10 PROJECTS PLANS TIPS JIGS TOOLS

Canadian Woodworking

JUNE/JULY 2003
Vol.6, No. 3

Mantel Clock
A Classic Décor Piece

Folding Chair
Take It Anywhere

Building Upper Cabinets
Spruce Up Your Kitchen

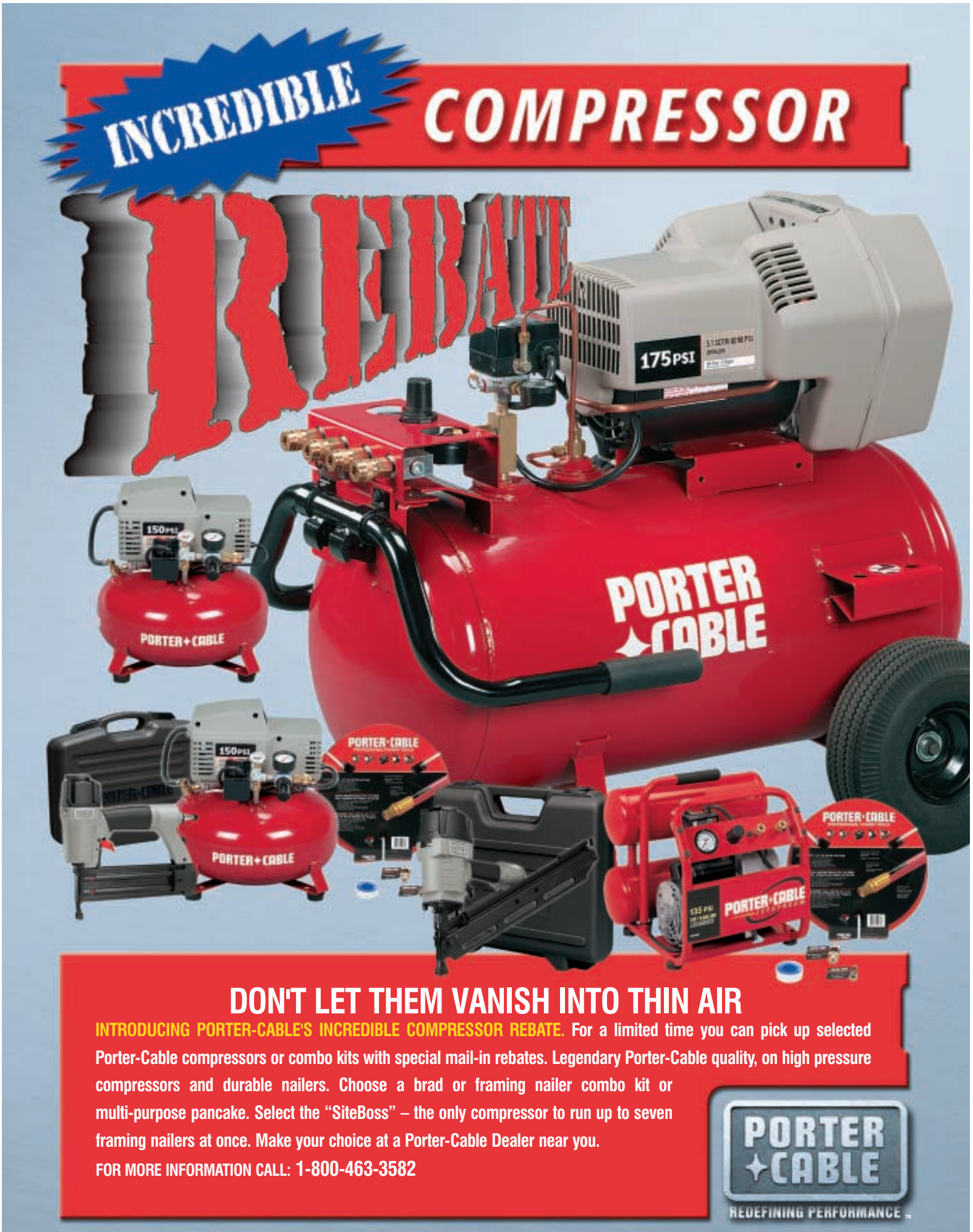
Underwater Logging
Recovering Lumber From The Past

Custom Container
Ship Your Projects Safely

PLUS:
Tool Reviews, Dust Collection, Coming Events

www.canadianwoodworking.com

$4.95
07
7 78624 70028 5



Canadian Woodworking
VOLUME 6, NO. 3

EDITORS
PAUL FULCHER, LINDA FULCHER

WRITERS
JOHN CHAMBERS, CARL DUGUAY, REA GIBSON, GARNET HALL, FRED MARTIN, GRAHAM MCCULLOCH, DANNY PROULX, PAUL ROSS, STEVE SIDDALL, MICHEL THERIAULT, CHESTER VAN NESS, HENDRIK VARJU

PROOF READER
ROBERT E. JOHNS

ADVERTISING
PAUL FULCHER, LINDA FULCHER

GRAPHIC DESIGNER
WENDY ADAMS

CANADIAN WOODWORKING
IS PUBLISHED SIX TIMES PER YEAR: FEBRUARY/MARCH; APRIL/MAY; JUNE/JULY; AUGUST/SEPTEMBER; OCTOBER/NOVEMBER; DECEMBER/JANUARY

G.S.T. REG. #120447560
ISSN #1497-0023
MAIL PUBLICATION AGREEMENT #40035186

CANADIAN WOODWORKING MAGAZINE
RR#3 BURFORD, ON N0E 1A0
TEL. (519)449-2444 FAX (519)449-2445
email:letters@canadianwoodworking.com
website: www.canadianwoodworking.com

CONTENTS

JUNE / JULY 2003

PROJECTS


17


4


9

Cover photo by Ray Pilon, Ottawa ON

DEPARTMENTS


24

WHO SAYS YOU HAVE TO CHOOSE

BETWEEN POWER AND PORTABILITY?

THE HOME DEPOT®

BTS20 15amp
SKU# 207-144

Not Ryobi. Our BTS20 10" table saw combines a torque-rich, 15-amp motor with a wheeled, folding work stand. Which means that this saw rolls to your work – and through your work – with equal ease. Whether you're ripping 4X4s or doing fine finish work, the BTS20 can handle it. And you can handle the BTS20. Not just because it's on wheels, but because it's available exclusively at The Home Depot®. And that makes it easy to roll out the door.

RYOBI
10" TABLE SAW

Pro Features.
Affordable Prices.™
www.ryobitools.com

Ryobi Technologies, Inc. 1428 Pearman Dairy Road, Anderson, SC 29625 USA 1-800-525-2579
Prices Subject to Change Without Notice. All pricing in US dollars. OTC: TTNDY

editorsletters

Linda Fulcher

I recently realized how much of a cycle there is to woodworking. It may start with planning a new project. This may lead to researching and buying new tools and incorporating them into the shop. Do you spend a lot of time doing shop projects, like building a lumber rack to get all the wood up off the floor, or making a shipping container so that you can ship your project to a competition or off to a customer?

A couple of woodworkers shared such projects with us for this issue and it gets me to wondering what other nifty shop projects you may have come up with to assist you in your woodworking.

One of your favourites might be the project of stocking your shop with the right tools to make your projects. Some woodworkers buy the tools first and then ask, "What can I make with this?" In fact you may have a whole shop full of tools that you are wondering what to do with. To help you, we have included a variety of projects to suit your budget, time and needs.

Do you have a weekend to build some portable chairs (pg. 4)? Or, maybe you are looking at a longer term project, like renovating your kitchen or bathroom with new cabinets (pg. 9).

I wonder what this cycle is all about? Sometimes you are busy building things for friends and family and sometimes you are building something for your shop. When you are doing projects for others there is a sense of pride. Many friends and family will admire and use those projects.

Building something for your shop is a whole different part of the cycle. It is building the hobby itself and spending time working on something for yourself: a new work table; a new tool. At this point your fellow woodworkers will share in, and celebrate, your accomplishments.

I think these cycles are important. It is also it important to know who will support you in each cycle. You will find unending support from your fellow woodworkers. Seek this support at the woodshows, on the wood forum and in your neighbours shop.

Know where your support comes from and what part of the cycle you are in. Balance so that you are moving through the cycle. Each stage has its benefits and helps to develop you as a woodworker.

Paul Fulcher

When Linda and I first started this magazine, we often had to admit that we didn't know much about woodworking. We were coming from a publishing background. At that time we maintained that we were not so much "woodworkers" as we were "wordworkers". We were enthusiastic, but we were definitely newbies.

At first I was constantly stopping conversations for clarification of such words as: rabbet; carcase; half-through blind.

But that has changed. It's been a gradual, accumulative process, but I realized, as we were putting together this issue, that I've learned a lot about wood and woodworking over the last few years. (Mind you it helps that I read every article about 10x before it's even published!)

But still, I can see a difference.

Now I can talk stiles-and-rails with the best of them. (I still haven't mastered them, but at least I know what they are.)

One of our web site visitors had a similar realization of how much he has learned. He posted his insights on our WOODWORKER'S FORUM. (I reproduced his posting at the bottom of this page.) He has been into woodworking for the last couple of years and has summed up a few of the things that he has learned. He made me laugh. I saw myself in his reflection. I laughed even harder realizing that we're all going through the same things as we learn.

Learning can be a long process and sometimes we don't see our own progress. But, when we look back and see where we were, and compare it with where we are, we get a much more realistic view of our new growth.

Ross Spencer and Richard Baird have also done some serious learning and looking back, but their appreciation is of old growth. Their story is on page 24. Talk about growing in knowledge and experience. These guys went from watching a TV show on underwater logging (just a few short years ago) to running their own business harvesting old growth logs from the bottom of a lake in Quebec!

So, as you look forward to reading this issue, be sure to take a moment and look back. Appreciate your growth, and know that of all the projects that you have worked on, the most important one is ongoing: you are building yourself a better woodworker!

deareditors

This was recently posted on our WOODWORKERS FORUM. We print it here in hopes that you will enjoy it as much as we did.

Musings of a "second" year rookie

Posted By: Scott

Here are a few observations that I have noted at the end of my second woodworking season:

• Advising a woodworking "newbie" significantly increases my existing knowledge base, but not necessarily theirs.

• Five cheap table saw blades cost about the same as one good blade, but they don't cut as well.

• Five cheap table saw blades cost a lot more to sharpen than one good blade, and they still don't cut as well.

• My second table saw should have been my first.

• Sawdust is no longer a novelty.

• I'm capable of reinventing the wheel on a regular basis.

• All tape measures were not created equal.

• Obtaining some tools is worth incurring the wrath of SWMBO (the affectionate acronym for one's wife or She Who Must Be Obeyed).

• Many woodworkers will tolerate criticism of their hand tools, but most are pretty defensive about their table saw.

• On average, every other completed project is for the shop or storage of woodworking reference material.

■ continued on page 36

portableproject By Michel Theriault

Folding Chair

Take your own chair with you when attending outdoor events. This fold-up chair is easy to carry and comfortable to sit on.

Cut Out The Pieces

Lightly round over all the corners and edges with a piece of #180 sandpaper folded and held in your hand.

Round one end of each chair support with a sanding block or drum sander mounted in your drill.

Seat Slats

Drill countersunk pilot holes centered and 3/8" in from the ends on six of the pine cross pieces. These cross pieces will be used as seat slats. The countersink is 3/8" diameter and the pilot hole is 1/8". This is usually done a the same time with a countersink attachment on a drill: position the seat slats on two chair supports so the ends are flush and the spacing is even (fig. 1), then drill 1/8" pilot holes 1/2" deep into the chair supports through the pilot holes you previously drilled.

Apply glue to the mating surfaces and screw the seat slats onto the supports with 1 1/4" long screws. Check to make sure the assembly is square and allow it to dry.

Seat back

For the seat back (fig. 2), drill the pilot holes, in the five remaining pine cross pieces, 1 1/8" in from the ends. To glue and screw the cross pieces in place for the back, first lay the seat down with its slats facing up.

Now place the next two chair supports between the seat's supports. Lay the cross slats for the back on top (fig. 2), drill 1/8" pilot holes 1/2" deep into the supports, apply glue and screw in place with 1 1/4" screws.

Do the same thing for the two maple cross pieces, making sure they are the same distance from the top on both sides (fig. 2).

TIP ***To prevent the seat and back from binding together when you open them up, place a business card between the chair supports on each side, at both ends, and in the middle, to ensure there is clearance between the seat and back supports.***

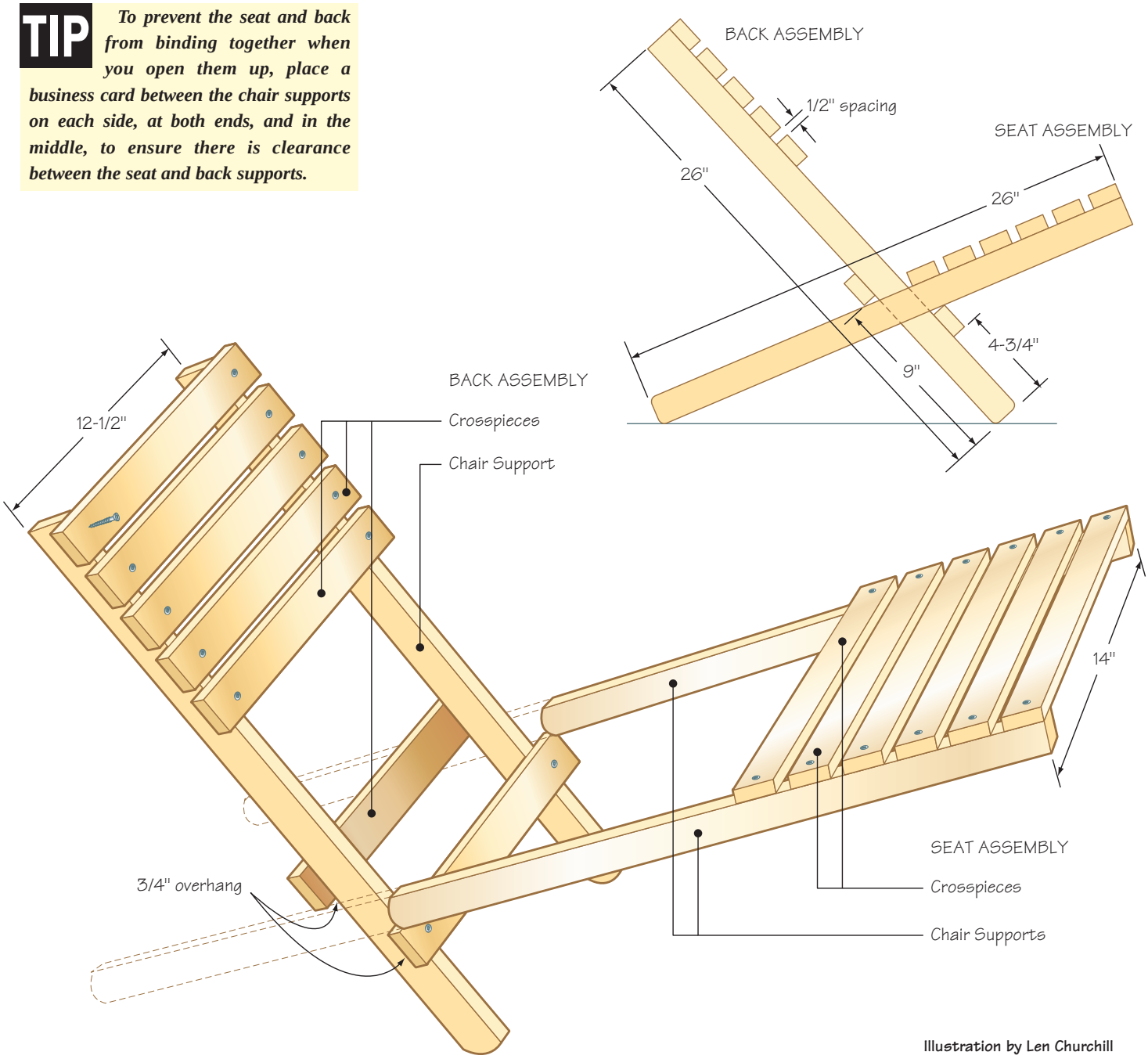


Illustration by Len Churchill

MATERIALS LIST

4	**3/4" x 1 1/2" x 26"** Chair Supports Maple
2	**3/4" x 1 1/2" x 14"** Cross Pieces Maple
11	**3/4" x 1 1/2" x 14"** Cross Pieces Pine

OPTIONS

- Round off the ends of the chair supports with a jigsaw
- Counter-bore the pilot holes and plug them if you prefer.

MICHEL THERIAULT is a writer and woodworker living in Guelph, Ontario.
www.woodstoneproductions.com mjtheriault@sympatico.ca

Wood Cuts
and How They React to Moisture

In my last article, I explained the terms "flat-sawn", "rift-sawn" and "quarter-sawn" lumber. In this article I will cover how moisture affects the shape of these different cuts. In the next article we will look at how the size of each of the three cuts is affected by moisture.

Many of you already know that wood moves, but you might not understand why, or how. The first thing to remember is that wood doesn't move significantly in relation to temperature. It does, however, move in relation to changes in relative humidity, which temperature does have an effect on.

Wood absorbs or gives off moisture, in an exchange with the surrounding air. If you keep relative humidity constant, over time the wood settles at a moisture content known as equilibrium moisture content (EMC). Moisture content (MC) is expressed as a percentage of the weight of water in the wood, compared to the weight of the wood when fully dried.

Fully dried wood has 0% MC, known as oven-dry. So wood with an MC of 10% may weigh 11 pounds and have one pound of water in it. Thus, after being dried to 0% MC, it will weigh 10 pounds.

In reality, EMC almost never exists because the relative humidity (RH) in the air is constantly changing. As RH increases, the EMC is disturbed as the wood starts to absorb moisture from the air. It will settle on a new EMC if the RH stays at that higher level for an extended period. But if RH starts to drop, the wood will give off moisture, MC will drop and EMC will only occur if RH again stops changing, for an extended period. The interplay between RH and MC is almost constant, and the wood is rarely at EMC. The wood is constantly moving.

So, why do we care about changes in MC? Changes in MC are important because wood changes both its shape and size as MC changes. Wood expands in size when it takes on moisture (increase in MC) and wood contracts in size when it gives off moisture (decrease in MC). Let's look at how the shape of each wood cut is affected by changes in the environment's humidity.

Some cuts of lumber, such as quarter-sawn, have greater stability. One reason for its stability is that it moves less in width as the MC or the RH changes. Another reason is that quartered wood changes less in shape.

Take a look at Fig. 1, to review the three basic wood cuts. Now compare this with Fig. 2, and notice how the three cuts change in shape as they are dried. It doesn't matter whether you kiln dry, or air dry the wood, it will still change shape as MC drops.

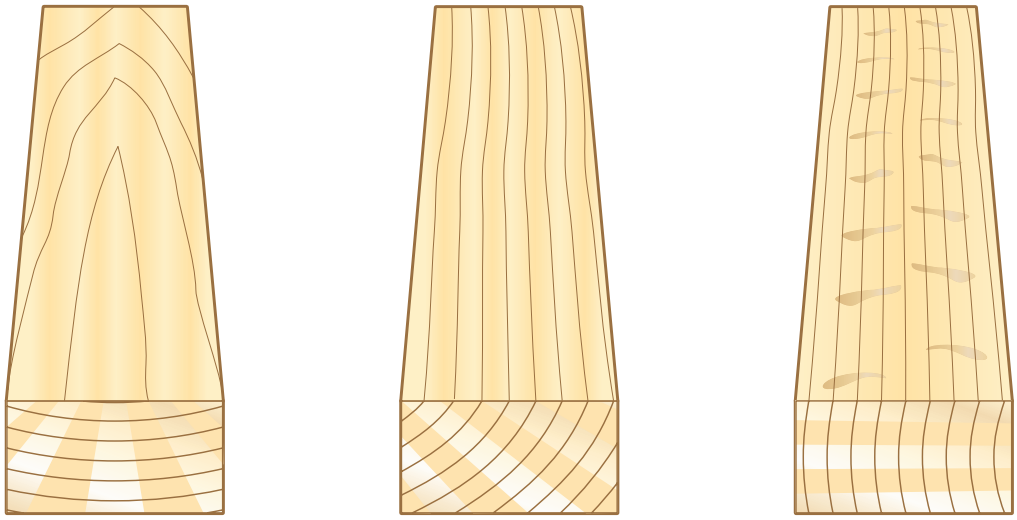
The first example in Fig. 2 shows the shape change that occurs when flat-sawn lumber is dried. You may be used to seeing the U-shaped growth rings on the ends of lumber, and you may also be used to seeing those boards cupped across their width. But you might not have noticed that they are always cupped in the opposite direction to the curvature of the growth rings. This direction of cupping only occurs when drying lumber. Increase the MC of the cupped piece of wood and it will start "uncupping".

The rate of movement is different along (or parallel to) the growth rings, than it is across (or perpendicular to) the growth rings. It is the difference of movement, within the same board, that is the cause of this cupping phenomenon.

That is why serious woodworkers mill their own lumber, using only dried, rough-sawn lumber. It isn't because rough-sawn lumber is cheaper. It's because the boards ought to be dimensioned and flattened after most of the drying has already occurred, so that cupped boards can be made flat just before your furniture is built. Assuming that you don't expose your furniture to massive fluctuations in RH, the MC will not change a lot and the boards that make up your furniture will remain quite flat over time.

Now look at the second example in Fig. 2. Rift-sawn lumber becomes a parallel-ogram as it dries. This phenomenon is known as "diamonding" because the original rectangular shape becomes more of a diamond shape. Assuming you're drying the wood, the edges of the board will always slant in the opposite direction to the angle of the growth rings. The same goes for the wider surfaces. Diamonding is simply another example of the wood cupping opposite to the direction of the growth rings, but with rift-sawn lumber it's occurring in another direction.

FIG. 1
original shape when milled from green log

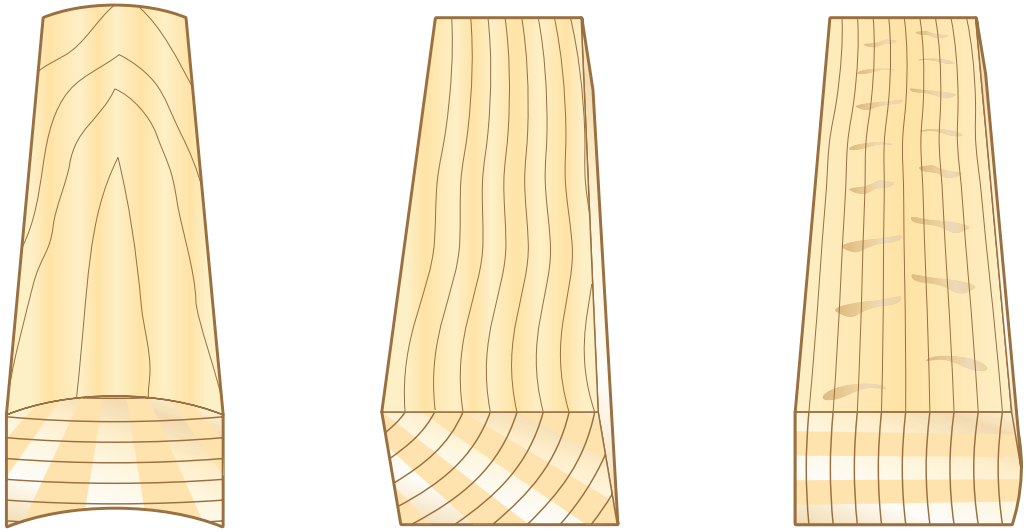


FLAT-SAWN LUMBER

RIFT-SAWN LUMBER

QUARTER-SAWN LUMBER

FIG. 2
Shape changes when dried (lowering of moisture content)



Cupping

Diamonding

Slight bulging edge
EXCEPTIONAL STABILITY IN SHAPE

Illustration by Len Churchill

Now look at the quarter-sawn example in Fig. 2. Because the growth rings are vertical, the board barely changes in shape at all. If the growth rings are quite curved (which often occurs with smaller trees) then the edges of the board will also cup opposite to the curvature of the growth rings.

More often, a wide quarter-sawn board has very straight growth rings on one side (at the outer area of the tree) and more curved growth rings on the other side (closer to the centre of the tree), based on nothing more than growth ring geometry within a tree. This results in bulging out of only one edge of the quarter-sawn board – the edge that was closest to the centre of the tree.

As you can see, the three cuts of wood differ, not only in terms of aesthetic qualities, but also in terms of how each cut's shape changes with changes in relative humidity. You'll notice these differences when dimensioning rough lumber with your jointer and thickness planer.

When jointing flat-sawn boards with the concave side of cupped boards on the jointer bed, you will only cut the outer areas of the board for the first few passes. When dimensioning rift-sawn boards, the two large surfaces will be amazingly flat, with the edges requiring a larger number of passes to square them up. When dimensioning quarter-sawn boards, you'll be surprised at how much less jointing and planing are required, in general, to square everything up.

In my next article, I will compare the rate of movement and the size changes that occur, for each cut of wood (flat-sawn, rift-sawn and quarter-sawn lumber), as relative humidity and moisture content changes.

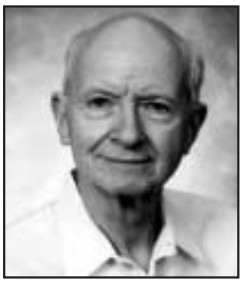
HENDRIK VARJU is a fine furniture designer /builder who provides woodworking instruction and seminars near Acton, Ontario. (519) 853-2027
www.passionforwood.com email: info@passionforwood.com

MADE IN THE USA

Forrest Saw Blades

America's Best Since 1946!

"You Can Count On Us For Quality, Performance, and Dependability!"



Jim Forrest, President

"For almost 60 years, our company has manufactured top-quality saw blades that eliminate or reduce splintering, scratching and tearouts, and we've offered the finest in-factory sharpening available anywhere. We use only high corrosion-resistant C-4 carbide for extended use between sharpenings. And now all Woodworker I and II blades 10" or larger have 30% more carbide than before…for the longest possible blade life.

"Here's our no risk-guarantee: **Purchase any Forrest blade or dado and use it for up to 30 days. If you are not completely satisfied for any reason, return it for a full refund.** You have my word on it!"

New Discounts!
Save 10% on one (1) blade or dado!
Save 14% on multi-blade/dado orders!

FREE GIFT WITH EVERY ORDER!**

Woodworker II

Now with 30% more carbide!

ALL PURPOSE – table saws and portable circular saws.

The 10"x40T is the only blade rated "excellent" for both rip and cross cuts by *Fine Woodworking Magazine* (March/April, 2002).

Size		Price
12" x 40T x 1"		$131
10" x 40T	**(1/8" or 3/32" K)**	**$121**
10" x 30T	(1/8" or 3/32" K)	$101
8 1/4" x 40T	(3/32" K)*	$101
8" x 40T	(3/32" K)	$101
7 1/4" x 30T	(3/32" K)	$ 71
5 3/8"x40Tx10mm	(5/64" K)**	$ 83

Fine Woodworking EXCELLENT

Also available: 14"x40Tx1" • 14"x30Tx1" • 12"x30Tx1" • 16"x40T • 9"x40T • 16"x30T • 9"x30T • 8"x30T(3/32"K) • 6"x40T(3/32"K). Call for prices.

*For Sears & Makita **For DeWalt Cordless Portables

Customized Woodworker II

Now with 30% more carbide!

For the advanced table saw operator. Ideal for joinery and special uses!

Size		Price
10" x 40T (1/8" K)	*#1 grind for square cut box joints.*	$132
10" x 40T (1/8" K)	*#6 grind for near flat bottom, easy feed.*	$132
10" x 40T (1/8" K)	*Dovetail joint grind. Specify angle & left or right points. See Fine WW12/01.*	$132
10" x 40T (5/64" K)	*Ultra thin kerf for precision work. Use stiffener plate.*	$141
10" x 20T (1/8" K)	*Fast feed rip for thick hardwood without burning.*	$ 71

Dado-King

You get flat-bottomed grooves and no splintering–even when crosscutting oak plys and melamine. This award-winning set comes with six 4-tooth chippers (including 3/32" chipper), two 24-tooth outside blades plus shims. Cuts 1/8" to 29/32" grooves.

Size	Price
6" set	$271
8" set	$291
10" set	$349
12" set	$449

America's Editors' Choice Woodworker

FREE $21 value!

10" Blade Runner carrying case. Protects and holds up to 10 blades. Ships with 6", 8", or 10" Dado sets. Included free with your order!

Chop Master

Specially designed for sliding compound miter, miter-chop, and radial saws.

Size		Price
7 1/2" x 60T x 5/8"	*Makita Cordless Slide*	$101
8 1/2" x 60T x 5/8"	*Hitachi, DeWalt, Ryobi. Freud TR125*	$121
10" x 80T x 5/8"	*Delta, Bosch, Hitachi, Makita, Ryobi, AEG & all*	$141
12" x 80T x 1"	*Delta, Hitachi, Makita, B&D, Sears & all*	$151
15" x 100T x 1"	*Makita, Ryobi*	$199

NEW!

Also available: 8 1/4" x 60T • 6 1/2" x 40T • 9" x 80T • 14" x 100T. Call for prices.

Duraline HI A/T

Cuts melamine perfectly. 220mm & 300mm available. Our best plywood blade.

Size		Price
10" x 80T	(1/8" or 3/32" K)	$161
12" x 80T x 1"	(1/8" K)	$181

Also available: 14"x100Tx1" • 14"x80Tx1" • 16"x100Tx1" • 8" • 7 1/4" and others. Call for prices.

Woodworker I

Now with 30% more carbide!

Designed for radial arm or tablesaws–fine crosscut.

Size	Price
7 1/4", 8", 8 1/4" x 60T	$111
10" x 60T	$131
12" x 60T	$141

Also available: 9" x 60T • 14" x 60T • 16" x 60T. Call for prices.

Two Easy Ways to Order

Call toll-free

1-800-229-4814 OR ***Visit our internet store*** **stores.yahoo.com/forrestman**

CMR – Ron Collier
Fax 989-684-0402

Western Canada: Call Sharp Tech, Inc.
877-228-0908 • Fax 403-225-3767
US: Call 1-800-733-7111
(In NJ, 973-473-5236) • Fax 973-471-3333

AMERICAN EXPRESS · MasterCard · VISA · DISCOVER

DON'T SEE WHAT YOU NEED?
Call us for other blades and dampener discs!

FREE SHIPPING–All Orders Over $275
Other orders, please add: Saw blade – $7 • Dado – $9 • Stiffener – $3

*3 coupons at $5 each, use 1 coupon per blade.
**Choose a free gift now through August 31, 2003, or while supplies last

$15 OFF* OUR EXPERT BLADE SHARPENING!

Don't take a chance with micro-chipped edges on your expensive wood! Our in-factory sharpening preserves the life and performance of all types of carbide blades. In fact, Forrest Manufacturing represents the industry standard for fine quality sharpening. Most orders processed in 3 to 5 days. You'll receive $15 in DISCOUNT COUPONS* for our expert factory sharpening with every new Forrest blade or dado you purchase! Coupons can be used to sharpen any carbide blade. (Please include return UPS of $7 + $1 for each additional blade.)

FORREST

Forrest Manufacturing Company
457 River Road
Clifton, NJ 07014

By Danny Proulx

Building Upper Cabinets

Part II

Photo courtesy Canac Kitchens

This article will explore various cabinet styles, and related issues to consider, when building kitchen and bathroom cabinets. Specifically, it will detail enough basic concepts to get you well on your way to building upper cabinets to suit your kitchen or bathroom needs.

To review, cabinet style choice is between the two major types – face frame and frameless. You'll often see a blend of European (frameless) and North American (face frame) cabinet construction methods. However, the main difference between the two styles is the use of the face frame.

Today, many cabinet shops have incorporated the best features of the frameless cabinet system into their face frame cabinet. This hybrid style is extremely popular and is more or less considered a standard. Once you understand the frameless system, you'll see that most "traditional" styled kitchen and bathroom cabinets are a frameless carcase with a wood face frame applied.

Frameless Upper Cabinets

The European frameless cabinet is modular and commonly ranges in widths from 10" to 36". The frameless system offers flexibility with quality and can be built with any 5/8" or 3/4" thick sheet material – we are not restricted to "white" cabinets.

The Europeans perfected the "box" or unitized construction methods to a point where the frameless cabinet, often called the Euro style kitchen, has become a popular option in North America. European design features such as the hidden hinge, adjustable shelves, bottom mounted drawer glides, and adjustable cabinet legs are now an important part of the North American cabinet making industry.

The joints are almost all butt joints, secured with 2" screws, designed

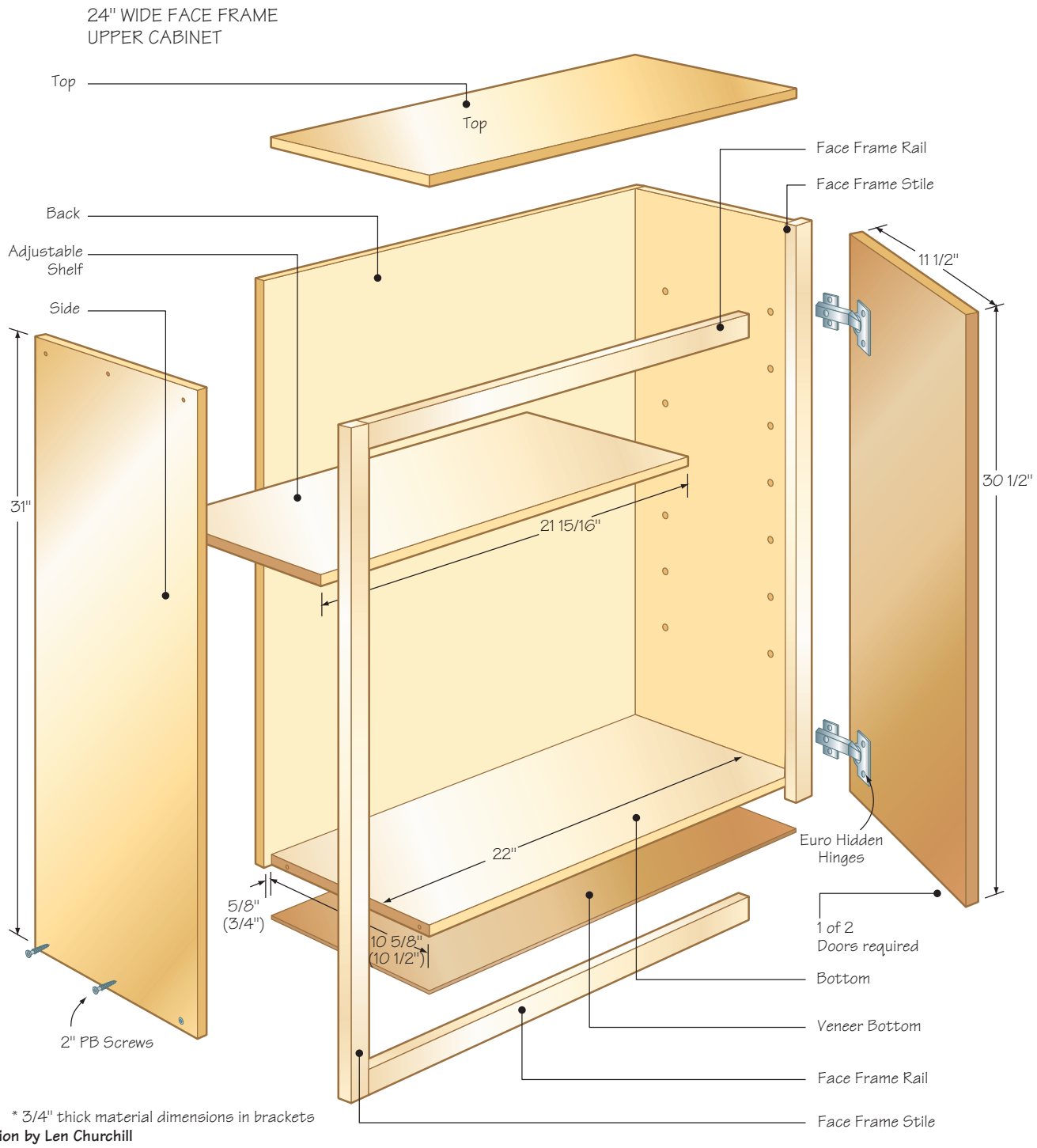


Illustration by Len Churchill

specifically for particleboard material. The strength of the butt joint is due in large part to the holding ability of these screws. They are installed in a pre-drilled pilot hole and, because of their design, the screws thread the hole, providing an extremely strong connection. When a panel is exposed, such as an end of run cabinet, biscuit joinery and glue is the preferred method, because it's completely hidden.

Frameless cabinets do not have a face frame so the edges are covered with tape. There are many edge tapes available that will match any sheet material you wish to use. Melamine and veneer tapes, with heat sensitive glue, are a common item in most woodworking stores.

They are applied with an iron or, if you plan on doing a lot of frameless cabinet work, a hot air edge banding station. The tape is applied to all visible edges on frameless cabinets.

Any cabinet width can be calculated. For example, if a plan calls for an upper cabinet that's 27 1/2" wide by 30" high with two shelves and two doors, that's all the information you need to create a cut list. For this example I'll use 3/4" thick melamine particleboard as the sheet material used to build the cabinet.

Cabinet width is always the front dimension. A 27 1/2" wide upper cabinet requires a bottom and top board that are 11 1/4" deep by 26" wide. The 11 1/4" depth, plus the 3/4" thick back, gives us a standard 12" deep upper cabinet carcase.

The 26" top and bottom boards, plus the thickness of two sides, equals our required cabinet width.

Side boards, or gables, are the same depth as the top and bottom boards at 11 1/4" and the full height of the finished cabinet at 30". The back board equals the width and height of the finished cabinet or 27 1/2" wide by 30" high. The adjustable shelves are the same depth as the top and bottom boards and normally 1/16" shorter in width to permit easy movement in the cabinet.

Door width is found by using the 1" plus formula. The inside cabinet dimension of 26" plus 1" equals one door width. We need two doors so dividing 27" by two means that each door must be 13 1/2" wide. Door height on frameless upper cabinets usually equals cabinet heigh, or 30".

Follow the same steps to determine the carcase parts for any special cabinets. The sides, backboard and doors, on special height uppers, such as over the stove or refrigerator, are reduced in size to equal the total cabinet height dimension. The doors, shelves, bottom and top board widths remain unchanged.

A 24" wide cabinet that's 18" high has the same carcase parts width as a 24" wide cabinet that's 30" high. The same calculations hold true for tall or extended height cabinets. Keep the building principles in mind and you'll be able to calculate the part sizes for any cabinet.

BUILDING A FRAMELESS UPPER CABINET

Cut The Carcase Parts

Cut the 5/8" or 3/4" thick carcase parts to size. Use a table saw to cut the sides, bottom and top, back, and two shelf boards to the proper dimensions. A table saw with a melamine particleboard blade will cut all the pieces cleanly (photo 1).

Drill Holes For Adjustable Shelves

Drill the holes in each side board for the adjustable shelves, if the cabinet is to be so equipped. During assembly ensure that the top-to-top relationship of each side is maintained, particularly if the holes are started at different distances from the top and bottom of the side (photo 2).

Apply Edge Tape

Apply edge tape to all edges that will be visible once the cabinet is complete (photo 3).

Fasten The Side Boards

Fasten the side boards to the edge of the bottom and top boards making sure the joints are square and flush. Drill a 1/8" countersink pilot hole for the three 2" PB screws at each connection (photo 4).

For clarification, referencing a 24" wide upper cabinet, you should have a four sided box with inside dimensions of 22 3/4" (the width of the bottom and top carcase boards) by 28 3/4" high (the length of the side minus the thickness of the top and bottom carcase boards when using 5/8" sheet material) (photo 5).

Secure the back board to the carcase, flush with all edges of the box. This will force the cabinet corners into square. Install 2" PB screws at 6" centres around the perimeter of the back. Secure the first corner aligning it square then, proceed to secure the remaining three corners while aligning the box. Finally, install screws between the corners, aligning the sides, bottom, and top boards flush with the edges of the back board.

Choose The Style of Door

Pick the style of door you would like to install. Door height for upper frameless cabinets with this building system is 30" high. The width of each door is dependent on the size of the carcase. Use the 1" rule, as discussed previously, to calculate door width (photo 6).

Drill a 35mm diameter hole, 3" on centre from each end of the door, 1/8" away from the door's edge. Use a hinge-boring bit to drill the hole 1/2" deep (12.5mm) or as specified by the hinge supplier. Attach a 100 to 120 degree standard opening hinge with two 5/8" screws, using a square to make sure the hinge arm is at 90-degrees to the door's edge. This is important because the hinge must be properly mounted to function correctly. Once the hinges are secure, attach the hinge plate to each hinge.

Hold the door in its normal open position, with the hinge and plate attached to the door, and place a 1/8" thick spacer between the cabinet's front edge and back edge of the door. Drive screws through the hinge plate and into the cabinet side to secure the doors.

Face Frame Upper Cabinets

The standard upper face frame cabinet is the most basic cabinet in this building system. Like the frameless cabinet, it consists of two sides, a top, a bottom, and a back board. Then, to make it a traditional style cabinet, a solid wood face frame is attached to the front of the carcase to complete the assembly.

Cabinet sides are cut to a length of 31" and the face frame stiles are cut at 31 3/4". This is done so the face frame hangs 3/4" below the carcase bottom. This feature gives a little flexibility when assembling cabinets and hides the edge of under cabinet finish boards that will be applied. Remember the relationship of cabinet side length to stile length – the stile is always 3/4" longer than the cabinet side. This reference is needed when designing and building non-standard, or reduced height, cabinets.

I use a standard door height of 30 1/2", mounted flush with the bottom of the face frame leaving a 1 1/4" gap at the top of the cabinet for installation of edge molding.

Standard upper cabinet doors are mounted using European style hidden hinges. A 35mm diameter hole is drilled in the door and the other end of the hinge is attached to the carcase side. Initially, I was a little intimidated by these hinges. Now,

after using them for a while, I feel that they are one of the best advancements in cabinet door hardware. They are strong, fully adjustable in three directions, available in a variety of opening configurations, and virtually maintenance free. They are so dependable that some of the manufacturers guarantee them for life. Installation, although appearing somewhat complicated, is a very simple process.

There are a number of "principles" to remember when creating a material cut list for your face frame upper cabinets. The top and bottom boards are always 2" narrower than the cabinet exterior on this face frame design. Cabinet width is measured at the widest point on the front of the cabinet. The stiles are each 1" wide, so if the cabinet we want to build is 30" wide, our bottom and top boards are 28" wide. This will make the inside face of each stile flush with the inside face of the cabinet sides and will allow the use of European hinges.

Face frame stiles are 3/4" longer than the cabinet sides and the frame rails are the same width as the cabinet bottom and top boards. The back board is equal to the cabinets inside dimension plus the two thicknesses of side boards. For example, on a 30" cabinet, our back board must be 29 1/4" wide.

The standard upper cabinets usually have two shelves installed on adjustable pins. The shelves are cut 1/16" narrower than the bottom boards to make them easier to install and move.

Door width (or one door on narrow cabinets) is determined by adding 1" to the interior width. If it's only one door, that's the final width. If two doors are needed, divide the interior width plus 1" formula by two. A 30" cabinet would need two 14 1/2" wide doors mounted on European hidden hinges.

BUILDING AN UPPER FACE FRAME CABINET

Assemble The Frames

Rip and cross cut the stiles and rails. Assemble each frame using glue and 2" long screws in counterbored pilot holes. If the screw hole will be visible (as in the case of a cabinet at the end of a run) fill the 3/4" counterbore with a wood plug (photo 7).

Cut Carcase Parts to Size

Cut the 5/8" or 3/4" thick carcase parts to size. Use a table saw to cut the sides, bottom and top, back, and two shelf boards, to the proper dimensions (photo 8).

Drill Holes For Adjustable Shelves

Drill the holes in each side board for the adjustable shelves, if the cabinet is to be so equipped. During drilling and assembly, ensure that the top-to-top relationship of each side is maintained (photo 9).

Fasten The Side Boards

Fasten the side boards to the edges of the bottom and top boards, making sure the joints are square and flush (photo 10).

For clarification, referencing a 30" upper cabinet, you should have a four sided box with inside dimensions of 28" wide (the width of the bottom and top carcase boards) by 29 3/4" high (the length of the side minus the thickness of the top and bottom carcase boards when using 5/8" sheet material) (photo 11).

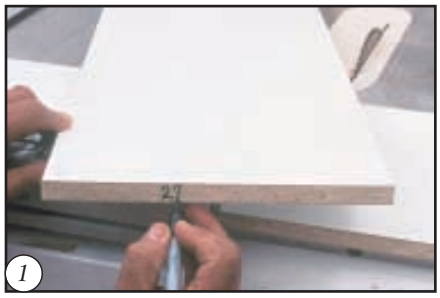
Secure the back board to the carcase, flush with all edges of the box.

Glue Carcase to Face Frame

Apply glue to the four front edges of the carcase and place the outside face frame's top edge flush with the outside top edge of the carcase. The face frame should fully cover the carcase edges. Secure the top corner of the face frame to the carcase body using 2" finishing nails in a pilot hole slightly smaller than the nail thickness. Drill the pilot hole so that it centres, as much as possible, on the PB edge (photo 12).

Secure the other top rail so that the top outside of the face frame is flush with the top outside edge of the carcase. Nail the bottom two corners, making sure the face frame is properly aligned on the cabinet carcase. Install the remaining nails at 8" centres, maintaining the alignment. The bottom rail should hang below the cabinet carcase by 3/4".

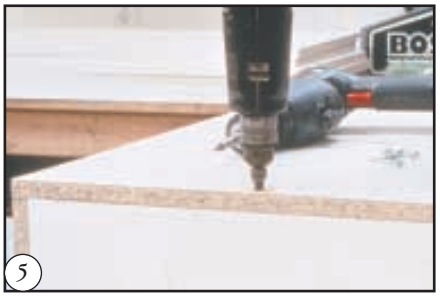
When building with 5/8"thick sheet material, the sides of the face frame should extend 3/8" beyond each side of the carcase, and 1/4" for 3/4" thick sheet material. As well, the inside edge of the

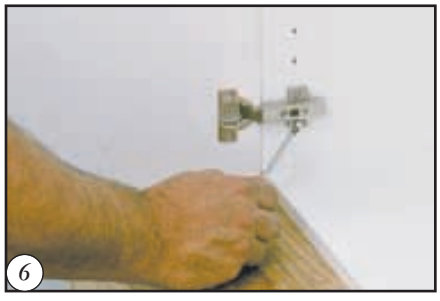

1


2


3


4


5


6

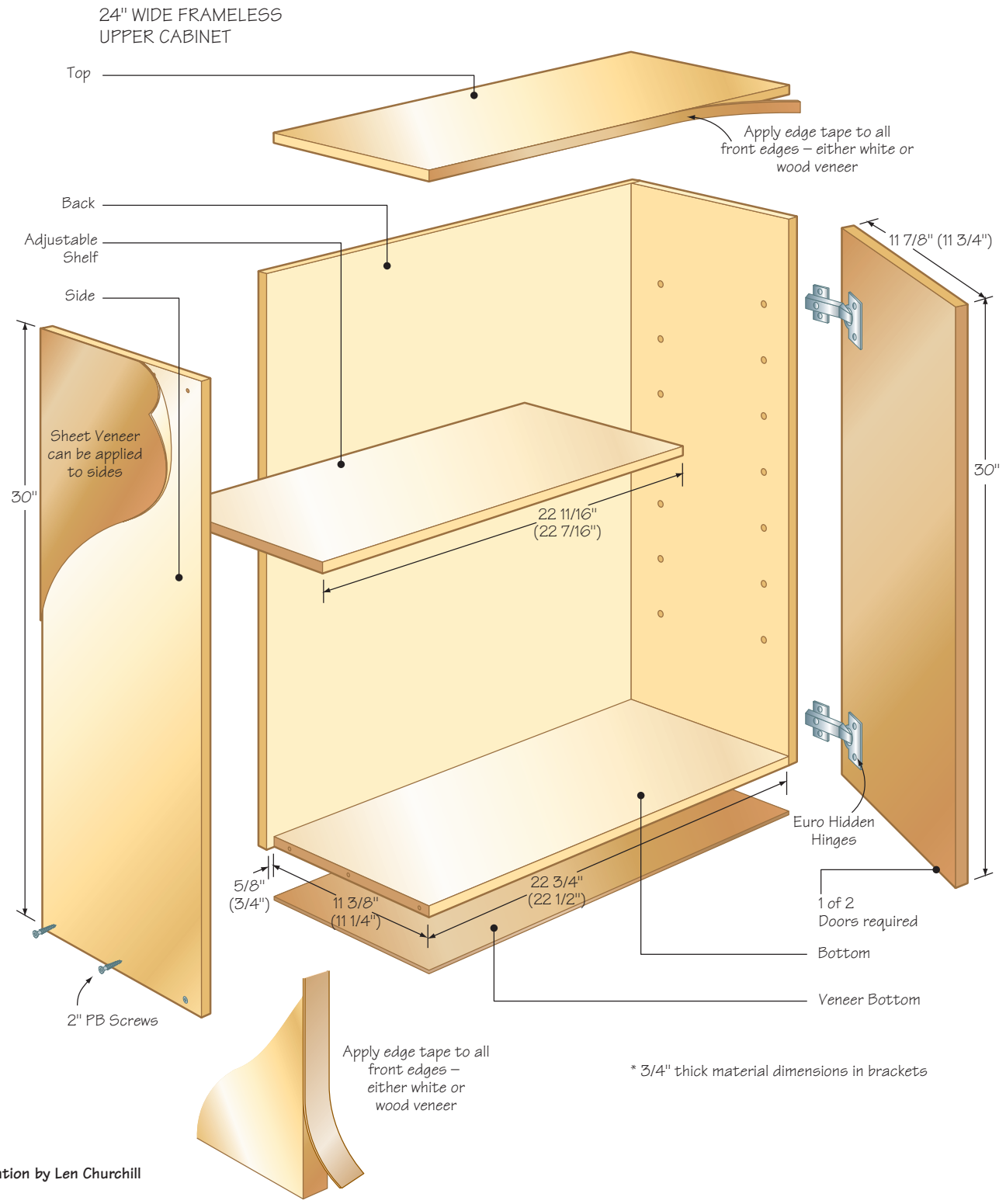


Illustration by Len Churchill

bottom rail will be slightly above the bottom board if using 5/8" sheets and flush with the top face of the bottom board if using 3/4" thick sheet material.

If you don't like face nailing the frames, use biscuits for an invisible joint. Remember though, that the door, in its normal open or closed position, covers the section of the face frame where the nails are located.

Choose The Style of Door

Pick the style of door you would like to install. Buy them from a supplier or build your own. Drill a 35mm diameter hole, 3" on centre from each end of the door, 1/8" away from the door's edge. Use a hinge-boring bit to drill the hole 1/2" deep or as specified by the hinge supplier (photo 13).

Attach The Door

Hold the door in its normal open position, with the hinge and plate attached to the door, and place a 1/8" thick spacer between the face frame stile and back edge of the door. Drive screws through the hinge plate and into the cabinet side to secure the doors (photo 14).

Building face frame or frameless styled upper cabinets is a reasonably straight-

forward process. These cabinets can be used in many areas of your home such as the workshop, bathroom, laundry, storage, or even as extra storage for your home office.

The cabinet building concepts detailed here apply to all types of case construction.

In the next installment, I'll discuss and explain the building steps for frameless and face frame base cabinet construction. A base, with one of the uppers discussed in this issue, are all you need to update your tired old bathroom cabinets that need replacing.

The hybrid cabinet system is fully detailed in Danny's book, "***Build Your Own Kitchen Cabinets***".

The European or frameless style cabinet is the subject of his book, "***Building Frameless Kitchen Cabinets***".

DANNY PROULX is a woodworking author and teacher.
www.cabinetmaking.com or
email danny@cabinetmaking.com

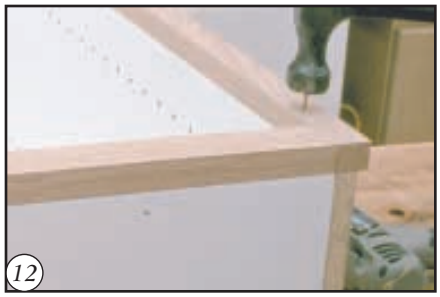

7


8


9


10


11

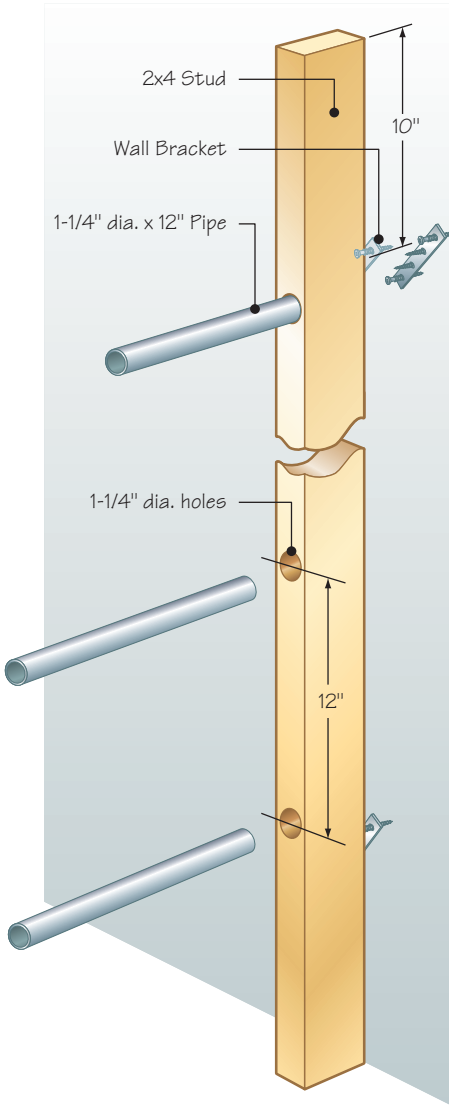

12


13


14

By John Chambers

Lumber Rack



I needed an inexpensive way to store rough lumber and strips of cut material.

Piling lumber on or near the floor took up too much space, and it always seemed that whenever I needed lumber, the piece I needed was always at the bottom.

There were ready-made wall systems available, but they seemed a bit too expensive. I worked out the expenses for me to make something myself, and decided to build my own lumber storage rack.

I used 2 x 4s as the main vertical supports and steel pipe for the doweling that holds the materials.

Wooden dowels need to be at least 3/4" thick and are hard to match to a common drill or Forstner bit. That's why I used steel poles.

Building The Rack

Use 10' lengths of 1 1/4" fence top rail. Cut these into pieces, and insert them into pre-drilled holes, spaced one foot apart along the 8' long 2 x 4s.

Gang up the seven 2 x 4s, side by side, with the 1 1/2" edges facing up.

Mark on one 2 x 4 the hole locations you prefer. I started 12" from one end and marked off seven locations, 12" apart.

With a square, extend your marks across all faces. With a 1 1/4" Forstner bit, mounted in a drill press, or carefully guided with a hand drill, drill out all 49 holes approximately 3 1/2" deep.

Make sure your drill bit is centred so that enough material is left on each side of the hole. You can put an angle on these holes if you like, but if you do, be careful to drill all the holes at the same angle.

Now insert all cut and deburred pipe into the holes.

If you use new lumber, the pipe can be twisted or tapped in and, when the 2 x 4

4" long, 4-hole metal strap

MATERIALS LIST

7 pcs - 8′ 2 x 4s
5 pcs - 10' fence top rail 1 1/4" thick each cut into 12" lengths
14 pcs - 4" long 4-hole metal straps
Screws to secure straps to back of 2 x 4s
Wall anchors or screws for block or frame walls.
A 1 1/4" Forstner bit.

dries, it will shrink and capture the pipe.

A variation is to use dry lumber, drill additional holes for different spacing, and move the dowel locations as required.

Mounting The Rack

Now flip over the 2 x 4s and mount one strap 10" from the bottom and another from the top using the two centre holes.

To mount to a block wall, use wall anchors or concrete screws in the remaining two outside holes of each strap.

For frame walls (as in a garage) you can match up to existing studs (for 24" walls), or apply strapping horizontally and space as you like (for 16" walls).

Make sure that 2 x 4s are plumb and all hole locations form a level and straight line.

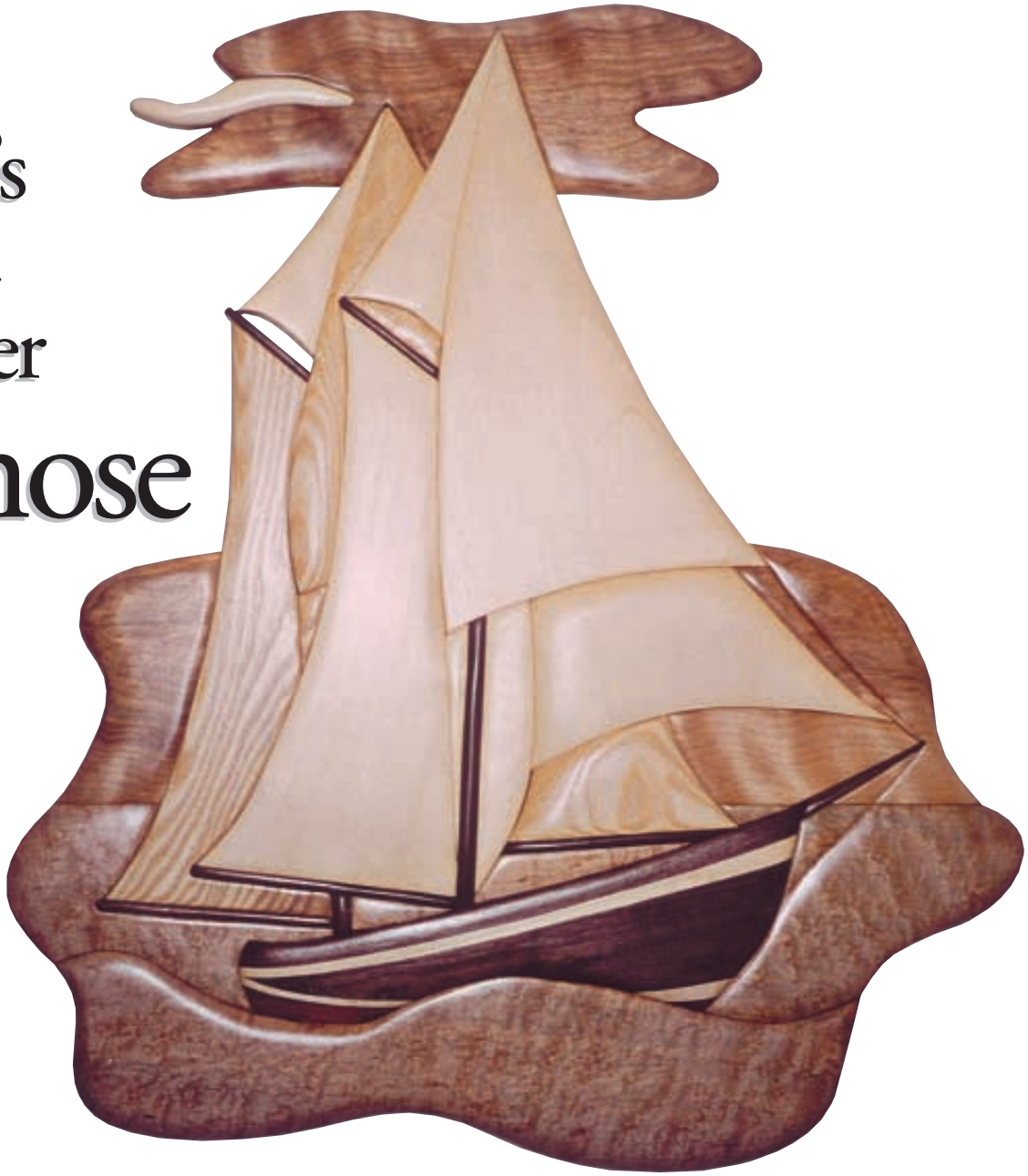
When properly mounted, these racks will hold an impressive pile of heavy hardwood or any material you choose.

To build a lumber storage rack 12' long and 8' high with seven levels costs about $600.

John Chambers is a woodworker and owner/operator of The Quinte Woodworking Centre in Belleville, Ontario. tel: (613) 962-1151 www.quintewoodworking.reach.net

By Fred Martin

Canada's Historic Schooner Bluenose



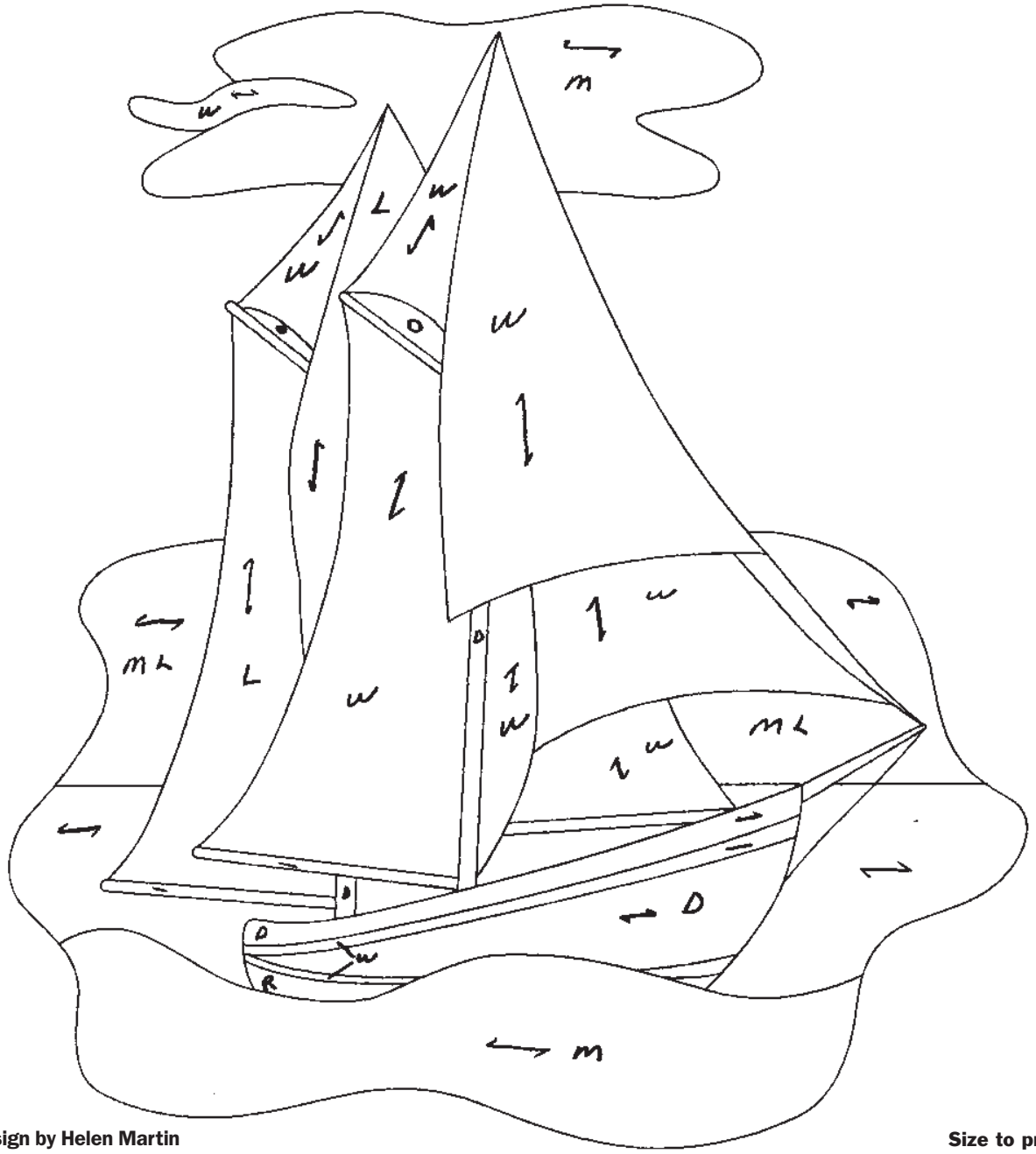
The sailing schooner, "Bluenose", was launched in Lunenburg, Nova Scotia, Canada on March 26, 1921. During its 25-year career it never lost a race and, in 1937, the Bluenose's image was placed on the Canadian dime.

The ship was named after the nickname of the people of Nova Scotia: "Bluenoses" or "Bluenosers". There are a couple of stories to explain the origins of the nickname. Nova Scotia's potatoes had a blue tinge, when washed, and often had nose-like knobs on them. The potatoes were exported to Maine and, because of them, Nova Scotia became known as the land of the "Bluenoses".

The nickname is also said to have come from the early fishing days, when fishermen wore homespun clothing. They would arrive in Boston to sell their fish at the markets, with blue on their noses. The blue was left by their home-dyed blue, woolen mittens, with which they wiped their noses while fishing in dories, on the cold North Atlantic.

The name "Bluenose" reflects two important sources of livelihood, and the nickname was proudly accepted by Nova Scotians and, later, used in the naming of the world famous tall ship.

This intarsia design is a small tribute to the proud ship and the men who sailed her.



Intarsia design by Helen Martin

Size to preference.

The woods used here are only suggestions. Feel free to use whatever woods are available to you. This type of project is far more about enjoying yourself than about the woods you use.

Transfer the pattern

Transfer the pattern onto tracing paper, making sure that the grain direction arrows are included. Select the first piece of wood for the hull. Mark it, using the traced pattern, and cut it to shape.

After cutting, remove the burr from the back edge, and sand the edges with an oscillating spindle sander, or a drum sander, mounted in a drill press. Without

TOOLS

- **Scroll Saw**

Optional: Band Saw, Oscillating Spindle Sander or Drum Sander in a Drill Press, Bow Sander, Pneumatic Drum Sander Flap Sander, Random Orbital Sander

- **Accordion Glue Bottle and GF 2002 Glue**
- **Duct Tape**
- **Tracing Paper**
- **Transfer Paper**
- **Draftsman Pencil and Leads**
- **Finish of choice**
- **Waxed Paper**
- **Hanger of choice**

MATERIALS LIST

1	**1″ x 4″ x 18″**	
	Hull, Masts, Spars	Walnut
1	**1″ x 8″ x 24″**	
	Sails, Cloud, Hull	Aspen
1	**1″ x 6″ x 24″**	
	Sails	White Ash
1	**1″ x 4″ x 24″**	
	Water	Bird's Eye Maple
1	**1″ x 6″ x 20″**	
	Sky	Curly Birch
1	**1″ x 4″ x 4″**	
	Hull	Eastern Red Cedar

square edges, it's nearly impossible to have tight fitting joints.

Fit the pieces

Select the wood for the next piece; slide the transfer paper under the pattern, and place the first piece in position. Mark this piece, using the pattern and the first piece as a guide (photo 1). Cut and fit the pieces together.

When you're satisfied with the fit, you can either tape the pieces together using duct tape or, as I have done, glue them together (photo 2). The pieces are glued together because the hull is shaped as a unit, so don't worry about excess glue.

Continue cutting until the hull pieces are completed. Sand the edges of the hull to make a seamless edge (photo 3). Continue marking, cutting, fitting and taping pieces together using the previously cut pieces as a guide (photos 4-5). Continue until all the pieces are shaped and glued together, except the upper sky and cloud (which are done after the sails).

Shaping and Contouring

This is where you make your intarsia piece come alive. Some intarsia artists say you should start at the lowest piece; others say you should start at the highest. I do both, some higher, then some lower. Keep taking a step back to get an overall view (photo 6). When you are satisfied with your contouring and sanding, glue the pieces together, using wax paper under them, so that they don't become a permanent part of your workbench.

Mark and cut upper sky and cloud

Cut and edge-sand the cloud (photo 7). Use this to mark the sky (photo 8). Cut, fit and shape the upper sky and cloud (photo 9).

Glue

Apply glue to any gaps you have on the back of your piece (photo 10). When the glue has dried sufficiently (approximately 10 minutes), sand the back flat (photo 11).

Finish

Apply the finish of your choice and, when dry, attach a hanger (photo 12).

FRED MARTIN is an intarsia artist from Moose Jaw, Saskatchewan
www.intarsiabyfred.com


1


2


3


4


5


6


7


8


9


10


11

By Paul Ross

Two Earrings, One Turning

This project is both elegant and economical. I say that because these earrings are turned as one piece, then cut into two and shaped off the lathe. The project requires a bit of off-set turning with an eccentric chuck.

The eccentric chuck allows a true centre to be manipulated to produce off-set centres.

On the eccentric chuck (photo 1), the "face-plate" is in a slot. Move the face-plate from centre (off-set it) to the extreme edge of the eccentric chuck, by turning the set-screw on the side. Essentially the face-plate rides on a threaded rod. The back up piece (shown with the hole in it) provides a larger gluing surface for the earring piece. Fit the eccentric chuck, which has a 3" recess on the back of it, onto a Stronghold chuck.

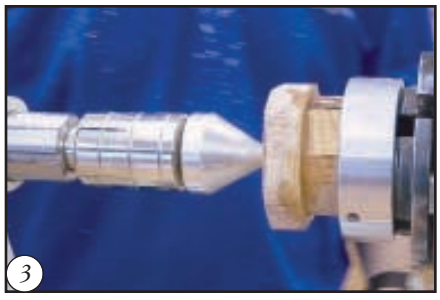
Glue the backup block to the face plate, and make sure that the face place is in the true centre position. The backup block is now ready to be faced off. Do so with a small 1/8" parting tool (photo 2). Glue the earring stock onto the backup piece while it's on the lathe. Use the tailstock as a clamp (photo 3).

Treat the initial turning of the piece as a small faceplate project. Take an outside cut, using a small 3/8" bowl gouge (photo 4). Then position the rest across the face and true up the face with a cut from the outside to the centre.

At the start, rub the bevel with the gouge


1


2


3


4


5


6

in a low position. Keep the flute facing towards the cut as it approaches centre. Then lift the handle slightly, to bring the tool onto centre (photo 5).

Scrape the face lightly with a small scraper, to refine the shape and to create a slight radius of the piece (photo 6). Leave the piece on true centre, and cut a small groove with a 1/4" spindle gouge, about a third of the way out from the centre. I made three individual grooves at different centres: the true centre which cut first, and two other off-set centres (photo 7).

To make the second groove, turn an Allen key in the eccentric chuck to off-set the centre. As you turn the Allen key, the set-screw rotates and moves the "face plate" from the centre. Cut the first off-set groove (photo 8).

At this point apply some chatter work to the piece. It doesn't show up in the photos but you may recognize it. Chatter work is the spiral, chattered pattern, which results when the tool vibrates against the wood. You may have produced this effect without actually realizing it or intending it when working on long slender spindles and the wood vibrates against the tool.

To purposely create chatter work, simply apply a tool that can vibrate to the stable wood. The tip of the chatter tool is somewhat like a spring steel that is slightly curved down and gripped in a holder (photo 9). It's the tip that does the vibrating. Theoretically, you could make infinite patterns of chatter work by adjusting: how far the tip of the tool is in (or out) of the holder; the speed of the lathe; and the speed of travel used to traverse the piece. Each adjustment has a different affect on the outcome of the pattern.

To use the chatter tool, hold the top of the tip on centre, with a slight downward incline (photo 10). It is very similar to the way you use a scraper.

I highlighted the chatter work by coloring. You can do this with draftsman's markers. These have a fairly long, soft tip (photo 11).

Repeat the same steps to turn another off-set centre.

When you have made three grooves, return the piece to true centre and sand to desired grit. Then use a very narrow parting tool to part the back of the piece off the backup block (photo 12). The backup block needs to be slightly concave to accept the front of the earring because the front of the earring is slightly radiused.

To turn the back of the earring, flip it and hold it on the backup piece with double-sided tape. Then apply a piece of double-sided tape to the backup block (photo 13). Put the tailstock in position for support while you are cutting the bottom (photo 14). Remove the tailstock and cut the last little pip with a skew (photo 15).

You can now cut the piece in two. Align it symmetrically and cut it down the middle with a fine-tooth coping saw. Now book-match the halves together, holding them with a small, quick-release clamp. Use a small drum sander, in a drill press, to sand the cut side of the earring so that it is slightly concave. Make two moon-shaped halves. Glue the earring posts onto the back halves and you're done.

Turning your own jewellery ensures that you have (whether it's for yourself or a gift) a truly unique accessory. If you do give them as a gift, be sure to include a business card, because a lot of people will be asking, "Where'd you get them?"

PAUL ROSS owns and operates Chalet Woodcraft and teaches woodturning in Boston, Ontario.
(519) 443-5369 www.chaletwoodcraft.com


7


8


9


10


11


12


13


14


15

By Rea Gibson

Magic Square Puzzle

The Magic Square puzzle originated in China more than 3,000 years ago.

The object of this puzzle is to arrange the nine tiles (numbered 1 through 9) so that each row, column and diagonal adds up to 15.

These tiles are made of 1/4" cherry and cut into 1 1/2" squares. The tray is 1/2" x 6" x 6".

The tray can be made in a number of ways. This one was routed out with a straight bit.

The squares can also be numbered in various ways. These numbers are stick-ons from Letraset, but you could also burn in, or paint on the numbers.

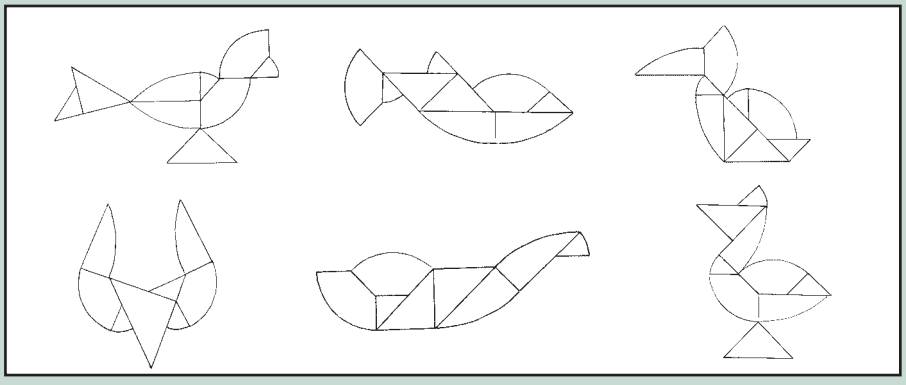
For those people who would like to try a more challenging puzzle, try a 16 tile puzzle with 4 tiles in each direction. The tiles would then be numbered 1 through 16 and should add up to 34 in all directions.

Solutions to these puzzles will appear in the next issue.

REA GIBSON owns and operates Forest Hill Studio. He is also the author of The Wooden Puzzle Book He lives in Mount Forest, Ontario. email:egibson@golden.net

Solution

From last issue's **Egg Puzzle.**



By Paul Fulcher

Underwater Logging

In Quebec's Lake Memphremagog

photos by Ross Spencer

The Inspiration

"What a great idea!" Richard Baird thought, as he watched a Learning Channel's presentation on the underwater recovery of old growth logs. An American company was shown, pulling up logs from the bottom of Lake Superior. Richard watched intensely as huge logs were recovered from the bottom of the lake, where they had been buried for over a hundred years. Richard remembers with awe and surprise: "The wood was as good as the day it sunk!"

The Learning Channel presentation really inspired him. Full of enthusiasm, Richard went to share his excitement with his cousin Ross Spencer, who owned and operated a marina on Lake Memphremagog, in Quebec. He also sought out Richard Thouin, a commercial diver who owned and operated the diving shop at the same marina. Both thought the idea of harvesting logs from Lake Memphremagog was worth looking into. Thouin added to the over all enthusiasm as he recounted seeing a lot of logs on his dives in the lake.

Researching the Business

They decided then and there to start doing research to determine if there were enough good logs in the lake to warrant getting excited about.

History records showed that there were a number of mills and logging crews working on the lake in the 1700-1800s. History records also tell us that water-powered grist mills and sawmills were built on the lake in 1798. In fact, Ross's great-grandfather had owned a large part of a nearby mountain and he and his men had logged it. They used to haul their logs to the lake, and then float them 25 miles to the sawmill where they were sold. Imagine Ross's excitement in learning he would be recovering (and ultimately sawing) the actual logs that his great-grandfather had chopped down over 100 years ago.

Having completed their research, and finding plenty of logs, the next phase was to acquire the proper permits and determine the most environmentally friendly way to recover the logs.

The Value Old Growth Timber

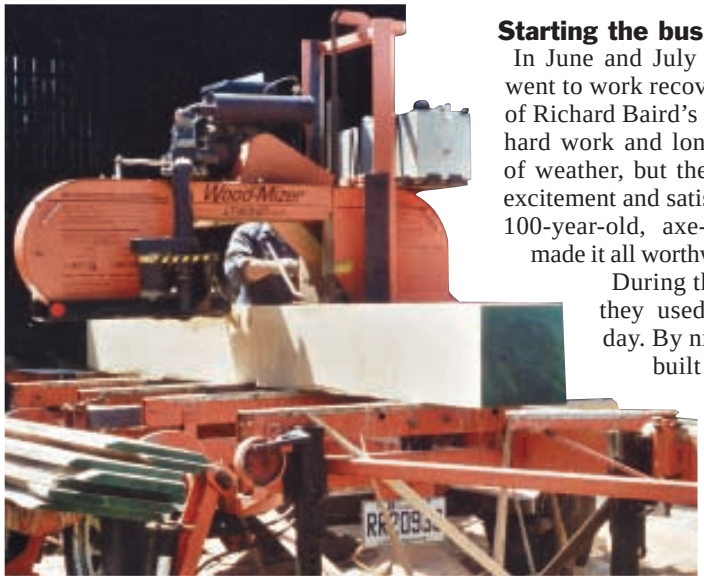
Over 200 hundred years ago trees were cut down, some by axe, and the logs were floated toward sawmills. They trees were originally harvested as far back as the 1700s. The timber from this period of history is referred to as "old growth timber".

During the period of "old growth", hard wood trees took hundreds of years to grow to a diameter of 3-4 feet. Soft wood (coniferous) trees had grown up much faster and, as a result, blocked out the light for the hard wood trees. The hard woods, with their stunted growth, produced 40 to 60 growth rings per inch compared to today's eight to 10 growth rings per inch.

The greater number of growth rings per inch gives the old growth lumber a finer, much tighter grain pattern. The reduced light and oxygen levels contribute to the preservation of the wood and, because the

logs have been under water for over 100 years, they also display different shades that just don't exist in today's wood. Some even have tinted or stained qualities, caused by the minerals in the silt on the bottom of the lakes. As the sap was leached out over the years it was replaced with the mineral qualities producing different colors of blue, green and gray. The effect is rare and only seen in certain logs and, even then, only in a few boards per log.

The density and beauty of the wood, along with its tendency not to shrink, make it very attractive to furniture builders, carvers, and cabinetmakers. The wood is used for flooring, musical instruments, wall and ceiling paneling and yacht interiors. Musical instruments made from this wood have superior sound. In addition to being very special when used in modern projects, old growth lumber is used to repair antique furniture, and in the restoration of old buildings, such as churches and cathedrals, because it more readily matches the grain of woods used long ago.



Starting the business

In June and July 2000, the three men went to work recovering logs, using two of Richard Baird's pontoon boats. It was hard work and long hours, in all kinds of weather, but they all agreed that the excitement and satisfaction of recovering 100-year-old, axe-cut hardwood logs, made it all worthwhile.

During those first two months they used Richard's boats by day. By night the three of them built a 34-foot pontoon boat. Ross designed the boat: two 34 foot aluminum pontoons; a flat deck with side storage boxes for equipment; and two 9-ton winches with a helm station to starboard. With their new boat they worked out a cooperative system: Richard Thouin found the logs, Ross Spencer drove the boat and Richard Baird ran the winches.

For the first two years of their business, they sold all of their harvest as logs. Then, in 2002 they started sawing their own logs, and have since milled over 30,000 board feet on a Wood-Mizer. Now they are in control of the entire process, from the recovery of the logs, to the sale of kiln-dried boards.

Now, three years into the endeavour, Richard Baird and Ross Spencer are still excited when they go out in search of underwater logs. Their company is Envirotech, Georgeville, Quebec.
(819) 868-3818 r_spencer@earthlink.net

Today's maple

Old growth maple

photo by Jacques Courtemanche

Richard Thouin passed away in 2001. In addition to being remembered for his recovery of underwater logs, he will be remembered for his discovery of an important historical artifact.

One day Richard came to the surface carrying something clutched to his chest. It was a clay pot. It looked in perfect condition, yet it also looked to be of some age. They have since found the vessel to be approximately 2,000 years old. It is still in the process of being researched and dated more exactly. After that it will be on display in a museum in Sherbrooke, PQ.

Richard Thouin had not only reached back a century and returned with wood from our forefathers, he has reached back two millennia and returned with a clay vessel from another civilization.

simpleshelving By Steve Siddall

Kitchen Shelf

Over-the-sink shelving solves a common problem many of us have in our kitchens: where to store and organize those items in our kitchen that we want to have in the sun? The sun is a valuable, and sometimes too rare of a commodity, in the kitchen.

This is a project that will help you get a little bit more out of the sun that may be in your kitchen. If you're currently cramped for space to grow herbs or plants, or if you just need a little extra space to sun-ripen your tomatoes, this is a simple shelf solution for your kitchen.

Any shelving solution for your kitchen sink will need to be particular to your needs and décor, so there are no exact measurements given for this project.

Before you Start

First, you'll have to determine if this type of shelf will work in your kitchen. Considerations include: window usage; available room (left, right and above the sink); and window coverings.

Window Usage

Do you open the window often? Make sure that your shelf enables you to maintain your current window usage. You may opt to build one simple shelf to extend your window sill and give you complete access to your window.

Available Room

What kind of space do you have to the left and right of the sink? You will need enough room for the shelf vertical to stand on the counter top on both sides of the sink and clear any cabinets.

Window Coverings

Coverings will make or break this project. We don't have window coverings so this isn't a consideration for me. Blinds inset in the opening of the window will not cause any problems. However, drapes are a whole new challenge. If you have drapes, you may want to remove or shorten them.

Because everyone will have a unique kitchen design, I have not provided a drawing for this project. This article is aimed at helping you to decide on, and build, a shelving unit that suits your needs. You will need to assess and measure your shelving needs and build accordingly.

I used readily available 1" x 6" material from the local lumberyard.

Choosing your Wood

Stand back and imagine what wood will best suit your kitchen. Choose a wood that matches the look of your current kitchen. Our cabinets are melamine so I could have used just about anything. I chose pine because I like the look of it and it's easy to work with.

Verticals

Determine where and how the verticals are going to stand. There's a back splash on our counter top so I had to cut the back of my verticals to fit around it. You will also need to decide how tall to make the verticals (which is determined by the height of your window and the valance, if any, over your sink).

Cut the Verticals

Cut the material for your verticals and stand them in place. Determine the length and height position of the shelves. I cut the top of the verticals at a slight angle. It's hardly noticeable, but it does add a little character. Our bottom shelf was best at 11" above the counter. That gave enough height to clear the dish soap container and plenty of clearance to operate the taps.

Once you have determined where the top shelf will be, see if there is enough room to put a shelf in between because there are never too many shelves.

I used #8 x 1 1/4" screws to hold everything together, and plugged the holes over the screw heads. If you want to avoid the use of fasteners, you could dado or biscuit the shelves into the verticals and glue everything together.

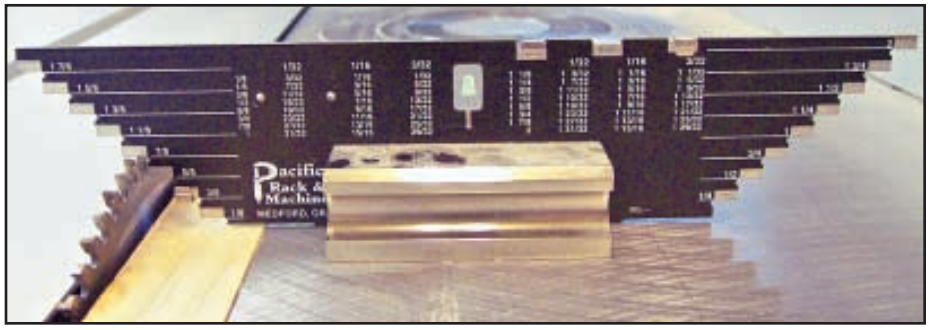
Because of the dampness and humidity of the sink, be sure to use a quality finish and to apply it liberally.

STEVE SIDDALL is the president of Workshop Supply Inc., based in Embro, Ontario.
1-800-387-5716 www.workshopsupply.com

Precision Machinery Alignment

Blade Gauge II

Trying to accurately set the height of your table saw blade or router bit can be frustrating and time consuming, particularly when you have to make repeated height changes. We've all held a ruler against the blade or bit and eyeballed the height, then taken a trial cut, adjusted the level a bit, taken another cut, followed by more adjusting and cutting until the height is just right.



You no longer have to "guesstimate" when setting the height of your saw blade or table router bit thanks to Pacific Rack and Machine's **Blade Gauge II**, an innovative tool that enables you to make precision measurements quickly and effortlessly. The gauge is manufactured from custom-made fibreglass, high-tech printed circuit board and mounted on a heavy magnetic base that anchors the unit to any metallic surface. Attached to the circuit board are an LED light, a long-lasting 3-volt lithium battery, three removable height adjustment clips (1/32", 1/16", 3/32" thick), and a removable insulated wire (the "Magnawire"). On the free end of the Magnawire is a magnetized metal probe.

Along both sides of the gauge is a series of eight indented "steps", which give you a total of 16 pre-set height measurements, from 1/8" to 2". By slipping one of the three height adjustment clips onto any of the steps you can get up to a total of 48 various height settings, in 1/32" increments. For example, to get a height of 5/16" you slip the 1/16" clip on to the 1/4" step. You don't have to figure out the fractions in your head; there is a handy conversion chart printed on the back side of the Blade Gauge.

To use the Blade Gauge you simply raise your blade or bit to the approximate height you want. Then place the gauge with the appropriate step over the blade or bit. (Note: if your table top is non-metallic, plug the Magnawire into the base of the Blade Gauge and connect the magnetic end to the blade or bit). Slowly raise the blade or bit; when it touches the step for the height you selected, the LED light on the gauge will illuminate. Pretty cool, eh! What you've done is created an electrical path between the blade, the step, and the LED light.

Saw blades generally have one tooth set higher than the others; you will want to use the Blade Gauge to find that tooth and mark it with an indelible pen. From then on you'll always want to use that tooth when setting your blade height to ensure perfect height adjustment.

Once you've used the Blade Gauge a few times you'll be able to set your height adjustments in a quarter of the time you're used to taking. You'll not only save time and effort, but probably reduce your frustration level as well! Pacific Rack and Machine also makes the **Angle Perfect II**, which enables you to set your table saw blade at a perfect 45 or 90-degree angle.

Priced at about $78. CDN the Blade Gauge II is an affordable way for you to get the maximum accuracy from your table saw or router. Comes with an instruction manual and a lifetime warranty. Available direct from Pacific Rack and Machine at 1-877-220-2699 or through their web site at www.bigleg.com.

SuperBar and MasterPlate

In order to do the best work that you are capable of doing, you really need to maintain your machines in tip-top condition. Regular maintenance is also an important factor in ensuring proper safety in the shop.

Chucking a new blade on your table saw won't necessarily result in perfect cuts. If your rip fence is out of alignment or your blade is not aligned to the mitre slot, your cuts will likely be off, you may notice consistent burns when ripping stock, or worse, you could end up pinching stock between the blade and the fence, resulting in kick back.

The **MasterGage Corporation** makes two tools that will help you align your table saw (as well as a host of other shop machines, including radial saw, chop and mitre saws and disc sanders). The **Super-Bar** (photo 1) is a precision dial indicator

that measures alignment as you slide it in the mitre gauge slot. The **MasterPlate** (photo 2) is a 1/4" thick precision ground aluminum toolmaker's plate used in conjunction with the SuperBar. It provides a precise reference surface for the SuperBar to ride against. Trying to measure alignment against your saw blade or rip fence defeats the whole purpose of the SuperBar. The stem on the dial indicator can too easily rub against the teeth, gullets or expansion slots on the blade. And a lot of blades aren't perfectly flat.

The SuperBar fits snugly in the mitre slot. There are three setscrews that you can adjust to remove any side play. Two outrigger rods allow the SuperBar to ride smoothly over the tabletop. The unit comes with two extension stems to accommodate different table saw sizes.

With the SuperBar you can check accuracy to .001". The dial is easy to read. Each black graduation line represents .001", while each number represents .01". A full rotation of the dial indicator covers a distance of .100". There is a smaller dial indicator in the centre of the face that measures off each .1" of travel.

The **MasterPlate** is 6" by 10" and fits 5/8" and 1" diameter arbors. When you replace your saw blade with the MasterPlate you get a large flat measurable surface for calibration and alignment.

The instructions that come with the SuperBar are concise and easy to follow. Among other things, it shows you how to measure arbor shaft, bearing and the face flange runout, and how to check alignment of the mitre gauge, rip fence and saw blade. It's inevitable that you will notice some runout; no saw is without it. However, check your saw's instruction manual to see what is allowable and, if necessary, how to make any corrections.

Mount the MasterPlate on your saw arbor, then place the SuperBar in the mitre slot and bring the indicator stem up to the MasterPlate (photo 3). You'll notice that the stem will retract a bit as it makes contact with the MasterPlate. Next turn the face of the dial indicator so the arrow and the "0" on the dial face line up. Now as you move the SuperBar along the mitre slot you can read off the variance.

I carried out a complete check up on my table saw in a little less than two hours, which included shimming my rip fence, where I was out .009".

MasterGage products have a 30-day money back guarantee and are warranted for a full year. They represent an excellent investment that will help you get the best performance out of your shop machinery.

The SuperBar sells for about $110. CDN and the MasterPlate for $78. CDN. For more information or to order call 805-492-4616 or www.mastergage.com

CARL DUGUAY is a writer and woodworker from Sidney, British Columbia. 250-888-5067
carl@finewoodworking.ca www.finewoodworking.ca

By Garnet Hall

Lucky the Clown

Ladies and gentlemen, children of all ages, allow me to introduce to you "Lucky the Clown"!

"Lucky" isn't a difficult project, but fitting him together can present some challenges. The hardest part to fit is the "w" shaped part that runs across his face (above his nose and under his eyes).

Lucky can be a fun project to shape. Creative shaping can really bring a face to life, and Lucky is no exception. For example, add some curve to his hair. Lower the edges of his bow tie knot, curve and slope the bow part down to the knot. Shape the face round. Raise and really round out his nose. All this shaping (and more) will add to the project and bring Lucky to life.

The pattern has suggestions for wood species and shades, but use your imagination and choose woods to your liking.

The woods you select will make the project uniquely yours. Start with 3/4" material.

Transfer the Pattern

Transfer the pattern to the wood using which ever technique you prefer: make a template of the pattern from some thin wood (1/8" hardboard); trace pattern onto wood with carbon paper; or cut out pattern pieces and spray glue them onto the wood.

Cut out the Pieces

Cut out the pieces very carefully. I have been experimenting with cutting out intarsia projects with thinner (smaller) blades. I have found that #3 hook tooth blades handle 3/4" Cedar well, with little or no blade waiver. The thinner blade leaves a thinner kerf and a better fit, as long as you cut on the line. I got some HatEyes for when I'm doing such detailed work. (HatEyes are small magnifying lenses that clip onto your hat visor. I find them easier to deal with than a large magnifying lens. See: http://www.mageyes.com).

Assemble and Check for Fit

Project should fit reasonably well. Don't worry too much about a perfect fit. As long as you are within a saw kerf (1/16"), it won't be noticeable. However, if you lose your pencil in one of the gaps, you'd better tighten things up. I usually start with one of the larger pieces and then fit the adjoining pieces to it. Holding two pieces together and running a saw blade down the join helps to fit pieces.

Once you have the pieces fitting to your liking, raise and lower any pieces the pattern calls for, or that your imagination suggests.

Raise and Lower

Raise by gluing scrap plywood to the bottom of pieces, lower by resawing or

sanding pieces thinner. Assemble all the pieces again and draw reference lines. These lines will help with the shaping.

Shape

Shape with any sanding tools you have. I like using a small pneumatic sander in a flex shaft, but everybody has their favourite tool. Try to achieve a smooth transition from one level to the next. The more shaping you do, the better it will look.

Make sure that you wear dust protection. Always do as much as you can to reduce your exposure to dust. Western red cedar can be one of the worse woods for allergic reactions.

Sand the Pieces

I don't sand past 220. I don't feel it's necessary to create any more dust than is required, and 220 is smooth enough.

Assemble the Project

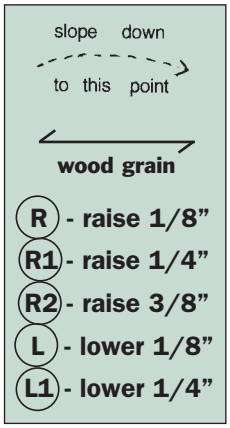
Assemble the project onto the backing material. Baltic birch is the best backing material. You can also use ordinary oak or birch plywood. Just make sure that it stays flat (1/4" would be adequate for this project). Trace around the project. Cut out the back and glue the pieces onto it. Use ordinary carpenter's glue.

Apply the Finish

Any finish for wood will work. I like MinWax Satin, but use what ever you like the look of, or what ever you like applying. You can brush it or spray it on. Apply three coats on the front and one on the back. Sand between coats. Some people like to finish the pieces before they glue up – the choice is yours.

So there you go. A few tools, a little material, a lot of patience, and you can make yourself "Lucky".

GARNET HALL is an intarsia artist living in Stoughton, SK. 1-800-729-2473 www.sawbird.com

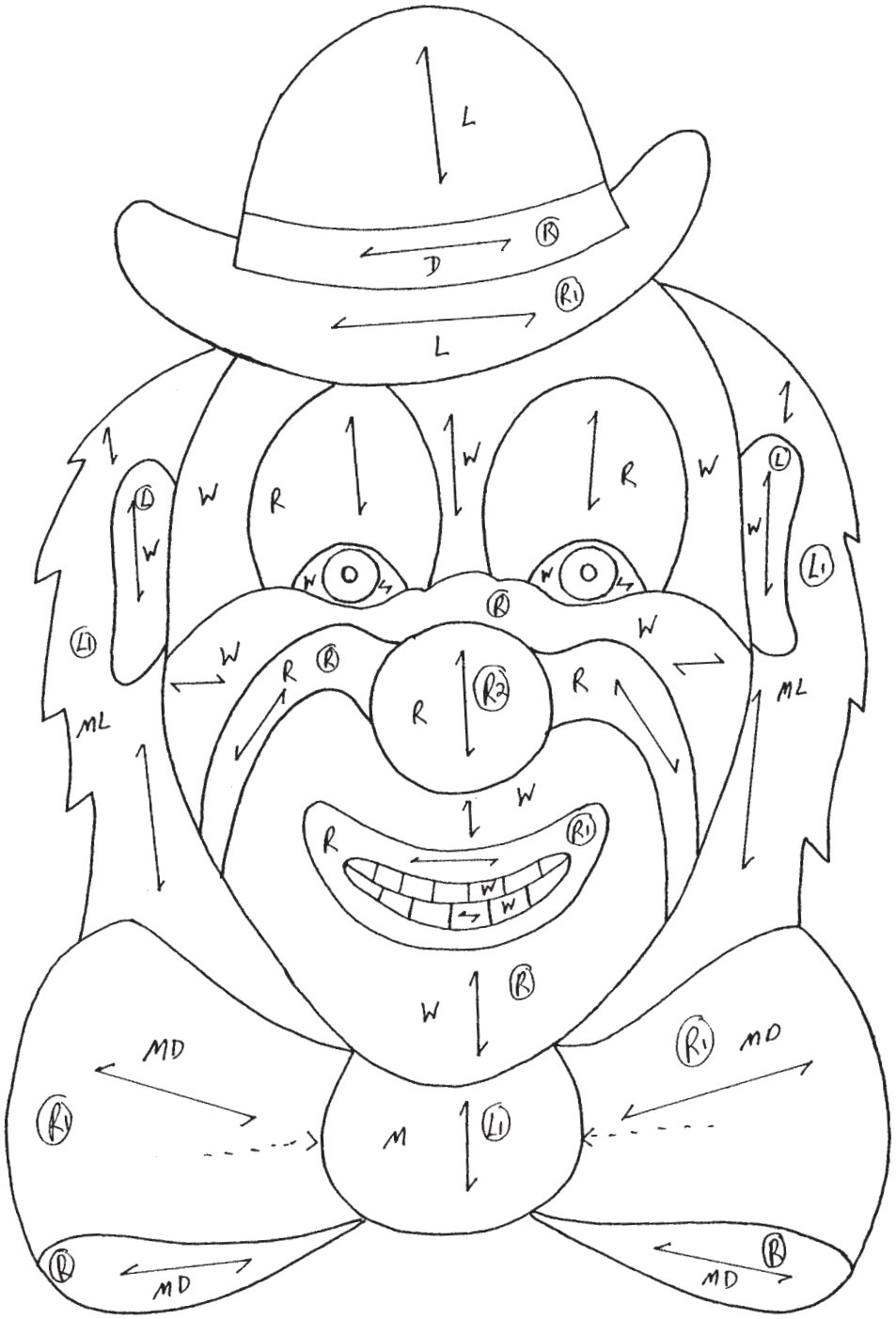


EYES - Trace the eyes onto a white wood. Drill and insert a light dowel. Then cut the eye out.

TEETH - The lines are just kerf cuts, not separate pieces

HAT - Give the hat a rounded look.

D – Dark Western Red Cedar (WRC)
L – Light WRC
ML – Medium Light WRC
M – Medium Western Red Cedar
MD – Medium Dark WRC
W – White - pine, spruce, aspen
R – Red - aromatic cedar, paduak



Size to preference.

Intarsia design by Garnet Hall

GENERAL INTERNATIONAL

GENERAL

8360 Champ-d'Eau
Montreal (Qc) Canada H1P 1Y3
Tel: (514) 326-1161
Fax: (514) 326-5555
generalint@aol.com

835 rue Cherrier
Drummondville (Qc) Canada J2B 5A8
Tel: (819) 472-1161
Fax: (819) 472-3266
general@general.ca

www.general.ca

ONTARIO STOCKING DISTRIBUTORS

ASHMAN TECHNICAL
351 Nash Road North
Hamilton, Ontario. L8H 7P4
905-560-2400
905-560-2404 fax
www.woodworktools.com

BRETTWOOD MACHINE WORKS
15138 Hwy 62 North of
Madoc, Ontario. K0K 2K0
1-800-799-2199
www.brettwood.com
brettwood@sympatico.ca

FEDERATED TOOL SUPPLY CO. LTD.
1581 Oxford Street East
London, Ontario N5V 2Z4
1-800-387-0608
www.federatedtool.com
sales@federatedtool.com

LEVAC SUPPLY LIMITED
25 Railway Street
Kingston, Ontario. K7K 2L7
613-546-6663
330 Laurier Blvd.
Brockville, Ontario. K6V 7L9
613-345-1991
www.levacsupply.com
info@levacsupply.com

MARKHAM INDUSTRIAL & TRADE
7634 Woodbine Ave., Unit #1
Markham, Ontario. L3R 2N4
905-477-5192
1543 Bayly Street
Pickering, Ontario. L1W 2Z1
905-420-2448
www.markham-industrial.com
mits@newwebmail.com

NORTHFAST LIMITED
261 Regent Street South
Sudbury, Ontario. P3C 4C6
1-800-461-4084
northfast@on.aibn.com

T.J.V. WOODWORKING MACHINERY
6660 Kennedy Road
Mississauga, Ontario. L5T 2M9
905-670-3344

TEGS TOOLS & MACHINERY
1104 Barton Street East
Hamilton, Ontario. L8H 2V1
905-545-5585
1250 Upper James Street
Hamilton, Ontario. L9C 3B1
905-388-0784

TOOLS WOOD
319 Victoria Avenue East
Thunder Bay, Ontario. P7C 1A4
807-475-8333
1-866-248-9663
www.toolswood.com
toolwood@tbaytel.net

WELBECK SAWMILL LTD.
R.R. #2
Durham, Ontario N0G 1R0
519-369-2144
www.welbecksawmill.com
sk@bmts.com

WINDSOR FACTORY SUPPLY
730 North Service Road
Windsor, Ontario. N8X 3J3
1-800-387-2659
www.wgsltd.com
wes@wfsltd.com
also in…London, Leamington, Sarnia
Toronto, Wallaceburg

WM. KNELL INDUSTRIAL
199 Victoria Street
Kitchener, Ontario. N2G 2C1
1-800-265-8959
42 Arthur Street South
Elmira, Ontario. N3B 2N7
1-877-289-9414

NORTHFAST LIMITED

Northfast Limited - Tools and Fasteners was established in 1981. Our main focus in business was to supply the construction, mining, and pulp and paper industry with a complete line of construction anchors and fasteners and tools.

In the mid 1990s, we started to get a demand for woodworking equipment, tools, accessories etc..

Presently we stock a complete line of woodworking machinery, power tools and air tools.

Northfast Limited services all of the equipment we sell on and off site, from warranty to after warranty service. We are presently developing two we bsites (www.northfast.com and www.discounttools.com) which will have all current tools, accessories and promotions updated constantly.

For the north's largest selection of machinery, power tools, accessories and fasteners, contact Northfast Limited in Sudbury, where service and selection is our goal.

ASHMAN TECHNICAL LTD.

Ashman Technical has been in operation for over 55 years, supplying Board of Educations, Universities, Industries, Constructions and Governments in North and South America, the Caribbean and Africa.

We are a major supplier of woodworking, metal working and auto shop equipment, as well as customized tables for the above in various sizes and shapes.

Over the past 20 years, we have developed an expertise in supplying and installing small and large dust collector systems to educational and industrial institutions.

Drop in and visit our location and meet the people that make Ashman Technical Ltd. the place where you will want to shop.

 By Michel Theriault

Mantel Clock

This easy-to-make clock uses wooden molding to add a special touch of elegance.

Drill the Holes

Drill dowel holes in the top and bottom of the side pieces, centered on the width of the board, and 3/4" from the side edges. Next, drill matching holes in the top and bottom pieces (fig. 2).

Chamfer the Top

Chamfer the top piece slightly with a sanding block.

Alternatively, you can use a hand plane to create the chamfer.

Mitre and Glue the Pieces

Cut mitres on the molding using a mitre box and glue them to the top and bottom pieces as shown (fig. 4 & fig. 5).

TIP ***When cutting the molding for the top and bottom pieces, cut the pieces out one at a time, measuring each subsequent piece directly from the clock.***

Install a Handle

Install a handle in the top.

Tack the Supports

Tack the front supports to the sides with brads (fig. 3).

Assemble the Clock

Assemble the clock by applying glue to the mating surfaces and in the dowel holes, then insert the dowels and position the top and bottom onto the sides. Clamp and check to make sure it is square before allowing it to dry.

Apply the Clock Face

Drill a hole in the centre of the plywood clock front to accommodate the diameter of the shaft. Paint the plywood and glue the clock face on. Add the clock mechanism and hands.

Glue

Glue the plywood face onto the face holder strips and leave until dry.

OPTION

• Screw the tops and bottoms to the side pieces using counterbored holes and screw hole plugs instead of dowels.

MATERIALS LIST

1	3/4″ x 3 1/2″ x 8″	Top Oak
1	3/4″ x 3 1/2″ x 7 1/2″	Bottom Oak
2	3/4″ x 2 1/2″ x 6″	Sides Oak
1	1/4″ x 6″ x 6″	Front Oak Plywood

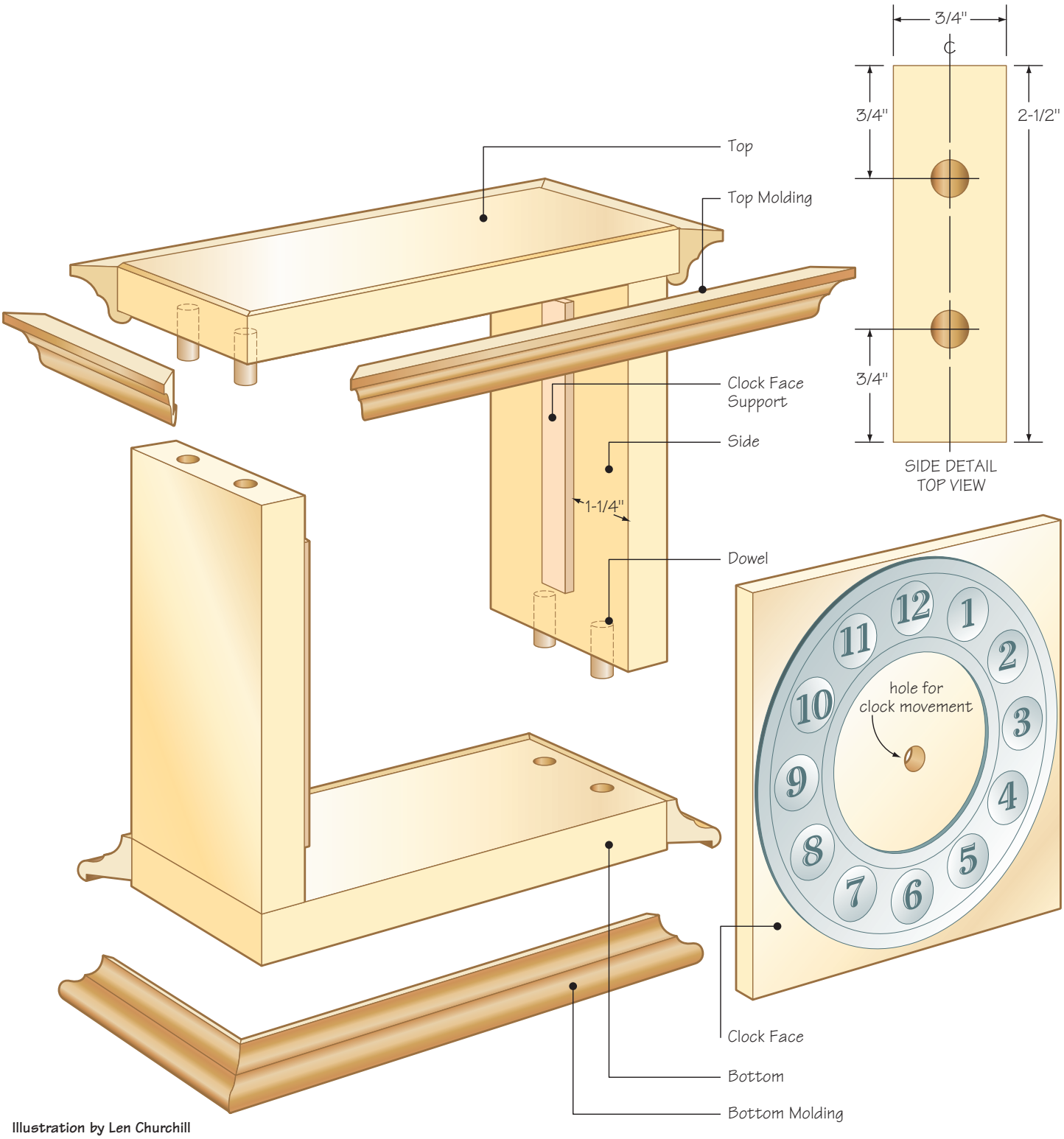


Illustration by Len Churchill

MICHEL THERIAULT is a writer and woodworker living in Guelph, Ontario. www.woodstoneproductions.com mjtheriault@sympatico.ca

Delta 6" Grinder

Model GR250

Even a basic woodworking shop is not complete without a grinder and Delta has made it really easy to add this basic tool to your shop. What's more, Delta has added some great features that, until now, have not been seen in a basic 6" grinder.

The **Delta 6" Grinder** (model GR250) comes with a variable speed control. No more burnt edges on those chisels. The GR250 has speeds from 2,000 to 3,450 RPMs and an up-front dial controls them.

In addition, this new Delta grinder has a built-in gooseneck task lamp to brighten up your work place. Clear Lexan eye shields are built in and spark shields are part of the package. Although the GR250 is equipped with rubber feet, all grinders have a tendency to "walk" when in use, so Delta has provided a couple of mounting holes to keep the tool in place.

The tool comes complete with two grinding wheels, a fairly coarse carborundum and a finer white stone for finishing work. As a nice additional touch, Delta has thought to include a diamond wheel dresser to keep the wheels true and clean. The GR250 6" variable speed Grinder runs extremely quietly.

Priced at $99.
Contact 1-800-463-3582
www.deltamachinery.com

Craftex In-feed/Out-feed Stand

Model B2435

The **Craftex Roller/Ball In-feed/ Out-feed Stand** (model B2435) is one of the best helping tools to come along for some time now.

There have been hundreds of in-feed, out-feed roller units of all types and descriptions made by a multitude of manufacturers over the past years, but none that quite compare with the B2435. Most are either a single or multiple conveyer roller type. As good as those are, they must be perfectly in line with the tool that they are being used with or the stock will wander. The roller-ball types are better because they are omni-directional. The B3435 is the best of both.

Craftex has perfected the feed table. The B2435 has both a conveyer type single roller (ideal for a compound mitre saw) and a multiple ball type with five rollers. You simply flip the top for your choice.

Other feed support tables are height adjusted with a centre post and a lock-knob. Craftex has made height adjusting a really simple process through the use of a foot pedal. Now, you can use two hands to get the precise level and then release the foot pedal to lock it. The B2435 has a large, tubular tripod base that ensures stability.

The B2435 sells for $75. at Busy Bee. 1-800-461-2879

Wizard Measure Level

Wizard Industries always seems to find new and innovative tools that really make things easy and efficient for us woodworkers.

Their latest entry is the new **Measure Level**. Our test sample is a 24" long anodized aluminum rule that is a full 1/8" thick x 1" wide. The etched black markings are in 1/8" increments. As a rule and a straight edge, this is an excellent tool by itself. But, leave it to Wizard; this is not enough to satisfy them. They had to take the Measure Level to newer heights.

Wizard did so by adding a sliding spirit level for both plumb and horizontal use. Add to that, two additional sliding blocks for reference points. These aluminum sliders move smoothly and are locked in position with solid brass knurled knobs. The backs of the sliding blocks have imbedded stainless steel pins in them that may be used as a reference marker, screw starter or even better, a compass trammel point to scribe or draw up to 47" diameter circles or arcs. The **Wizard Measure Level** will soon be available in 12" and 36" sizes as well.

It retails for approximately $38.99. For more information and retail outlets http://wizind.com

Fein Multi Master

Originally, many years ago, Fein (pronounced *fine*) introduced a random orbital detail sander. It was designed to get into tight corners and fine details that conventional sanders were unable to reach. The tool, a single speed, was considered the Mercedes of the industry.

More recently, engineers at Fein have discovered that the random orbital motion of the tool can do much more than just fine sanding. They added a smooth and quiet variable speed control to it to slow it down and ease the aggressiveness of it.

They did not stop there.

They discovered that by adding a very thin stainless steel circular saw blade, the tool would work remarkably well to undercut moldings and to shave off that 1/64" to make wood pieces fit.

They also discovered that by adding a fine chisel-like blade, the tool could shave wood and neatly remove glue seepage.

I used it some years ago to remove glued-down foam backed carpet in an entire room, right down to the sub-floor.

Fein has added a number of accessories to the original tool and re-named it the Multi Master.

It comes with several new saw blades including: one that will cut through 2x4s; a diamond imbedded blade to cut ceramic tile (and concrete); and a carbide imbedded blade for removing grout around tiles. The Multi Master also features: additional blades of various shapes/ sizes; "finger" sanders (to sand and polish really tight spots); and other attachments that will do just about anything you can think of.

One more nice touch to the Fein Multi Master, the tool comes with a 12' power cord.

The Mult Master comes in three packages: Start $219. Select $299. Top $379.

Contact info:
Fein Canadian Power Tool Co.
Tel: 1-800-265-2581
Email: fein@fein.ca
Web: www.fein.ca

GRAHAM McCULLOCH is a woodworker and writer living in Halifax, NS. (902) 479-0221
www.shortcuts.ns.ca
graham@shortcuts.ns.ca

■ Cont'd from pg. 3

• Tool catalogs are considered reference material.
• The vast majority of shop time is spent performing various acts of chin rubbing, head scratching and cursing.
• Many woodworkers have a "hobby history" that led up to woodworking.
• Every completed project launches a renewed interest in photography.
• A jig is not a socially forbidden statement, nor an Irish dance.
• Expenditures for school activities and such, is usually viewed as money taken from the tool fund.
• I keep flunking my rookie season.
• Exchange a tool "wish list" with a buddy...SWMBO will tolerate "returning a favour" better than making a selfish tool purchase ;-).
• Accessories and shop modifications don't count as part of the initial stated cost for a new tool.
• Sometimes I peak into the shop just to look at the tools.
• Facing the door with your saw will help prevent the neighbours dog from "goosing" you during a cut.
• Three sheets of cheap sandpaper last about as long as one good sheet.
• A penny saved usually costs $20-$50 later on.
• There's no "payback" for kickback.
• Woodworking plans are mostly to show other people what you're making.
• Murphy was a woodworker before he became a legislator.

As you can see the FORUM is more than just Q&As. It's a growing community of woodworkers having fun, sharing thoughts and opinions.

COMING EVENTS

THE WOOD SHOW
August 8, 9, 10
Durham Fairgrounds
Durham ON
(519)369-6902
http://durham.woodshows.com

THE MUSKOKA WOODSHOW
August 15, 16, 17
Bracebridge Fairgrounds
Bracebridge, ON
(705)645-8789
plynd@muskokaoffice.com

THE WOODWORKING TOOL AND HOBBY SHOW
September 19, 20, 21
Prairie Land Exhibition Grounds
Saskatoon SK
1-888-389-4752
toolshows@shawbiz.ca

THE CANADIAN WILDLIFE CARVING CHAMPIONSHIPS
September 20, 21
Wye Marsh Centre
Midland ON
(705)526-7809

THE WOODWORKING TOOL AND HOBBY SHOW
September 26, 27, 28
Red River Exhibition Grounds
Winnipeg MB
1-888-389-4752
toolshows@shawbiz.ca

By Fred Martin

Custom Container

Do you make hand crafted pieces that you need to ship to your customers? Do you enter your work into wood-working competitions?

If so, you know that shipping such pieces can be both risky and expensive, especially if the piece doesn't show up in the same condition in which it was sent out.

It's very easy to make your own custom, Styrofoam, shipping container out of rigid sheet Styrofoam insulation. Making your own custom containers not only saves you money and lowers shipping costs, but it also insures that your handcrafted piece arrives in its original condition.

You don't need any fancy equipment or tools to make your container, and the material is available from your local building supply store.

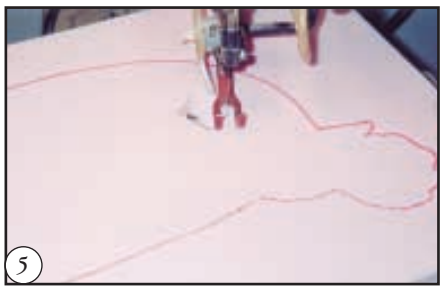
There are a number of different types of Styrofoam available. For our purpose, the white pebbly type of Styrofoam is very messy and it's not as strong as the more dense pink or blue Styrofoam. I use the pink or blue Styrofoam. It's used on exterior basement walls and has many different trade names. The insulation


1


2


3


4


5


6

comes in 2' x 8' and 4' x 8' sheets and in 1" and 1 1/2" thick sheets.

Construction

The first thing to do is to measure the piece that you will be shipping (photo 1) and add 4" to each measurement. This allows 2" protection all around. To make a container for this piece, I used three layers: top, middle, and bottom. The middle piece is cut to the shape of the item being contained, and the top and bottom pieces hold it all together, forming a solid outer box.

If your piece is thicker than one layer of Styrofoam, increase the number of middle layers or increase the thickness of the Styrofoam being used.

Mark your cut lines (photo 2) and cut the three pieces (photo 3). Centre your item on the piece selected for the middle and mark its outline (photo 4). Cut out the interior, using a scroll saw (photo 5).

TOOLS

- Table Saw
- Scroll Saw
- Handsaw (or even a sharp knife)
- Marking Pen


7


8

9


10

Place double-sided carpet tape on the underside of the middle piece (photo 6). Align and stick the middle to the bottom piece.

You now have custom shipping container for your woodcraft or competition piece. Clean all the little pieces of Styrofoam from the container.

When clean, cover with a thin plastic sheet (dry cleaning bags are great) and place your piece in the container (photo 7). Wrap the plastic around the piece (photo 8). Mark the top piece and tape it on (photo 9). Wrap with brown paper (photo 10) and you're ready to ship your piece safely and inexpensively.

FRED MARTIN is an intarsia artist from Moose Jaw, Saskatchewan
www.intarsiabyfred.com

Our Newest Subscription Draw Winner

Here is Tim Warren of Fernie, BC with his newest woodworking acquisition: a RYOBI Cordless Drill-Driver & AM/FM Radio Charger.

When we made the draw, Linda and I both got a chuckle out of it. It was a gift subscription from his wife and was addressed "To: Teddy Bear, From: Hound Dog". Ain't love grand!

If I'm not mistaken, I'd say he's pretty happy with it.

Imagine how happy you'll be if you subscribe and win our next draw!

By Carl Duguay

AKEDA Dovetail Jig

The new **AKEDA dovetail jig** (the DC-16) is causing quite a stir. It's no wonder. For most people, and in particular for woodworkers, the dovetail joint epitomizes fine quality craftsmanship. There is something alluring about finely cut dovetails, especially for those of us who aren't terribly proficient cutting them by hand.

The Sum of Its Parts

The AKEDA is one of the least complicated jigs that I've seen. The jig body is one hefty piece of metal, measuring about 4" x 9" x 21" and weighing an impressive 26 pounds. The jig feels and looks solidly built. No wonder, as most of the jig is constructed of 12-gauge steel with thick-walled aluminum extrusions. The top of the jig is a full 1/2" thick piece of solid steel. The oversize threads on the clamp screws are 1/2" in diameter and drive the clamp bars through heavy brass blocks. Indeed, everything about the appearance of the jig exudes quality and durability.

There is little assembly required for this jig. You will need to attach a piece of plywood to the bottom (screws thoughtfully supplied) so that you can clamp the jig to your worktable. There is an inexpensive optional dust collector that attaches to the bottom of the jig. I tried it both with and without the dust collector, and highly recommend the dust collector. The large flat surface of the jig provides an exceptionally stable surface for the router.

Read All About It

Most instruction guides that I've seen are unintelligible. Not so the AKEDA guide. It is very clearly written, easy to follow, and offers excellent illustrations. I highly recommend that before you use the jig you read through the first four sections of the guide. The guide also provides a step-by-step exercise on making a drawer using both through and half blind dovetails. I did the exercise (after reading the guide) and found it very helpful.

Fundamentals

Although the AKEDA jig can be used to cut a range of joints, the two most commonly used joints are the "through dovetail" (TD) and the "half-blind dovetail" (HBD). Cutting these joints is relatively easy.

Securing Stock

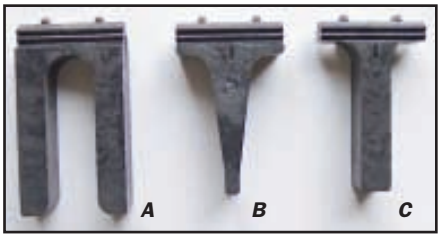
You secure stock by pushing it smartly against the left side fence, up tight against the guide fingers, and turning a (removable) clamp knob. You insert stock vertically behind the clamping bar for TDs; vertically in front of the clamping bar for HB tails, and horizontally through the back top of the jig for HB pins. I found that the jig held stock very securely, without having to exert a lot of pressure on the clamp knob.

Guide Bushing

You will need a 7/16" precision guide bushing attached to your router (AKEDA offers a Porter Cable style precision bushing but it doesn't fit all routers). If your guide bushing is not exactly 7/16" you may find that TDs are a wee bit too loose or tight. If this happens, as it did for me, you can purchase straight bits from AKEDA that are .004" oversize and .004" undersize to accommodate the bushing discrepancy.

Guide Fingers

Where other jigs use a fixed template, AKEDA uses guide fingers (see photo to the right). You snap the guides into slots in the rear guide rail. The slots are spaced 1/8" apart, which effectively enables you to create variably spaced dovetails. To cut tails on either TDs or HBDs you use the tail guides (A). To cut pins for TDs use the



through pin guide (B), and for HBDs use the half blind pin guide (C).

Through pin guides (B) come in 5 sizes: 7˚ (standard with the jig) and 9˚, 11˚, 14˚ and 20˚ guides (optional). The 7˚ guide works best with 3/4" stock, which is a very common stock thickness. I tried the 7˚ guide on 1/2" and 3/8" stock and didn't like the look. Using the optional guides gave a much better proportioned dovetail.

The basic AKEDA kit comes with nine tail pins, nine half blind pins and nine 7˚ through pin guides.

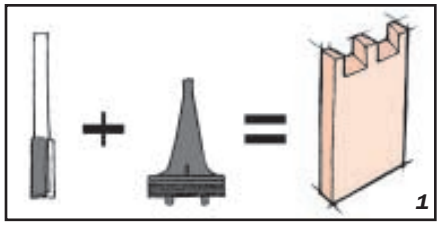
I begin by installing the tail guides and cutting all the tail boards for a project. Before removing the tail guides I mark their positions with a pencil on the guide rail.

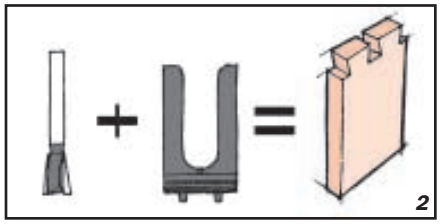
Then I install the pin guides and cut the all the pin boards. No adjustment is required when switching between tails and pins! In fact, I found that it took longer to change router bits than to install guides.

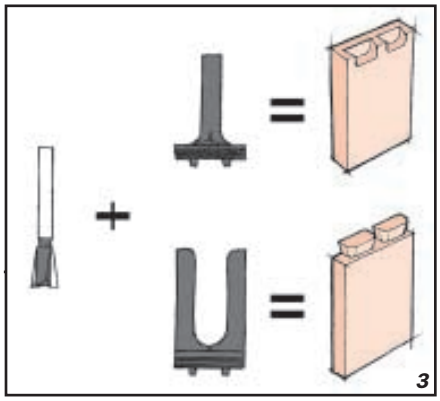
Router Bits

You use both straight and dovetail bits with the AKEDA jig. For TDs you cut the pins using the straight bit in conjunction with the matching pin guide (illustration 1).

To cut TD tails you use the matching dovetail bit and the tail guides (illustration 2). So, if you used a 7˚ pin guide you'd use a 7˚ dovetail bit.


1

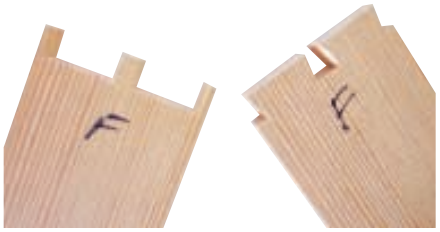

2


3

For HBDs (illustration 3) you only use a dovetail bit along with the matching tail and pin guides.

A Cut Above the Competition

I've been using the AKEDA for over a month now, and have cut quite a few sets of through and half-blind dovetails, along with straight and dovetailed housing joints and box joints. For my first few dovetails, I measured where the tails should go; thereafter I didn't bother measuring, but inserted the guides visually, in a pleasing manner, for the board size I was using.


through


through assembled

The AKEDA bits continue to hold up nicely; I'm very pleased with their performance and durability. They also are competitively priced.

At first I was somewhat apprehensive that I might cut into the guide rail while routing stock, however, the guide bushing prevents this. I noticed that I got more tear out cutting tails.

When cutting 1/2" or thinner stock I used a 1/4" backer board which helped quite a bit. When cutting pins I found it easier (and got better cuts) by moving the router counter clockwise between the guides nibbling out a little bit at a time. In general, I got better cuts when I used a lower router speed and moved the router slowly. Even so, HBD tails were the nastiest for tear out.

The pictures below show the third set of TDs (left) and HBDs (right) that I cut (in Douglas fir). The fit was acceptable and , with additional experience, I'm getting even better joints.

Over the years I've tried several other router jigs, and find that the AKEDA is a cut above the competition. It's very intuitive and easy to use, and produces professional quality results. Apart from having to switch to an undersized straight bit, I didn't have to finagle with anything.

Setting up variably spaced dovetails is a breeze, and it's a real time saver not having to make any adjustments when switching between tails and pins. As long as the stock is cut square and pushed snugly in place all the cuts are uniform. The process of matching guide fingers with router bits is pretty well foolproof. AKEDA: dovetails made easy.

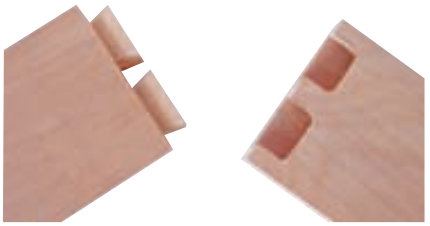
Where to Get It

The suggested retail price for the AKEDA jig is $449.98, which compares very favourably with the other leading high-end jigs on the market.

The basic kit includes the jig, a straight bit and 7˚ dovetail bit, three sets of guide fingers, and an exceptionally well-written instruction booklet.

A set of 8 cutter bits (7˚, 9˚, 11˚, 14˚ and 20˚ dovetail bits and 3 straight bits) is available for $134.98. A dust collection kit can be had for $44.98. Finally, an accessory kit with the 8 cutter bits, dust collector, and additional through pin guides (9˚, 11˚, 14˚ and 20˚) is $374.98.

Over and undersized straight bits are priced at $28. The AKEDA comes with a lifetime warranty against material defects. For more information contact AKEDA at 1-877-387-6544 or www.akedajigs.com.


half-through


half-through assembled

CARL DUGUAY is a writer and woodworker from Sidney, British Columbia. 250-888-5067
carl@finewoodworking.ca www.finewoodworking.ca

By Chester Van Ness

Reduce Dust from Your Radial Arm Saw

The radial arm saw can be a challenge to hook up to a dust collection system.

The first step is to determine what kind of cuts you usually make. Do you use it for cross-cutting (i.e. 90 degree cuts) with your hood set up as shown in photo 1? Or do you use it for mitre cuts with your hood set up as shown in photo 2? You will also need to consider the shape of the saw guard, and the maximum travel of your saw past the fence.

The second step is to block off the small dust port that the manufacturers have molded into the blade guard of your particular saw. This will ensure maximum efficiency of the dust collection system that you custom design for your saw.

Now, contour your chute to the saw, curving the base of the chute up, to guide the sawdust toward the collection pipe. Form the top of the chute to hug the saw when it is parked. Keep the chute small, to help maintain a high velocity inside the chute. The rear of the chute is only 4" wide. Make the front of the chute wider. This configuration draws more surrounding air into the chute and helps to capture the sawdust, as the saw moves away from the chute. Determine the path that the piping will take, and make sure that you will be able to operate the saw's adjustment cranks.

Note the pipe direction in photo 1, it just clears the operating crank at the wall. This type of chute only works well if you are making straight cross-cuts. In photo 2 you will see a chute that was built and modified for a saw that is being used for mitre cuts and straight cross-cuts.


1


2

3


4

The wing on the right, in front of the post, helps to direct the sawdust into the chute. For this set-up, the height of the wing should not interfere with the downward travel of your saw's arm. Notice also that the front opening is larger, to accommodate left and right angle cuts.

The owner of this particular radial arm saw also uses it for ripping, so the rear chute won't be of any help for collecting dust during such ripping operations. Fortunately, this saw has an adjustable front blade guard plate, so I was able to utilize the same hold down knob to attach the new modified pick-up.

Photo 3 shows the right side of the pick-up. Notice the nylon brush along the leading edge of the pickup. This brush helps to contain the sawdust as it is fired forward and up by the blade. Photo 4 gives you a better look at the left side. Notice that the original opening is blocked off, and that the plastic blade guard is still in place. Do not disable the factory safety guards when you build your pick-ups.

This particular pick-up is made from 20-gauge body steel, a few inches of nylon brush, sealing strip, and pop rivets. The port is an after-market plastic band saw port. This pick-up will not work for ripping and cross-cutting, especially when the wood is 1" thick or more.

When cross-cutting, the blade shoots sawdust through the saw kerf and beyond the brush. Instead, use your rear chute when cross-cutting. Even with the special pick-up for ripping, you will still loose some saw dust as you finish cutting through the end of the board.

Model your chute with cardboard and duct tape. Your model must be smooth inside, in order to guide the sawdust to the outlet pipe. Keep fine-tuning, until the model works correctly, before you actually construct your dust collection system of metal. It will save a lot of wasted time and materials, and ensure that the end result is what you want and need.

CHESTER VAN NESS is a Dust Removal Consultant in Scotland, Ontario. (519) 484-2284

Great Value !

...as far as the eye can see

If you earn a living with your tools or simply call it living,
King Canada has built a reputation for performance, quality and value.
Whether you are outfitting a production shop or adding to your own home shop,
we offer product lines to suit every level of woodworker.

Our King Industrial, King Canada and Performance Plus brands
are proven performers and professionally endorsed.
We invite you to take a closer look - you'll like what you see.

King Canada, building with you...for 20 years.

KING CANADA 20th ANNIVERSARY 1983 2003

KING CANADA | KING INDUSTRIAL | PERFORMANCE PLUS

www.kingcanada.com

KING CANADA 700 Meloche Dorval, Que. H9P 2Y4 Tel.: (514) 636-5464 • Fax. (514) 636-5474

the professionals' **choice**

On every job site in every corner of the world where quality, innovation and hard-hitting performance is in demand...you'll find Bosch power tools. We understand the challenge of professionals and respond with long-lasting products built to deliver...with power, sleek styling and modern ergonomics.

Take home the professionals' choice today... for professional results everytime.

BOSCH

www.boschtools.com