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30 SMALL SHOP ESSENTIALS

JUNE/JULY 2012
ISSUE #78

CANADIAN Woodworking & HOME IMPROVEMENT

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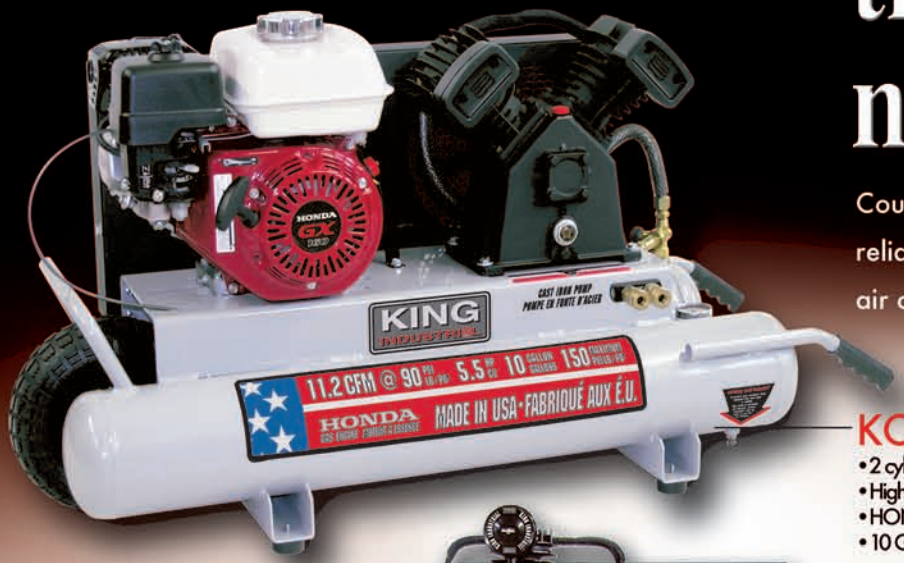

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JUNE/JULY 2012

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COVER STORY

Cover photo by Rob Brown

CANADA'S WOODWORKING & METALWORKING SPECIALISTS

Mini Dust Cyclone Kit

new!

For use with most common shop vacuums, this mini cyclone tank will eliminate virtually all dust particles from your shop without clogging your shop vac filter. Turn your small shop vac into a power cyclonic system with this complete kit from Craftex Blue Tornado. The cyclonic effect ensures that 99% of all dust particles get trapped into the tank before it can reach your vacuum filter. The translucent 6 gallon tank allows you to view contents at all times and is mounted onto 4 castors for ease of use.

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- Min Blade Width: 1/8”
- Maximum Cutting Height: 7”
- Cutting Capacity/Throat: 13-5/8”
- Cast Iron Wheels
- Weight: 78 Kg (173 lbs)
- Made in Taiwan

THREE YEAR WARRANTY

BONUS

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BONUS

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editor's letter

rbrown@canadianwoodworking.com

Spending quality time in a small shop is what woodworking is all about. Whether it's in a basement or a garage, an outbuilding or a shed, doing what you can within the friendly confines of your own space is a great feeling. You don't need a cavernous area to build furniture or fix up your home, but you do need a little bit of space to organize and store your tools and assemble projects.

There are many people whose shops are their project. They spend much of their free time fine-tuning their shops by organizing their tools and machinery and making jigs and fixtures. Often, rare wood is used to outfit the shop with storage cabinets, assembly surfaces, outfeed tables and other necessary items.

Others prefer to use cheap, utilitarian lumber for the storage cabinets and save the good stuff for the real projects. As for cleanliness, these shops run the gamut, but they always have a piece of furniture on the go and fresh sawdust on the floor. They are a means to an endless string of projects.

In this issue, we take a close look at three different small shops, show you some of the best tools for use in a small space, talk a bit about finishing and offer two projects that will help you with a very common challenge – shop storage. And, because most home-shop owners are limited by budget and/or space, we feature SmallShopEssentials: a showcase of recommended shop products/services from our sponsors.

Whatever kind of woodworker you are (and whatever kind of small shop you have), I hope our annual "Working in a Small Shop" issue gives you inspiration to make the space you have work well for you.

Rob Brown

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CANADIAN Woodworking & HOME IMPROVEMENT
DEVELOP YOUR SKILLS • TOOL YOUR SHOP • BUILD YOUR DREAMS

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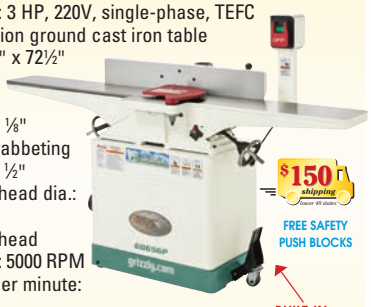
- Motor: 3 HP, 220V, single-phase, TEFC
- Precision ground cast iron table size: 9" x 72½"
- Max. depth of cut: ⅛"
- Max. rabbeting depth: ½"
- Cutterhead dia.: 3"
- Cutterhead speed: 5000 RPM
- Cuts per minute: 20,000
- Approx. shipping weight: 500 lbs.



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- Motor: 3 HP, 220V, single-phase
- Precision-ground cast iron table size: 15" x 20"
- Min. stock thickness: 3⁄16"
- Min. stock length: 8"
- Max. cutting depth: ⅛"
- Feed rate: 16 FPM & 30 FPM
- Cutterhead speed: 5000 RPM
- Approx. shipping weight: 675 lbs.

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- Motor: 1 HP, TEFC, 110V / 220V single-phase, 1725 RPM
- 4" dust port
- Cutting capacity/throat: 13½"
- Max. cutting height: 6"
- Overall size: 66½"H x 26⅜"W x 30¼"D
- Precision ground cast iron table size 14" x 14"
- Table height: 43⅝"
- Tilt: 45° R, 15° L
- Fence construction: Deluxe extruded aluminum
- Blade speeds: 1500 & 3200 FPM
- Blade size: 92 ½ - 93½" (⅛" to ¾" wide)
- Approx. shipping weight. 198 lbs.

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- Cutting capacity/throat: 13½"
- Max. cutting height: 6"
- Blade size: 92½" - 93½" L (⅛" - ¾" W)
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Reviews & Awards

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- Min. stock length: 8"
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readers' letters

Love Your Woodworking Forum!

My son asked me to make him a box for his apartment's entrance, so that he could store his hats and gloves, etc. He also wanted the box to be made strong enough to sit on to tie his shoes. After some thinking, I decided to make a rectangle box; nothing special, something that would take me about a week to complete. When I showed him my plan, my wife was there and she pointed out that what I should be looking at building was a Deacon's bench, and that my box (as planned) would be an eyesore in the main entrance of his apartment.

I started looking into plans for Deacon's benches in my past issues of *Canadian Woodworking* Magazine, and online. While doing so, I discovered your Woodworking Forum. I had never gone on to the forum before (not knowing what it was), but I now have a whole new world of information at my fingertips. I have so many ideas now; hinges, legs, mirrors, even ball & claw feet ... it should only take me six months to complete the new version of my wooden box!

Thanks for such a great, informative magazine and internet forum.

Barry N.
Port Colborne, ON

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Wayne H.
Elmira, ON
has won a CSX 10.8V Compact Drill/Driver Set from Festool.

LOYAL SUBSCRIBER

William B.
Windsor, ON
has won a $250 gift certificate from **Lee Valley**.

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woodworkers' gallery

Maloof Inspired Low-Back Chair

Wayne Watling, of Nobleton, Ont., build this Maloof inspired low-back dining chair in walnut. The plans were produced by Charles Brock and purchased at Lee Valley. They gave him just enough direction, while leaving a bit of room for adding his own personal style to the chairs. Wayne has always been drawn to Maloof's work saying "The sensual and organic flow of the Maloof design left an impression on me from my very first glimpse of his work. I knew I had to build one of Maloof's pieces and the need for a new dining setting presented the perfect opportunity." Good luck with the last five chairs, Wayne!

Show your work to the world!
Visit **canadianwoodworking.com** and join our forum!

Prize Winner!

Haussmann Table Saw Winner, David Anderson

David has been woodworking for 30-plus years and has been a subscriber since 2006. An architect by profession and a woodworker by hobby, David has designed and built kitchen cabinets, bedroom built-in cabinets, hobby room cabinets with book and storage shelves, and a variety of furniture. David uses a combination of hand- and power-tools in his single-garage home workshop that he uses 12 months of the year. He recently purchased a lathe and is now working on learning the intricacies of woodturning.

New Hammer A3-26 jointer/ planer introduced in Canada

Hammer is now offering a 10" jointer / planer combination machine in Canada. It's designed for small shops with restricted space and can be operated in jointer or planer mode with only a few inches from the wall. Change-over takes only a few seconds. A mortising unit can be attached to make it a 3-in-1 combination machine.

The A3-26 offers a jointer table with over 44" in length, expandable to 76" with extension tables, and it planes work pieces up to 8 ¾" in height.

It is powered by a 2.6 HP, 1 phase 230 V motor.

For more information visit **www.hammer-canada.ca**

Mark Your Calendars!

An all-new Toronto Woodworking Show will be held at the International Centre on November 9, 10, and 11, 2012. This new show will be focused on woodworking tools, machinery and education. Gina Downes, founder of the Hamilton Woodworking Show, is excited to bring a dedicated Woodworking Show back to the GTA. Exhibitors inquiries welcome! Woodworkers are encouraged to visit **www.TorontoWoodworkingShow.ca** and join the newsletter for show updates and valuable admission discounts. Call 905-779-0422 or email info@TorontoWoodworkingShow.ca

Zipwall Creates Instant Shop

If you need to section off a room in your home, in order to temporarily contain a DIY mess, a Zipwall barrier system is for you. It's available in packages containing two, four or six spring-loaded poles, and you can add additional rails, side clamps and zippers to customize your system. It's perfect for covering doors, separating rooms and even sectioning off small spaces in order to temporarily set up a workshop. Zipwall will also assist you with painting, small residential work or large commercial applications. For more product information, visit www.zipwall.com, or contact Tegs Tools, a Canadian Zipwall supplier, at **www.tegstools.com**.

Check out our forum for the latest "Best Build" thread – A Classic Dining Table.
www.forum.canadianwoodworking.com
search for "Stickley #599 Trestle Table"

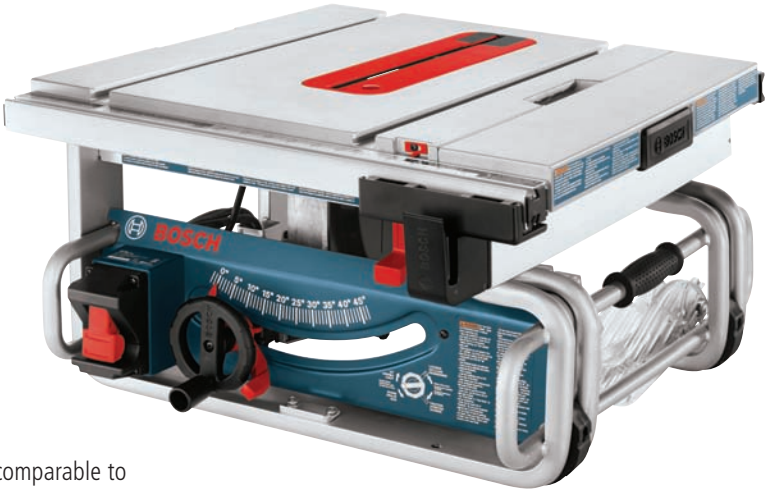
Bosch saw offers extreme portability

I found the Bosch GTS1031 to be very intuitive. All accessories store within the saw base and the only adjustment required prior to throwing the saw in your truck is to dial in the rip-fence.

Previous generations of job-site table saws are routinely stripped of their arcane safety gear. The new breeds are different. The Bosch GTS1031 includes a true riving knife and a versatile two-piece blade guard so you can expose only one side of the blade as needed to rip thin strips.

The carrying handle allows you to shoulder the weight of the saw close to your body, much more manageable than a saw requiring a wheeled stand. The optional stand folds flat for transport, the legs splay out to create a stable footprint, and the saw clips on/off quickly and securely.

Cutting ability is comparable to other quality job-site saws: powerful and noisy. The fence is accurate and parallel to the blade; it extends for a maximum rip of 18". The mitre gauge is marginal, but the slots are sized to accept an aftermarket gauge. The literature states that it can accept a ½" dado. A blade shroud with a 2 ¼" ID port allows dust collection from below. Fit and finish is very good and comparable to its big brother, the 4100.



The GTS1031 appears to be a very thoughtfully laid out and capable compact saw with great safety accessories. Deciding on whether it's for you will hinge on what size of sheet goods you intend to rip and how much value you place on portability. For more information, visit **www.boschtools.com.**

— *Matthew Kinzel*

Coming Events

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New 6" Benchtop Jointer from Grizzly

The new G0725 jointer from Grizzly is the perfect size for a small-shop setting. Its cast-iron tables measure 6" x 28" and the 4 5/16" tall cast-iron fence tilts 45 degrees right and left. It also comes equipped with a 1 1/2 HP motor and two-knife cutterhead. The built-in dust collection system has a 2 ½" dust port, dust collection fan and bag. The G0725 is available for $235. For more information, visit **www.grizzly.com**.

Festool CXS Now at KMS Tools

Festool's new CXS Compact Li-Ion cordless drill features the FastFix chuck system and can be used with the Centrotec chuck, keyless chuck, or a right-angle attachment. The CXS features exceptional ergonomics, with a battery design that removes the bulk from the handle, ensuring maximum comfort. Weighing in at just under two pounds with the Centrotec chuck attached, the CXS will not leave you feeling fatigued, even after all-day use. The CXS offers exceptional battery life and fully recharges in just 30 minutes. The drill comes with two 10.8v 1.3Ah Lithium Ion batteries. The drill, charger and batteries are covered by Festool's three-year warranty. For more info, contact KMS Tools at 1-800-567-8979, or **www.kmstools.com**.

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FESTOOL
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Sandpaper Storage Shelf

Organize all your sandpaper and get some practice with basic box construction at the same time.

BY TED BROWN

Sandpaper is essential in a shop, so it makes sense to have a cabinet to hold the paper close at hand. It's a simple set of shelves, housed in a carcase made from Baltic birch plywood. Sandpaper is larger than writing paper – 11" x 9". One and a half inch Baltic plywood makes a solid carcase, and cuts cleanly on the table saw. The shelves are held in grooves cut with a single saw kerf. The rabbets were cut using a dado set and a sacrificial fence. The outside dimensions of the cabinet are 14 ½" high x 12" deep x 10 ½" wide. This makes the openings ½" deeper and wider than a sheet of sandpaper. The shelves are spaced at 1 ½" intervals.

Cut one large piece of plywood to make two gables at 14 ½" x 25" x ½", as it's easier and safer to work with a single large piece of material than cut it in half after all the grooves have been machined. Set up the height of your saw blade for just short of ¼" above the table. If you go up to the full quarter-inch, the grooves will cut into your rabbets later. Once the cabinet is put together, we will determine the final width of the shelves.

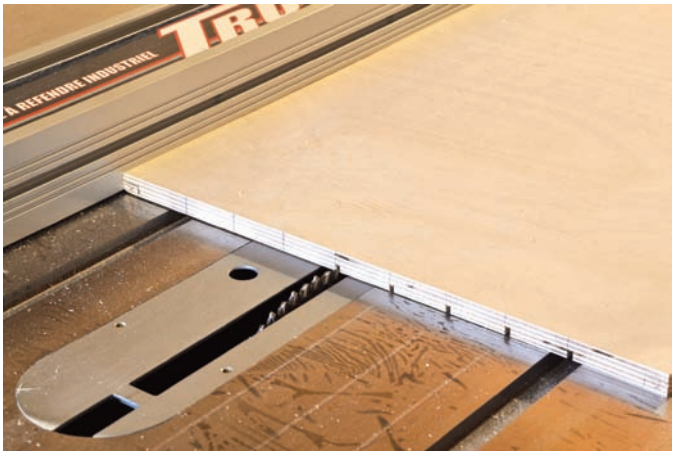
Set up your fence to cut the first groove through the gable stock 1 ½" from the top of the gables. Increment the fence position by 1 ½", and cut the next groove. Keep moving the fence by 1 ½" until all eight grooves are cut in the gable stock. By keeping the stock as one large gable, and then cutting it in half later, we will have a perfect match with the slots, and the number of cuts made is reduced. Set your fence to 12" and cut two gables from the grooved gable stock.

Cutting the Rabbets

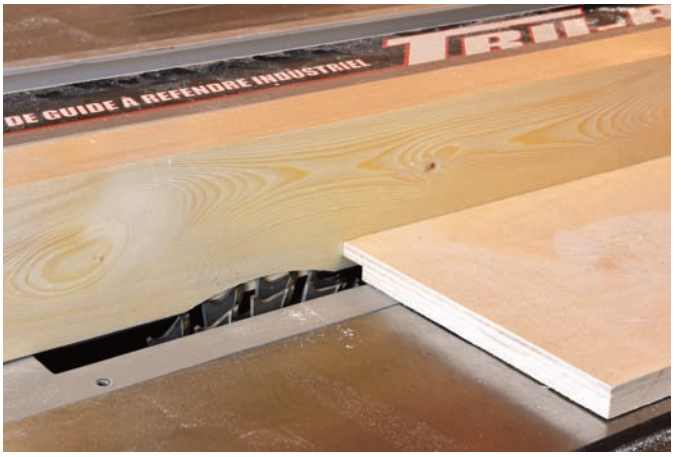
I used ½" wide x ¼" deep rabbets for the carcase. Mill up a piece of 2 x 4 spruce stud material to 40" x 2 ½" x 1 3/8" to make an inexpensive sacrificial fence, then clamp it to your saw fence. Install your dado set with a couple of chipper blades so the width of the set is about 5/8". With the dado blade fully retracted, place the sacrificial fence above the blade, covering about 1/8" of the blade on the right side. Turn on the saw, and then raise the blade ¼" above the table. I put a mark on the sacrificial fence before cutting into it to help locate the ¼" height.

Using a test piece of ½" plywood cut a rabbet. Check that it's slightly wider than the thickness of the carcase stock. When I say ½", I don't worry about the absolute dimension, but rather I set up my process to cut the joinery to fit the material. Add about 1/64" of extra width to the rabbet; we will hand-plane this flush once the cabinet is assembled. I actually measure the depth of the rabbet and try to get it to ¼", but I don't cut my cabinet back until the dry fit stage. Don't rely on numbers – use logic. Most cabinets can be made without measurements if a

Photos by Ted Brown



Work the Gables as One Panel – Cut the grooves in the oversized stock for both gables before separating them to assure alignment.



Sacrificial Fence – Note that the dado set has cut into the sacrificial fence leaving about ½" of blade exposed. Fine-tune this dimension according to the material you're using.

logical approach is used. This method eases the mind, reduces errors, and speeds up the work. Cut rabbets on the top, bottom and rear edges of both gables and on the rear edges of the top and bottom.

Dry fit the carcase, holding it together with bar clamps. Measure the opening for the back panel and cut it to size. During glue-up, placing the back panel in place will keep the carcase assembly square. For a utility cabinet, use either a brad nailer or finishing nails and a hammer, along with white glue for final assembly.

Materials List

Gables:	2 @ 14 ½ x 12 x ½
	(cut to dimension after grooving)
Top/Bottom	2 @ 12 x 10 x ½
Rear Panel	1 @ 14 x 10 x ½
	(wait until the dry fit to cut this)
Shelves	8 @ 14 x 10 x ⅛
	(cut these after the cabinet is assembled)

Assembly – Apply white glue to the rabbet and then nail the components in place.

Bring it All Together

Start with the top panel held vertical in your bench vise. Apply white glue to the top rabbet in the gable and then nail the gable to the edge of the top panel then remove this assembly from the vise. Do the same thing with the bottom panel, and the opposite gable. Apply glue to the two remaining rabbets, put the two assemblies together to form the box and nail them in place. Apply glue to the rabbets at the rear, and then insert the rear panel. Pull the rear panel into place using F-clamps. The pad at the handle end of the F-clamp will reach over the protruding rabbet at the rear, and pull the rear panel in snug. Hand-plane off the protruding parts of the rabbets flush with the cabinet.

Cut your ⅛" shelves now, fitting them to the finished dimension of the cabinet. Do not glue the shelves; they are simply friction fit. Ensure that you cut the shelf material with the outside grain of the plywood going from side to side of the shelf for maximum strength. Drill and countersink 3/16" holes in the cabinet back and mount the cabinet to a wall stud with #8 x 2" flat-head Robertson screws. Install the shelves and load in the sandpaper.

Your first sanding task is to soften all edges with 150 grit sandpaper and a sanding block.

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A Serious Small Shop for $10,000

Setting up a shop in your home is the only option for many amateur – and even some professional – woodworkers. There are lots of decisions to be made: electrical requirements, equipment selection, hand tool purchases, and shop layout are all crucial aspects of being successful.

BY TED BROWN

My contention has always been that you can build a serviceable shop in your home, develop your hand skills, and make fine furniture. In the past year, I had an opportunity to build a shop from the ground up after moving to a new home. I found a house with an unfinished basement, and set to work. In this article, I will discuss everything from layout, to electrical, to equipment selection. I intend to name names with respect to equipment, so that readers will know what I chose. Everyone's budget will be different, but I think almost everyone will be able to treat this as a starting point, and adjust accordingly, depending on their own budget.

Photos by Ted Brown

Dead Space – Brown used the area under his stairway to store his dust collector. It was otherwise wasted space. Notice the iVACPro system to the left of the collector, simplifying dust collection.

Defining the space

My intent was to wall off about 2/3 of the basement footprint, to create an area that was well lit, had adequate electrical supply, and good dust collection to keep the dust from migrating to other parts of our home.

My shop ended up being 23 x 19 feet, for a total of 437 square feet. I put my wood rack in the basement, but outside the walled in shop area. To keep the dust in the shop, a three part strategy was employed. I have a dust collection system, an air filtration system and a shop vacuum for cleaning dust out of machinery. I put up new walls, installed new electrical service, lighting, and two access doors for ease of materials movement. The shop includes two windows so that I can enjoy natural light, and not feel like I am squirreled away in the basement.

Open for Business – When in use, the mitre saw station can handle pretty much anything thrown at it. The flip up surfaces will support a lot of weight.

Layout

Shop layout is all about making the best use of space. Place your machines so that you have adequate "safe space" that you need to work around them. The "buffer area" beyond that is the amount of room you need to run large stock though a given machine, keeping in mind that buffer areas can overlap between machines. If you want to get more organized, buy some ¼-inch squared paper, make scale models of each machine including the safe space around each, and place them on your model shop layout. Remember that buffer areas need to be long enough to put an 8' sheet through a table saw, or a 6' plank through your planer, for instance. I raised my planer, so that I can use the area above my router table to pass long planks through the planer – all it takes is some modelling, and a little shuffling, and you will find the layout that works for you. Each space will have challenges; I had the area under the stairs that was wasted space, so I installed the dust collector there.

My bench is placed so I have access to it from all sides. It is nearest the window, to take advantage of the natural light.

Electrical

I wanted to have numerous outlets, and have enough electrical service that I did not have to worry about overloading circuits. There was already some lighting, so I simply picked off that line and added additional lights to keep things bright and cozy. I ran a 240V line for the table saw and jointer with a dedicated breaker. For wall outlets, I ran 14-3 wire, and split all the plugs, so that I can run one machine on the upper plug, and another on the lower plug of any outlet.

Perhaps the most satisfying move I made was to automate the dust collection system. I used the iVACPro system to link all machines to the dust collector. When I turn on any machine in the shop, the dust collector fires up and whisks the dust into the bin. The system also has a programmable delay to allow the dust to make it to the bin before the dust collector shuts down. I set my system for a five-second delay. The system works flawlessly for my band saw, planer, and router table at 115 volts, and also my table saw and jointer at 240 volts.

Clean Air – This King air filtration unit removes fine wood dust from the air, and can be set to filter the air after you've left the shop.

Out-feed and assembly table

You need an out-feed table to support work exiting the table saw and band saw. By placing the tools close together, I was able to make one out-feed table that works for both tools. I put four pivoting wheels on the table, allowing me to shift the table in any direction. By placing a shelf below the table, I gained some much needed storage space for portable power tools. Finally, since this is a large work surface, the table also serves as a true, flat assembly table.

Chop saw workstation

Cutting thick, rough, warped hardwood can be cumbersome and dangerous. To provide some control over this process, I built a chop-saw station with wings that extend to support long boards. Again, anytime you make something that consumes shop space, make a shelf underneath to gain storage. The chop saw sits in a recess so that the deck of the saw is at the same height as the workstation deck.

Controlling Dust

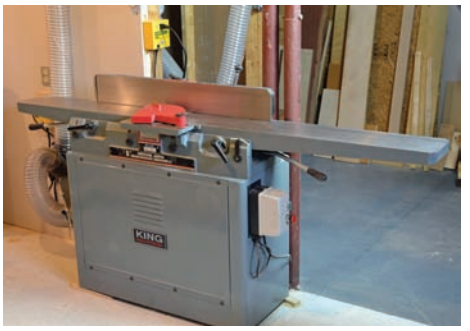
Make sure to run ground wires wrapped around all lengths of flexible exhaust hose to prevent static build up, which can spark and potentially ignite. I chose the King 1.5 HP dust collector, with a 115 volt motor, so I did not need special wiring for it. A shop vac is a must, as well, used to vacuum out machinery, and to remove dust from furniture prior to finishing. Finally, an air filtration system was installed to clear the air of tiny airborne particles. The King KAC 650 unit I installed does a nice job, has a remote control, and a programmable delay – I usually have the air cleaner run for a timed two hours when I leave the shop.

Machinery

Band Saw

I place the band saw first in my order of purchases, because I consider it the heart of the shop. Band saws are very safe tools for ripping, re-sawing, cutting curves and more because all of the force is downward, virtually eliminating any chance of

Shop Workhorse – Brown spends a lot of time working on his bandsaw. This General International 14" saw serves him very well.



Flat and Long – When selecting a jointer a 12" model would have been hard on the budget. He went with an 8" King model, and has been very impressed with it.

Great Value – Another King product, this table saw is about half the price of comparable machines, and is well made. Just what Brown was looking for.

unexpected kickbacks. I wanted a saw that had a strong back, dynamically balanced cast iron wheels for smooth operation and flywheel effect, 12" depth of cut, good dust extraction design, a large table and a solid fence. After shopping around, I settled on the General International Model 90-170 14" saw. It is very smooth, comes with an Excalibur fence, and it is light enough (133kg) to move into your basement without crushing someone.

Jointer

I could not consider a 12" jointer, given that the equipment had to be moved down the stairs to my basement, and the cost would blow my budget. What I wanted in an 8" jointer was true tables, a fence that is solid and easy to adjust, a cut depth gauge that is reliable, and long tables that aid in flattening longer bowed planks. I have found that the Taiwanese tools have come a long way in the past 20 years. I purchased the King KC-80FX 8-inch jointer, with lever adjust parallelogram tables. The system arrived in a good state of tune, and the well-written manual includes a full parts list and exploded parts diagrams. The tables were extremely heavy; more about getting things down the stairs later. The jointer is reasonably priced, it runs smoothly and it is well made.

Table Saw

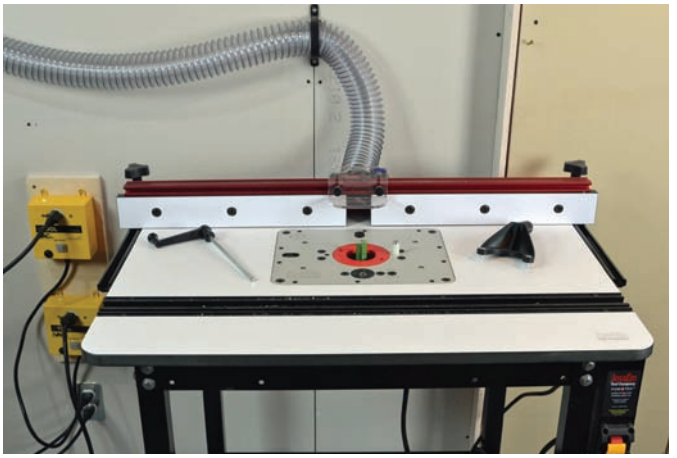
I do not rip on the table saw as a rule, to prevent kick back that periodically occurs when natural wood pinches the blade, turning the wood into a missile. I bought a fairly powerful saw, so this is one place where a lighter saw would be adequate. Essentially, I use the table saw for ripping sheet goods, cutting dados, tenons, and cutting small parts to length – all of which can be done with a 1.5 HP saw. I ended up with a King 3 HP, three-belt drive, 10" table saw. The castings are true, and the King Tru-rip fence reminds me of the Biesmeyer fence used on the Canadian General saws. The model is KC-11FX, and it can be purchased for less than half of the price of other, similar saws. On this purchase, I went with the suggestion of Jeff at Brettwood Machinery – he was right; a very good value saw that runs smooth, and has a decent fence.

I added an accessory mitre gauge to the saw for accurate cut-off work. The Incra Miter1000 showed up under the Christmas tree after the Lee Valley flyer photo with part number mysteriously ended up on the fridge door with a circle around it last December. A great addition, the Incra is light, accurate, and provides adjustable stops for cutting multiple parts to precise length. I will also make a plywood cut-off sled for the saw for squaring larger panels.

Planer

This is the one tool in the shop that provides the greatest opportunity to save money, if you are willing to purchase a well made, light duty machine, and take lighter cuts. In the past I have used General 14" planers that can hog off serious cuts all day long. The problem is that these professional units cost over $5000, and they would crush my buddy as we haul them down the stairs (note: don't be the guy on the bottom). After doing a fair amount of research, I purchased the Dewalt DW735 13" thickness planer. The unit came with a good manual, and was in a good state of tune. It is light enough for me to carry around the shop without excessive grunting, so that made it very simple to install. The planer has a significant internal fan-assisted chip ejection system. The chips are catapulted out of this planer, so have your dust collector running before you run stock through it. I now have to make more cuts at a lighter cut depth, but I saved about $4500, which makes my budget happy. The planer makes clean cuts, and has

Big Savings – Rather than blow the budget on a full-sized planer, Brown opted for a DeWalt portable unit and saved thousands.



Easy Routing – Durable and flat, this Jessem router table, fence and lift system offers a lot of nice features, and doesn't break the bank.

Natural Light – Brown positioned his bench near a window to get as much natural light as possible. His hand tool cabinets are adaptable, so when new purchases are made they find a new home next to his older tools.

two speeds. I don't see a reason for the two speeds for my type of work, but there is a faster feed rate should you choose to use it. Knife changing is simple and quick.

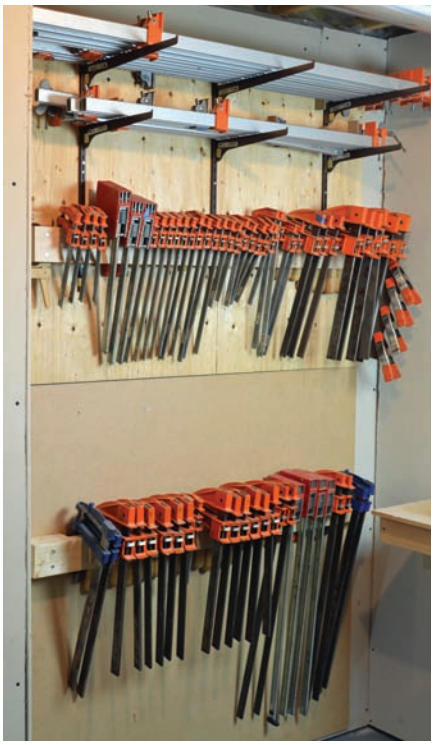
I built a stand for the planer, raising the deck of the unit above the height of the router located next to it, allowing me to run long planks without interference. The stand is on wheels, with a shelf below.

Router Table

After years of digging down under router tables, lifting the entire unit up to change bits, and then fighting to get the plate flush again in the table, I chose to spend the money to purchase a router table, fence, and lift system. I did a thorough review of these systems, and chose the Canadian made Jessem Rout-R-Lift II kit. The system comes with a solid steel stand, a phenolic table, an adjustable extruded aluminum fence, and their base model lift system. For budget reasons, I did not choose the hefty Mast-R-Lift, but I am quite happy with the lighter Rout-R-Lift II. It will last me a couple of lifetimes, so it is the right system at the right price for me in my one-man shop. Hats off to Jessem for making a great lift at a very reasonable price in the middle of a tough economy. The table is durable, and flat. The direct drive lift is smooth and precise. I mated the lift system to a mid-sized model 690 Porter Cable router, which has a fixed speed, and enough power to do anything I need. The Jessem system uses a bayonet type mount for the table inserts, a nice touch that makes swapping the table insert quick and simple. As with all my machines, the router table is connected with the supplied dust port to my shop dust collection system with automated switching.

Drill Press

I looked around at many versions of Taiwanese drill presses. I ended up purchasing the Ridgid DP15501 15" drill press because I liked the way the quill stop was made, the work light, key storage, and the easy access to the belt change system. This machine was also on sale when I needed it, so that made it a slam dunk. Choose the one that suits you, as they're all very similar. The table is large enough, and the distance to the column is large enough to allow you to do most anything a small shop needs.



Never Enough Clamps – Clamps are important no matter what type of work you're doing. A good selection of "F", "C", spring and bar clamps will assist you for years to come, so make sure you like their comfort and feel.

Drill Press – Brown liked the features on this 15" Ridgid drill press. The sale price made purchasing it an easy decision.

In each case, we shuffled the bench, jointer, table saw, and band saw across to the top of the stairs, and then tied a rope around each to act as a safety while sliding the machines down the strapping on the stairs. Yeah, the table saw hit the wall, and the promise of a good mud and paint job saved my bacon. The rope worked well, and we were able to get everything down the stairs nice and slowly without any major issues.

I set an initial budget of $10,000 to build the shop – everything from studs and drywall to hand tools and machinery. The final number was over by $1,000, but I'm still very happy with the result. The shop is now my haven, with a good sound system and good lighting. Every time I go back into the shop, it is exactly the way I left it, because it is my shop!

TED BROWN
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Ted is enjoying his newly built shop in Ottawa. He spends a lot of his time in the shop, listening to CBC and crafting fine furniture.

Hand Tool Cabinets

One of the challenges in building a cabinet for hand tools, is that as soon as you define a place for each tool in your custom cabinet, you find that you need more room to store the must have tools you just bought. I decided to make a couple of open cabinets, and employ the use of inserts that can be replaced or modified as my tool collection grows. Part of the goal was to make a clean, efficient shop, while keeping to a budget. I bought paint grade maple plywood and made the cabinets. Applying a solid maple face frame to the cabinet makes a clean looking cabinet from sheet goods purchased at $50/sheet.

Clamps

In my shop I use a large number of Jorgenson F-clamps. I use many of the small clamps, the most useful being the 12" version. Large F-clamps are essential for cinching down parts on bending forms. I also like aluminum bar clamps because they are much lighter than steel clamps, and therefore less likely to damage a carcase should you bang into the wood during a glue-up.

Moving Machinery

One of the challenges we all face is how to move machines into a home without damaging the home, the machinery, or yourself. I actually had to bring things through the front door, and across hardwood floors, and turn 90° to descend the stairs into the shop. To protect the floors, I laid down sheets of ½" MDF that I could use later. On the wooden stairs, I used three strips of softwood strapping, held with wood screws to the stairs. I mounted a 2x4 baton to the wall studs at the top of the stairs, with a $^{5}/_{16}$-inch eye-bolt through it.

Heirloom Tool Cabinet

Sure, you can hang all your tools from sheets of pegboard, but that doesn't do much for the atmosphere of your shop. A wall-hung hand tool cabinet will help organize your tools as well as show off your skills.

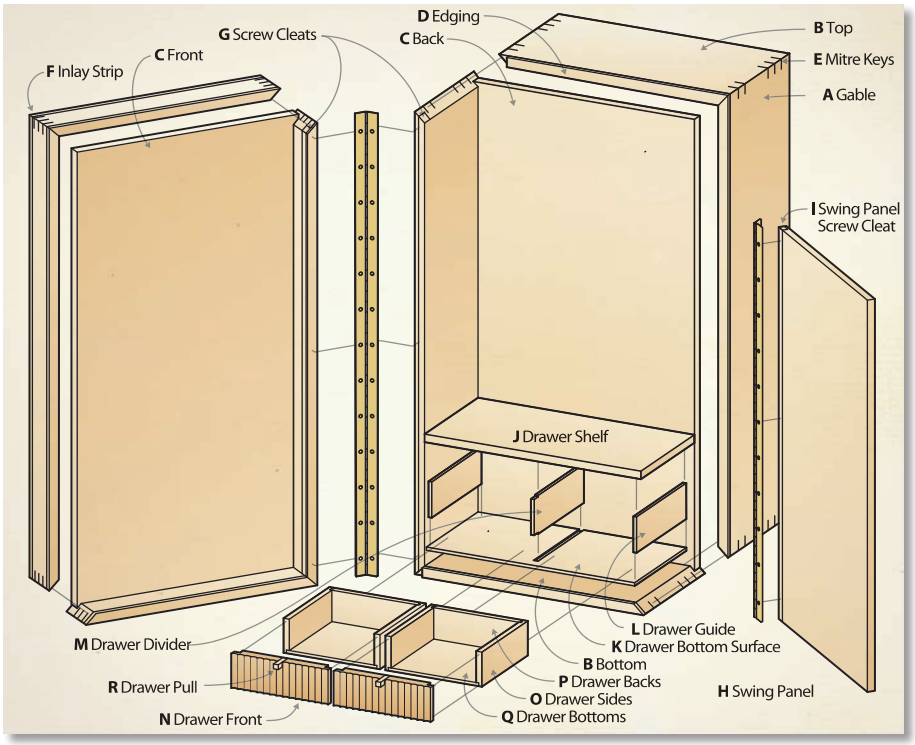
BY ROB BROWN

When I started woodworking, the only hand tools I had were inherited from my grandfather. I made a cheap chipboard shelf for them, which worked great. That is, until my hand tool collection started to overflow onto my workbench and assembly areas. I wanted to do something nice, not only to protect my hand tools, but as a showcase for clients to see my work.

Since I have a small area to work in, and wall space is at a premium, I knew I had to be thoughtful regarding the design of the cabinet. Even though this cabinet takes up only 17 ½" x 36" of wall area, there is more than enough storage space for my current collection of tools, with a little extra room for future purchases. I also built the interior tool racks with the potential for a large overhaul; more on that later. I think the main difference between my cabinet and many others is the swinging panel. This ¾" thick hinged panel almost doubles the amount of surface area available, yet it doesn't take up any extra wall space.

Photos by Rob Brown Illustration by James Provost

LoneWolf



Gather your tools

After coming up with the basic overall design concept – a single outer door that opens to reveal a swinging panel and two drawers – I needed to know how large to make the cabinet so it would accept my tool collection, with a bit of room for additions down the road. I grabbed all the tools I anticipated storing in the cabinet and started to play around with how they would best fit inside. I began with my large tools – mainly planes – as they would have the least amount of flexibility, then put some thought into where the others could go. A warning here: you could spend an entire long weekend going through painstaking details of what fits best where, but unless you are making a museum quality chest that will never get used, you're probably outthinking yourself. After a bit of playing, you should have a pretty good idea of what dimensions best suit your cabinet. I decided on 36" high x 17 ½" wide x 10" deep.

Start with a basic box

You can easily make the outer box structure from solid wood or pre-veneered plywood sheets, but I chose to apply face and back veneer to ¾" Baltic birch plywood. I like the flexibility I have when choosing veneer species, and the strength of Baltic birch is very

Flush Trim Jig – Once the trim was dry, Brown installed a ¾" straight bit in a router and attached a trimming jig. The jig is a simple piece of plywood that is positioned entirely on one side of the bit. Once the bit height is set, the router bit cuts the trim to almost perfectly flush with the veneered surface. Make sure not to roll the router at all, or the bit will gouge the wood trim and veneer panel. Take your time and keep pressure on the far end of the plywood jig.

Add Some Grooves – With this sled, you can cut the grooves in each corner to accept the solid keys. The keys add strength and style to the mitred corners. You could also cut the grooves with a router.

Materials List

Part	Part	Qty	T	W	L	Material
Gables	A	2	¾	10	36	Plywood / Solid
Top / Bot	B	2	¾	10	17 ½	Plywood / Solid
Front / Back	C	2	¾	17	35 ½	Plywood
Edging	D	1	1/8	¾	17' total	Solid
Mitre Keys	E	32	1/8	1 ½	2	Solid
Inlay Strips	F	1	¼	¼	9' total	Solid
Screw Strips	G	2	½	½	34	Solid
Swing Panel	H	1	¾	15	30 ½	Plywood
Swing Panel Screw Cleat	I	1	¾	5/8	30 ½	Solid
Drawer Shelf	J	1	5/8	6 ¾	16	Solid
Drawer Bottom Surface	K	1	¼	6 ¾	16	Solid
Drawer Guides	L	2	¼	6 ½	2 ¾	Solid
Drawer Divider	M	1	¼	6 ½	3	Solid
Drawer Fronts	N	2	¾	2 11/16	7 7/16	Solid
Drawer Sides	O	4	7/16	2 11/16	6	Solid
Drawer Backs	P	2	7/16	2 7/16	6 7/8	Solid
Drawer Bottoms	Q	2	¼	5 7/8	7 1/8	Plywood
Drawer Pulls	R	2	3/8	3/8	1 ¼	Solid
Tool Holders	S	To suit		-	-	Solid

high. After veneering the sides, bottom and top, I cut the pieces to size, rabbeted for the back and front and mitred the corners. After a quick sanding of the interior I used masking tape to assemble the box, making sure it dried square. Once the front and back panel were veneered, I cut them to size and installed them. When gluing the back panel in I took a bit of extra care to ensure the joint would be solid, as the back would carry all the weight of the cabinet and its contents when completed.

To dress the cabinet up a bit, and to protect the veneered edges, I routed ¼" x ¼" rabbets around the front four edges and installed a piece of contrasting solid wood. The four pieces I installed had a couple pieces of contrasting veneer glued to their two inside surfaces, but this was strictly aesthetic. After mitring their ends, I glued the trim in place with masking tape. Once dry, I trimmed them flush with the veneer surface. A hand plane would work, but since I do a lot of this sort of work I have a simple jig that makes the process quick and accurate. I attached a 6" x 6" piece of ¾" plywood to the bottom of my router so the entire piece of plywood was entirely to one side of a ¾" straight bit. I then adjusted the bit to within about 1/64" of the bottom surface of the plywood. I ran the plywood along the veneered surface, as the bit trimmed the solid trim to within 1/64" of flush. A light sanding will even the strip with the veneered surface.

To add some strength to the mitred corners, I installed solid keys across all four of the joints. A router does a great job in solid wood, but when the spinning bit exits a veneered surface, it has a tendency to blow out the edge slightly. I used a sled, which runs in the mitre

Add Edging – Apply glue to the edging of the door then use cauls to clamp it in place. Masking tape works well on the case because there's more depth to apply the tape to.

Rout a Groove – Brown uses a simple jig to rout a ¼" wide x 1/8" deep stopped groove in the underside of the drawer shelf. One of the drawer dividers will fit into this groove.

Increased Holding Strength – A rabbet bit in a router cuts into the edge of the case and door, where the piano hinge will join the two together. A solid support is clamped to the door and case to keep the router perpendicular to the work piece. Once the solid strip is glued into the rabbet, the piano hinge screws will have more purchase and be stronger.

groove of my table saw, to hold the box as the kerfs were made. I adjusted the blade so it would create the deepest cut possible without cutting through to the inside of the box. This provided the most glue surface area, and therefore the most strength. Once I machined enough stock to fit the grooves, I cut it into pieces and glued them into the kerfs. A flush cut saw made quick work of the keys once the glue dried.

Divide and conquer

To split the box in two, I first determined how deep I needed the interior of the front door to be as I wanted to make sure my chisels and marking gauges would fit between the front panel and the swinging panel. I needed at least 1 ¾" inside. After making sure to account for the front panel thickness, I set my table saw fence and proceeded to make four cuts, opening the box up.

Since I was using a piano hinge to attach the door to the cabinet, I wanted to add a solid wood strip to keep the plywood from splitting once screws were drilled into its edge. With a rabbet bit in my router I machined a ½" deep by ½" wide rabbet. So the router wouldn't rock during the cut, I clamped a long chuck of Douglas fir to the side of the cabinet and door and ran the router on its squared edge. I then rounded the ends of both solid pieces to match the router bit's radius and glued them in place.

To cover the plywood edges left by splitting the box in two, I machined ⅛" thick solid strips, mitred their ends and glued them in place with strips of masking tape. Because there isn't much of a side to apply the tape to when working on the door, I used clamps and cauls to apply the trim. Once dry, I used my router to flush trim both sides of each strip, taking care not to roll the router, causing the bit to dig into the side of the box. I installed the strips on all four edges of the door, and three edges of the cabinet. The vertical edge, where the piano hinge would fasten to the cabinet, was left free of trim, as the hinge would take its place.

Look inside

With the main box essentially complete, I got to work on the interior. The first step was simple – to make the lower framework that the drawers would be fit to. Starting with ¼" thick material, I cut the bottom piece to fit snugly between the two gables. It was set back about ⅛" from the ¾" wide solid strips I applied to the plywood edge. With the bottom friction fit (for now), I cut the left and right sides the same height as I wanted the drawer opening to be (2 ¾") and ⅛" shallower than the bottom. The ⅝" thick shelf sits directly on top of the left and right sides, and I cut it to size next. The ¼" thick drawer divider couldn't be screwed in place, as it's too delicate, so I cut a ¼" wide stopped dado in the top of the bottom panel and another one on the underside of the shelf. It was ⅛" deep. I then fit the divider, notching the front to correspond with the stopped dados. Once everything fit nicely, I counter-bored a few holes in the sides and the bottom and used #6 screws to secure them in place. I installed the divider with a bit of glue, then topped everything off with the shelf. Because there would only be downward pressure on the shelf, I toenailed it to the sides of the cabinet to keep it from moving forward. With the drawer cavities complete, I built the two drawers to fit the opening. See page 28 to learn how they were made.

Four options – holes, cleats, slots or nails

Holes:

I found the quickest, sturdiest and best looking method for many of my tools was to drill holes that overlapped the front edge of the holder so tools could be inserted then lowered in place, where they would be held securely. A little planning is necessary to determine the best location of the hole and to get the gaps between the tools even, but it's not rocket science. Start by laying out all the tools in one group in the order they will be stored. They should also be arranged with a consistent gap between them. Measure where the tool centers are, in relation to one another. Next, measure what diameter hole the tool would best fit. Now transfer these measurements to the piece of wood you're using and use your drill press to bore the holes. This seems confusing at first, but after a while everything becomes fairly simple. A few practice pieces will help iron out the details. Keep in mind that smaller holes will need to be drilled closer to the edge of the board in order for everything to work out nicely. Trim the cleat to widths so the largest tool sits about ⅛" from the cabinet panel it will be attached to.

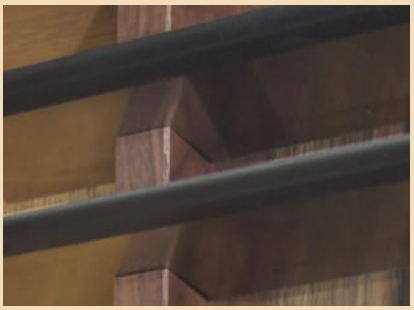
Measure Carefully – Determine the center-to-center distances on the tools as they sit comfortably close together, then use that dimension to lay out the holes on the tool holders. To determine what diameter of hole you should drill, use callipers to measure the tool.

Drill the Holes – When drilling the holes, position them so that the front portion of the hole is just off the front edge of the holder. Once it's cut to finished size and installed, the holder will easily accept each tool.

Cleats – Customize each cleat so it holds the tool securely. The bottom and top of this hand plane are held positively, until the plane is lifted upwards and the bottom is tilted out.

Cleats:

If the tools don't fit into holes nicely (hand planes come to mind), cleats often work well. Because pretty much all the dimensions of all my planes were different each cleat had to be customized to an exact plane. I started off with a bottom cleat that would be shaped to accept the bottom of each plane. After cutting an appropriate notch or rebate for the planes so they would be about ¼" apart, I made small cleats to hold the front of the plane in place. These cleats were made so the plane could be inserted under them first, raised up, then the back end of the plane could be swung into place on the longer cleat and lowered into its resting position. I also installed a block on the shelf that supported my wooden compass plane. I screwed it in the correct location so that when the time came I recessed a rare-earth magnet into its face to hold the swinging panel shut. Though making and positioning these cleats was a tedious task, when finished I was very happy with how well the planes fit and how easy it was to access them.



Cut Slots – Starting with a thick piece of wood, cut the angled slots in the blanks' edge, then resaw it in half. This will ensure both sides are symmetrical.

Slots:

For some of my other tools, I found simple angled slots cut into vertical boards worked nicely. My scrapers, spokeshaves and hand saws fell into this category. Start with a board that is at least twice as thick as you want to finish with, so you can re-saw it after you make the required notches, ensuring the notches are symmetrical. With an angled table saw blade, your band saw or a hand saw cut angled slots that the tools can be inserted into. Don't cut the slots too close together, or the short grain may cause the wood between the slots to snap off.

Nails:

All of my flat, thin layout and measuring tools were easily hung from a series of small nails. I don't love the look, but it was too easy to pass up and functions very well. I kept all these tools on one face of my swinging panel as their shallow depth wouldn't interfere with any of the tools on the inside of the main door.

Nails are Simple – The easiest option is to install small nails to hold miscellaneous items such as rulers and small squares.

To easily add a lot of surface area for hanging tools, I decided to use a ¾" thick panel and hinge it to the right side of the cabinet. It would fit like a regular inset door, between the gables, below the cabinet top and just above the shelf. After determining the overall size required, I subtracted ⅝" for a hardwood screw strip and ⅛" for a solid edge and cut the plywood panel to size. I glued the ⅝" wide hardwood screw strip to the right edge, trimmed it flush then veneered both sides of the panel. I then glued the ⅛" solid edge to the left edge of the panel, trimmed it flush and hung the panel on the cabinet's gable. I needed to trim it slightly to appear square in the opening, which left me with slightly larger top and bottom gaps than I wanted. Oh well … nothing's perfect!

Give your tools a home

At this point I thought I was almost done. I was wrong. I quickly realized the interior was going to take a fair bit of attention to get just right. I could have hammered in a bunch of nails and added a few small shelves, but I wanted to do something a bit more elegant. I took the time to customize each hanger for the exact tool it was going to hold. I focused on groups of tools, and bunched items together whenever it seemed to make sense. The most obvious group was my chisels. With nine in total, I made one 13" long holder for them all. Some other groupings included my hand planes, carving tools, layout and measuring tools, and my scraping and shaving tools. There are no rules regarding how to best secure your tools, as there are many ways to go about it. I ended up using four different options, but magnets, shelves and metal fasteners could also be used. As I organized all these hand tools, I had to keep in mind that two objects cannot occupy the same space. More than once I had to move a tool holder slightly in order to close the cabinet. In one instance, I had to relieve a small area on the face of the swinging panel to accommodate my largest marking gauge.

I installed the tool holders with screws but didn't use glue. I wanted the option of moving or changing any of these cleats as time passed and my tool collection morphed. Even though I plugged the screw holes with contrasting ⅜" maple plugs I can drill them out and remove the screw if need be.

To apply a finish, I removed the main door as well as the swinging panel. I used three coats of polyurethane to provide a good wearing surface and enhance the grain and colour of the wood. Once dry I reassembled it and used three ¼" x 3" lag bolts to fasten the cabinet to my shop wall. After loading it up, I couldn't help but take many of the tools out one-by-one and admire my shop's new addition.

ROB BROWN
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Between editing and building studio furniture, Rob doesn't get to make shop improvements very often. Now he'll have to get in the habit of returning his hand tools to their new home.

Making the Most of a Basement Workspace

Although low ceilings, difficult access and limited space may pose problems, the basement is the only option for many woodworkers. Learn how one woodworker has managed to make the most of a tight situation.

BY DAVID CUMMING

We bought our house in June of 1985. We'd had a long succession of rented houses where I had always set up shop in the basement, but all of them had concrete floors and large old-style gas furnaces taking up prime real estate.

In May of that year, I was in the hospital recovering from my one and only operation. It was there that my wife, Sally, laid out the sale documents on a magazine and told me where to sign. I had only seen the house once, but the price was right, and of course a master craftsman like myself only had to glance at a house in order to properly read it. I wasn't unduly worried. A few weeks later we moved in.

Turns out that as a reader of houses, I was functionally illiterate. The basement – where we initially crammed most of our possessions – was made up of three dark rooms, the rearmost of which was the only bathroom in the house. The bathroom – cold and damp even in the summer – was built over ½" sheets of rotting plywood, underneath which was dirt. The house is on the downside of a hill and the drain leading to the street was nearly flush with the underside of the plywood.

Starting from nothing

Initially, of course, I had no basement shop. I would dismantle and move machinery from room to room, working on each in turn. After a few years I was able to get my equipment into the basement and after nine years of daily work, the inside of the house was mostly done.

I eventually found out that our 1920 house had been built entirely from recycled materials, c1880. The joists and the framing in the original house were of varying thicknesses and widths, no two the same. The short second-storey frame walls were out by 6". The basement and ground-floor walls were rubble-built and the mortar was mostly green. I had quickly realized that the only way the house would continue to stand and support insulation and services was for me to build a new house inside the old one, and on new footings. This I did.

Photos by Keith Barker

Deep Cabinets – Saw blades and various hand saws are stored in the top section of this wall storage cabinet, while smaller items are housed in drawers below.

Shallow Cabinets – Even though there's an air vent on the wall, Cumming built a very shallow cabinet around it and cut a hole in the door so airflow wouldn't be interfered with. He now has storage behind the door as well as on both faces of the door.

Don't Miss a Spot – Otherwise wasted space under a stairway was transformed into a shallow cabinet to store small items

Highly Organized – In order to keep track of small router items like bits, wrenches and template guides, there's a spot for everything, and everything is kept in its spot.

Back to the shop. Finally, going on ten years after our original closing date, I would set up my basement shop. And the only "foreign" object that couldn't be moved was the hot water heater, which I covered with a moveable screen. Since we are on the downside of a hill, my choice was to relocate the floor drain outside somehow, or learn to live with it. I stand 5'6", so I learned to live with it, but I would say now that I made a serious mistake. Granted, that's hindsight.

I insulated the floor with Styrofoam, laid down a flakeboard floor (cheap at the time), and later a layer of the cheapest and thinnest jack pine paneling, which I also used on the small bits of bare wall.

Storage is the key

All tools and hardware in my shop are in dedicated drawers or wall cabinets. I made my workbench from Manitoulin Island Yellow Birch and I have built-in MDF benches along three walls, housing my chop saw, a shop-built mortiser, a grinder, a 1x42 belt sander (much recommended), a chucked motor, and a 12" disc sander with auxiliary shaft. My table saw is positioned for eight foot ripping, although I cannot crosscut an eight foot panel without making the first cut with my Milwaukee worm-drive.

My long-bed 8" jointer is on a moveable base, as is my 15" planer. My 14" bandsaw was also on wheels until I bought the extension a couple of years ago. The new height of the saw meant I had to remove one of the ceiling tiles I installed a few years ago, and bolt down the saw. (The tiles are between the joists, not under them – the usual rack system would have lowered them too much.) I have a floor-mounted drill press against one wall, and a wood rack at the front of the basement.

My lighting is either double 8' fluorescent or double 4', behind plastic. In the colder months I leave these lights on. There were two windows in the original basement. They would have had to be replaced anyway, so I removed them altogether, meaning more insulation and more wall space. I have a large industrial fan mounted in a small extension to the basement, where I also have a "cocktail bar" sink (reduced in size from the original double-stone sink I used to fantasize about). When turned on, the fan keeps the shop clear of visible dust (while at the same time of course spreading dust everywhere outside and lowering the temperature in the house). I have the usual two-bag portable pick-up, the usual box-type air cleaner and an old-but-still-good Milwaukee shop-vac. Dust is a serious problem in my shop (and in the house).

Fresh air is brought in through a standard heater vent, wall-mounted and connected to an exterior chimney that was probably built for the original gas furnace, but is otherwise unused. I have these vents on all three floors and periodic use of the shop fans means there is always fresh air in the house.

Drawers Down Low – Dozens of drawers under a counter-height work surface store so many items Cumming has to label the fronts of the drawers to keep track. This is a simple solution to storing many small items in otherwise wasted space (above). He often tears labels off hardware items and keeps them in the drawer so he knows exactly what the part is (below).

Large Items – A 15" planer is stored behind a simple door, awaiting use, while some large wooden boxes help organize miscellaneous items. Small wood storage is across the top of this cabinet.

Lungs vs. Warmth – An industrial exhaust fan can be turned on to quickly remove ambient dust from the air. The downside is that doing so brings cold air into the house during the colder months.

Tough Stuff – The bandsaw was over 6' so a couple of ceiling tiles had to be removed for it to fit. Cumming uses his bandsaw to cut rock, a material he often incorporates in his work.

The maximum interior shop dimensions are 10½' by 29'. The ceiling height varies between 5'10" and 6'2". The low ceiling is the main problem I have with my shop, more serious to me than a lack of square footage. My studied and well-informed advice to any reader with a basement shop is to lower the floor to give at least a clear 8' span. Never mind the labour, it will later prove to have been worth it.

I volunteer for the Toronto Wildlife Centre and recently made them three coyote boxes, mostly out of plywood. As well as having to make that first cut "by hand" on the plywood, I also had to assemble the boxes in my front yard (and my neighbour's front yard, but they're good people). Fortunately, it was a mild November. I'm used to working this way because these are the types of things one needs to do when working in a small basement shop.

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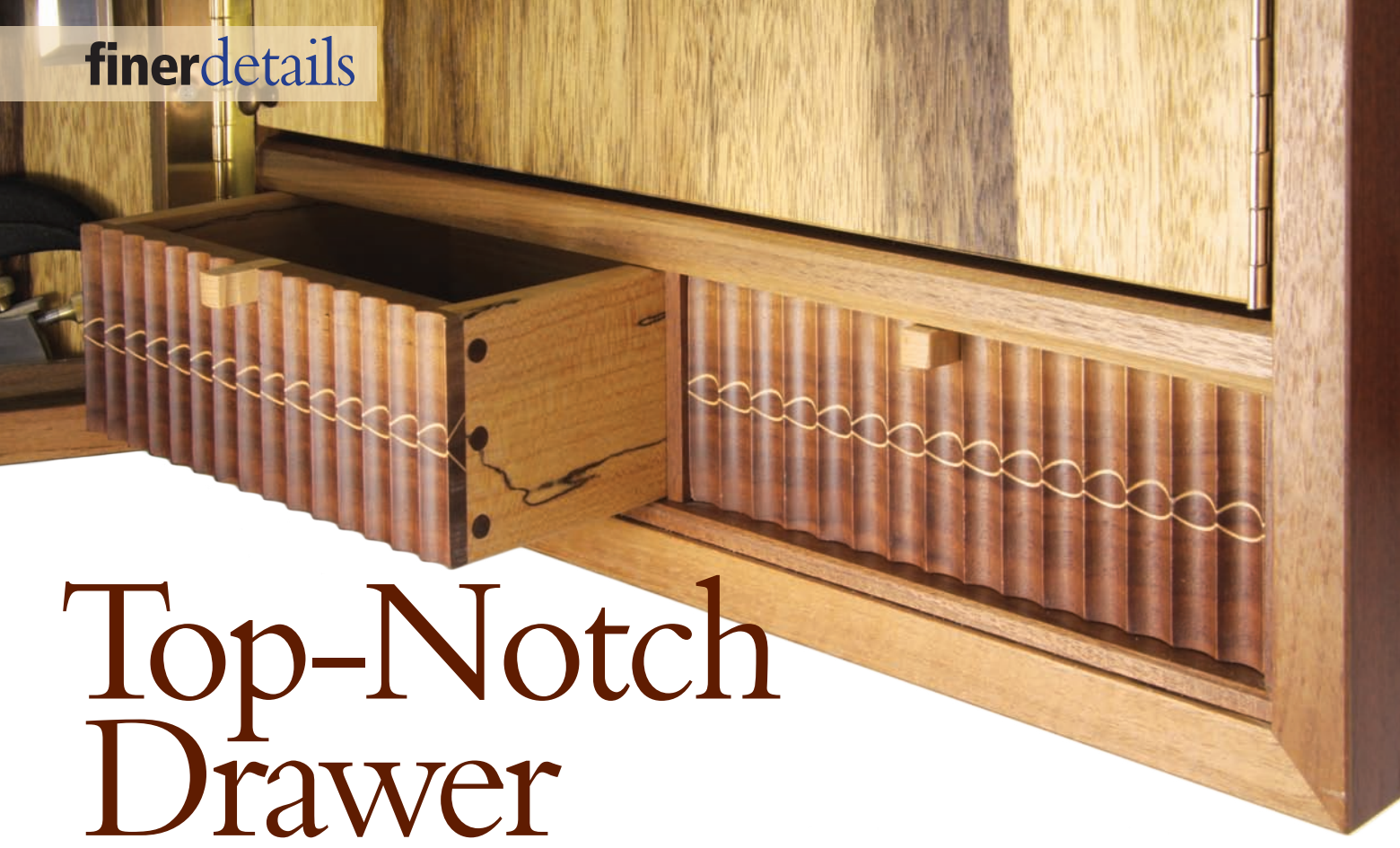
For many years David was a cabinetmaker in Toronto not making any money. He is now an artist in Toronto and still not making any money.



Top-Notch Drawer

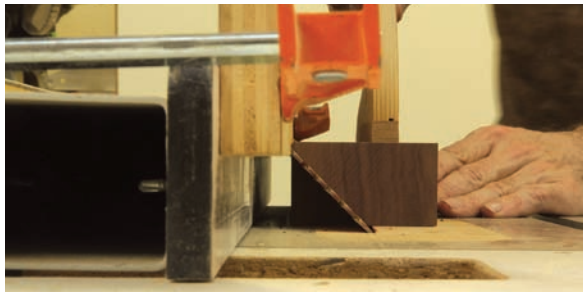
Figured wood would have looked great, but this technique adds texture and line to this pair of drawer fronts.

BY ROB BROWN

These two small drawers provided me with an opportunity to try something completely new. I considered many ideas, but what drew me to this approach was the rich texture that would be left. I also liked the strong effect a simple piece of contrasting veneer would add.

I broke out the walnut blank about 6" longer, 1" wider and 1" thicker than the finished face required, so I would have some wiggle room if something turned out different that I had anticipated. I bevelled the blank so the cut would occur slightly beyond the center of the lower face being cut. I then cut a piece of maple veneer and glued it between the blank and the offcut. This was tricky, as clamping pressure is usually applied perpendicular to the glue line. In order to get around this unwritten rule, I made a number of blocks from a jointed 2x4, then notched their faces so the veneer could protrude into them. The blocks held the front face of the two walnut pieces even, while the glue dried. I then trimmed the excess veneer, bevelled the opposite side of the block and glued another piece of veneer between the blank and the mitered offcut, using the same blocks.

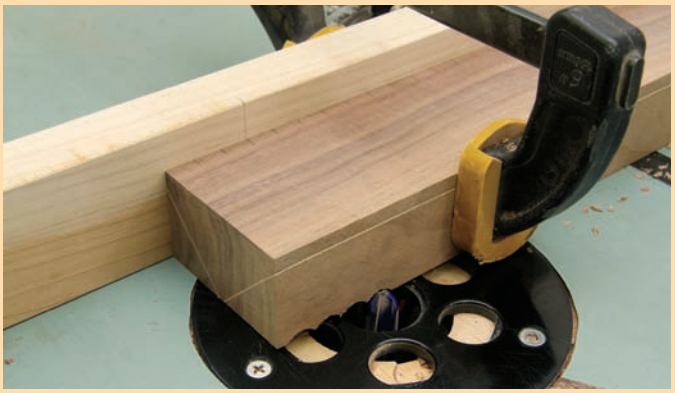
With all the veneer trimmed flush, I jointed the face of the blank until the two maple veneer pieces met at the same point on the face. The blank needed to be squared up slightly, but while I did that I made sure to keep the visible maple edges on the face parallel with the edge of the blank.



Bevel the Blank – Once the walnut blank is square, cut a bevel into one side so its bottom surface is divided in half. The bottom surface will be the front surface of the drawer fronts.

Photos by Rob Brown

Complicated Glue-Up – To glue the first strip of contrasting veneer between the two pieces of walnut, make five notched glue-up blocks. Clamp the blocks to the face of the larger piece of walnut (red F-clamps), then apply the glue. Next, apply light pressure across the blank (mainly blue C-clamps) then apply pressure in the opposite direction (grey C-clamps). Evenly add a bit of pressure from both sets of C-clamps to tighten the joint. Not much pressure is needed.



Rout the Grooves – After cutting the first groove near the end of the blank, I marked where the edge of the blank was against the mitre gauge. I then measured the width of the groove, and added a series of lines on the back of the blank to assist me in making the rest of the cuts.

Simple Sanding – I chose a router bit that was the same diameter as a sanding drum I had. This made the task of sanding much easier and faster.

A Square Peg in a Round Hole – After cutting a square length of walnut slightly over ¼" I rounded the four corners with a block plane, tapered one end and hammered it through a ¼" diameter hole drilled in angle iron.

To make the series of grooves on the front of the drawer face I installed a $^{5}/_{8}$" core box bit so it protruded about $^{1}/_{8}$" above the table's surface. Any higher and I thought it would create end-grain high points on the drawer front that were too weak. Also, when choosing the diameter of the bit I kept in mind the spindle sanding drums I have. By matching the router bit diameter with the diameter of one of my sanding drums I could use the drum to perfectly sand the inner surface left by the bit. This was a huge help down the road.

With my mitre gauge in my router table, I clamped the blank to it and made the first pass near one end. Before I unclamped the blank, I marked where the end of the blank lined up on my mitre gauge face. I then measured the width of the cut the router bit left and marked a series of lines on the back of the blank that exact width apart. I added an extra $^{1}/_{8}$" in the center of the blank so when I cut the blank in two the grooved pattern would not be disrupted. This series of lines, coupled with the single line I made just after I made the very first pass, allowed me to reposition the blank repeatedly and evenly without measuring every time. This not only helps improve production, it reduces the chance of measuring mistakes. I then positioned, clamped, routed, unclamped and repeated the process until the entire face was covered with little mountains and valleys.

I then split the blank in two, cut the drawer fronts to size and sanded them with my spindle-sanding drum. To add the small pull I cut a $^{3}/_{8}$" wide dado on the tops of each front and fit a tiny maple pull into it. It doesn't offer a huge grip, but it's more than enough for this application. I didn't want to ruin the effect of the textured fronts with an obtrusive pull. I broke out the $^{7}/_{16}$" thick spalted maple sides and backs and ran a groove to accept the drawer bottom. The back needed to have the lower section removed so the back could be inserted. To secure the back to the sides I cut a $^{1}/_{8}$" wide groove in the side and machined a mating tenon on both ends of the back. To join the sides to the front I opted for a pegged rabbet joint. It's simple, more than strong enough and I like the finished look. Once the rabbets were cut I sanded the insides and glued each drawer together.

To make the ¼" dowels that strengthen the front rabbet joint I cut a long piece of walnut just over ¼" x ¼" square. After slightly rounding the four corners with a block plane I rounded the end of the dowel blank and forced it through a ¼" hole drilled in angle iron. This produced a perfectly sized dowel. Once I drilled the dowel holes I applied glue, tapped the dowels into place then cut them off. The only thing left to do was install the bottoms before fitting each drawer to its opening.

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Useful Tools for the Small Shop

With so many tools and machines getting larger and more powerful these days, it's nice to know there are still some items that are made "just big enough".

BY ROB BROWN

Not only do I usually not need the biggest, most powerful tool available, I often don't want it. Generally speaking, I prefer to use something that's sized perfectly for the job – be that in weight, size, power or budget. Unless you have unlimited funds, tools have to be carefully selected to offer the best in value and performance, without sacrificing too much in terms of quality. This list includes tools I have used personally, and found to be very helpful and enjoyable while helping me do what I love – work wood.

Measure Twice, Cut Once – Lee Valley's 10' cabinetmakers tape is easier and lighter to carry around in your apron. This tape is also very easy to read, reducing mistakes.

10' Cabinetmakers Tape

To be honest, this is where the idea for this article came from. I use a 10' tape measure every day, and love it. It got me thinking, "Why aren't all tools sized this appropriately, and priced this reasonably?" It doesn't weigh my apron down, causing me to list to one side while I work, and it's seldom that I need something longer. It's perfect. After all, I'm not building tall ships, I'm crafting pieces of furniture. There are two reason I like this specific tape: (1) it's offered in left hand and right hand variations (strangely, I prefer the left hand version, though I'm right-handed), and (2) it's easy to read. It's graduated in 16^{ths}, rather than 32^{nds}, and it only has imperial measurements on it, keeping things simple. Keep in mind, if you work in metric this tape is not for you.

www.Leevalley.com
06K15.01
$4.95

Photos by Rob Brown

Grind All Day – With Porter Cable's small angle grinder, power carving is much easier on the forearms. Safety is also improved with this more controllable machine.

Porter Cable 4 1/2" Angle Grinder

I have been doing a fair bit of power carving over the last year. The options are endless, which opened up what I was capable of, as a designer and woodworker. The only thing I didn't like was the burning sensation in my forearms after working with a full-size angle grinder for as little as five minutes. This grinder was lighter and more manoeuvrable than what I was used to, allowing me to work longer without fatigue. Its six-amp motor had more than enough power for what I wanted to do, never showing any signs of letting up. This is a power tool without many bells and whistles, but it's an angle grinder, so that's to be expected.

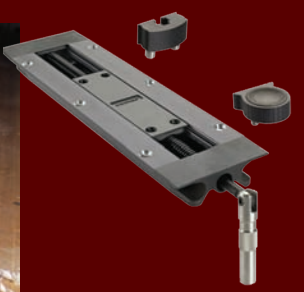
www.portercable.com
PC60TAG
$79

See in the Dark – Milwaukee's 12V screwdriver has lots of features, is powerful and is very comfortable in hand. It can also see in the dark.

Milwaukee 12V Screwdriver

Cordless drills have grown so powerful and cumbersome you need to be a weightlifter to control them. This driver isn't going to sink ⅜" lag bolts 4" deep, but it will do just fine with day-to-day operations around a wood shop. This driver takes care of 95 percent of my driving and boring needs without any problems whatsoever. Features include built-in LED for illuminating dark areas, a battery fuel indicator and a variable speed trigger. I opted for the ¼" hex chuck, but a ⅜" ratcheting chuck is also available. I also find this to be the most comfortable drill/driver I have ever laid my hands on, which is not to be underestimated. A solid performer.

www.milwaukeetool.com
2401-22
$129



Plane and Simple – Veritas has again made it easier for us to plane wood. This inset vise can be installed in virtually any bench, adding versatility and enjoyment.

Veritas Inset Vise

When I built my workbench, I decided on a style with a non-traditional vise set-up. It was great for most of the work I do, but lacked a little something when working solid wood in any serious manner. When this Veritas vise came along, I installed it, drilled a series of dog holes and tested it out. I wasn't disappointed. It was easy to install and worked wonderfully. It easily holds planks tight, and even has a pivoting jaw for angled work. By removing the jaw, it virtually disappears when not in use, leaving my bench to function as it had before. I almost forgot how rewarding it is to peel a long, thin shaving from the face of a board!

www.leevalley.com
05G31.01
$89

Squared Up – There's no simpler tool than a small square. This layout tool from Workshop Supply is the perfect size for your apron.

4" Engineering Square

For accurate measuring and layout in a shop, a small engineers square is a must. Its size means it can be handled easily with one hand, while marking with the other hand, and it will also fit in an apron, so it's always within arms reach. Sometimes woodworking tolerances need to be 1/64" or smaller. This is where a square like this comes in handy. It's also nice to have a small, accurate square for setting up and adjusting machines.

www.workshopsupply.com
16117
$7.97

A Nice Fit – DeWalt's compact router combo comes with a standard and plunge base, giving you lots of options. Its medium size and weight makes it easier to control than most larger models.

DeWalt Compact Router Combo Kit

This router would make a good first router, but a fantastic second router, to have around the shop. The single drawback is that it only accepts ¼" bits, so you won't be able to use any large bits. I enjoyed using the standard base. It's easy to hold and felt very comfortable in my hand. But I think the real upside to this unit is its plunge base. Smooth, lightweight and easy to use, it makes plunging operations a breeze. I found using it to rout mortises was the perfect task for this little beast, as it's easy to handle. No matter which base you use, the small LED near the collet is handy to have and the adjustable speed motor is also a nice touch. On top of all this, a handful of additional little features make this router a pleasure to use.

www.dewalt.com
DWP611PK
$229

Clear the Air – King's air cleaner keeps the air free of small dust particles, so your lungs don't have to deal with them.

King Air Cleaner

This 650 CFM air cleaner is not meant to take the place of a dust collector, but it will go a long way in removing the fine dust particles from your shop's air, so they don't end up trapped deep in your lungs. With three speeds, and three timer settings, this unit works great whether you're in the shop working, or done for the day. It has two filters, and the outer one should be removed and cleaned periodically so airflow isn't restricted. It is quiet, easy to install, doesn't take up much space and is simple to use with the included remote control. This air cleaner likely has the lowest "fun factor" on the list, but for your health's sake I think it's worth it. For the tiny shops out there, King has a 410 CFM air cleaner available for $199.

www.kingcanada.com
KAC-650
$319

Trademaster 2 Gallon Compressor

I don't power a spray finishing system or shingle roofs for a living with this compressor. Mainly I use compressed air to power one of my pin nailers while assembling jigs and fixtures, as well as to assemble the odd cabinet carcase. There are few tools that are this handy when you already have your hands full. This simple compressor is more than enough for my needs. The really nice thing about this unit is that it is lightweight and easy to carry. This is a big plus when I need to bring a compressor into a client's house for an installation.

www.homehardware.ca
1635-729
$99.99

A Helping Hand – This Trademaster compressor is exactly what Brown needs; portable, quiet and simple.

Veritas Skew Block Plane

A block plane is an extremely handy tool to have around your shop. It's also nice to be able to reach for a shoulder plane, when the need arises. To purchase a quality version of both is going to cost a fair bit of money, so why not combine the two of them? The Veritas skew plane is one versatile hand plane. Whether you're chamfering corners or truing edges, fine-tuning tenons or planing rabbets, this plane is up to the task. If you were only going to purchase one of these planes (it's available in both right- and left-hand models), I would suggest giving it a try before you make a purchase. While test-driving it, keep in mind what sort of work you want it to do. This is a nice plane, with all the precision you've come to expect in a Veritas product.

www.leevalley.com
05P76.01 / 05P77.01
$209

Not Just a Block Plane – Veritas' skew block plane can do almost everything; chamfer corners, trim tenons, cut rabbets and smooth edges.

Blue Tornado 66 pc. Router Bit Set

I hate stopping a job part way through in order to drive to the hardware store because I don't have the right tools. Because there are so many router bits available, I think most of those trips were their fault. Not any more. Having a large selection of bits on hand while planning and constructing a project has been great. I have the 66 pc. ½" set, but there's also a 70 pc. ¼" set available for $265. Various sizes of virtually all standard bits (straight, round-over, cove, flush trim, chamfer, ogee, dovetail, etc.) are included, as well as some less common but still very useful bits. These bits represent very good value, as you're spending less than $6 per bit. You'll also spend less time driving to the store.

www.busybeetools.com
R966
$385

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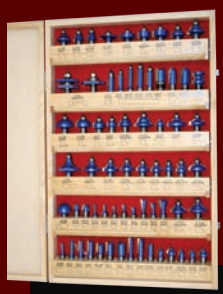


Just About Anything – This Blue Tornado 66 pc. set of router bits has a bit of every job. And at less than $6 per bit, you'll enjoy the value.

A One-Car Garage & Shop

BY MICHAEL MITCHELL

We moved into our town house just over ten years ago. It was not until the moving van left that I realized I had nowhere to store any of my workshop tools and equipment, let alone anywhere to use them. At the time I had a table saw, a mitre saw and an assortment of hand and power tools, as well as an assortment of screws, nails, nuts and bolts and spare bits and pieces. I do a bit of home renovation and decorating so also have painting, plumbing, electrical and drywalling tools, plus extendable ladders and eight foot and six foot step ladders. I also have two bicycles.

I always had a dedicated space for a workshop in all my previous homes, but with all the excitement of moving had not given any thought to the new place, just assumed that, as in the past, I could arrange something once we were settled in. It soon became clear this was not going to be as straightforward as I had thought, and was quite disheartening. What I could do? I considered the options, which were few and very clear:

A spare room – there isn't one, so that was out of the question.

A basement room – there is no basement as such; the lower level comprises a finished family room, bathroom, etc. with a walk out to the back yard … the only access from the back of the house to the yard.

The garage – I have a single-car garage and parking on a driveway for only one vehicle. Street parking is not permitted.

Rent space – I did not want to move all my stuff off the premises and I wanted space that was easily accessible and convenient when I needed it.

But I was not going to give up on having a shop!

Being realistic, I knew I did not really need a dedicated workspace, although that would have been ideal. The choice was obvious: it had to be the garage, but I also need to keep the car in it in order to keep the one parking place on the driveway for visitors.

Photos by Keith Barker Lead photo by Michael Mitchell

Double Function – Adding casters to the table saw provided two functions; to allow the saw to be easily moved around the space (left), and to raise the top just enough to fit over the workbench when stored away (right). Notice the drill press and router table stored on top of the table saw.

Start with the vehicle

So what did I have to work with? The garage is 19' long and 9'6" wide. My car is a mid-size SUV, so after allowing a safe clearance between it and the garage door, I have 3' of space at the back of the garage between the front bumper and the wall. That wall at the back is only 7' wide because of the access door to the house. I have walking space along the driver's side just wide enough to open the car door and get out.

The garage is in the house under the kitchen and the ceiling height is 7' for the back half and about 8' at the front. That reduces to about 7' when the door is open (it rolls up). There is a storage closet at the side of the garage under some stairs. Better than nothing but not easily accessible and with only a small part full ceiling height. All the walls and ceiling are finished with drywall and insulation so there is no available storage space between the framing 2 x 4s or the joists. However, the electrics were okay, with power outlets and a lighting circuit. The floor is good smooth concrete.

Good Place to Start – Mitchell's first task was to make sure his SUV would have enough room to park inside the garage with the shop disassembled. With just inches to spare, the vehicle fits in the space nicely.

Start with the table saw

The biggest single workshop item was the table saw, so that's where I started laying out my machinery. I figured if I could not find a place for that then the whole project was doomed, unless of course I bought a mini car. That expense was not in the budget and I needed the larger vehicle. As it turned out, there was just enough space to "store" the table saw if I turned it back to front and pushed it in the corner at the back of the garage. The electric motor is high enough not to hit the car bumper, but close! I bolted casters to the table saw legs so it could be easily moved anywhere I needed it. First problem solved. I felt encouraged and knew I could work something out for the rest.

Next I tried to figure out the best way of fitting in a simple workbench. It could only be at the back, next to the table saw. Initially it looked like it could only be 32" wide, not really

A Place for Everything – In order to use every inch of space wisely, Mitchell made use of the area beneath his workbench to store his mitre saw and many miscellaneous power and hand tools.

High Storage – With lots of free space up high, Mitchell added shelves, drawers and hooks to keep things away from his vehicle, yet easily accessible.

Homemade Router Table – A router table is secured to a Workmate bench when in use, adding versatility to the shop. It's also lightweight, and easy to put away.

practical or worth the effort, I thought. However, when I fitted the casters to the table saw legs, it raised the bed a couple of inches, enough to tuck the bench under the saw table extension on one side. That way I was able to make it 44" wide, right up to the door frame. Since I could not afford to lose an inch of space, instead of a simple workbench I built a small workbench/cabinet. This became the storage area for a bunch of hand and smaller power tools. I even found space to bolt on a vise. Above the bench I built a simple wall cabinet and some shelving for more tools. I had made a start.

Up off the floor

The next challenge was to get stuff off the floor so I installed some very simple shelves along the passenger-side wall. The length of shelving was limited because of the space needed to allow the garage door to open. I also had to make sure I did not make them too wide or the car would hit them! Under the shelves I have an assortment of hooks to store my clamps and other hand tools. The extendable ladders were mounted on brackets on one wall and the longer pair of step ladders actually lies happily on the floor under the car.

The side closet contains the house central vacuum unit, which takes away a good bit of space and of course must be accessible for servicing. However, I was able to install some shelving on part of one wall for my mechanical tools storage (wrenches, drill bits, etc.) and other "essential" bits and pieces. This closet is also where I keep the bicycles and the car winter/summer tires.

I bought a foldable/portable mitre saw stand, which I store in the side closet. I made a router table, which sits on top of the table saw, with the bench drill press when not in use. I have a portable workbench which I take with me when working on an off-site renovation/decorating project. This works perfectly with the router table when I set up the workshop. This is stored under the table saw next to the table saw sled.

The first time I used my new workshop, it took quite a while to set everything up but now I can get it all ready to go in about 20 minutes. Dust control is still a challenge. I do not have the room to set up any permanent arrangement so I have a portable shop vac (stored in the closet when not in use), which I attach to each power tool when I use it. Not ideal but it works reasonably well. Whenever possible I keep the garage door open and this also helps.

Working in the winter

The first project in my new shop was probably in early summer and the weather was fine and warm. All was well. With the garage door open I had lots of natural light and an added bonus was being able to chat with my neighbours as they walked by. If I was lucky, my wife would keep me supplied with tea and coffee, and lunch breaks were only a few steps away. At the end of each project I swept up and put everything back in its place, and put the car back in the garage.

Then the weather inevitably turned colder and the days shorter. With the door shut, I had no natural light so I fitted four thin fluorescent light fixtures to supplement the single bulb lights already in place. I also suspended an infra red

Power and Versatility within Reach

NEW! The Bosch Oscillating multi-tool system gives you the versatility and power to tackle any job with ease – cut, sand, scrape and grind. The Multi-X™ MX25E features 2.5 Amps for heavy duty jobs and the OIS™ 12-pin interface that ensures a secure connection for high-torque applications. Bosch multi-tool accessories offer best in class speed, performance and durability. Visit **Boschtools.com/MX25E** for more information.

BOSCH
Invented for life

Available at your local Bosch dealer.

Add Some Heat – When the weather turns cold a simple infrared heater takes the chill out of the air.

heater for use when it gets really cold.

A workshop is a great set-up for winter projects when outdoor activities are restricted. However, in the dead of winter, even though it can get quite comfortable with the heater on, when the temperature drops it is no place to keep work in progress, nor is it possible to glue or do any finishing. The door is not a perfect fit so the drafts are pretty bad when it gets really cold. I still have to address that issue. I tend to take a break in the winter and attend to indoor projects.

What more could I wish for?

The answer was a decent size workbench, of course! It was my wife who suggested I hang one from the side wall, which could be stored against the wall when not in use. So I built a very simple six-foot by two-foot bench out of 2 x 4s and plywood and attached it securely to the wall with three large hinges. When in use the front is supported by two folding legs. When not in use it only protrudes from the wall the width of the 2 x 4s and the plywood. My plan this spring is to install some track lighting over this workbench area.

Another serious constraint, which I cannot really overcome, is storage space for wood. I can only buy enough material for each project, and have to throw out the not very useful off-cuts periodically. Off-cuts of plywood and other sheeting I store flat against the wall in the adjoining closet, but space is limited. I have created space for some longer (lightweight) pieces of wood on shelving brackets attached to one wall.

Nothing fancy

When I first started the workshop project, I was not sure how successful it would be so really did not want to invest too much money in it. All the cabinets and shelving are made out of 2 x 4s and inexpensive construction grade plywood. I am not a perfectionist at all when it comes to workshop "cabinetry," but everything works and there is a space for everything. Utility is probably how I would best describe it.

What Vehicle? – Once set up, there's more than enough space to move around and work on projects, even though the garage was completely monopolized by a vehicle just 20 minutes previous. (Photo by Michael Mitchell)

Now that I know the set up does work, my plan is to one day replace the cabinetry and storage facilities with something a little more elegant. However, I strongly believe that if something ain't broke, don't fix it!

I have built many pieces of furniture and other projects in this space, and even though the arrangement is temporary, when the garage is in workshop mode and I get into a project, it feels like a permanent set up, and the car still has a home.

MICHAEL MITCHELL
memhcltd@sympatico.ca

The time-consuming sanding/finishing tasks at the end stages of a workshop project, give Mike the opportunity to dream of that elusive perfect round of golf, or a good pint of English beer.

Simple and Effective – This workbench, made of 2 x 4s and plywood, is hinged to the wall and can easily be swung out of the way to allow the vehicle to enter the garage.

Rob Cosman **Online Hand Tool Workshop**

Rob's online workshops provide a virtual apprenticeship

Members are taught to build house furnishings and shop implements through (stored) daily half-hour, real-time sessions. Rob's son and cameraman (Jake) doubles as the "student" to create those true-to-life "Now what do I do?" teaching moments. Rob also manages the member forums himself, and provides his personal "expert" advice.

Why It's Essential: Shorten your learning curve and increase your enjoyment with Rob's online workshop. Watch and learn as Rob demonstrates and explains which tools to use, how to sharpen them, and how to best use them - This is truly an essential small shop solution.

Payment options $1.53 - $2.21 per episode. **Free – one month trial**
www.robsworkshop.com

Craftex Blue Tornado **Mini Dust Cyclone Kit**

This mini cyclone tank will eliminate virtually all dust particles from your shop without clogging your shop vac filter. Cyclonic effect ensures 99% of all dust particles get trapped into the tank before it can reach your filter. Includes translucent 6 gallon tank, 4 casters and accessories to get you started!

Model # B3069
Sale Price - $39.99
Reg Price - $59.99
Price valid until May 24th 2012

Why it's Essential: The Mini Cyclone kit from Craftex Blue Tornado will allow you to use your shop vac for numerous projects without clogging your filter. At a fraction of the cost of similar cyclone kits, this high quality is a great buy.

www.busybeetools.com

RONA **Tote Bag**

This handy tote bag includes 13 exterior pockets, 24 interior pockets and a plastic storage compartment for small parts. $34.99

Why it's Essential: An ideal bag to carry your tools. The different sizes of bag pockets make it easy to store every tool and accessory. This sturdy bag includes reinforced handles and stitching, making it tough enough for power tools. Visit our website to learn more about our product line: www.haussmanntools.com

BESSEY **Auto Adjust Toggle Clamp**

Clamping force can be adjusted within a range of 25-550 lbs with the turn of an integrated pressure screw – the clamp will auto-adjust to varying work piece heights without significant change in applied clamping force – holding capacity up to 700 lbs.

Why it's Essential: Because it auto-adjusts to variations in work height, there is no need for continuous adjustment – resulting in better productivity. The range of applied clamping force also replaces a variety of competitive offerings with one BESSEY.

www.besseytools.com

Hammer **C3-31 Combo**

With 55 years experience in the combination machine market, the C3-31 offers impeccable quality and cutting edge mechanical engineering for the discerned hobby woodworker. The Hammer C3-31 (made in Austria) is a 4-in-1 combination machine with a 12" sliding table saw, a 12" jointer, 12" planer and a shaper. A mortiser is available to make the unit a 5-in-1.

Why It's Essential: With a foot print as little as 6 ft x 5 ft, the C3-31 is fully operational in all four functions within minutes.

A rolling carriage is available that allows the machine to be moved easily to free up space for assembly, finishing or just to make room for the family car.

www.hammer-canada.ca

Fuji **Semi-PRO 2 HVLP Spray System**

The Fuji Spray Semi-PRO 2 HVLP Spray System offers features like no other in its price range. The Fuji M-Model Spraygun has professional features such as non-bleed, a fan control knob (to adjust size). A super-powerful 1400 watt 2-stage bypass motor in metal turbine case with handy gun holder. A 25ft hose with air control valve and quick-connect coupler. $399.00

Why it's Essential: DIY HVLP Systems typically feature low wattage motors that are underpowered for most spraying. Our 1400 watt 2-stage version can handle any type of coating. The Semi-PRO 2 is for the serious user. 20 page User Manual included.

www.fujispray.com

Rosewood Studio – **Exquisite Boxes with Adrian Ferrazzutti**

During this 6 day course starting November 26, 2012, students will learn a host of techniques involved in the building of the small veneered box as featured in the September/October 2009 issue of Fine Woodworking. From jointing veneers to setting quadrant hinges and locksets, each student will pick up exacting skills both at machines and the workbench.

Why it's Essential: Adrian is one of Canada's top furniture designer/makers, and a graduate of the College of the Redwoods where he studied for two years with James Krenov. Each student in the class will create an exquisite and unique box, just in time for Christmas gift giving.

www.rosewoodstudio.com

Grizzly Industrial **G0715P 10" Hybrid Table Saw with Riving Knife, Polar Bear Series**

Get the best of both contractor style and cabinet style table saws with this Polar Bear Series Hybrid Table Saw. You get the easy-to-transport weight and size of a high-end contractor saw, but with the dust control and full features of a cabinet saw. This hybrid also has a quick-change blade guard, anti-kickback pawls, riving knife, serpentine belt and pulley system.

Why It's Essential: A tablesaw is the most important tool in a small shop. Grizzly's G0715P is a full-featured saw that will provide near cabinet saw performance for far less money yet fit into most small shops.

www.grizzly.com

Trend **New Precision Double Sided Diamond Whetstone**

The Trend Item #DWS/W6/FC is a double sided fine (1000 grit) and coarse (300 grit) 6"x 2" precision diamond whetstone. It is pre-ground to +/- 0.0005" and it is manufactured with monocrystalline diamond which is surrounded by nickel and electroplated to a heavy duty carbon steel base. The new Trend 6" x 2" Precision diamond stone has a retail price of $79.

Why It's Essential: Many carvers, wood turners and cabinet makers do not need a full size 8"x 3" diamond stone to sharpen smaller tooling. Trends' new diamond stone is ideal for the sharpening of CPM4 coring tool tips, M2 and M4 steel tips for hollowing, carbide tipped turning tools and carbide and HSS inserts at an affordable price point.

www.trend-ca.com

FEIN **Start Q MultiMaster Set**

A professional system for interior construction, renovation, and more – designed for perfection and providing the best performance.

- Made in Germany, premium quality.
- Most powerful motor 250W, built for continuous use.
- Low vibration and comfortable easy handling for best ease-of-use
- Built for professional use to the absolute highest standard of quality
- Offers maximum convenience thanks to QuickIN tool-free accessory changing

Why It's Essential: The most versatile tool on the market with the most extensive range of accessories.

Features FEIN's QuickIN – for fast easy accessory changes. Set includes MultiMaster tool, bi-metal Ecut blade, rigid scraper blade, sanding pad, 20 pieces assorted sandpaper, and carrying bag.

www.FEIN.com

Oneida **Dust Deputy**

The Oneida Air Systems family of Dust Deputys are high efficiency cyclonic pre-separators for wet/dry vacuums and single stage collectors. The patented cyclone design separates 99% of the waste before it reaches your system.

Why they're essential: The Dust Deputy converts your single stage collector or Shop Vacuum into a super cyclonic dust collector. The Dust Deputy keeps the filter in your collector or shop vacuum from clogging during use and helps keep a constant air flow with no loss of suction. See our complete line of Dust Collection equipment at www.oneida-air.com.

Also available at Busy Bee Tools, Felder Canada, Welbeck Sawmill and Elite Tools.

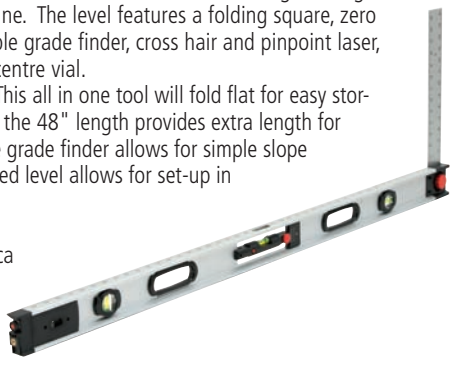
Benchmark **48" Combination Level and Folding Framing Square**

Square and level are the foundation for any good building project and the Benchmark 48" Combination Level and Folding Framing Square will keep you in line. The level features a folding square, zero to eight percent adjustable grade finder, cross hair and pinpoint laser, and an LED illuminated centre vial.

Why It's Essential: This all in one tool will fold flat for easy storage and portability while the 48" length provides extra length for marking. The percentage grade finder allows for simple slope set-ups and the illuminated level allows for set-up in dim lighting conditions.

$59.99

www.homehardware.ca



Grizzly Industrial **G0452 6" Jointer with Mobile Base**

We can't believe it either! A full featured cast iron 6" Jointer with tons of extras for $425? Take a look at these great features: A "kick Stand" mobile base, depth of cut scale with 1/8" index setting, 4" dust hood, a quick infeed table hand lever and a precision handwheel for outfeed table adjustments and more!

Why It's Essential: This 6" Jointer is perfect for the small shop with its 46" long bed, heavy duty features not found in a benchtop unit and small foot print. Even better is the built in mobile base for easy movement.

www.grizzly.com

Clear Vue Cyclones **Mini CV06**

Based on the innovative Bill Pentz design, our Mini CV06 dust collection system uses cyclonic air movement to separate and contain over 99% of dust and debris before it reaches your shop vacuum filter. The Mini CV06 will help prevent your filter from clogging, maximizing air flow, and maintaining peak suction from your shop vacuum.

Why It's Essential: The Mini CV06 is small, lightweight and portable. This powerful pre-separator is essential to a cleaner and healthier shop!

Price: $149.99

www.ClearVueCyclones.com

Bosch **MX30E Oscillating Tool**

The MX30E is a solid, powerful, comfortable, and convenient oscillating tool. It has minimal movement that allows precise, smooth plunge cuts for maximum user control. The MX30 has the ability to cut flush with the surface material without damaging the surrounding area, and it facilitates efficient sanding/scraping operations in corners and other small confined areas.

Why It's Essential: Unlike a fast rotating tool, an oscillating tool is unlikely to kick back and therefore is comfortable and safe to work with.

Starting at $249.00 each

Learn more: www.boschtools.com

10" Extreme Cabinet Saw with Router Table and Sliding Table Attachments

- Powerful 3 HP motor
- Heavy-duty cast-iron table and extension tables
- Table has "T" slots for miter gauge and beveled front edge
- Comes with riving knife, industrial T-square rip fence system, laminated melamine extension table, 2 sturdy adjustable supporting legs for extension table, cast iron miter gauge with adjustable aluminum fence and flip stop, standard and dado insert
- The router table and sliding table attachments fits most table saws with 27" deep table

Why It's Essential: This cabinet saw is versatile, multi-functional, compact, and affordable. An ideal choice for your small shop.

Model: KC-26FXT/i30/Deluxe

www.KingCanada.com

Stanley **Flexi Felt Floor Protection**

Stanley introduces a complete line of floor protection products that not only reduces noise and dust but also saves money associated with floor maintenance in homes, schools and offices buildings. The Stanley line of floor protection products features high-density plastic furniture glides, sliders, leg tips, bumpers, casters and a wide array of new Flexi-Felt 100% wool felt protectors, all constructed for performance and durability.

Why It's Essential: Stanley Flexi-Felt heavy-duty adhesive pads are made of 100% pure wool industrial felt so they last longer and won't compress like polyester felt products. The line of Stanley Floor Protection Products can be found at all WalMart stores across Canada & independent home improvement general retailers across Canada at retail prices ranging from $2.00 to $25.00.

www.stanleyhardware.com

King **Sliding Compound Miter Saw** (with twin laser)

- Powerful 15-amp, 5,200 RPM motor
- Twin lasers
- Compound cuts (mitre and bevel) up to 45° to left
- Dual rail sliding system
- Rotating table has 9 positive stops
- Bevel positive stops at 90° and 45° left.
- Adjustable sliding fence extensions
- High quality 40-tooth carbide blade included
- Comes with a 2 position vertical hold down vise, retractable extension wings, dust bag and blade socket wrench

Why It's Essential: This saw takes little space, yet is quite versatile. With its substantial 13"+ cross-cut, you can cut crown moulding or shelving, plough a dado in multiple passes, and then mitre all day long.

Great for the small shop, and portable enough to take with you…

www.KingCanada.com

Every Woodshop Needs A Great Knife.

Flexcut **Knives**

Flexcut knives are precision made for maximum performance. Their high-carbon steel blades have durable points, hold an edge extremely well and are easily maintained by simple stropping. Each knife is expertly hand-sharpened and tested before shipping, so it's ready to use right out of the package. Comfortable, curved ash handles allow for long periods of carving without hand fatigue. In addition to those pictured, a wide range of knives are available to handle every task from roughing in to fine detail carving.

Why They're Essential: Flexcut knives are versatile, well-engineered tools, 100% North American made, assembled and sourced. The company's commitment to quality and customer service make these knives a top pick of pro carvers, hobbyists and woodworkers around the world.

Flexcut **Draw Knife**

Flexcut's Draw Knife has five inches of workable edge. It is designed to flex around contours where large amounts of stock need to be removed quickly. The tool can be flexed to carve both concave and convex surfaces, so cuts conform more closely to the finished shape. That means less time sanding and scraping.

Why it's Essential: Its high-carbon steel blade really holds an edge and its flexibility makes it incredibly versatile. This tool was designed by woodcarvers for wood carving and woodworking.

www.flexcut.com

Detail Knife
KN13
SRP: $19.89

Mini-Detail Knife
KN27
SRP: $24.95

Pelican Knife
KN18
SRP: $23.69

5" Draw Knife with sheath
KN16
SRP: $43.49

Dremel **MM40 Multi-Max**

The best-in-class Dremel Multi-Max MM40 boasts a 2.5 amp motor that delivers quick, efficient cuts. The tool includes the innovative Quick Lock accessory change system that quickly facilitates accessory changes without a wrench. The MM40 operates between 10,000 to 21,000 OPM and offers a soft-start as well as Electronic feedback and a extended length 7-foot rubber cord. The MM40 also boasts a new line of cutting accessories with expanded cutting width and depth, these enhanced blades make precise cuts through tough materials such as hard woods, framing lumber and 2x4s, making accessory changes twice as fast. Available at $149.

www.dremel.com

Dremel **Saw-Max**

The Dremel Saw-Max is reinventing cutting as consumers know it. As a compact, handheld saw allows users to make precise, clean and straight cuts in a wide variety of materials. At one-third of the size and weight of a traditional circular power saw the tool enables easy one-handed operation for detailed work in tight spaces.

The tool can make straight, plunge or flush cuts up to ¾ inch deep through wood, plastic, laminates and drywall, as well as sheet metal and wall and floor tiles. Perfect for applications such as installing baseboards and trim, replacing flooring or remodelling. Available at $149.

www.dremel.com

Laguna **LT14 SUV Bandsaw**

This award-winning bandsaw has a full 14" of resaw capacity more than any other 14" bandsaw and loaded with features such as the proven Laguna Tools guides, 3HP Leeson motor, rack and pinion controls, cast-iron table, quick-release blade and foot brake with micro-switch for extra safety and convenience.

Why It's Essential: The LT14 SUV offers woodworkers and light production shops big performance in a compact package, and includes an easy-tilt table and precision-machined controls to provide smooth and accurate operation.

$1795 CAD

Available at www.elitetools.ca

Exchange-A-Blade **Professional Grade, Universal Fit, Oscillating Tool Accessories**

Exchange-A-Blade now offers a full line of professional grade, exchangeable, oscillating tool accessories to cut, grind, scrape and sand.. The new universal fit arbor is designed to fit most major oscillating tools on the market including Fein, Bosch, Dremel, Milwaukee, Hausmann, Craftsman, Ridgid and King. An adapter is available to fit Rockwell and Porter Cable tools.

The exchange feature allows you to keep worn accessories out of our landfills by returning them to your dealer for a credit towards your next purchase.

Why It's Essential: Professional-grade accessories, which save money as well as the environment.

www.exchangeablade.com

Grizzly Industrial **G1035 1-1/2 HP Shaper**

Built with plenty of muscle to take on most shaping challenges, our mid-sized, 1-1/2 HP model G1035 Shaper offers the perfect, low-priced alternative for the serious hobbyist or small-shop owner. The G1035 offers precision wheel adjustment, two spindle speeds, a finely milled cast iron table, interchangeable spindles and sealed ball bearing movement – all for less than the price of a router and router table!

Why It's Essential: The G1035 1-1/2hp, 110V shaper provides big shaper performance in a small footprint. Able to use shaper cutters up to 5" in diameter allows making raised panel doors, styles and rails easily in the small shop.

www.grizzly.com

Exchange-A-Blade **Industrial Grade Impact Screwdriver Bits**

Exchange-A-Blade has introduced a full line of Industrial Grade screwdriver bits and nut setters designed for use with modern impact drivers.

Made with specially tempered S2 spring steel which has been heat treated for maximum strength and durability. The hardened tips have been milled for optimal fit and extended life.

Why It's Essential: Extensive testing has shown these bits to be among the longest lasting, highest torque bits available on the market today.

Little Ripper, Round Ripper, Sliding Track COMBO PACK

With this complete bandsaw conversion system, your bandsaw will perform like the sawmill you've dreamed of. No special guides, no special fence, no special blade, just time-proven results. Like a sawmill – absolutely no blade drift, no more burning blades, just dimensionally correct lumber every time.

Why It's Essential: Many woodworkers have invested a lot of time and money into their bandsaws, to be able to cut dimensionally correct lumber. The Little Ripper and Round Ripper provide a simple conversion to transform any bandsaw into a sawmill. A definite asset for any small shop that wants to produce their own lumber, from their own small logs.

Reg price $669.

Special Promotion (until July 1) $490 with FREE SHIPPING

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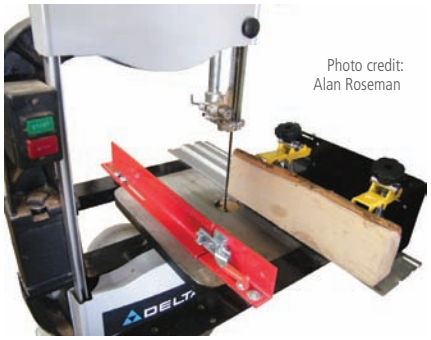

Photo credit: Alan Roseman

TUNG OIL
Debunking the Myths

Take a closer look at this common finish; there are many things we can all learn about this ancient, and misunderstood, substance.

BY CYNTHIA WHITE

If you're a woodworker, I bet you have a strong opinion about tung oil. As a rookie, I became preoccupied (okay, obsessed) with tung oil because I heard so many different opinions about it from veteran woodworkers. Some loved it and some hated it. So I started researching and found that the information available about tung oil was often incorrect, conflicting, and/or misleading. Let's examine and debunk some of the myths.

Myth #1

Tung Oil was invented by Homer Formsby in 1965 (Formsby's Tung Oil Finish).

Nope. Tung oil has been around for thousands of years. There's no doubt that Homer Formsby put tung oil on the map in North America in the late 1960s, when he started marketing his special finish. However, according to Bob Flexner in his book, "Flexner on Finishing", Formsby's concoction was really a wiping varnish made with (maybe) a little tung oil, a resin and a thinner.

When you buy tung oil, you have to carefully read the ingredients on the package to have an idea what you're dealing with. I got my hands on several products labelled tung oil that actually contained solvents, and/or metal compounds that speed up polymerization (or drying), and/or other mystery ingredients. Sometimes there was a little tung oil in there too. It's also possible to buy partially polymerized tung oil, which hardens faster. I'm not criticizing any of those products, but for the purposes of this article I'm referring to pure tung oil with no additives. By the way, Lee Valley was kind enough to send me several samples of the real thing for testing in this article.

Lead Photo by Blake Hanson

Harvest Time – A Paraguayan farmer checks his tung oil crop. Paraguay is second to only China in worldwide tung oil production. (Photo by Blake Hanson)

Big Business – China is by far the world's largest tung oil producer, providing 83 percent of the world's supply. (Photo by Blake Hanson)

For Junks – For millennia, China has used tung oil in many ways, including building and waterproofing their traditional boats, called "junks". (Photo by dreamstime.com)

The earliest reference I can find to the use of tung oil is in the writings of Confucius around 500 B.C. The Chinese have used tung oil, also known as China wood oil, for at least 2500 years for wood finishing, wood waterproofing, caulking, inks and paints. I also found some references to using tung oil for medicinal purposes in ancient history. I don't suggest you ingest it or take a bath in it, but apparently some primitive cultures did. In the 13th century, Marco Polo wrote about the Chinese using tung oil to build and waterproof their traditional boats called "junks".

In 1905, a USDA scientist brought Tung tree seeds to the US to try to cultivate them in Florida. The crop grew well, but bad weather and a succession of hurricanes spelled the end of most of the US production by 1969. Blake Hanson, president of Industrial Oil Products, the only global supplier of tung oil from all sources, told me that there was some US production again from 1998 to 2005 (from his company) until Hurricane Katrina reared her ugly head. Today, world tung oil production comes mostly from China (83 percent), then from Paraguay (about 14 percent), Argentina (2.75 percent), and Brazil (a tiny bit) and it is used in wood finishing, paints, inks, fuels and other things. According to Professor B. Sivasankar, who wrote a recent textbook on engineering chemistry, these drying oils form stable films that protect surfaces from corrosion and weather. This is why tung oil and linseed oil, for example, are essential components in paints. "Without these drying oils, paints cannot function as protective coatings."

Myth #2

Tung Oil dries in the air by evaporation.

Nope. Tung oil definitely gets hard, but it doesn't happen by evaporation. Chemists classify oils as "non-drying", "semi-drying", and "drying". The word "drying" is misleading because the oils don't really "dry" or evaporate; they "harden" or cure.

The most commonly known drying oils in woodworking are tung and linseed oil. They polymerize or solidify by a chemical process that requires oxygen (from the air) to create cross-linked compounds that make the oil get hard little by little, until it is completely hard all the way through.

Myth #3

BLO is just like tung oil, but better and cheaper.

Sorry, but that's wrong too. Comparing BLO (boiled linseed oil) to (pure) tung oil is like comparing apples to oranges. So let's look at both:

BLO	Pure tung oil
Has added metal compounds	Pure
Dries faster (because of added compounds)	Dries more slowly
Will yellow with age	Doesn't yellow
Can go rancid	Nope
Can mildew	Nope
Nope	Has waterproofing qualities
Nope	Retains some flexibility when hardened
Cheaper	More expensive

Linseed oil, which comes from flax seeds, has a long history. Flax (cloth) fibres have been found from 30,000 years ago, and we know linseed oil was used in oil paints in Europe in the 14th century. Woodworkers have used linseed oil in wood finishes for a long time because it was readily available, flax being grown easily all over the world. Pure linseed oil dries more slowly than pure tung oil, but no one knows that because everyone buys BLO, which dries fast because of all the added chemicals! BLO is definitely cheaper, and it is good; but it's not better.

Tung Oil vs. BLO – To compare the two finishes, Vaughn MacMillan applied boiled linseed oil to the left half and tung oil to the right half of this platter. The tung oil is a bit lighter, and this difference will get more noticeable as time passes. (Photo by Vaughn MacMillan)

Myth #4

Don't use tung oil on food surfaces (like counters and cutting boards) because it's risky for people with nut allergies.

Great for Restoration Work – This armoire was in bad condition until it was restored using tung oil. It now has a nice sheen to it and some protection from everyday use. (Photos by Dave Hawksford)

Wrong. I heard this information stated adamantly and authoritatively several times in a few different places, but it's just simply not true.

First, depending on whose statistics you believe, approximately 1 percent of the population in Canada has an allergy to tree nuts. And according to Dr. Gerry Allen, associate professor of biology at the University of Victoria, tung nuts from the tung tree (species *Aleurites fordii*) are not true tree nuts at all. They are the seeds of the fruit (drupe) like the seed inside a peach pit. So, are allergies to tree seeds as prevalent as allergies to tree nuts? Again, it depends on who you ask, but probably not. The *Journal of Allergy and Clinical Immunology* says the incidence of allergy to seeds is 0.1 percent in Canada. We also know that allergies to seeds are more common in cultures where the population comes in regular contact with them. Aside from woodworkers, I'd say the general population in North America rarely comes in contact with tung "nuts", seeds, or oil.

So now our risk of allergy to tung oil is down to 0.1 percent of the population. We know from a study published in the *British Medical Journal* in 1997 that in a test group with known allergies to tree nuts, none of the test group had a reaction to nut oil that had been refined.

So if tung oil comes from a seed, and if it is unrefined, the probability of an allergic reaction upon exposure is now reduced to 1/10 of 0.1 percent of the population. Is tung oil refined? Sometimes. Blake Hanson told me that often it's sold as pure unrefined oil but sometimes a solvent extraction (or refining process) is used. So the probability of being allergic to liquid tung oil is now somewhere between 0 and .01 percent of the general population, while the cured hard oil has even less risk.

Myth #5

Tung Oil never dries and you can't get a good result from it.

Yes it does, and yes you can.

Almost all experts agree that using a cloth moistened with warm water is the easiest way to raise the grain on your project before oiling. This should be done before you apply tung oil. Raise the grain, sand, and then begin. Bob Flexner says that applying oil is simple, "wipe, wait, sand, repeat." Apply the oil liberally with a soft cloth or brush and then wipe it off like you mean it. Check after an hour or two, and if extra oil has beaded on the surface, wipe it away. Don't forget that rags used to apply drying oils are highly combustible. When you're finished with your rag, hang it outside to dry. Be careful disposing of them.

When using pure tung oil, you need several coats. It's very important that you thin each coat with the first coat being the thinnest (I recommend 70 percent solvent). Each successive coat should be thicker (less thinned), and the last coat must be the thickest. Your thinner needs to be an organic solvent, one that is carbon based like turpentine, mineral spirits or the newfangled "citrus solvent".

Every layer except the last must be sanded, so the next layer of tung oil will bond to the previous layer. Three hundred and twenty-grit sandpaper creates the "tooth" that grips the next layer. When sanding between coats, you have to go lightly or you will suddenly sand through one or more previous coats and you will have dreaded witness lines.

Getting good results requires using the right techniques and not being in a hurry. I would allow at least a week between coats, although I have heard of people doing it faster with good results. There are many other finishes better suited to a tight schedule; varnishes, lacquers, and even BLO. However, if you want to use oil, and you have some time to devote to the finish, pure tung oil is in a class by itself. There is no other drying oil that has the same resistance to water, mold,

A Nice Finish – For those of you who want wiping varnish instead of a pure oil finish, Waterlox makes one called "Original Finish" that contains real tung oil. This guitar was finished with the Waterlox product. (Photo by Kellie Hawkins)

bacteria, yellowing, darkening, but offers strength and flexibility.

Well, all that is wonderful, but is tung oil safe? I asked Marc Spaguolo (of internet Wood Whisperer fame and a woodworker with a background in molecular biology) his opinion of tung oil. He said, "It is my belief, that yes it is safe once cured. In general, most of the 'bad stuff' in mineral spirits and other petroleum distillates goes away upon evaporation. Any remaining residue can be washed away with soap and water." He added, "The biggest difference [between BLO and tung oil] is probably cost. BLO is going to be significantly cheaper. But if one is really concerned about chemicals and food safeness, they will be happier with tung oil."

So let's recap: tung oil is more expensive than BLO, and it takes longer to dry. The chances of allergy to tung oil are remote, and tung oil has several other advantages over linseed oil. Professor Norm Kenkel, a biologist at the University of Manitoba, reminded me of another reason to use it: "Tung oil is an environmentally safe and sustainable wood finishing product." There are reasons why tung oil has been used as a wood finish for thousands of years. It's great stuff. For a traditional pure oil-rubbed finish, it's the only game in town.

CYNTHIA WHITE
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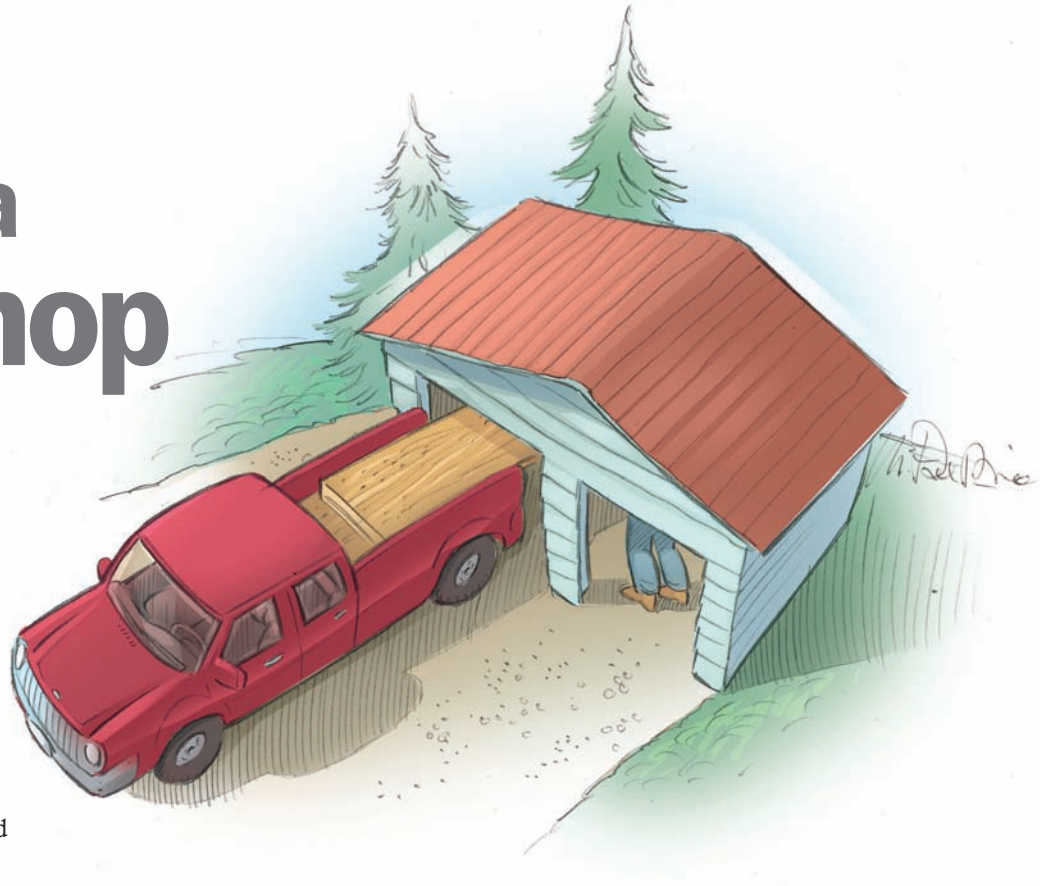
Cynthia reports that her shop dog has a new bed, and she has mastered plucking sawdust from her sweaters. Sadly, her bookcases aren't finished yet, but since cataract surgery, she can now at least find her workbench.

Trials of a Small Shop



BY DON WILKINSON

Those of you who pay any kind of attention to what you read may have noticed that this issue is dedicated to the "small shop". It might have been all the articles about small shops or the large headlines emblazoned across the cover that finally clued you in. Whatever it was, it should have sunk in long before you arrived at this column. It is the last page, after all. Personally, I like to think that the last page (and my column) is the very first thing you turn to. I know it is for me.

Like many home workshops, mine is small. In fact, it is very small. This has been very difficult to get used to since my first shop was large. Very, very large! The one I work in today would have fit into a single bin of the lumber rack in my former shop. The 4/4 walnut bin, in fact. I didn't have much walnut, as I mostly used oak or birch. But if those bins had been empty, my shop could have fit in them as well. It was a large shop. Very large. Did I say that already?

As you might imagine, I'm having a difficult time getting used to working in such a small space. My Unisaw, with its attached sliding table, stretches the entire width of my shop and even intrudes across the entrance doorway. To enter, I have to duck down and scoot under the support legs or try to suck my stomach in enough to ease past. My own legs don't like to support me upright, let alone while walking like a duck under a table saw.

I have so little room that when I need to rip a board any larger than a tongue depressor, I have to open the overhead garage doors. I've worked out a system so that whenever I return home with a load of lumber I just back my truck up to the door and offload my lumber directly into the whirling blade of my table saw, where it gets cut to the exact sizes I need as it enters the shop. It then goes directly from the outfeed table to the various work stations aligned across the back and down either side. That way, I have no need to provide valuable space for storage or to carry large pieces of wood outside just to turn it around.

There is one potential drawback to my method, however. If I ever have a kickback, it could do a bit of a number on the truck cab. Those windows can be expensive. I have planned for such an eventuality, and have become quite good friends with my insurance agent. It's marvellous what a free cup of coffee and a doughnut can achieve.

My system of opening the garage doors just to feed the ravenous maw of my saw wouldn't be possible in most areas of Canada, of course, but as I may have mentioned in previous columns, I recently moved to the Okanagan, where it was supposed to be warm and sunny all year round. It isn't! In fact, we actually had snow one day and on one occasion the temperature even had the temerity to plunge below zero. Care to wager on whose shop isn't heated? And as we all know, glue doesn't work well in the cold. Neither do stains. Or my semi-arthritic fingers. Or the rest of me, for that matter. I clearly needed somewhere warm in which to assemble my projects so I decided to annex a corner of my basement. I installed a workbench and while I was at it, I moved in my chop saw as well. Just in case.

I quickly discovered that I needed some semblance of warmth to use my mortiser or cut dovetails and I had always suspected that my fingers would work the way they were designed to if they were kept warm. Once all my tools were firmly ensconced in the basement, I saw a need for shelves and cabinets to store them in, but to do all this I needed more room. A room currently occupied by my son. Something clearly needed to change. Something had to go.

Thankfully my son still comes to visit.

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Illustration by: Mike Del Rizzo

WMC CFB
Wood Manufacturing Council
Conseil des fabricants de bois



LABOUR MARKET INFORMATION AND HUMAN RESOURCES TOOLS – REVIEW AND UPDATE

The Wood Manufacturing Council (WMC) is undertaking a comprehensive review and update of its Labour Market Information and Human Resources Tools for the advanced wood manufacturing sector.

This project will assist the Canadian Wood Manufacturing Industry to better understand labour market intelligence issues and undertake appropriate human resource measures to address them. The purpose of this initiative is to assist the industry to more effectively address critical human resources issues.

The need for this work is driven by the projected HR requirements of the sector, which is faced with the demographic changes currently challenging the Canadian labour market. The resulting updated tools will assist individual sector firms to better address human resources issues, such as recruitment, retention, skills/career development and filling critical skills gaps, throughout the sector. The four major areas being focused on in this work include:

Enhancement and expansion of WMC labour market information and human resources tools;
Research and consultation in the area of worker retention;
Documentation of potential use of technology supported training;
Update the WMC Wood Employee Readiness Pre-Employment Program.

WMC Programs:

RISE *Rapid Internal Skills Enhancement* • **WMC Management Training** • **NOS** *National Occupational Standards*
HR Awards • **VHRD** *Virtual Human Resources Department* • **Going Global Workshops** • **WoodLINKS**
Careers in Wood • **WERC** *Wood Employee Readiness Curriculum* • **PLAR** *Prior Learning Assessment & Recognition*
Labour Market Investigation of the Modular and Manufactured Housing Sector
Labour Market Information Update for the Advanced Wood Products Processing Sector
Essential Skills Awareness and Assessment

For more information on the Wood Manufacturing Council & our programs please email us at wmc@wmc-cfb.ca or call 613 567-5511
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Funded by the Government of Canada's Sector Council Program
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You finally have your workshop. It may not be big, but it's perfect. And you've got enough projects lined up to keep you in there for many satisfying days. That's something we understand. At Home, we've helped countless people perfect workshops of any size and complete their dream projects. At more than 1,000 locations, Home Owners carry an exceptional selection of tools, paint and other essential supplies. More than 500 Home stores also carry lumber, building materials and building project plans to help you every step of the way. For your next project, let us be part of your workshop, too. Visit **homehardware.ca** for our complete selection.

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