimming the width of the border strip to less than ½" wide. Doing so will create issues for you later on.

Let's get to work cutting these panels to size. For the first pass, position the fence to make a wide cut that trims the segment ends flush with the first strip on the outer edge. Next, rotate the workpiece by 180° and reposition the fence to cut flush along the outside edge of the slat that is closest to the target width for the panel you are making. For the tray, this will be 16½"; for the shelf, the target measurement is 10½". Follow the same two-step process to cut the panels to length. Don't throw away large scraps of lattice that are left over from this procedure. Later on, you can turn these into nifty coasters or trivets with just a couple of saw cuts.

PANEL FRAMES

With the lattice panels out of the

way, the rest of the project is a walk in the park. Prepare the wide frames that wrap around the tray and shelf. Start by cutting out frame sections that are slightly longer than the finished dimensions listed in the plans. The extra material provides room to adjust for those variations in the panel measurements we talked about earlier. Next, mill a ½"-wide x ½"-deep dado located ¼" down from the top of each side piece to receive the edges of the lattice panel. Now you can see the reason I asked you not to adjust the panel dimensions by trimming the border strip. If the strips on the panel edges are not a full ½" wide, they will not sit flush with the inside faces of the sides when installed in the dados.

Trim the side pieces to fit the dimensions of the lattice panels while cutting 45° mitres on the ends. If you take a look at the plans, you will see that the sides of the tray have curved cutouts located on the bottom edges to serve as grips. It's much easier to complete this detail before the frame sections are assembled. Start by preparing a cardboard pattern to lay out the curves, then cut with a jigsaw or bandsaw.

After a little sanding to smooth the edges, apply glue to the corner joints and assemble the tray sides with the lattice panel seated in the dados. Web clamps secure the joints while the adhesive cures. Later on, round over the outside corners of the joints by cutting ¼"-radius curves with a bandsaw. Follow up with a little sanding to remove saw marks.

The side frame sections for the shelf also need a little work before they can be assembled. Notch the sides of the frames where they engage with the lower leg brace to lock the table in the open position. These dados are ¾" wide x 1¼" deep, and start 1⅝" from one end of the side pieces. To end up with dados that are perfectly aligned, arrange the parts to cut the dados in both pieces at the same time. It's also a good idea to place a backerboard behind the workpieces to prevent tearout when the dado blade exits the rear of the stack. When this work is done, there's nothing standing in your way for assembling the shelf sides around the lattice panel. Return later to round over the outsides of the corner joints, just as you did with the serving tray.

CURVY LEGS

Your next task is to make four curved legs to support the table. Whenever I need to prepare multiple copies of irregularly shaped parts like these, I turn to a technique called "pattern routing." As the name suggests, this process involves the use of a pattern and a table-mounted router to duplicate shapes. Begin by using the grid pattern included with the plans to help lay out the leg profile on a piece of ¼"-thick MDF. While you're at it, mark the locations of the pivot bolts that connect the legs and shelf. Accurately cut out the pattern at the bandsaw and sand the rough edges perfectly smooth. After this, drill ¼"-diameter holes at both the locations you marked for pivot bolts.

Now, prepare four blanks for the legs and trace the pattern onto each one. Head back to the bandsaw to cut out the shapes, leaving 1/16" to ⅛" on the waste side of the layout lines. Apply strips of double-sided tape to the underside of the pattern and position it on one of the roughed-out leg pieces. Next, use a table-mounted router and a bearing-guided flush-trim bit to trim the edges flush. Repeat this process to complete the remaining three legs.

Take a break for a moment while you study the plans to see how pivot bolts are used to connect the legs and shelf. Notice that the heads of the leg bolts are recessed by ⅜" on the inside faces of the leg assemblies to provide clearance for the tray. I also recessed the acorn nuts located on the outer face to minimize protrusions from the sides.

The connections for the tray are similar, but there are a couple of important differences. This time, the bolts are longer and the heads are located on the outside faces of the leg assemblies. For this application, you should be aware that a recess is not required for the nuts. That's because the nuts will be out of the way, under the tray. Use the MDF template to mark the centre of the holes, then drill ⅜"-deep counterbores with a ⅝"-diameter Forstner bit on the drillpress. Switch to a ¼"-diameter bit and drill holes the rest of the way through for the bolts' shanks. Forget about the corresponding bolt holes in the sides of the shelf frame for now—we will take care of those after the leg braces are in place.

BRACES

Speaking of leg braces, that's the next item on the agenda. Get

COOL COASTERS

AFTER CUTTING the lattice panels for the tray and shelf to size, why not use the remaining scraps to make a few matching coasters or trivets. Simply cut the leftover lattice pieces into smaller geometric shapes using a tablesaw or bandsaw. I planned my cuts to leave a solid strip bordering all four sides, just like the large panels for the main project, but you may decide to go with an entirely different look.

THE LATTICED top provides solid support, while also letting rainwater drain through. An exterior oil finish is the best option for protecting the wood because renewal coats are so easy to apply

started by attaching pairs of legs together with the arrangement of bolts, washers and nuts shown in the plans. I used stainless-steel hardware for my table to avoid problems with rust, but brass is also an excellent choice for outdoor applications. Avoid electroplated steel hardware because it will corrode and stain the wood. Later, after the finish is applied, you can use a dab of thread-locking liquid on the bolts to prevent the nuts from loosening off during use.

Now, cut out the upper and lower braces that stretch between the outside set of legs. Don't forget to adjust the length to compensate for any deviation in the width of the shelf. Temporarily clamp the braces in position between the leg assemblies. The upper brace needs to sit flush with the top ends of the legs, and the lower brace is elevated 3" from the bottom ends of the legs. I used glue and a couple of #8 x 1½" stainless steel screws for these joints. The screw heads are recessed by 5/16" to accommodate tapered wooden plugs. You'll also need to drill pilot holes to avoid splitting the wood.

When these preparations are done, apply glue to the ends of the braces and secure the parts. Prepare a bunch of tapered wooden plugs using a drillpress and a plug cutter, insert the plugs in the screw holes with glue applied to the sides, then trim the ends flush with a flush-trim saw and a little sanding. Follow the same procedure to prepare and install the brace that connects the inner set of legs at the top.

Once the cross members are in place, the time has come to drill the bolt holes in the shelf that complete the connection with the legs. I recommend using a couple of 3"-wide spacers to support the shelf while you work. With the leg assemblies fully upright, then tipped so one leg lies flat on the surface of the bench, hook the notched end of the shelf over the lower brace and use your spacers to support the other end. Using the holes you prepared earlier in the legs as your guide, drill corresponding ¼"-diameter holes through the sides of the shelf frames to receive the pivot bolts. Attach the shelf to the legs with more rust-resistant bolts, washers and nuts.

The tray rests on wide, horizontal tray supports anchored on top of the legs and the upper braces. These supports are secured with glue and a pair of counterbored screws installed from underneath. Cut the supports to size and position them on the leg assemblies with an equal overhang on each end. Now, place the tray on top and adjust the position of the tray supports until they rest firmly against the insides of the tray frame. This is an important detail because the tray frame is part of the structure that limits the extension of the leg assemblies when heavy objects are placed on top.

When the supports are positioned to your satisfaction, remove the tray and clamp the parts in place while you drill screw holes. This time, you need to recess the heads ¾" into the bottom edges of the braces, to extend the reach of the screws into the tray supports. Plugs are not required to cover the heads since the holes are hidden. After drilling both the counterbores and pilot holes, apply glue to the end of the legs and the tops of the braces, then screw the tray supports in place.

ALMOST DONE

I chose to finish my folding table with a couple of coats of Circa 1850 tung and teak oil. This exterior product is easy to apply and provides some protection against UV rays. Just wipe on a fresh coat at the beginning of each season to keep the table looking great. There are a few other penetrating outdoor finishes on the market that achieve similar results, but this product is my favourite. The alternative is to not apply any finish at all. This is a possibility when working with cedar because the wood has natural properties that guard against rot and insects. Just be aware that without UV protection, the wood will weather to a stately grey colour over time.

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STACKED PLANTER

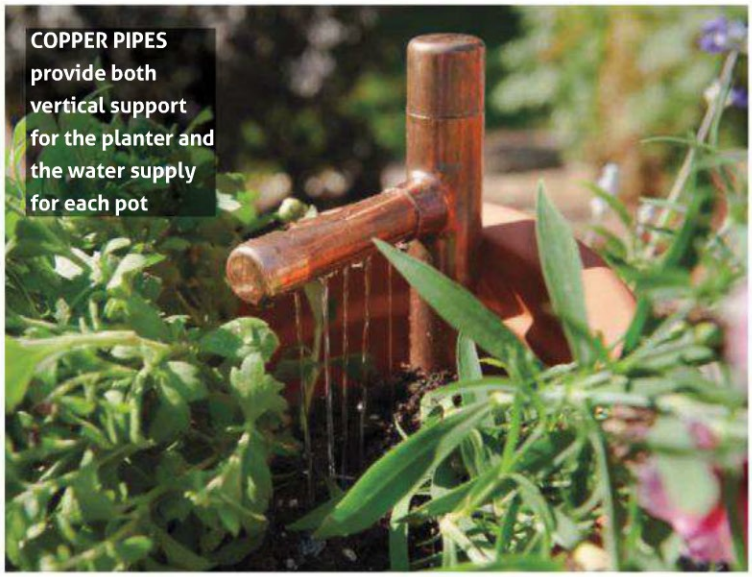
Skill Level

Novice Expert

Grow **Up!**

A self-watering planter, perfect for small spaces, vertically displays colourful blooms BY **RYAN SHERVILL**

WHEN THE PROJECT team here at *Canadian Home Workshop* asked me to design a space-saving outdoor planter, I immediately thought of using wood. However, after considering that this project is likely to sit outside year-round, I decided upon alternative materials. Using standard copper pipe and fittings, some terracotta pots and concrete mix, I ended up with a whimsical, multi-level planter that is both space-efficient and functional. There's even a special feature to make watering easier.



COPPER PIPES provide both vertical support for the planter and the water supply for each pot

The first step is to drill a 1"-diameter hole that will fit ¾"-diameter copper pipe in the side of an 18"-diameter terracotta pot. (See "Drilling Terracotta," on page 40, for tips on boring holes.) Terracotta pots will crack if soil is allowed to freeze inside them over the winter. If you'd rather not remove the soil each autumn, use structural-foam flowerpots. They can be drilled with ordinary woodworking spade bits.

Regardless of the kind of pot you choose, the heavy weight of the fully loaded pots will be supported by the central pipe. That's why it's important to use Type L copper pipe, not the thinner-walled, but more common Type M for the vertical pipe. Join a 4½"-long piece of ¾" pipe and a 90° elbow on the end of the vertical pipe as part of the system that delivers moisture upward to the pots above. Connect the rest of your length of ¾" pipe into this elbow before inserting the L-shaped assembly into the pot. (See "Three Ways to Join Copper," on page 42, to learn more about completing these pipe connections.)

The concrete in this project serves two purposes. For one, it locks the upright pipe into the base, creating a strong spine upon which the rest of the pots can sit. Second, the weight of the concrete keeps the assembly upright and stable. Before I mixed the concrete, I plugged the drainage hole in the bottom of the pot with duct tape, then used plumber's putty around the hole where the copper pipe enters the pot to keep the concrete from leaking out during the pour. I then mixed half a bag of post-setting concrete (although any type will work) and carefully shovelled it into the pot, stopping about 6" from the top. After using a level to check that the upright pipe was still perfectly vertical, I let the concrete cure for 24 hours. If you plan to use the base to hold soil and plants, drill three or four ½"-diameter drainage holes through the side of the base pot, right at the level of the top of the concrete. This prevents the soil from becoming waterlogged.

PHOTOGRAPHY: ROGER YIP

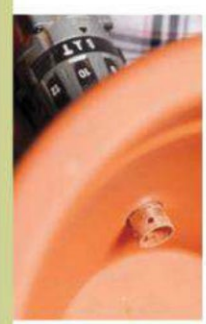
Each pot rests against a T-fitting that delivers water to short lengths of 1/2"-diameter copper pipe, sprinkling the soil

DRILLING TERRACOTTA

Just like tile or glass, you need a special bit to drill holes in terracotta. I used a 1"-diameter diamond hole saw (Lee Valley #29J01.08) in a handheld drill at low speed.

1. Begin with the bit tilted at an angle to start the hole enough to give the bit a place to register. If you try to go straight in, the bit will skate around on the surface of the pot.

2. Drilling straight in, use low speed and very light pressure. You are actually "grinding" rather than drilling, so patience and a light touch are important. Every so often, pull the bit from the hole and allow the dust to clear.



3. As the bit exits the hole, be careful to ensure the bit stays straight. Twisting the bit, even a little, can cause the saw to bind in the hole, resulting in a broken pot.

You Will Need

PART	SIZE (T x W x L)	QTY.
Copper pipe, Type L	3/4"-dia. x 60" long	1
Copper pipe, Type M	1/2"-dia. x 3" long	5
Copper pipe fittings	3/4"-dia. to 1/2" T-fittings	5
	3/4"-dia. cap	1
	1/2"-dia. cap	5
	3/4"-dia. x 90° elbow	1
	3/4"-dia. copper pipe-to-3/4" female threaded fitting	1
Hose valve	3/4"-dia. male pipe thread x hose thread	1
Hose coupler	female-to-female	1
Base pot	18" diameter	1
Middle pots	11" diameter	3
Top pot	8" diameter	1
Concrete mix	1/2 bag	1

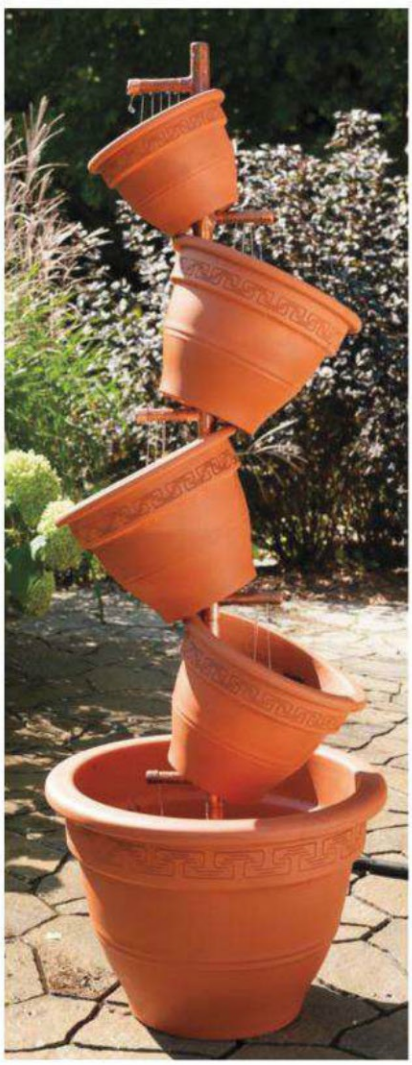
RECOMMENDED TOOLS

Handheld drill, diamond hole saw, pipe cutter

TIME TO STACK

The stacked pots that extend up from the base will slip down over the vertical ¾" copper pipe, each pot resting against a T-fitting that delivers water to short lengths of ½"-diameter copper pipe, extended horizontally to sprinkle the soil. The next step is to slide one of your middle pots over the vertical pipe, marking the location for your first T-fitting. This fitting should be placed low enough that the bottom edge of the suspended pot sits just a bit lower than the rim of the base pot. If your pots do not have a centre hole in the botton (or if the hole is too small), you'll need to modify the pots with the same diamond bits described in "Drilling Terracotta" (left). The holes should be large enough that the pot can lean over and have its rim rest against the vertical pipe—1" diameter works well.

Using a pipe cutter, slice the copper at your mark, put a T-fitting in place and reinsert the cut-off piece of pipe upright in the fitting. Don't forget to leave enough extra pipe to slide into the T-fitting during assembly as you work. Slide your first pot back into place so the hole rests on the T-fitting, then slide a second pot over the upright, carefully lowering it until it rests on the rim of the first. Mark the location for your next T-fitting,



THE CASCADE of pots mimics the irrigation water and blooms that will flow from this planter. The whole project is made with nothing more than ordinary flowerpots, copper pipe and concrete

→ PLANS FOR THE STACKED PLANTER

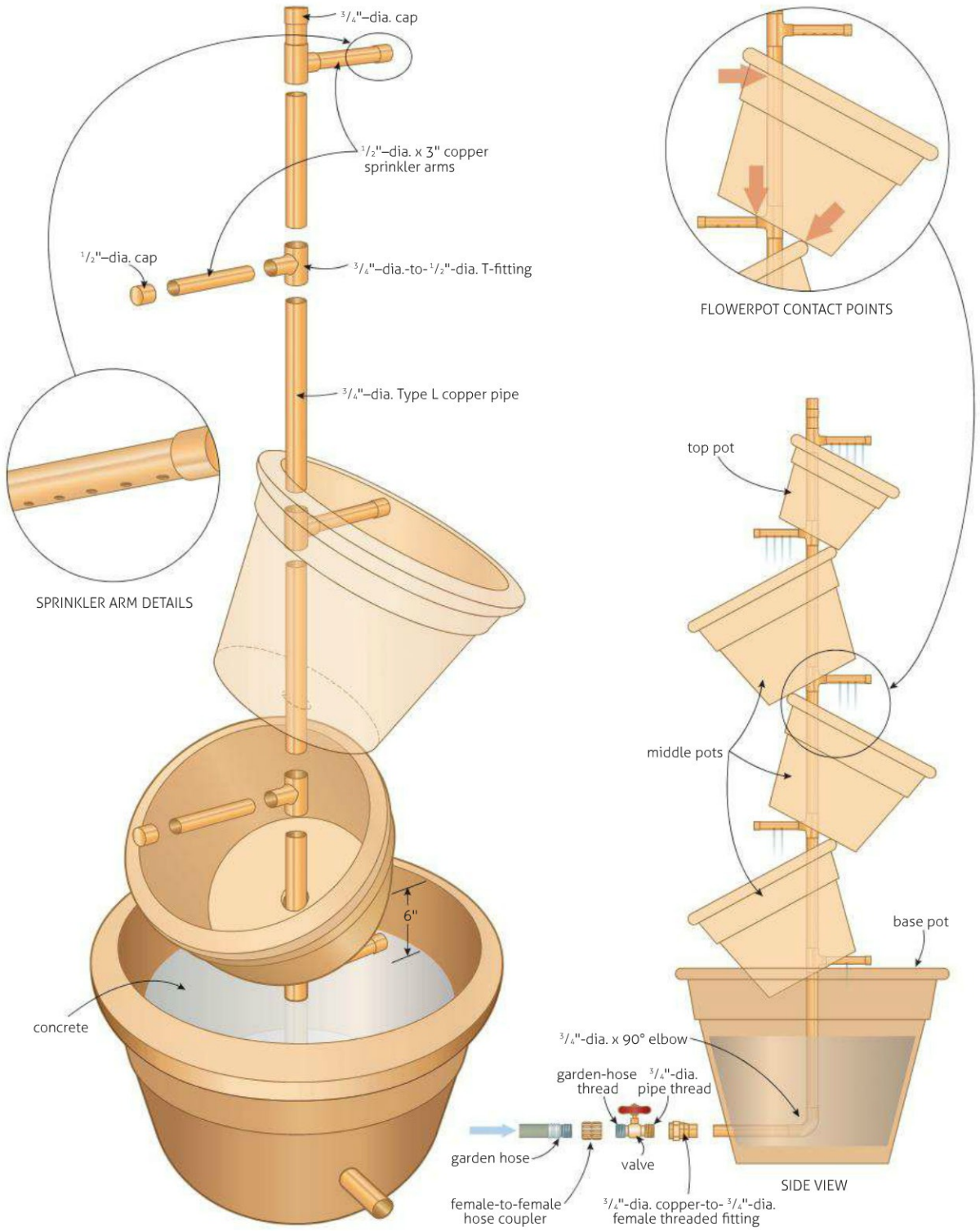


ILLUSTRATION: LEN CHURCHILL

then remove this pot. Remember to position the T's in such a way that the weight of each pot is supported both by the T-fitting and the rim of the pot beneath. Repeat this process for the remaining pots, dry-fitting each as you go until you have the entire planter assembled.

BITS & PIECES

With the main body assembled, all that is left now is to make up the 3"-long sprinkler arms from ½" copper pipe that plug into the T-fittings, then permanently attach all the pipe joints together.

To make the sprinkler arms, I used a very small drill bit (.045" or 3/64" diameter) to bore a series of irrigation holes in each of the arms. To ensure even watering, I drilled five holes in the top arm, four in the next, three in the next, finishing up with only one hole in the lowest arm. Because pressure decreases as you go up the vertical tube, and because this tube drains after the water is shut off, the decreasing number of holes means that each pot gets about the same amount of water.

Permanently join all the copper pipe joints together. (See "Three Ways to Join Copper," right). Begin by disassembling the planter, then starting with the bottom T and arm assembly, make the connections, adding the pots as you go.

The materials list includes the fittings that allow you to connect your garden hose directly to the main copper pipe, but I also decided to add a valve right at the base of the pot to make watering even easier. To accomplish, this I used a standard hose valve screwed onto the fitting, with a female-to-female coupler to connect with the male end of a garden hose. Simply turn the valve on to water your plants.

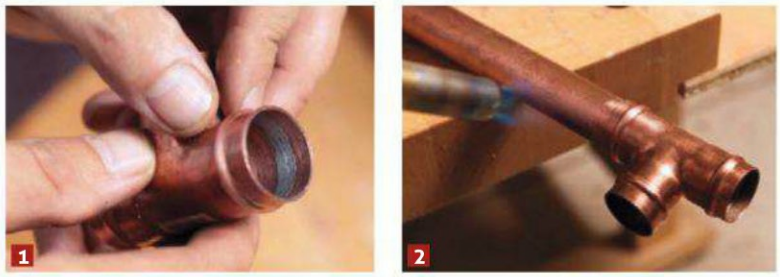
That's it! For a relatively small investment of time and materials, you'll have a knockout planter that not only looks great but allows you to showcase multiple plants in a small space.

THREE WAYS TO JOIN COPPER

THANKS TO INNOVATIVE new plumbing products on the market the traditional torch, flux and solder joint is no longer the only option for connecting copper to copper. Don't get me wrong, the traditional technique works as well as it ever did; but, like all things DIY, it's good to have options.

TRADITIONAL SOLDERING

Put on safety glasses and clean both mating surfaces with a wire brush **(1)**, then apply paste flux to the inside of the fitting **(2)**. Assemble the joint, then heat it with a propane torch **(3)**. When the copper starts to change colour, touch the solder to the seam while keeping the torch on the copper. If the pipe is hot enough the solder will melt and flow into and around the joint. It takes only a little solder to do the job. If liquid solder accidentally runs down the joint, wipe the area with a thick wet cloth while the solder is still molten **(4)**. Use caution! The hot copper and resulting steam can cause burns.



PRE-SOLDERED FITTINGS

Soldered joints don't get much easier than this. These fittings come with a bead of solder built right in. All you need to do is clean the end of the copper pipe to be inserted **(1)**, assemble, then heat with the torch until you see the solder appear around the joint **(2)**.

GLUE IT TOGETHER

You read that right. They now make products specifically designed to glue copper pipe together. I was skeptical about a product called Just for Copper **(1)**, but it did exactly what it claimed it would. Clean and roughen the pipe joint areas with a piece of emery cloth **(2)**. Leave the copper dust in place to help with the chemical reaction. Apply the adhesive to the joint surfaces **(3)**, then twist the connection together to spread the glue **(4)**. Wipe off any excess, and you're done. While I would need to see how this product performs over the long term before using it behind a sealed wall, for a project like this planter, I'd definitely use it again.

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GARDEN DIBBER

Skill Level

Novice Expert

LARGE DIBBERS for outdoor planting and small for indoors, this project is perfect for novice woodturners

First **Dibs**

A classic garden tool brings woodworking outdoors BY **ROBERT DUNN**

A DIBBER—SOMETIMES called a "dibble"—is a versatile garden tool used to make a depression in the soil to plant bulbs, seeds and seedlings. Farmers began using them hundreds of years ago, and dibbers still make sense today. A lathe and a little time are all you need to make this traditional tool for your favourite green thumb.

PHOTOGRAPHY: ROGER YIP

> Shape is important for any outdoor garden dibber, although there is room for your own creativity at the lathe, too

SOURCING SEEDS & SUMMER BULBS

MOST BULB AND seed companies now offer their full catalogues online—although paper versions are probably available upon request. Before you place your order, make sure the garden in which you want to plant your new bulbs or seeds provides the right growing conditions. Once you're ready to take your new packages out to the garden, this is where your dibber will come in handy. Use it to create holes for bulbs, seeds or delicate seedlings. Just be sure to check the depth on the back of the package to make sure you're not burying your bulb or seed too deep—or too shallow. A small ruler is another tool you may want to add to your toolbox, or just eyeball the 1" guidelines on the dibber. A trowel will help to loosen compacted soil. **—Tara Nolan**

HERE ARE A FEW CANADIAN MAIL-ORDER COMPANIES:
Botanus (botanus.com)
Cubit's (cubitsorganics.com)
Gardenimport.com
Hawthorn Farm Organic Seeds (hawthornfarm.ca)
Richters Herb Specialists (richters.com)
The Cottage Gardener (cottagegardener.com)
Urban Harvest (uharvest.ca)
Vanhof & Blokker (vanhofandblokker.com)
Van Noort Bulb Co. Ltd. (vannoortbulb.com)
William Dam Seeds (damseeds.com)

Both of the large, outdoor dibbers (pictured on the facing page) are 8½" long with a 5" working end. The walnut model is 1 3/16" diameter at its widest, while the beech dibber is 1 9/16" across. The smaller, indoor dibber is 3½" long with a working end of 1¾". All three designs are ½" in diameter at the tip.

Shape is important for any outdoor garden dibber, although there is room for your own creativity at the lathe, too. One feature you should keep in mind is that the top of the handle should be gently curved so you can press the tool into the soil comfortably with the palm of your hand. A large-diameter dibber can have a more robust handle, possibly with a flange between the handle and conical section to provide support. This is what I did with the beech dibber. The final shape is really up to you, but try to create graceful curves as you work. A curved tip creates a blunt hole, which is best for planting.

If you're new to the lathe, the smaller, indoor dibber is a good project to start with. You have more freedom turning it and the strength of the wood is not a concern because the dibber is never used with as much pressure as it would be outdoors. Since potting soil is loose, there is no need to create a wide, round handle. The tip can be simple with a slight taper (just enough to be pleasing to the eye) and a rounded, blunt end. Feel free to use any highly figured wood; I used afzelia burl for my small dibber. Even fancy pen blanks make ideal indoor dibbers.

AT THE LATHE

Start by mounting your piece of wood between lathe centres. I used a ¾" forged gouge for roughing out and

general shaping, and a ¼" spindle gouge for the details and to work the tip and handle. After sanding with 80- through 320-grit paper, mark guidelines 1" apart with a pencil for the outdoor dibber, and score deeply with a skew chisel. (These guidelines should be ½" apart for the indoor dibber.) Finish sanding with 400- and 600-grit paper to create a smooth, scratch-free surface. A skew chisel does a nice job severing the tip of the tapered end from the remaining blank without tearing the end grain. Turners call this operation "parting off," and it leaves little nubs of wood you'll want to trim off using a sharp knife. The dibber is now ready for finishing.

A WATERPROOF FINISH

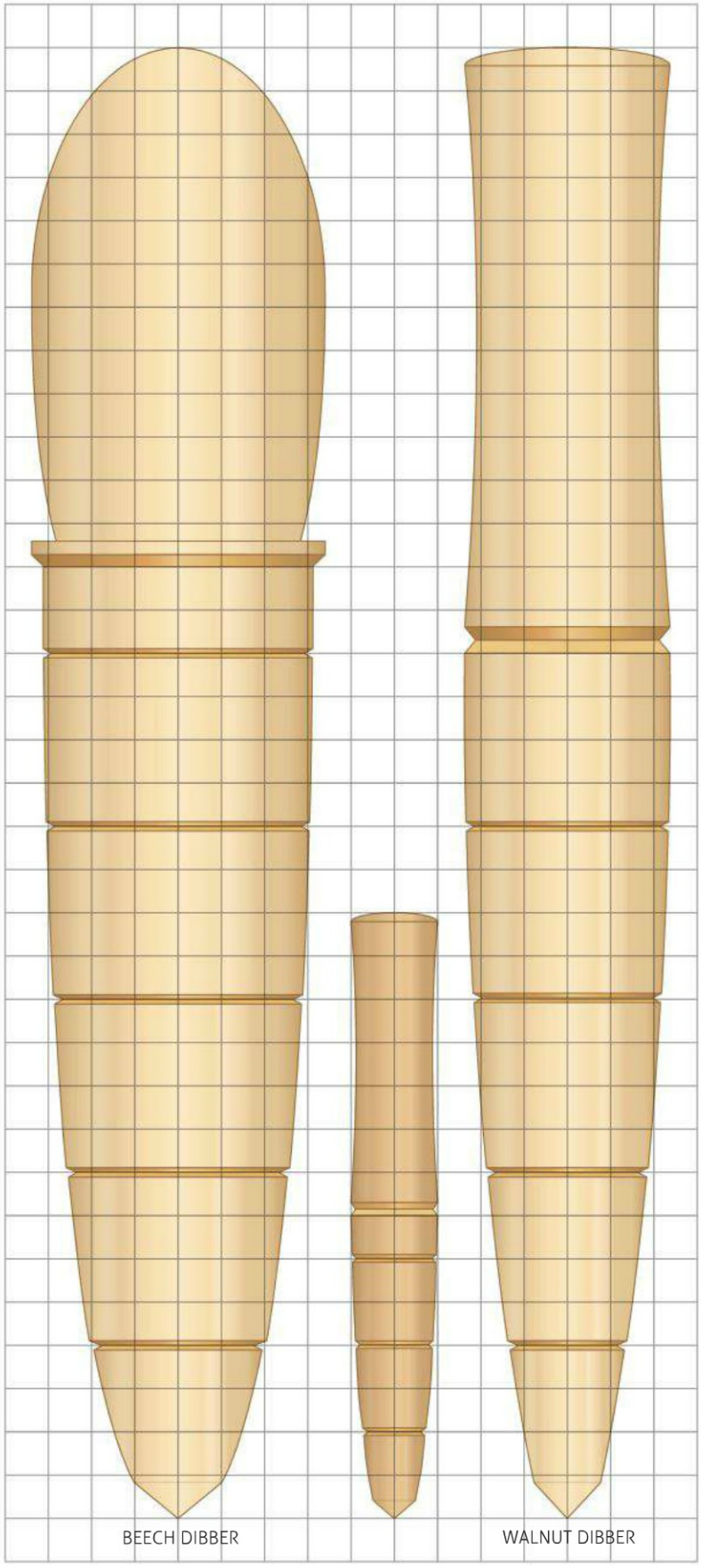
I used pure tung oil because it enhances the beauty of the wood. It's also waterproof when fully cured. If you are not a fan, feel free to use any water-resistant finish you like. Apply oil liberally with a cloth. Allow it to penetrate for five to 10 minutes, then wipe off the excess with a paper towel. Some open-grained species of wood allow finishing oil to seep back to the surface after wiping, so return to the project after about a half-hour, and then wipe the surface again with more paper towel.

Finishing oils can cause rags to catch fire all on their own if left in a pile, so be careful. Lay oily cloths or paper towels out flat and uncrumpled in a fireproof area until they're completely dry.

One coat of tung oil should be enough to protect your dibber, but you can apply a second or third coat. Despite optimistic manufacturer claims of two to three days drying time for pure tung oil, I find that it usually takes a full week or more before oil stops coming off on my fingers. Once the finish is hard, your dibber is ready for service.

Be sure to try out this classic tool that first time you are out planting in your garden with the spring sun shining warm on your back.

→ PLANS FOR THE GARDEN DIBBERS



1 square = ¼"

ILLUSTRATION: LEN CHURCHILL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ROPE PLANTER

Skill Level

Novice Expert

Cedar Planter with a Twist

PHOTOGRAPHY: DAVE STARRETT

> There's more than one way to dress a board. If you can't find quality boards in the size you need, consider milling pieces from larger stock

A stylish container for summer arrangements

BY **GORD GRAFF**

THE INSPIRATION BEHIND these simple cedar planters started with the nautical-inspired rope detail. I built two planters—one big, one small—with minimal bulk. To keep material costs down, I used deck and fence cedar that has a few knots instead of the higher-priced, knot-free cedar. These knots add character alongside the twisted manila rope. Ahoy!

At this time of year, home-improvement stores are full of cedar fence and deck boards. Look them over carefully, and you'll be surprised with the quality of what you can take home. A word to the wise: not all deck and fence boards and posts are milled to consistent sizes, even when they're supposed to be. Often, there are significant differences in thickness and width from one board to the next in any given pile because lumber sometimes comes from different mills. That's why I always slip a small measuring tape into my pocket before

leaving home, to make sure the lumber I choose is as consistent as possible.

POSTS & RAILS

Whether you are building the large or small planter, start with the 2" x 2" corner posts that are milled from a 4x4 cedar post. Plan your cuts carefully to ensure you get the clearest wood from your 4x4. I resawed the corner posts on my bandsaw, then squared one edge and one face on each post at the jointer before running them all through a thickness planer. I was left with eight perfectly square posts of the same thickness. Don't worry about wasting the offcuts from this operation. You can use them as cleats in the project.

The top and bottom rails were a challenge that started at the store. I designed these rails to be made from standard 2x4 lumber, but I simply couldn't find enough straight cedar of the right size. Instead, I went with 2x8 boards and cut them down to width. Wider boards come from bigger trees that yield clearer and straighter lumber.

Joining the rails to the posts can be done several ways: mortise-and-tenon, floating tenons or dowels. (I've even seen this operation performed with deck screws and construction adhesive.) I chose dowels. Careful layout is critical for the 16 holes that go in each leg. Align your dowelling jig at the top of one of the inside faces of a post. Drill two sets of four holes, 1 3/16" deep in the top to accept 3/8"-diameter x 1 1/2"-long dowels. Repeat the process on the other three posts. Next, make a pencil mark 1 1/2" up from the bottom of each post, and then repeat the drilling process. When you're done, you should have two sets of four holes on two adjoining faces of each post. Bore matching dowel holes in the ends of the rails.

MAKING THE SLATS

The boards I used for the side slats are sold as 5/4 deck boards—measuring a full 1" thick—and are usually free from large knots. However, none of my boards were the same width. That's why I milled one edge of each side slat on the jointer, then ripped them all to a consistent width of 5".

After you've made your slat stock the proper dimensions, cut a 1"-wide x 3/4"-deep rabbet into each of the rails. These rabbets accept the 1"-thick deck boards and won't interfere with the dowel holes. You can cut the rabbets at a tablesaw with a dado blade or with a table-mounted router. To give the project a smooth, refined look, round over the edges of the posts, rails and slats with a 1/4"-radius roundover bit in your router.

SOME ASSEMBLY REQUIRED

Assembly of any project can be a daunting task, so take the time to dry-fit all the joinery before applying glue. Once everything fits correctly,

You Will Need

FOR THE LARGE PLANTER	SIZE (T x W x L*)	QTY.
Corner posts	2" x 2" x 23 3/4"	4
Long rails	1 1/2" x 3 1/2" x 28"	4
Short rails	1 1/2" x 3 1/2" x 18"	4
Slats	1" x 5" x 16 1/2"	20
Long cleats	1 1/2" x 1 1/2" x 28"	2
Short cleats	1 1/2" x 1 1/2" x 18"	2
Bottom boards	1" x 5" x 18 1/2"	6
Manila rope	3/4"-diameter x 36'**	1
FOR THE SMALL PLANTER		
Corner posts	2" x 2" x 18"	4
Long rails	1 1/2" x 3 1/2" x 14"	8
Short rails	1 1/2" x 3 1/2" x 14"	4
Slats	1" x 5" x 10 7/8"	12
Cleats	1 1/2" x 1 1/2" x 14	4
Bottom boards	1" x 5" x 14 1/2"	3
Manila rope	3/4"-diameter x 20'**	1

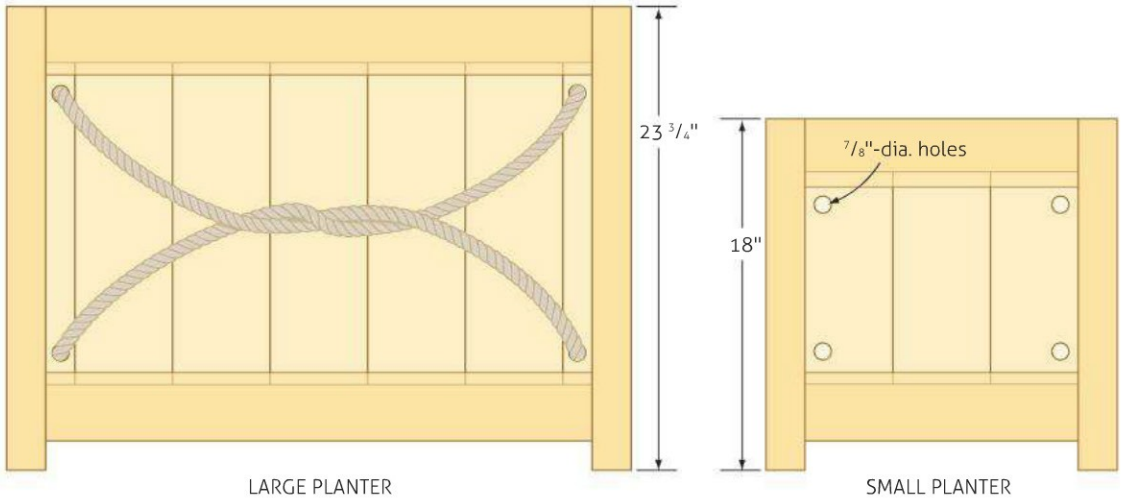
*Length indicates grain direction **Total required length. All wooden parts made from cedar

RECOMMENDED TOOLS

Jointer, planer, tablesaw, bandsaw, dowelling jig, table-mounted router

THE UNDERSIDE of the planter, showing the cleats that support the bottom boards

➔ PLANS FOR THE ROPE PLANTERS



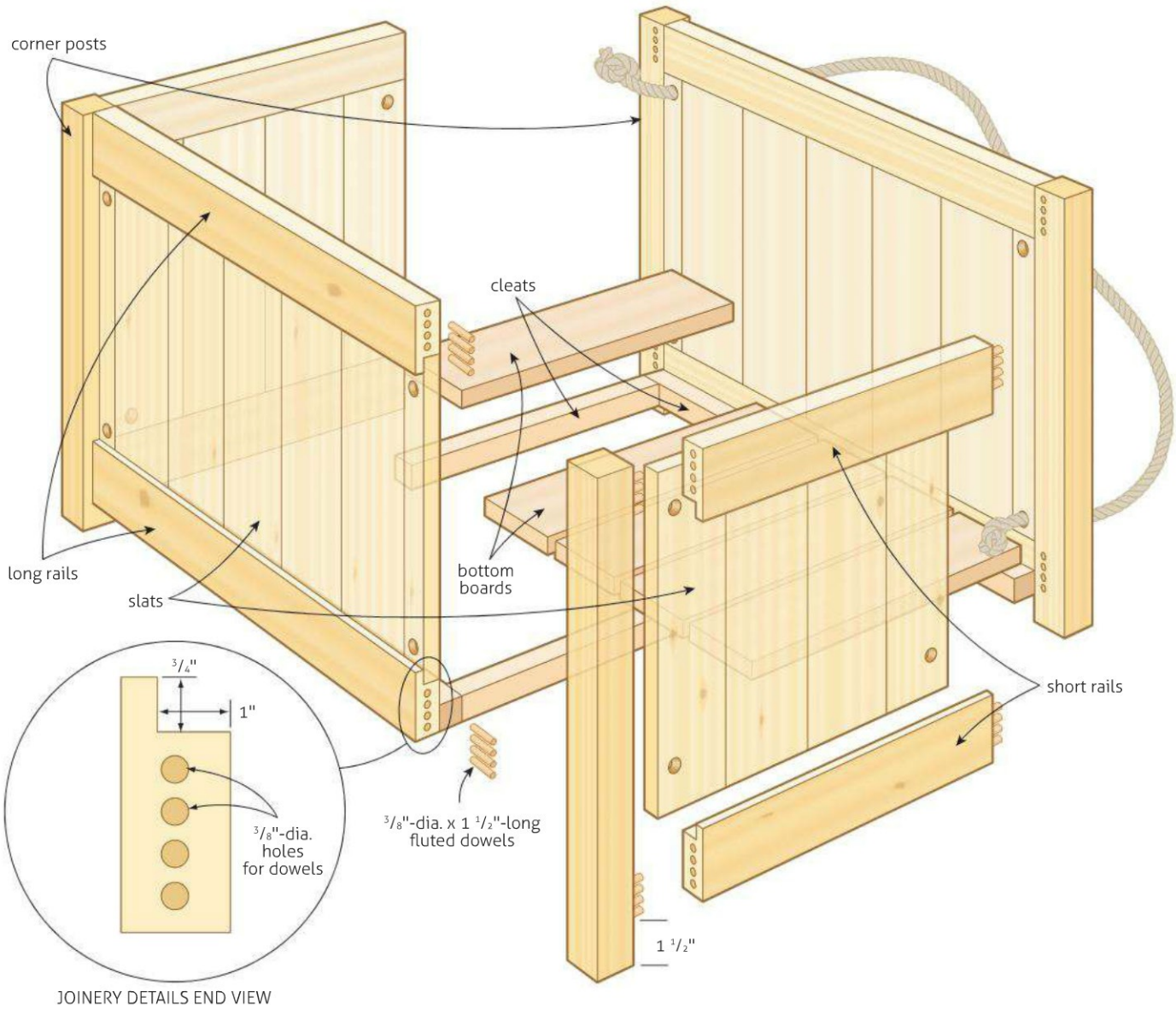


ILLUSTRATION: LEN CHURCHILL

glue up the the long rails and legs to form a four-sided assembly. Set it aside to dry overnight.

Once the glue has dried, cut the slats to length, and then centre as many full-width slats between the rails as will fit. You will be left with narrow openings on each side. Custom cut slats to fit these spaces, then nail all the slats into the rabbets in the rails using 1½"-long, 18-gauge brads.

With all the slats in place, turn the planter upside down. Use exterior glue and #8 x 2½"-long deck screws to attach the cleats. The bottom edges of these cleats should be flush with the bottom edges of the rails. Turn the planter right side up, and then cut 5/4 lumber for the bottom boards. Fasten them to the tops of the cleats with ⅛" spacing for drainage. Finally, smooth the planter with 150-grit sandpaper.

TYING THE KNOT

Now comes the twist. Remember the rope detail I mentioned earlier? It's time to add it. I chose ¾"-diameter manila rope for this project to complement the cedar, which will weather to a grey colour. Manila rope weathers too, and will blend nicely with the planters as they age. Make a pencil mark ¾" in and down from the inside corner where each post and rail meet. Drill a ⅞"-diameter hole at each mark for the ropes to pass through. Place a length of rope through a hole in the top left corner of the planter and tie a knot. Stretch the rope tight and run it diagonally into the diagonally opposite hole in the bottom right corner of the planter, and tie another knot. Next, perform the same procedure with the remaining holes, but twist the new piece around the existing rope where they cross.

I'm a firm believer in using plastic pots inside wooden planters. When autumn rolls around, I remove the potted plants and store the planter in the shed or indoors. You also could line the planter with landscape fabric and fill it full of dirt directly, although the wood won't last nearly as long. Either way, the planter and its plants are sure to brighten your home's exterior.

MANILA ROPE turns this simple cedar planter into something special. Anchor one end of each rope inside the planter with a knot (right), then twist the ropes over each other twice before inserting and anchoring the other ends

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HERB TOTE

Skill Level

Novice Expert

The **Transporter**

This reproduction herb tote blends antique design and modern construction BY **RYAN SHERVILL**

THERE'S SOMETHING SPECIAL about the proportions and designs of wooden items from yesteryear. The antique herb tote I used as inspiration for these reproductions is a perfect example. I began with a photo of a beautiful, weathered heirloom tote, slightly adjusting the details of my design to the materials and tools we have today. The exceptionally tall, graceful handle and divided sections make this an ideal portable container for planting your favourite herbs or as a condiment-holding caddy for outdoor entertaining.

"For the oiled cedar tote, I used a piece of 3/4"-diameter copper pipe left over from a previous project"

MILL YOUR LUMBER

I made my tote from a single piece of 4½'-long cedar 2x6 left over from a previous project. When looking through your lumber pile, try to select a board with growth rings as close as possible to perpendicular with the face of the board. This makes your tote more stable when it's exposed to moisture.

Your first step is to prepare the material for the sides, dividers and handle. They're all ⅝" thick. Begin by jointing and planing your 2x6 so three sides are dressed, then rip the board to 4½" wide on your tablesaw. Next, saw the board in half, on edge, to make it thinner. The bandsaw is the safest machine to use for this operation, which is called "resawing." You can also resaw with two passes over a tablesaw, although this approach is trickier. You'll need to use an auxiliary fence, proper safety gear and the right technique. Whichever method you choose, after the board is resawn, pass the halves through the planer again, removing the saw marks and bringing the material to its final thickness of ⅝".

PREPARE EACH PIECE

First up, you'll need to cut two pieces to a final size of 4½" wide x 22¾" long for the side pieces, and two more with the same width but

PHOTOGRAPHY: ROGER YIP

USEFUL FOR both garden harvesting and growing herbs, this tote captures the antique proportions of yesteryear

16" long for the handle ends. Next, mill a ⅜"-wide by ¼"-deep rabbet along the bottom of the inside face of both handle ends using a dado blade in your tablesaw or a straight bit in a table-mounted router.

Continue by marking the curved outline on one of the two handle ends, then fasten both handle ends together using double-sided tape and cut them in one go with a bandsaw or jigsaw. Carefully stay on the waste side of the layout lines as you work, then sand the cut edges before separating the parts.

Before you mark the location and size of the pockets in the handle ends to support the handle, you'll need to decide exactly what that handle will be made from. For the oiled cedar tote, I used a piece of ¾"-diameter copper pipe left over from a previous project. The handle on the painted tote is a 1"-diameter hardwood dowel.

Measure the diameter of your handle material and, using a Forstner bit of matching size in your drillpress, bore ⅜"-deep pockets to accept the ends of your handle. Don't cut your handle material to length just yet though, you'll want to custom-cut it to fit all the way into each pocket after a trial assembly of the tote parts.

Now cut the four dividers to their final size of 4½" x 4½" from the remaining ⅝"-thick stock you have, plus three bottom slats, each measuring ¼" thick x 22¼" long from the 1½"-thick wood you sawed off the edge of the 2x6 initially.

ASSEMBLE AND FINISH

You can use pretty much any joinery method you like to assemble your tote. Dowels, finishing nails or screws are all acceptable. In fact, for my totes, I used all three.

Dry-fit the sides and handle ends, measure the distance between the bottom of the handle pockets, then cut your handle to this length. Next, join the sides and handle ends permanently with the handle in place. I used dowel joints here, but nails are faster and screws driven into predrilled holes work well, too.

Next come the bottom slats. Their ends fit into the rabbets you prepared in the handle ends, which are secured with finishing nails or screws (or glue for the copper pipe). Leave a gap between the slats. For my totes, I predrilled through the slats and used a single, countersunk, 1"-long #6 screw at each end.

Now, install the dividers. Since they sit ¼" taller than the sides (raised up as they are by the bottom slats), use your sander to angle the top corners of each divider before installation (see plans). Slide each divider into place, allowing 4" between them to make up the five compartments. To secure them, I used a single brad driven on an angle down through the top edge of each side and into each divider, then a few more brads driven up through the bottom slats into the dividers. You can drive an extra nail or two through the sides if you'd like, but a single nail on each side is sufficient.

For a finish, I kept things simple to mimic the antique design. The first tote received a couple coats of boiled linseed oil, applied with a brush and allowed to soak in for an hour before wiping off the excess. This tote was ready for use 24 hours later. The painted model was given a once-over; any nail holes and imperfections were taken care of with wood filler to ensure a smooth surface. Then, I sanded with 180-grit paper and applied two coats of acrylic latex paint with a brush, allowing the paint to dry for a few hours between coats.

That's it! You've created a functional reproduction project that can be completed on any Saturday and put right to use the next day.

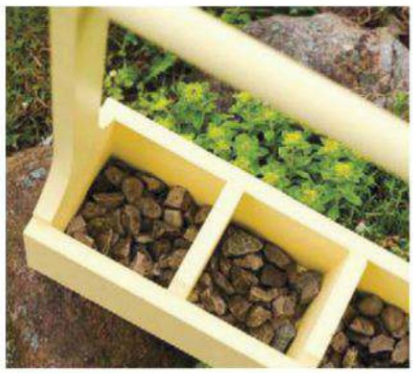
You Will Need

PART (FOR EACH TOTE)	SIZE (T x W x L*)	QTY.
Sides	5/8" x 4 1/2" x 22 3/4"	2
Handle ends	5/8" x 4 1/2" x 16"	2
Bottom slats	1/4" x 1 1/2" x 22 1/4"	3
Dividers	5/8" x 4 1/2" x 4 1/2"	4
Handle	22 1/4"-long	1

*Length indicates grain direction

RECOMMENDED TOOLS

Jointer, planer, tablesaw, bandsaw, table-mounted router (optional), jigsaw (optional), drillpress



CRUSHED STONE in the bottom of each compartment encourages drainage when the tote is used as a planter (above). Small gaps between the bottom slats (right) allow water to drain from growing herbs

➔ PLANS FOR THE HERB TOTE

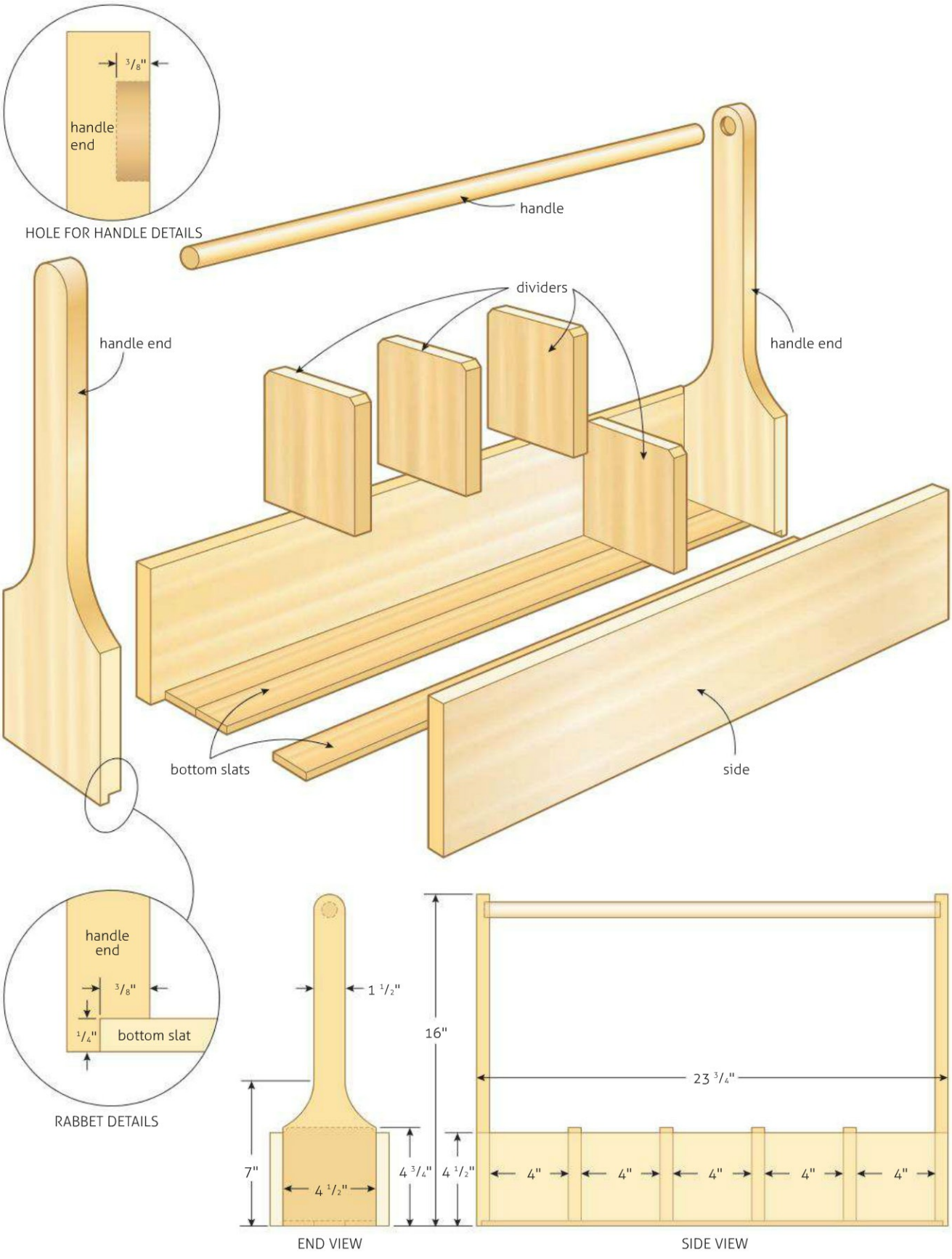


ILLUSTRATION: LEN CHURCHILL

Steve's Stone

How to cut and shape stone for building BY **STEVE MAXWELL**

IF YOU WANT to learn how to build with stone, this article could save you five years of trial-and-error struggles in figuring out the basics of cutting and shaping stone. That's how long it took me to discover what you'll read about here, and although there's more to building structural stone walls than just cutting and shaping, these deceptively simple techniques are fundamental. They're also almost completely lost. Few people remain to teach them. • Except with the roughest sorts of stonework, cutting and shaping is the essence of the craft. I work with limestone, but my methods work equally well with any kind of sedimentary rock that comes out of the ground in layers. I combine a couple of modern power tools, for speeding up the rough work, with traditional hand tools that produce attractive surface textures.

A MASONRY saw with a diamond blade is ideal for cutting stones to length

STEP 1: ROUGH-CUT TO LENGTH & THICKNESS

From 1987 until 1992, I quarried and shaped all my building stone by hand from rocky outcroppings using a 14-lbs. sledge hammer and smaller spalling hammers. Besides being a lot of work, it was challenging to create blocks of the precise length and height necessary for the kind of refined stonework I find pleasing. (See "Pattern Matters" at right.) That's why I began using a gas-powered masonry saw for initial cuts. I wouldn't tackle stonework now without one.

Masonry saws use a large, chainsaw-type engine to spin an abrasive wheel that wears away the stone in a narrow kerf. I have two saws right now, a 111-cc Stihl and a 67-cc Echo, both spinning 14"-diameter diamond wheels. Diamond wheels last longer than ordinary abrasive wheels, and they cut faster, more precisely and retain almost their full diameter over their working life. (See "Diamond in the Rough," on page 60, for more information.)

When you select a stone saw, be sure to get it fitted for a garden hose. Without water injected into the cut, mushroom clouds of dust the size of a small town will engulf your work area. Water eliminates dust, lengthens abrasive life and is much healthier for you.

The first stones you prepare for a wall can be just about any size or shape within the pattern you're creating. But as the wall rises, you'll need to cut stones to fit within a given space between neighbouring stones. Measure the length and height of these spaces, then subtract half an inch at each end for mortar joints and half an inch beneath for mortar. The most accurate way to measure the height of a space is to place a 24" level on a neighbouring stone, arrange the bubble so it's centred and then measure down to the stone below.

Cutting stones to length is easier than changing their thickness because less sawing is involved. That's why you should always scour your pile for stones that are the thickness you need naturally,

A 14-LBS. SLEDGE (top), pitching tools (left), a 4-lbs. mallet (middle), wedges and a point (bottom)

PATTERN MATTERS

THERE ARE MANY patterns of stonework in the world, and each is the product of different techniques. The pattern you see here on my house is called "broken ashlar," and I like it best because it combines refined, square-edged blocks in a rhythmic pattern, along with surface textures that create a varied and interesting appearance. Broken ashlar is especially beautiful when sunlight hits the surface at a shallow angle, casting shadows across the hand-hewn facets. Broken ashlar is made of square or rectangular stones laid level, with taller stones always separated by several shorter ones. I consider broken ashlar to be the jazz of stonework patterns—one unified rhythm is part of the overall look, although that pattern is always changing and evolving. No two areas in a broken ashlar wall are exactly the same.

work Secrets

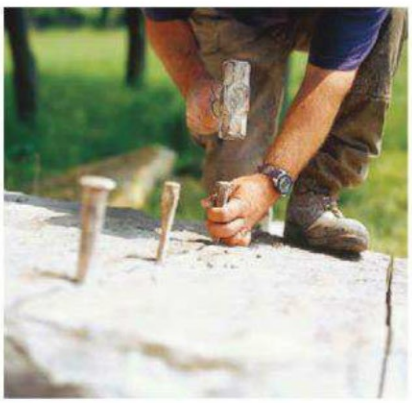
"My methods work equally well with any kind of sedimentary rock that comes out of the ground in layers"

PHOTOGRAPHY: ROGER YIP

only sawing lengthwise when necessary. It's not unusual to find stones that are just a little too thick for a given spot, perhaps because of a lump or bulge on the top or bottom. (See "Air Force," on page 61, for a look at a traditional stoneworking power tool that makes it easy to remove trouble spots like these.)

Simple height and length measurements are all you need for cutting ordinary wall stones to length and thickness. But if you're building an arch or a round window feature, you'll need to work out all the details on a plywood pattern to guide your cuts for more intricate and angled stone shapes. Either way, use a carpenter's pencil to mark saw lines on your stones, don safety glasses and hearing protection and then start your saw.

With the stone sitting stable on the ground, pencil lines facing up, start a little water flowing onto the diamond wheel, rev up the engine, then place the edge of the spinning wheel against the stone and let the weight of the saw do the work. Vary the wheel pressure against the stone to create a balance of abrasion and engine revs that maximizes cutting speed. A 14"-diameter wheel offers almost a 6" depth of cut, which isn't always enough to make it completely through the stone I work with. If there's still a couple of inches of uncut stone under your line, hammer a few steel wedges into the kerf to break the stone all the way through. A few hammer blows and you'll be done.



STEEL WEDGES hammered into sawn kerfs break stone along straight lines

A 24" framing square is ideal for marking lines when facing a stone

STEP 2: MARK THE STONE FOR FACING

The side of each stone that's visible is its most important part, and chiselling an outwardly bulged surface is called "facing." Although the chiselled face itself will be irregular (that's part of the attraction), the line where these facets begin on the four sides surrounding the face must be straight and in the same plane. Use a framing square to mark these four lines about ½" to 1" back from the face, depending on how irregular the face surface is now and how bulgy you want the stones to be when you're done. Use the framing square to create your first line at 90° to the surface that the stone will rest on when laid, then draw the other three lines so their ends connect.

STEP 3: FACE THE STONE

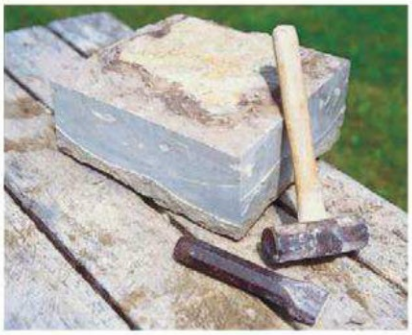
Facing is done with a stout, thick chisel called a "pitching tool." I use a 4-lbs. mason's mallet to strike the tool, but use a 2-lbs. version if this seems too heavy. The edge of the pitching tool is ground to an 80° bevel, with the high side of the edge placed along the pencil line before striking a sharp blow. The aim is to cleave a crisp, sharp-edged shard off the face of the stone, move the pitching tool over on the marked line, then strike again. Complete this by following lines on all four sides of the stone and you'll have achieved two crucial things:

STEVE USES a 4-lb. mallet and pitching tool to face a stone

DIAMOND IN THE ROUGH

DIAMOND ABRASIVE WHEELS cost 80 per cent less than they used to when I bought my first one, in the early 1990s, and modern versions cut about 30 per cent faster. Although the edges aren't sharp to the touch, the tiny, industrial diamonds embedded in the blade's edge sure do eat through masonry of all kinds. My current favourite blade is the Bosch DB1465. It allows my smaller, lighter saw to cut at least as fast as my big one, even with an engine that's roughly half the size.

Although most diamond wheels are rated for dry cutting, I consider water injection essential. Besides eliminating dust, it lengthens the wheel's life and improves accuracy. You know an abrasive wheel is worn out when the 1/4"-wide abrasive rim around the perimeter is gone. A single diamond wheel lasts me about 400 to 500 hours of stoneworking time.



A FACED stone ready to lay on a wall. Sawn edges will be hidden within mortar joints

a faceted face that's irregular and attractive, and a consistent edge where the facets start that you'll follow when lining up the stones as they're laid in mortar.

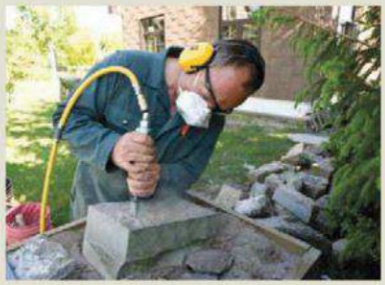
One of the big differences between stoneworking and woodworking is the number of people who know how to do it. Woodworking knowledge and tools are widespread, and it's easy to find opportunities to learn. Gearing up to work with stone, however, requires detective work. There are only a few stoneworking hand-tool suppliers in all of North America and, since there are so few people left who know how to turn a pile of rocks into a pleasing wall, old buildings may be your only tutors. Although there's nothing fast and easy about working with stone, there's also nothing quite like the enduring satisfaction of the results.

AIR FORCE

IN 1890, THE Trow and Holden Company invented the handheld, air-powered stone hammer, and this tool has since revolutionized the way stone is worked around the world. An internal piston oscillates back and forth as air flows through the cylindrical tool, delivering hundreds of blows per second to the stoneworking implement held in the end. The action is just a faster version of hitting a chisel by hand with a mallet. Results are much faster, although because percussion is still involved, stone surfaces prepared with an air hammer have a hand-worked appearance. The two air hammers I bought new from the small Trow and Holden plant in Barre, Vermont, look the same as those first ones made 120 years ago. I most often use either a four or nine-point tooth chisel with my air hammers. The array of points removes high spots quickly and leave a pleasing texture.

A POINT is the first tool for removing high spots on stone. Here, Steve uses a point in his largest air hammer

STEVE WORKS stone in a box filled with sand that sits on criss-crossed 8x8 timbers



EAR, EYE and lung protection are essential when using any kind of stoneworking air hammer

HERE STEVE works the surface of the stone more finely using a four-point toothed chisel

A COMB chisel and point (above) were used to create this classic stone finish. The 7-hp stationary compressor (right) in Steve's shop keeps his air hammers going

Skill Level
Novice Expert

Flagstone Fix-Up

Repoint mortar joints to refresh your flagstones for spring BY **GARY RUDY**

STONE WALKWAYS CAN be beautiful; but if the joints are filled with mortar, sooner or later, they are going to fail. Typically, the joints absorb water during a winter freeze-thaw cycle and crack when the absorbed water freezes. This cycle is accelerated when salt is applied to the surface to melt ice. (So avoid salting if you can.) That's the bad news. The good news is that repairs are easy and inexpensive. The repaired joints should be fully cured in a few days.

TOOLS FOR THE JOB

1. A large sponge to clean up mortar joints
2. Liquid concrete adhesive (bonding agent)
3. Plastic mixing bucket
4. Premixed mortar joint mix
5. Bristle brush for joint texture
6. Steel-bristle brush to clean joints
7. Pointing trowel
8. Heavy mallet
9. Steel chisel

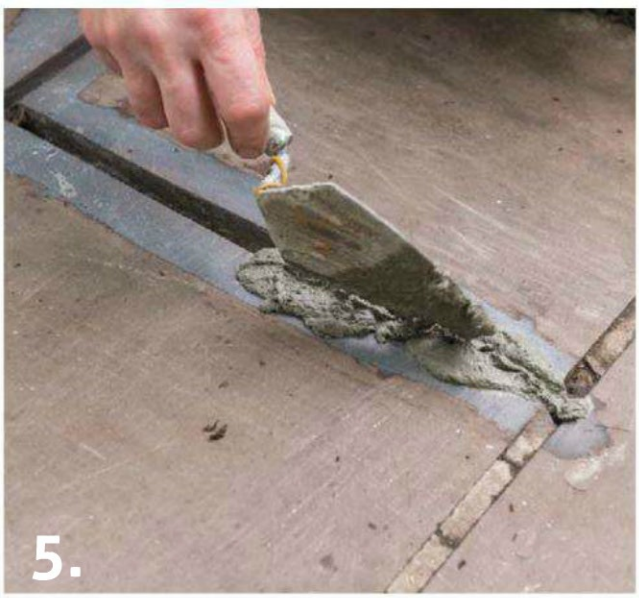
PHOTOGRAPHY: ROGER YIP

1. REMOVE LOOSE mortar by hand and clean up stubborn bits with a mallet and steel chisel

2. ONCE THE loose bits are gone, remove remaining rubble and dust with a heavy-bristled (ideally, steel) brush

3. PAINT THE clean mortar joint with the acrylic bonding agent. This will help the new mortar bond to the edges of the stone. Don't let it dry on the top surfaces, as it will darken the stone

4. COMBINE THE premixed sand and mortar mix with the acrylic bonding agent. The bonding agent helps make the mortar joint more resistant to water penetration and any resulting cracks



5. FILL THE joint with mortar mix, pressing it firmly into the joint with the trowel. Deep joints should be partly filled, packed, then filled the rest of the way. Remove excess mix as you work

6. ALLOW THE mortar to set partially. When firm but not fully set, clean up the joint with a large, wet sponge and trowel. Remove any excess mortar from the stones surfaces to prevent staining

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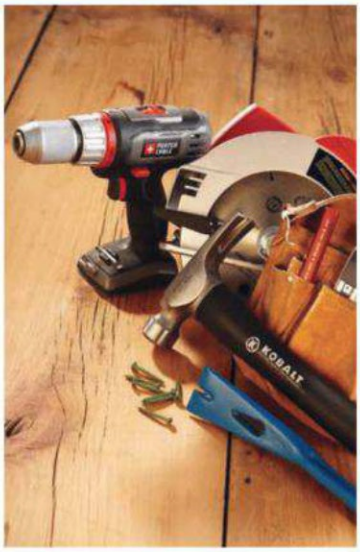

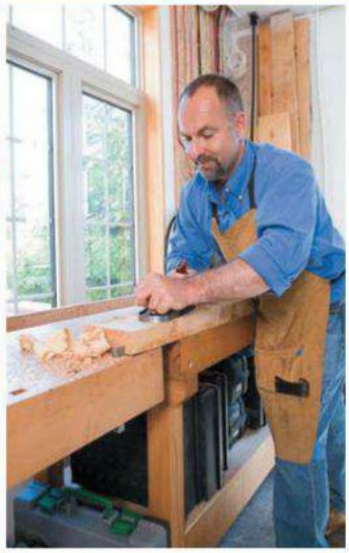

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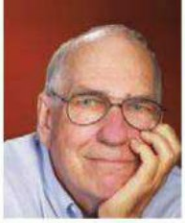
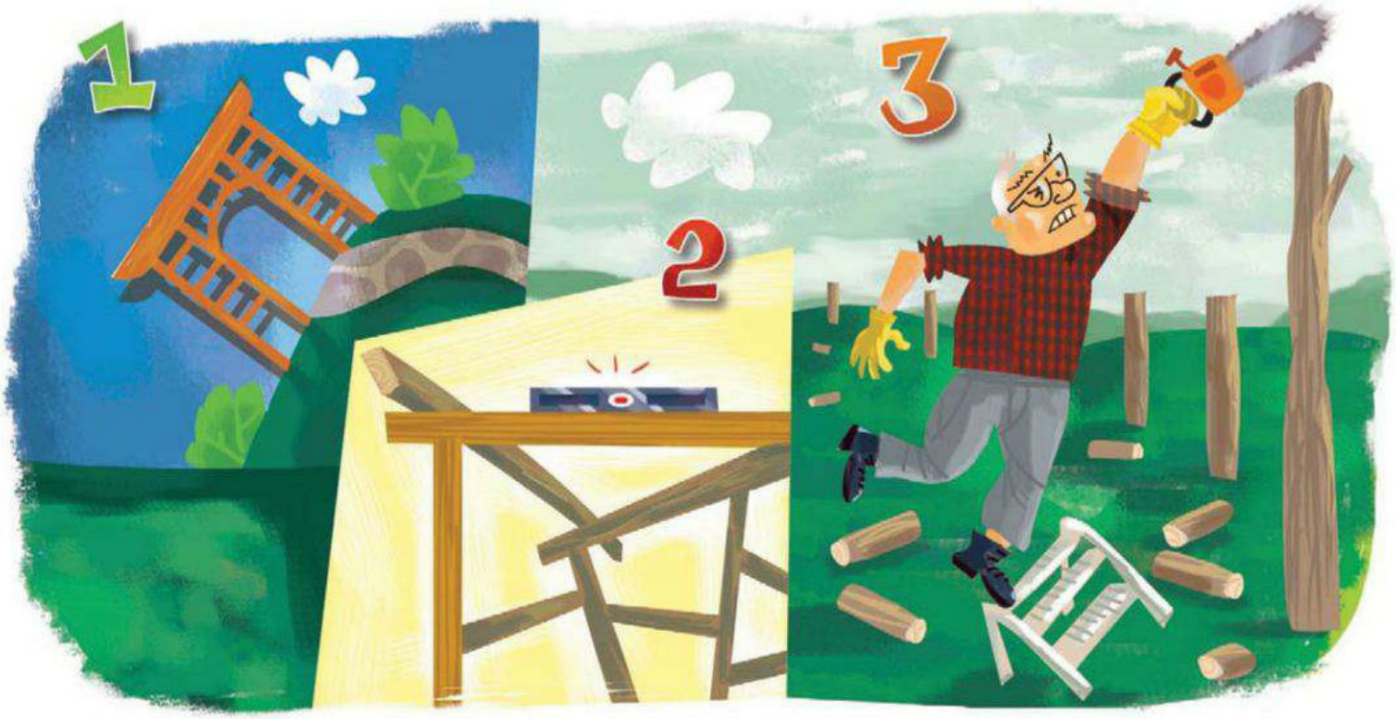


Paul's Place
BY **PAUL RUSH**

> "Never climb up a kitchen stepstool with a chainsaw and try to level poles"



Garden **Error**

Well-meaning projects that have gone awry

Let me make one thing clear about my experience with gardens: while what follows is a catalogue of errors, failures and misconceptions, I have had some success. I have built trellises and stone walls and rustic fences and benches.

Some of them are still standing—but only some.

When I thinned out a cedar bush 10 or 12 years ago, I suddenly had a harvest of long poles three to five inches in diameter. My thoughts turned to a rustic fence at the top of our 250-yard driveway. I cut short lengths and built teepees as fence posts. On top, I laid longer poles, some of them secured with wire. (A common country technique, although usually done with more skill.)

In short order, I had an attractive fence on either side at the top of the drive. Attractive, but rickety.

How rickety? Well, it turns out the fence was too close to the drive. After the first major snowfall, it was snowed under; then, it was ploughed under. It came apart, so I turned it into firewood.

Yes, I should have planned it better. Sadly, this is somewhat typical.

You will remember that I spoke of trellises. Indeed, I take pride in a couple of nicely arched ones that my wife and I built—always from our vast supply of cedar. But then I tried to build a major, seven-foot-high trellis, perhaps 12 feet by six feet. (The details are blurred in my memory.) I dug in 12 poles thinking I'd trim them to a uniform height after they were set, but what followed were the usual problems.

First of all, never build a trellis on the side of a hill. Second, know that when you get one pole perfectly upright, level and plumb, all the others will begin to lean. Last, never climb up a kitchen stepstool with a chainsaw and try to level poles stretching into the sky.

That trellis became firewood.

I could say that my first raised vegetable bed was a success, supplying peas and tomatoes and cucumbers and even eggplants (not to mention a splendid horned worm that looked like a dragon and eventually ate all the tomato leaves). But in a year or two, that bed became a mound as the boards I had carelessly screwed together parted under the weight of soil and water.

From this catalogue, I have omitted my deer fence and various composters. Nor do I think you really want to know how I hooked up three rain barrels to my eavestrough and created an ice jam that tore off a section.

When it comes to gardens, perhaps I should stick to cutting grass. Except I'm remembering now how I wound the plastic clothesline around the gas motor.

Or, I should just watch. That I can do.

ILLUSTRATION: STEPHEN MacEACHERN

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