

Heirloom
**HALL
TABLE**



Installing
**KNIFE
HINGES**



SAWS
Exhibition
Highlights

**100TH
ISSUE**
1999-2016

FEBRUARY/MARCH 2016
ISSUE #100

CANADIAN **Woodworking** & HOME IMPROVEMENT

Canadian Quotes:
Tom Gorman p.12

+ NEW Back Cover Highlight!

Build a
**SHOP
LIBRARY
CABINET**

Know Your Tools:
Table Saws
p.10

Finer Details:
**Carved and Textured
Maple Leaves**
p.24

**Installing
Board & Batten
Siding**
p.40



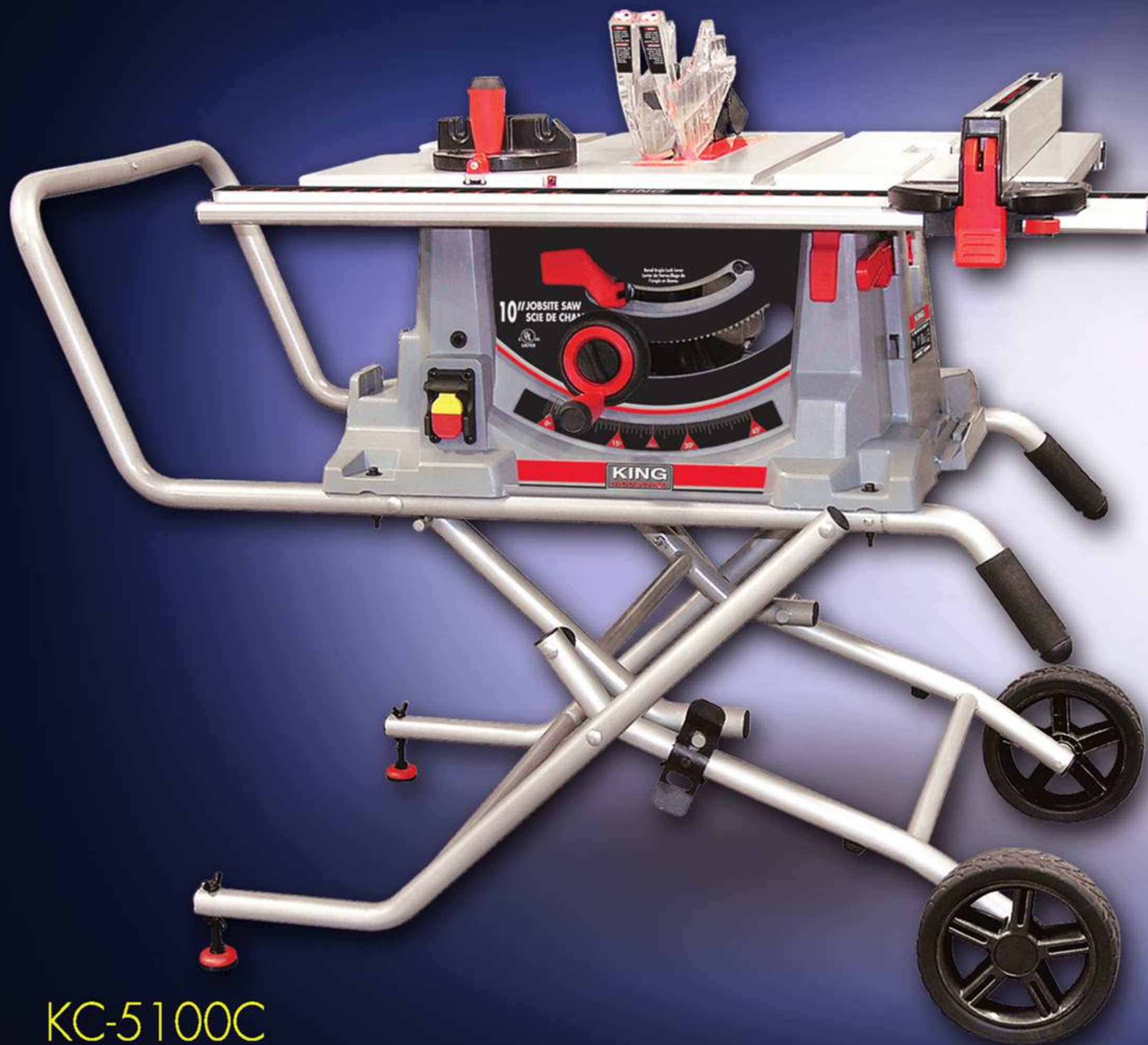
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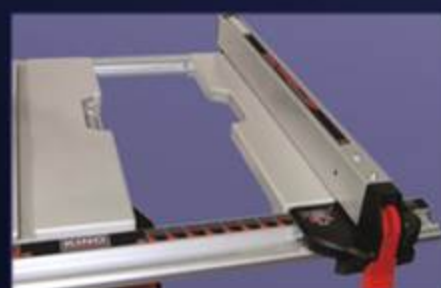
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FEATURES

8 SAWS Biennial Exhibition

BY RIOB BROWN

Every other year members of the Southern Alberta Woodworkers Society bring forth their best efforts for this exhibition. Here's a round-up of the winning pieces.

16 Install Knife Hinges

BY ROB BROWN

Knife hinges are great – as long as you know how to install them. Learn the steps to perfect knife hinge installation and you'll never look back.

26 Heirloom Hall Table

BY STEVE NEIL

Here's an elegant, yet bombproof, table that will look good in every home and be passed down many times.

40 Board & Batten Siding

BY CELINE SCHMIDT

This traditional method of finishing off the exterior of a building is a good one. With a few tricks it's well within the ability of most DIY carpenters.



40

DEPARTMENTS

2 Editor's Letter

4 Letters, Coming Events

6 Web Shavings

10 Know Your Tools: [Table Saws](#)

11 Top 10: [Most Read CW&HI Project Articles](#)

12 Canadian Quotes: [Tom Gorman](#)

14 Top 10: [Most Read CW&HI Non-Project Articles](#)

24 [Finer Details: Maple Leaf Doors](#)

48 Wood Chuckle

Back Cover: [Whale Tail Cabinet](#) by Tom Gorman



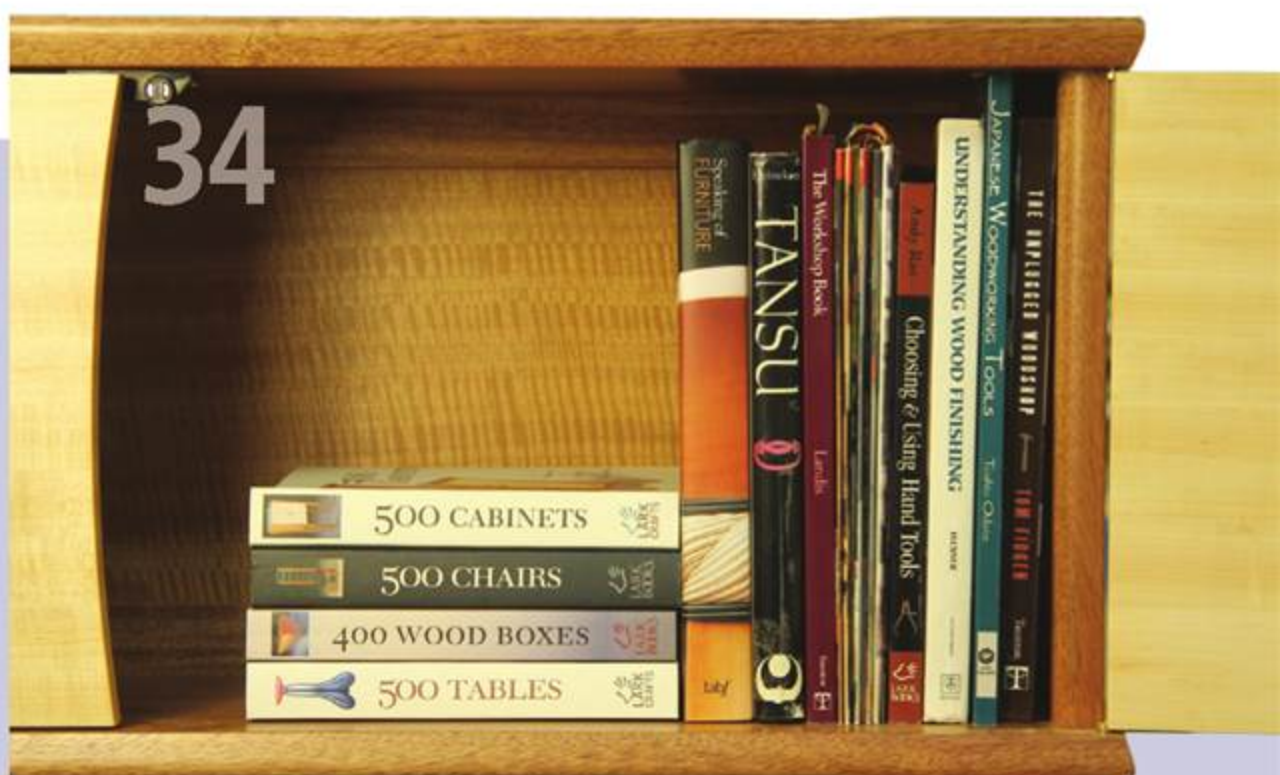
24

COVER STORY

Cover photo by Rob Brown

34 Build a Shop Library Cabinet

Build this Krenov-inspired library cabinet for your shop and never search for another woodworking/home improvement related book or magazine again. BY ROB BROWN



34

Our First 99 Issues

From cabinets to beds, wall units to decks, we've covered a lot of ground over our first 99 issues. Most of what we've discussed have been fairly straightforward woodworking topics: "How to Build Kitchen Cabinets" and "How to Cut a Mortise and Tenon Joint". On the other hand, some topics were well off the beaten path – "Carve a Hanging Hanky" and "A Woman's Place is in the Shop" come to mind. We received an exceptional amount of mail about that last one. Do yourself a favour and visit our website to browse all of the articles, tool reviews and woodworking news we've ever published.

Our 100th Issue

Looking through our past issues got us thinking ... we need somewhere to put them all. All woodworkers have reference and design books, as well as a lot of magazines they refer to while working in their shop. I designed and built the library cabinet on our cover with this in mind. And where's the best place to store woodworking magazines and books? In the shop, of course, so everything is nearby. Our *Finer Details* column covers the method I used to carve the maple leaves. And if you're worried about using knife hinges, you can relax knowing there's an article in this issue that simplifies the installation process.

With this being our 100th issue we wanted to dedicate not one but two Top 10 columns showcasing our most popular past articles online. Between Top 10 Project Articles and Top 10 Articles you can view *CW&HI's* most enjoyed articles.

Also in this issue is a stunning table that Steve Neil shares with us. And SAWS recently held their biennial exhibition, so we're bringing you a collection of the winning entries in our Community column. We also showcase SAWS member Tom Gorman in Canadian Quotes. On the home improvement front we have two articles: one on installing board and batten siding, and the other listing 18 crucial tools for home improvement projects. Before you go any further turn to our outside, back cover to see our new approach to that page.

Rob Brown



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Issue #100

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Perfect article for beginners

Thanks for the article "Introduction to Dado Sets" (Oct/Nov 2015). Articles like this are written for guys like me. I have always had a great interest in woodworking and am just now finding the time to get started – 45 years of teaching will do that to you. I'm in the process of putting a small shop together and purchasing the basics to get started. Thanks for a great mag that has filled a real void for me.

Tom Parker

Great service!

I called the subscription line to follow up on my new subscription and had a delightful and light-hearted conversation with the lady answering. Without my asking about it, she mentioned also that your initiated current copy was about to fall out of the friendly skies of the postal services and, shortly later, it did. I was impressed with her fingers on the pulse of the account.

Thank you for your service,
Steve Slavin

Subscription Draw Winners

Ron M.
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has won a Dado
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Strathroy, ON
has won a \$250 gift card
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Moxon Vise Article

I do a lot of carpentry jobs and I really like the idea of a portable vise. I saw your plans on your website. I made your vise and it turned out great. It will come in very handy. I'm very glad I came across it online.

Kevin Sommers

Coming Events

BC Home & Garden Show

Feb 17 - 21, 2016
BC Place Stadium
Vancouver, BC

Calgary Home Show

Feb 25 - 28, 2016
BMO Centre, Stampede Park
Calgary, AB

National Home Show

Mar 11 - 20, 2016
Direct Energy Centre,
Exhibition Place
Toronto, ON

Greater Moncton Home Show

Mar 18 - 20, 2016
Moncton Coliseum Complex
Moncton, NB

27th Annual Canadian National Wildfowl Carving Championship and Wood Art in the Cities 2016

Mar 18 - 20, 2016
RIM Park, Kitchener, ON

Ottawa Home and Garden Show

Mar 25 - 28, 2016
EY Centre
Ottawa, ON

Niagara Woodcarvers 37th Annual Show and Competition

Apr 02 - 03, 2016
Heartland Forest Nature Centre
Niagara Falls, ON

For more information on these and other events visit **CanadianWoodworking.com**
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Correction: Hot Products (Dec/Jan 2015) incorrectly stated the price of General International's 12" x 17" Variable Speed Maxi-Lathe VS+. The price should have been \$1099.99.

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- Speed: 1725 RPM
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- Chuck size: 1/2" • Number of speeds: 1
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- Max. chisel travel: 4 7/8"
- Max. mortising depth: 3"
- Max. distance column-to-chisel: 5 1/8"
- Chisel size range: 1/4"-1/2"
- Table size: 13 1/2" x 6" • Overall height: 29"
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- Number of knives: 2 double-edged HSS
- Knife size: 12 1/2" x 2 1/2" x 1/8"
- Cutterhead speed: 10,000 RPM
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- Max. depth of cut: 1/8"
- Max. rabbeting capacity: 1/2"
- Cutterhead diameter: 2 1/2"
- Number of knives: 3 HSS
- Knife size: 6 1/8" x 5/8" x 1/8"
- Table size: 7 1/2" x 46"
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- Table height: 35 3/8"
- Footprint: 21" L x 19 1/2" W
- Arbor: 3/4" • Arbor speed: 3450 RPM
- Capacity: 3 1/4" @ 90°, 2 1/4" @ 45°
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- Cutterhead knives: 4 HSS, 8 1/8" x 1 1/8" x 1/8"
- Cutterhead speed: 4800 RPM
- Cutterhead diameter: 3"
- Max. depth of cut: 1/4"
- Max. rabbeting depth: 1/2"
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Best Build

Check out the **Woodworking** section of our forum for our latest "Best Build" thread – a tea table. This month's winner, Chen Yixin, receives a **Veritas dual marking gauge** from Lee Valley.



To find out more about this project, go to: forum.canadianwoodworking.com or simply go to CanadianWoodworking.com and click **FORUM**.

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SAWS 2015 Exhibition



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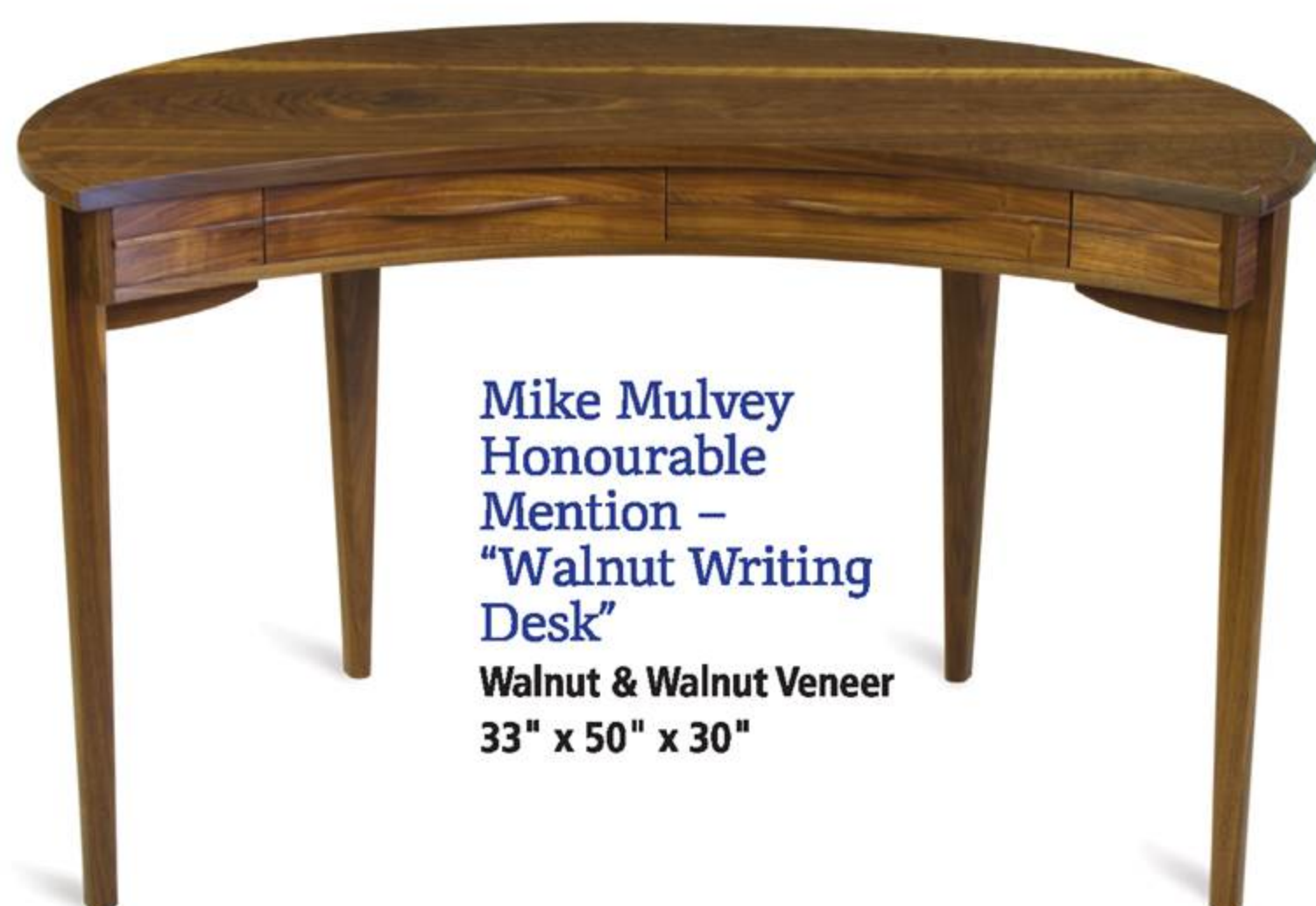
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Veneer Species in
Marquetry
64" x 29" x 1-3/8"



SAWS Biennial Exhibition

Every two years, members of the Southern Alberta Woodworkers Society put their best pieces forward for an exhibition. Here are some highlights from this past September's show.

BY ROB BROWN

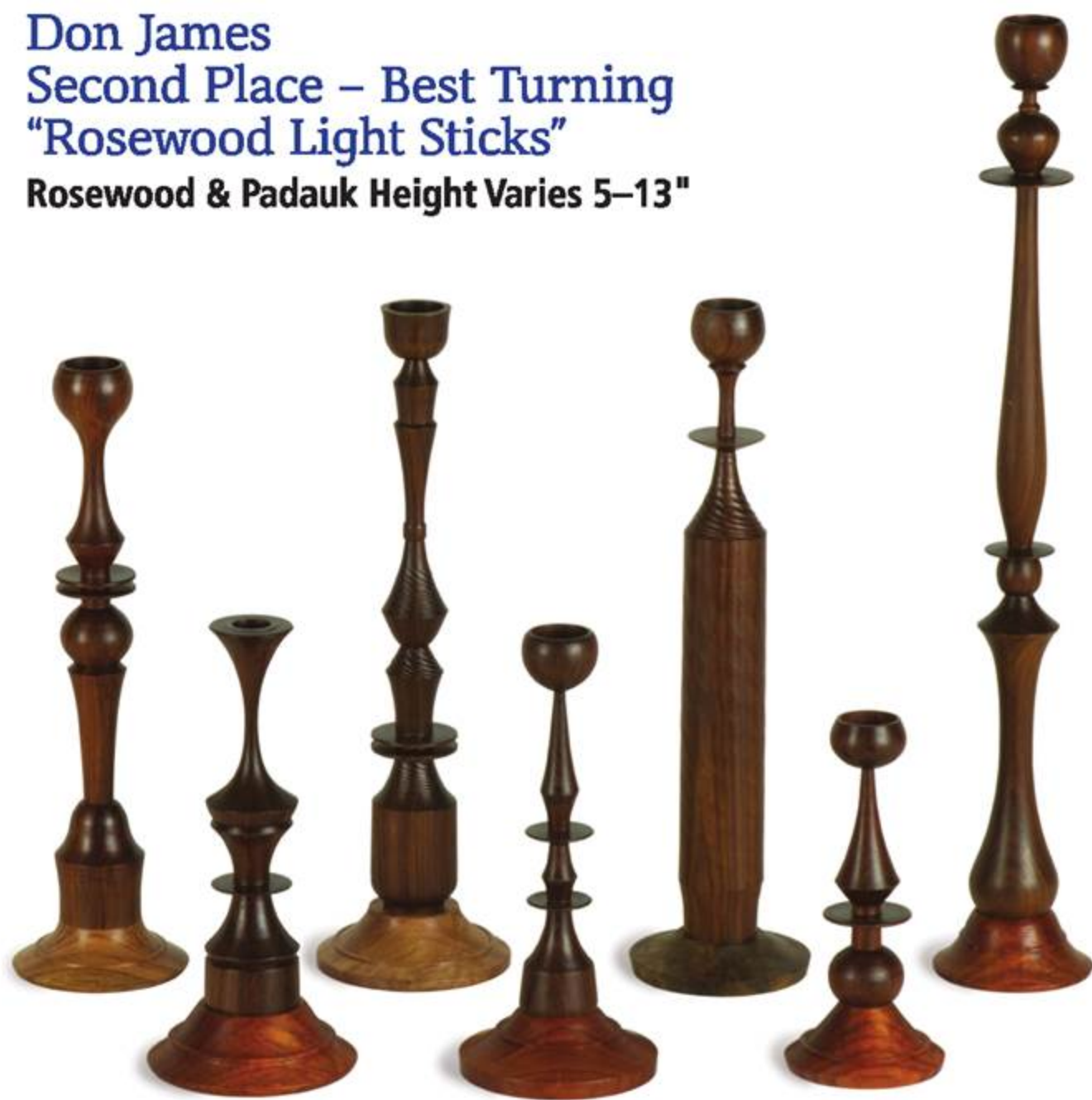


John Morel
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Mention –
“Counter Stool
2015”
Bubinga & Sycamore
16" x 13" x 25"

Bill Maniotakis
Biswanger – “Eccentricity”
Black Walnut & Big Leaf Maple 52" x 15" x 32"



Don James
Second Place – Best Turning
“Rosewood Light Sticks”
Rosewood & Padauk Height Varies 5–13"



Dale Lowe
First Place –
Best Finish
Best First-Time
Entry –
“Maple Pod”
Curly Big Leaf Maple &
Ebony 7" x 5" x 21"



John Lavoie
Maple Mesh
Spalted Maple Burl, Ebony & Brazilian Rosewood
11" x 6" x 3"



Tom Gorman
Honourable Mention
– “Dining Table”
Olive Ash Veneer & Bubinga
29-1/2" x 46" Diameter



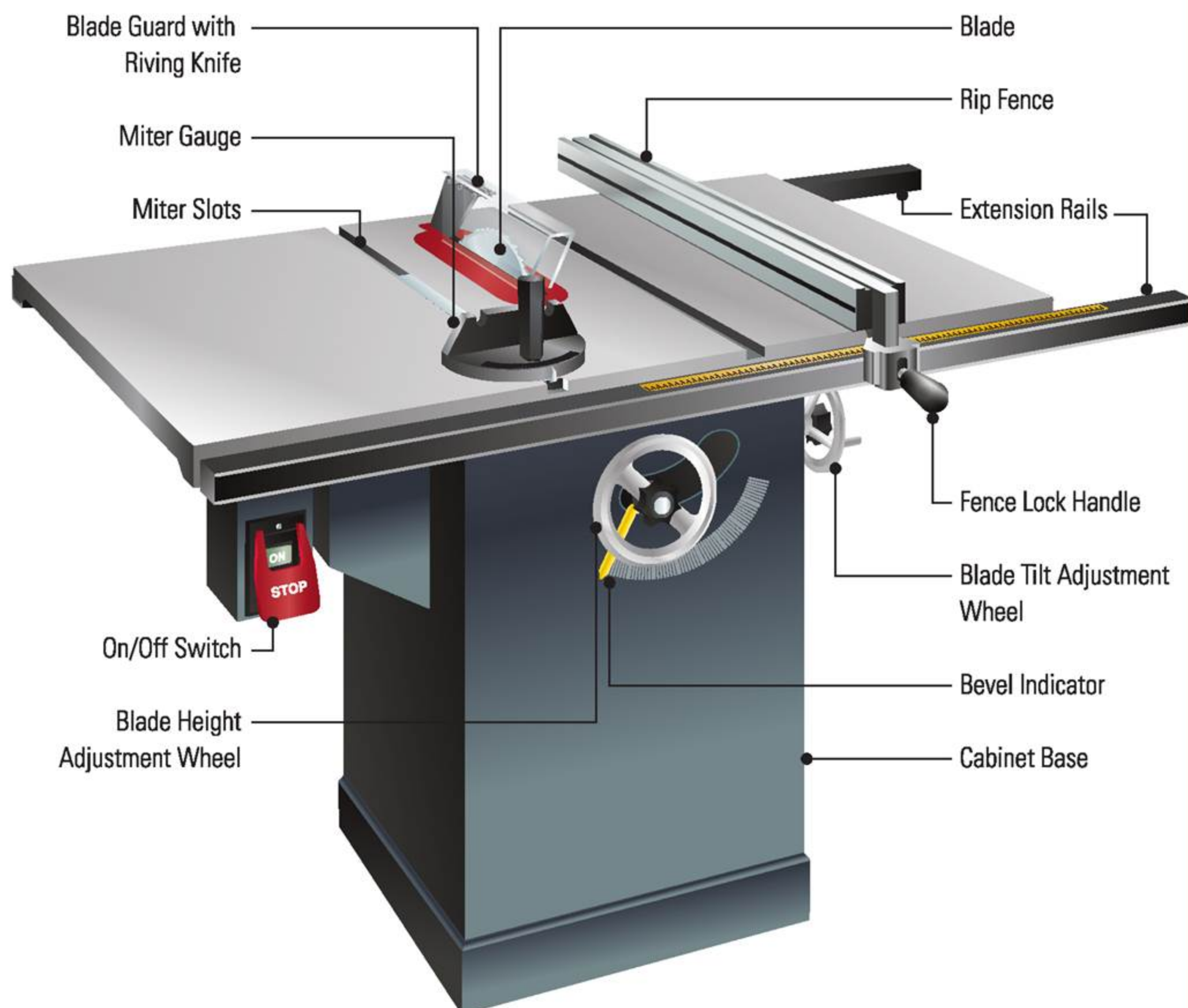
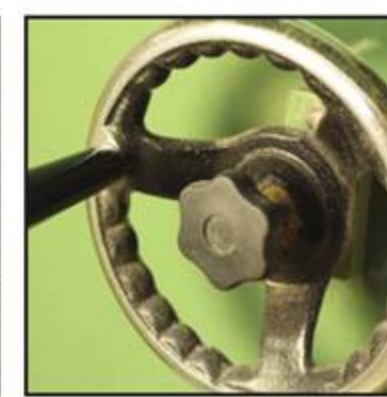
ROB BROWN
rbrown@canadianwoodworking.com

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RELATED ARTICLES: SAWS 2013 Exhibition (Dec/Jan 2014),
Sask. Woodworkers Guild 2014 Show (Aug/Sept 2014)
SLIDESHOW: SAWS 2015 Exhibition

Table Saws

BY ROB BROWN



Also called a variety saw because of all the operations that can be completed on it, the table saw is the backbone of many wood shops. By far the most common blade diameter is 10", but the saw itself comes in three common sizes. From largest to smallest they are: cabinet saw, contractor saw, and portable saw. If you really want to get picky, a fourth type – hybrid saw – has some characteristics of both the cabinet- and contractor saws. The cabinet- and contractor saws are very stable for ripping 4x8 sheets, are often equipped with long extension rails for ripping wide parts, but cannot be moved around. Portable saws can be divided into two sub-categories – benchtop and job-site. Benchtops are the smallest saws, and slightly larger jobsite saws come with wheels and a stand to make set-up easy. The difference between the three types of saws isn't just size, but also how durable and robust the inner workings of the saws are constructed. The cabinet saw is the most robustly built saw and will provide many decades of use.

Price: \$200–\$4000+
Weight: 50–500 lbs
Rip Capacity: 16–48"

Things to Consider When Buying a Table Saw

A Good Fence

Most cuts made on a table saw use the rip fence, so a solid, straight fence that doesn't flex, locks square to the blade, is easy to adjust, and locks firmly to the table will pay off in the long run if you use the saw often.

Safe Technology

Sawstop produces flesh-sensing table saw technology, which immediately stops the rotation of the blade the moment it comes into contact with conductive material; that is, skin. This type of saw is no excuse for unsafe operation, though.

Buy a Good Blade

For best results in solid wood, use a rip blade for ripping and a cross-cut blade for cross-cuts. When using sheet stock, there are other blades to help you obtain a clean cut. Dado blades are also very helpful. A good blade goes a long way to making a good cut.

Accessories

After-market accessories and shop-made jigs can turn a table saw into an extremely useful piece of equipment that can tackle almost any cutting task. Learn about some of these accessories, and consider what type of work you want to do with the saw, before deciding on a model.

Safety

There are more serious injuries on table saws than on any other piece of wood-working machinery. If used incorrectly, the user is often in line of kickback and also has his or her hands near the blade, resulting in loss of fingers, or worse. Learn how to use a table saw safely before making the first cut.

Top 10 Project Articles

As this is *CW&HI*'s 100th issue, we are showcasing our 10 most read projects to date. You can view these projects on our website by simply searching the name of the article. Subscribers can access all links directly, via their digital issue.

BY ROB BROWN

1 Build a Moxon Vise — Learn how you can build this versatile and extremely useful shop assistant. It's really easy to build, and is always ready to lend a hand. Our web editor, Carl Duguay, hit it out of the park when he wrote this article in 2013. It holds the record for most views of a project on our website.

2 Build an Electric Guitar — With a simple, planned approach, building a guitar is fairly straightforward. This is the first of a two-part article on how you can build one without specialized luthier tools.

3 Streamlined Workbench — A good workbench is one of the most important tools in a workshop. In addition to being a solid workhorse, this bench is also small enough that it doesn't take up a lot of space, and is easy to build.

4 Hidden Compartment Bookshelf — This fun and functional project will also be the life of the party when everyone realizes there are three hidden compartments. Don't tell anyone where the compartments are, as it's a lot of fun for people to try and figure it out for themselves.

5 Shaker Workbench — A classic design, this fundamental bench has a tail and leg vise, lots of storage underneath, and is bombproof. Once you finish this gorgeous bench you will have a real hard time with that first scratch. But remember, this bench was made for your shop, not your dining room.



6 Adjustable Cross-Cut Sled — Used for so many tasks around the table saw, this accurate sled will improve your joinery and make working in the shop more precise, smoother, and safer.

7 Deacon's Bench — Style, comfort and storage, all right at your front door. It's no wonder this project is on our Top 10 list. With only a few curved pieces, the level of difficulty on this project isn't too high. Just don't tell your guests, as the finished bench looks like an advanced-level project.

8 Pint-Sized Workbench — This is the third workbench on this list, proving how crucial they are to working in a shop. This small bench is made to fit into a small space, yet be large on functionality. It has two vises, a tool tote, loads of storage underneath, and is rock solid, all on a small footprint.

9 Lumber Rack — This simple way to store rough lumber and miscellaneous strips of wood is a great addition to any shop and can be adjusted to any size. The required materials are not expensive and the techniques to build the rack are quite simple.

10 Craft a Timeless Rocking Chair — With smooth, subtle curves, this rocker is not only gorgeous, but super comfortable. Build one this year and you can enjoy it for many years to come.

*What was your favourite article from a past issue of *CW&HI*? Add your thoughts in the comments section at the end of this article on our website.*

ROB BROWN

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Tom Gorman

...on his Celtic roots, his favourite piece of furniture, and his tiny studio.

BY ROB BROWN



Check out our back cover to see another of Tom Gorman's pieces – his Whale Tail cabinet.



Quilted Maple Sideboard – This is Gorman's favourite piece of furniture he's ever made. Thankfully for him, it resides in his own home.

Name and age: Tom Gorman, 59
Location and size of studio: 20' x 12' basement studio

Education: Educated in Northern Ireland and completed my apprenticeship there, obtaining a certificate from City and Guilds of London England, then moved to Canada in 1978.

How long have you been building studio furniture?
35 years.

What sort of furniture do you specialize in?
Contemporary household: living room, dining room, bedroom, boxes.

Tell us something interesting about yourself:
I am a blood donor with 66 donations to my credit. I have peer audit certification in the province of Alberta for auditing companies' safety programmes.

In order, what are the most important items in your shop apron?
Mechanical Pencil, 4" adjustable square, 6" rule.

Solid wood or veneer?
Solid wood.

Straight or figured grain?
Figured.

Flowing Curves or Geometric Shapes?
I used to work a lot with geometric shapes, but lately it's more flowing curves.

Favourite species:
Quilted maple.

Least favourite species:
Red Oak

quotes

My studio is in the basement of an 1100 sq. ft. condo. To say it's small would be an understatement. However, I do have access to a veneer hot press and industrial sander through the generosity of a millwork shop. I have a 10" table saw, 15" bandsaw, 16" thickness planer, floor model drill press and a power mitre saw, workbench, several storage cabinets, air cleaner, and shop vac. All machines are on wheels. No room for wood storage.

I am an early riser so it's off to work right after breakfast. I like to get as much done as I can while I'm still fresh.

I can't stand commercial radio. It's MP3 for me, mostly rock, blues, or classical.

Nothing beats the satisfaction of a silky smooth finish, left by a finely set hand plane. I also like the mortise and tenon process. I cut my mortises with a plunge router, squaring up the ends in the traditional manner.

I get inspiration from nature, architecture and books. I strive for originality, but find it hard, given the fact that we are all influenced by what we have seen in the past, even if its only on a subconscious level. I hope my work says that I am an honest, skillful woodworker – not pretentious.

I would say that originating from Ireland has had more influence than

anything Canadian or local. I find Celtic designs creeping in from time to time.

I don't have much use for scale models. I prefer to go straight from a sketch to a full-size layout. This helps me to see the overall scope of the project. It is also great for working out the joinery to be used, and in nailing down the small details. Only sometimes do I do a full-size mock-up.

Be true to yourself. Don't make slavish copies of others. It's okay to copy design styles from the past but try to personalize them.

If I see a design is going sideways I will either scrap it or try a different approach.

I am sick of seeing articles on Stickley furniture. It's been flogged to death. It's time to move on already. Maybe we should use the line from Monty Python: "And now for something completely different."

I don't like it when woodworkers use dowels in place of proper mortise and tenon joints. Not a big fan of cope and stick joints either.

Speculative work is very rewarding but has higher risks.

We have gotten so used to mediocrity in our throw-away society, I'm sad to say.



The Ring – This cherry, figured English sycamore and maple burl table was inspired by a ring in a jewellery store window. (Photo by Benjamin Laird)

I enjoy the work of Allan Peters, John Makepeace, Michael Fortune and John Morel. They are very creative and inspiring makers. John Makepeace's Millennium Chair is one of my favourites.

Friend and fellow furniture maker John Morel, son of Oliver Morel who ran the Edward Barnsley Workshop during WW2, has been influential in my career.

If our generation promotes studio furniture, well there is no reason to not believe that great strides will be made in the next 50 years. The key will be education. Encouragement of potential studio furniture makers and education of the general public as to the benefits of high quality, unique furniture.

I love the creative process.

ROB BROWN

rbrown@canadianwoodworking.com



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Top 10 Articles

Continuing our 100th issue celebration, we also want to showcase our 10 most read non-project articles to date. From finishing to hand tools, education to wood movement, there is something here for every woodworker.

BY ROB BROWN

1 12 Ways to Add Texture with Tools You Already Have — This article has been viewed more than any other on our website. Run, don't walk, to your computer to learn what the excitement is about. You likely have most of these tools in your workshop already. All you need to do is put them to work and you'll be able to add some texture to highlight your next project.

2 Tung Oil: Debunking the Myths — Finishing seems to have some 'black magic' associated with it, and Tung oil is one of the most misunderstood types of finishes. Learn the truth about a wonderful finish so you can use it properly on your next piece of furniture.

3 Which HVLP Spray Finishing System is Right For You? — Wiping a finish on is hard enough, but spraying it on? That's impossible! Learn the basics about which HVLP spray system is best for you, then go on to read about spray technique, and you'll be wondering why you didn't purchase an HVLP sprayer years ago.

4 12 Tools to Start Building Fine Furniture — Sure, you need more than 12 tools to build furniture, but these carefully selected items will lead you down the path to heirloom-quality furniture.

5 Hands-On Learning: Woodworking Classes in Canada — There are many ways to learn the craft of woodworking, but none quite as focused as taking a woodworking class, or enrolling in a woodworking school. Here's a list of Canadian woodworking schools, with some details about the types of courses they offer.



6 Table Tops and Wood Movement — One of the rules every woodworker must learn (hopefully the easy way) is that wood moves. How to engineer a table top of any size that will not only hold together for years, but will not destroy the base it's fastened to, is covered clearly in this article.

7 Dust Collection for the Home Shop — Dust is hazardous to our health if breathed in regularly. It also causes woodworkers to lose their tools if it's not cleaned up regularly. Learn how to purchase, set up and use a dust collection system for your own small shop.

8 The Ins and Outs of Drawer Slides — Building and installing drawers are a big part of furniture-making. For a drawer to look and function properly, drawer slides must be selected and installed with care. Learn about the different types of slides right here.

9 How to Build Solid Wood Countertops — Laminate counters are fine, but a solid wood countertop is simply stunning. Details about how to go about making, installing, finishing and caring for solid wood countertops are included.

10 Restoring Hand Planes — We all have at least one old plane that is too rough to provide good results with, yet has too much potential to throw away. Learn how to restore a hand plane, and breath life into an old hand plane.

ROB BROWN

rbrown@canadianwoodworking.com



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Installing Straight Knife Hinges

Most other hinges are easier to install, though no other hinge has the grace and simplicity of a properly installed set of knife hinges. With a bit of practice, knife hinge installation isn't nearly as scary as you'd think.

BY ROB BROWN

There are two main types of knife hinges; straight and offset. Straight knife hinges are usually used when the top and bottom project beyond the two gables, and when the door will overlay the gables. Offset knife hinges are used when the front edge of the top, bottom and gables are all inline, and the door will be inset. The cabinet in this issue calls for straight knife hinges.

Hand Tools vs. Power Tools

I have never even considered making knife hinge mortises with hand tools, but that doesn't mean it's impossible. As long as you have a straight router bit the same diameter as the width of the hinge leaf, the final fit should be perfect with one pass. Even using a bit that is narrower than the hinge leaf and making two passes works out okay. Depth of cut is also constant. If you use hand tools, there is a greater chance of breaking out an edge, as the mortises are typically quite close to the edge of a workpiece. This is especially true when creating the mortises on the doors. The bottom line is that unless you're a wizard at sharpening and using hand tools, I'd recommend using a small router for this operation.

Photos by Rob Brown



A Mock-Up – I would recommend mocking-up the joint, whether this is the first time or 20th time you've installed knife hinges. Once routed, the mortise is very hard to conceal if you've made a mistake. Here you can see the dry-assembled cabinet in the background and the mock-up in the foreground.

Mock-up

Because improperly routed knife hinge mortises are very hard to hide, I always do a quick mock-up of the joint. Often you want doors on one cabinet to act differently than doors on another cabinet, so this is the time to play around with slightly different locations to ensure you have the final pivot action you want. In addition to making a mock-up, it's crucial you plan ahead and cut the hinge mortises before gluing up the cabinet.

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Mark the cabinet mortises

With the cabinet assembled, but not glued, mark the locations of the front of the gables then unassemble the cabinet. Next, mark a 1/16" gap in front of the gable. This is the gap between the back of the door and the front of the gable. Moving further towards the front of the top and bottom, mark the width of the door. The next step is to mark the location of the knife hinge with it centered on the door. Position one half of the knife between these lines, and move it left or right until the center of the pivot point is centered on an imaginary line that extends forward from the outer edge of the gable. Mark the outline of the hinge now.

Get ready to rout

With a straight bit of the exact width of the hinge chucked in your router, install and position an edge guide to the correct dimension from the inner cutting edge of the bit. It's easiest to use a plunge bit, but if all you have is a fixed-base router, a steady hand will help the process go fairly well. Set the depth of the bit to cut the exact depth as the thickness of the hinge.

Now the scary part – rout the mortise. Though you can use stop

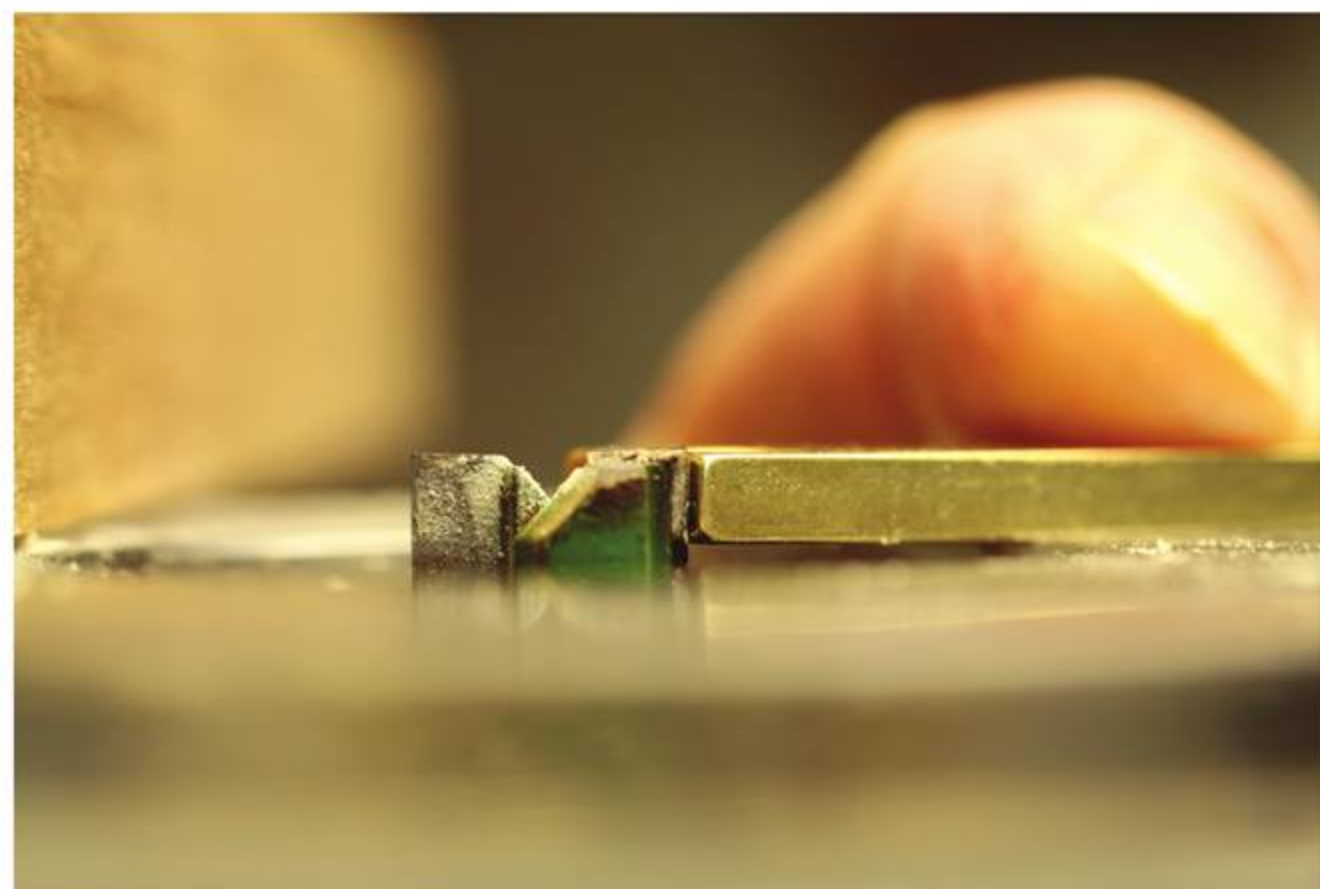
Set the Depth – If the surface in which you're routing the mortise has been rough-sanded, set the router bit's depth of cut to exactly that of the thickness of the hinge. If you're using solid wood, and it hasn't been rough-sanded, I would aim to set the bit about 1/64" deeper, as you will sand the wood down afterwards.



Mark the Gable – Use a fine pencil to mark the gable location before taking the cabinet apart. If you can't get a fine enough pencil to accurately mark the location, it might be a good idea to mark the location of the hinge while the gable is still in place

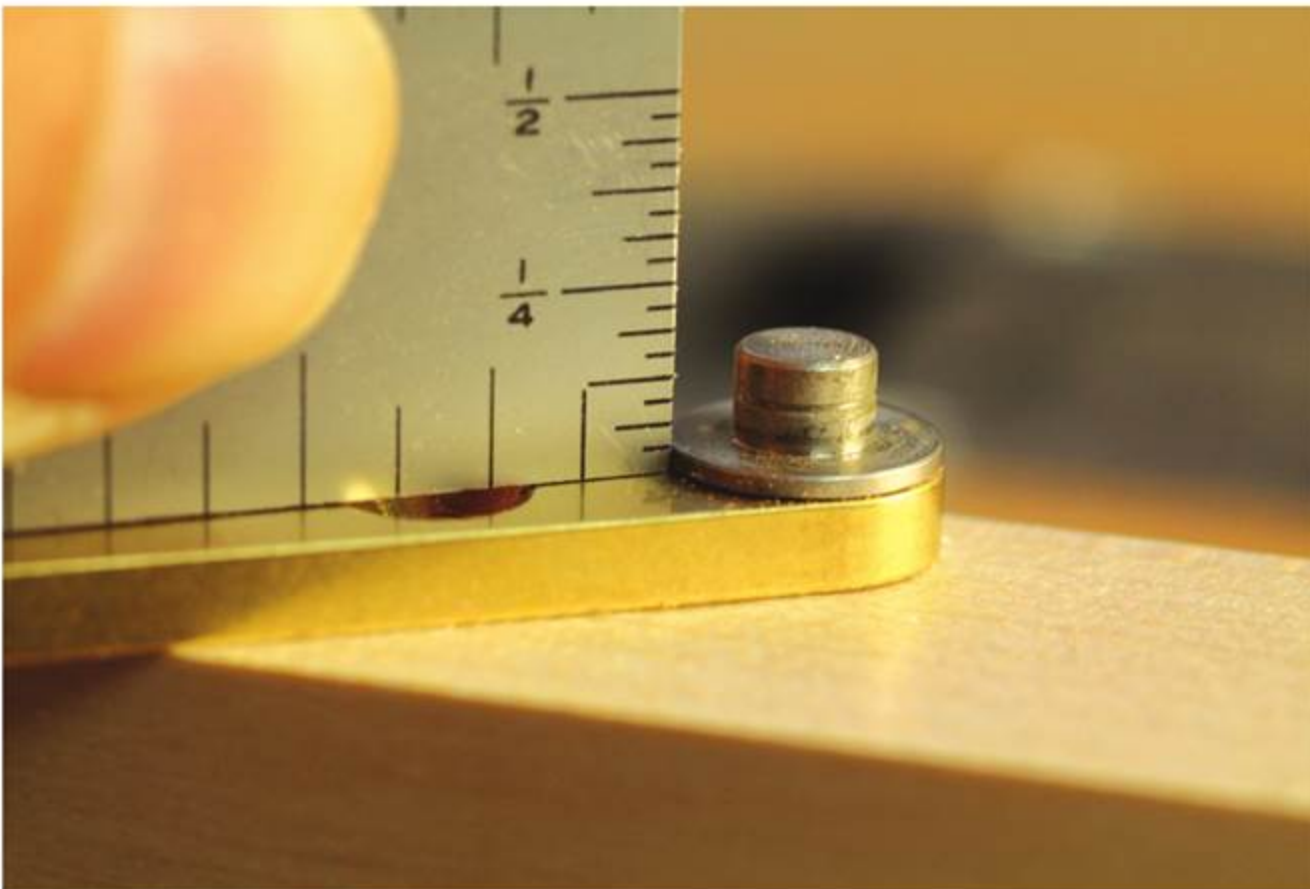


Locate the Hinge Mortise – With the cabinet apart, mark a gap line 1/16" in front of the gable end. Then add another line the width of the door away from the gap line. Centered between those two lines is the hinge mortise, which can be marked now. The next step in layout is to mark the location of the rounded end. The center of the pivot point should be centered over the outer edge of the gable. With that marked you can place the hinge over the layout lines to mark the straight end of the hinge.





Square End – Once the mortise is routed you can square up one end with a chisel. You might want to sneak up on a perfect fit, as it's hard to glue wood back on to fill a gap at the end of the hinge.



Spacer Thickness – In theory, the thickness of the spacer on each knife hinge should be equal to the thickness of the gap between the doors and the cabinet. Brown erred on the wide side, as a gap that's slightly too small will cause the door to bind, while a slightly oversized gap will not be noticeable under the overhanging top.

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blocks, the easiest and quickest approach is to ensure you have good lighting and stop when the bit is flush with the pencil mark. You can stop 1/32" earlier on the straight end (towards the center of the cabinet) if you want some insurance, but I would strongly encourage you to run the spinning router bit to the exact point on the curved end, as a perfect arc will be left for the hinge to fit against. Repeat this process for all the mortises. Square up the one end of the mortise and test the fit of the hinge.

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Route the Mortise – Once the support block is clamped to the side of the door, and the edge guide is set to the correct distance, Brown routs the hinge mortise in the doors.



Square End – Use a chisel to square up the end of the routed mortise.

gaps equal to the thickness of the spacers on the hinges you're using. In practice the door can be a bit narrow, but not too wide, or it will not fit in the opening. The width of the door will be trimmed to final dimension after the doors have been installed and tested.

These mortises should be centered on the side edge of the door, so set your router's edge guide to the correct measurement now. The depth of the bit will remain the same.

With the doors clamped in your workbench, lay out the mortise location. Again, the center of the pivot point should be centered over the outer edge of the door.

If you were to run your router along the narrow edge of your door, you would likely tip side to side as you cut the mortise. To prevent this from happening, clamp a piece of straight stock to the back of the door, perfectly flush with the door's edge. It will help support the router during the cut.

With good lighting, and the edge guide referencing off the front of the door, cut the mortise. Repeat the process for all the other mortises. Square the round ends up with a chisel.

Test fit

Pre-drill one hole in each hinge then attach each hinge with a screw. You'll probably want to use brass screws when the piece of furniture is complete, but for now stick to anything



Mortise Length – With the pivot pin hole overhanging the edge of the door by half you should mark where the straight end of the hinge is located.

Now the doors

At this point I usually apply a finish to the cabinet and assemble it so the door opening is square, and set in stone. Once the glue has dried, I focus on the mortises in the doors. I like to keep the width of my doors as large as possible, so I can make any trim cuts after the doors have been installed. The height of the doors has to be trimmed to fit the opening with proper gaps on top and bottom. Aim to have the size of the



Hang the Door – Once the cabinet hinges have been installed Brown places the door hinge leaves on the cabinet hinge pivots and slides the door into place over the hinges.

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but brass, as they are very soft and their heads will snap off. It's very frustrating trying to remove a broken screw.

There are two ways to install the door; both are very similar, but which one you use will depend on how tall the doors are. For a tall door, screw the two cabinet hinge leaves in the top and bottom of the cabinet, and screw the upper door hinge leaf to the upper edge of the door. Place the final lower door leaf on its mate, which is installed to the cabinet. With the door as vertical

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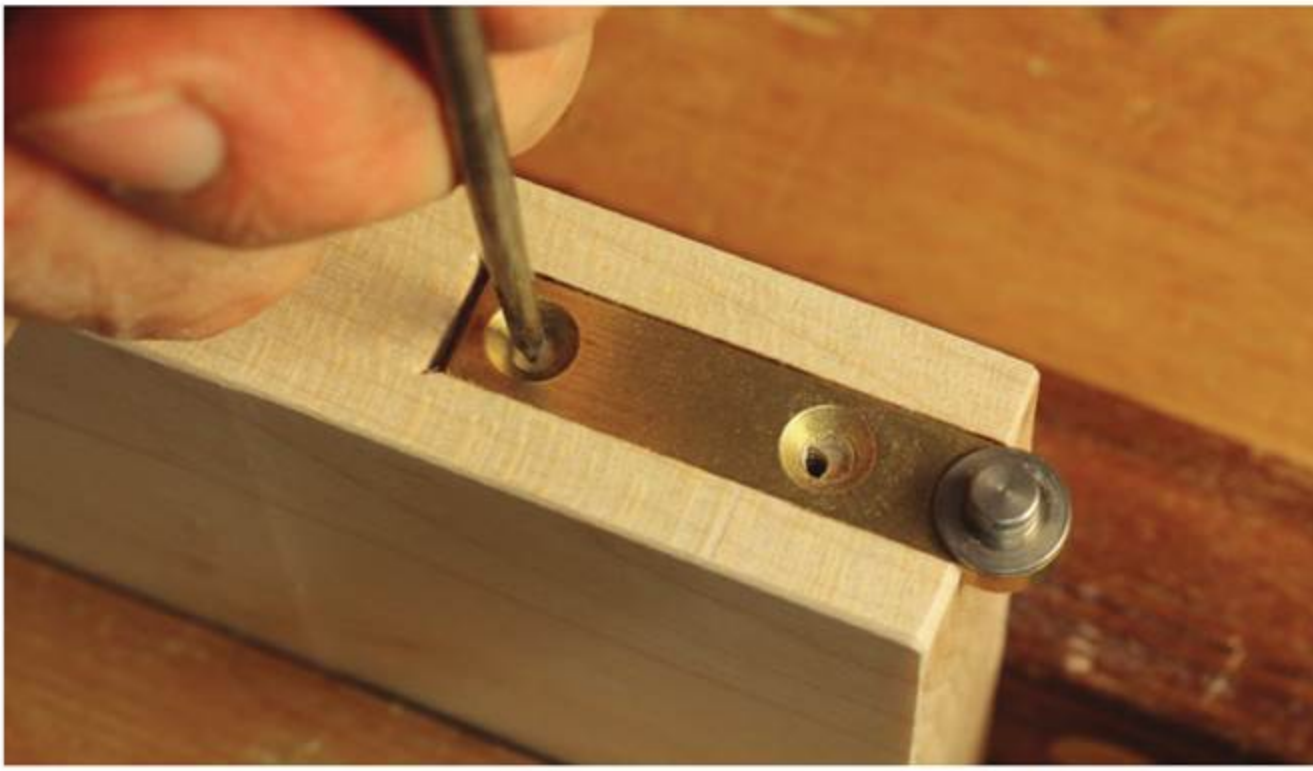


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A Slight Shift – If the doors are out of alignment one way to adjust them is to shift the hinges slightly. In this photo Brown is shifting the hinge towards the outside of the door, and will install the second screw to secure the hinge. With it in place Brown adds the other screw. The old hole sometimes has to be filled, and redrilled, before installing the final screw.

as possible, place the pivot hole in the upper hinge over the pivot pin in the cabinet leaf, then slightly rotate the door onto the extended lower hinge leaf. Add a screw to the lower door leaf and it's time to test the fit. The one adjustment you must make if the door is not tall is as follows. Don't install the upper leaf on the top of the door. Just position the lower and upper door leaves on their mates. Hopefully the upper one will not fall off. Now slide both the bottom and top door leaves into the mortises at the same time, then screw them in place.

Close the door to realize a perfect gap all around the piece. If, by some chance, this isn't the case, you can trim the doors to fit perfectly. If the doors are out far enough that you don't have enough material to remove, you should shift the hinges in or out slightly. Loosen the single screw in one or more of the hinges and figure out which door needs to be shifted in which direction. At this point you may have to remove a bit of wood with a chisel so the hinge can sit further under a door, or you may reveal a slight gap at the end of a hinge. Both of these situations are preferable to having ugly, uneven gaps around the doors. Since only one screw was installed on each hinge, you can adjust the hinge slightly and then drill another pilot hole and install the other screw.

When the gaps are even you can install any remaining screws. A trim of the mating edges of the doors can now be done to give you an even gap all around.



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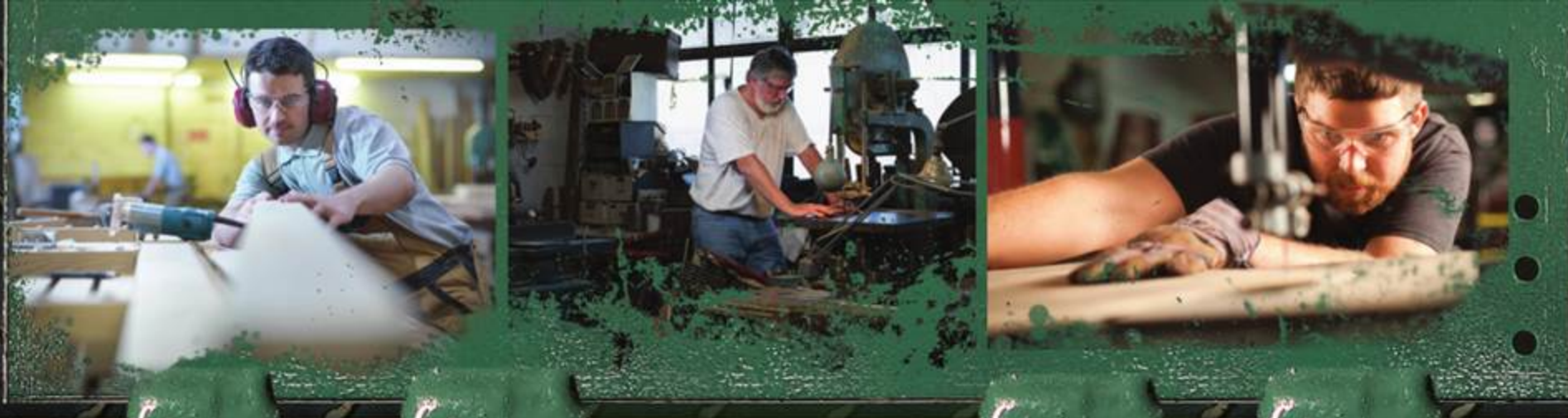
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Carved Maple Leaf Doors

Removing some material to create textured maple leaves on solid wood door faces will add a simple, natural focal point to any piece of furniture.

BY ROB BROWN

Since the rest of this cabinet has very simple, clean details, I wanted to add a little something to the door faces. I didn't want to overpower the cabinet, just complement it. You can play around with almost any design, whether it's from the natural or man-made world.

Design

The first step for me when coming up with something like this is always to grab some scrap wood that's easy to carve and, in this case, some fallen maple leaves from the backyard, and try a few things out. It always starts off poorly so don't get



Curved Template – To define the outer boundary of the center area, Brown cut a template with his circle cutting jig, then used the template to guide his router.

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RELATED ARTICLES: Pierced Carving (*FebMar 2012*), 12 Ways to Add Texture with Tools You Already Have (*FebMar 2013*), Build a Shop Library (*FebMar 2016*)

Photos by Rob Brown



Hand Guided – Once the leaves were drawn on the door blank, Brown guided a router freehand to define the leaves.

frustrated. With carving there are many approaches to take. Do you remove the wood around the shape or remove the wood for the shape? Do you keep the carved texture right off the carving gouge or smooth all surfaces? What is the overall orientation of the leaf shapes, and how they interact with one another? All these questions, and more, can be answered before starting work on the finished piece.

Border

I made a tracing template with my router and circle cutting jig, then used the template to cut the groove that would define the two outer edges of the carved background.

Rough out leaves

Once the design was nailed down, I used a plunge router and narrow straight bit to trace the outer edge of each leaf. With the bit set just over 1/8" deep I guided the router by hand and took care to stay as close as possible to the lines. While laying out the leaves I was sure to keep them at least the width of the bit apart from



Vein Lines – Create the vein lines with a sharp V-gouge, doing your best to stop at the same point on each leaf.



Background Pattern – Brown later realized he should have painted the leaves before detailing the background, so any paint that ended up on the background would have been removed by a rotary tool afterwards.

each other. There's nothing saying you couldn't overlap the leaves and come up with a solution to deal with where they overlap. At this point I also removed much of the background wood. I then took the time to remove any burn marks with a selection of gouges, chisels and sandpaper. If I was to use this technique again I would use the sharpest bit possible to rout the leaves, as it would leave less burning.

The background

There are many options at this fork in the road. I chose to add a fairly simple and even layer of texture across the background surface with a rotary tool. Patience pays off here, as does a steady hand. You'll get the hang of the



Add Texture – Brown adds texture to the leaves with a small gouge, working in the same general direction as the vein lines.



Paint the Leaves – After sanding the leaves' surfaces, start adding the paint to the leaves. Starting with yellow, Brown adds colours, working quickly so the paint is still wet, and blends them into each other.

process, but don't get over-confident, as you can either make a mistake or hurt yourself.

Add colour

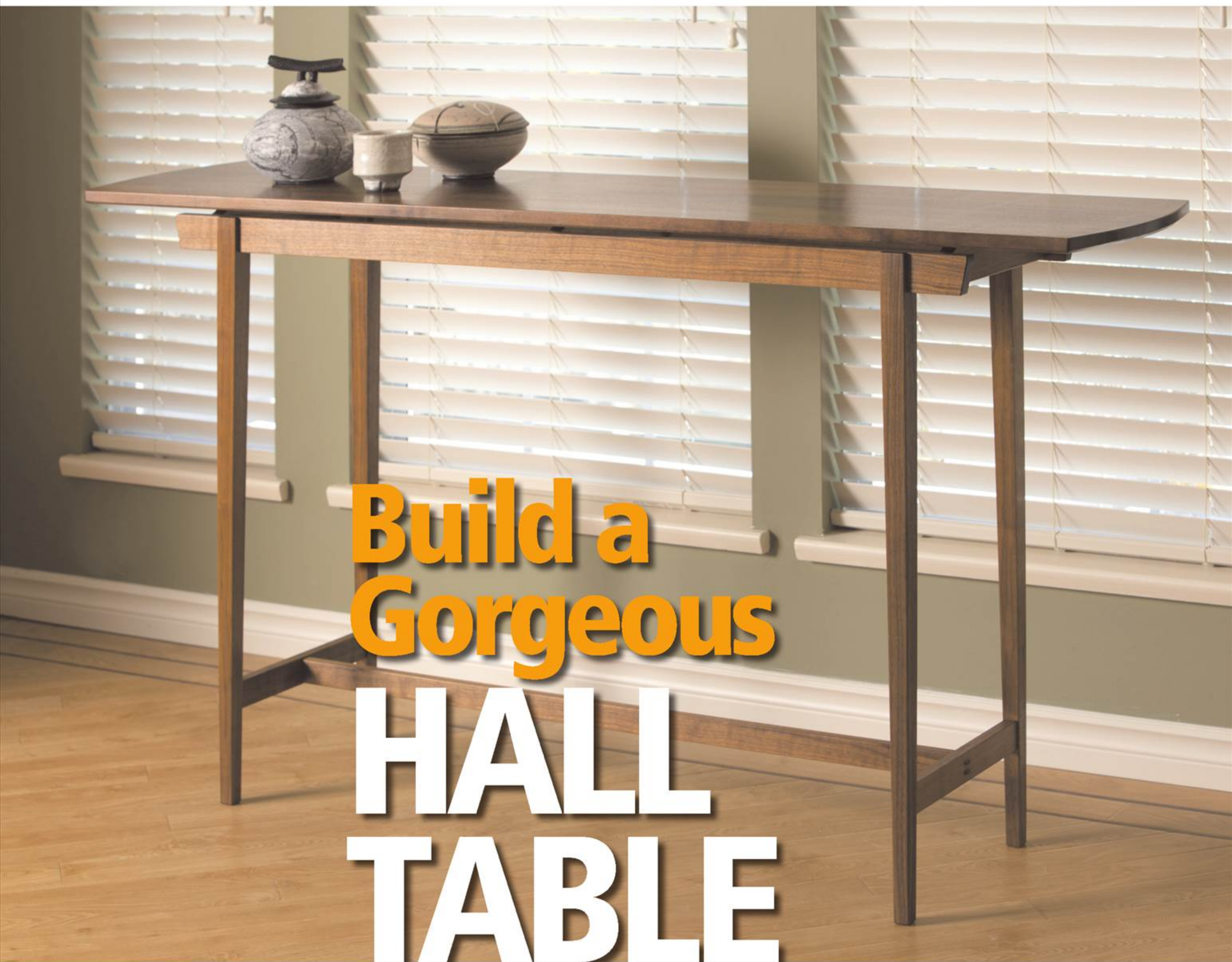
With hindsight being 20/20, I should have coloured the leaves before adding the background texture, so any splattered paint would be removed with the rotary tool.

I had red and yellow latex paint, and mixed them together to get an orange, then watered down a bit of each paint with about 1/3 the amount of water. Starting with the yellow I added a light coat to the leaves. I tried to work fast so I could slightly blend the three colours as I moved outward.

Define with texture

Vein lines go a long way to adding life to these leaves. I added five vein lines per leaf with a V-gouge, running them into the tips of each leaf. Working between the vein lines, and aiming towards the stem of each leaf, I used a narrow gouge to create the textured surface on the faces of the leaves.

Now that the leaf pattern was done I split the doors apart. Once the doors were hung I adjusted the gap between the doors. I then eased the sharp edges of the leaves, and sanded all the surfaces, before wiping on a few coats of finish.



Build a Gorgeous HALL TABLE

This sleek, modern take on a classic design will look great in almost any home. By using understated tapers, gentle curves and solid joinery this table will also fit in for decades to come.

BY STEVE NEIL

A good friend of mine recently got married and I wanted to give her something handmade for a wedding present. I had been saving a beautiful plank of claro walnut for something special and this seemed like a good time to use it. This article shows how I made “Tricia’s Table”.

Sketches & Mock-Up

I started by sketching my ideas on paper, then making a full-size mock-up. Making a mock-up has a lot of advantages. You can see the object in three dimensions and play around with the proportions until it looks right. You can take it into your house and see how it looks with all of your other furniture, or show it to your friends and see how they like it. A mock-up also allows you to experiment with the joinery using

Photos by Steve Neil Illustration by Len Churchill



Mock-Up the Design – Not only is it cheaper to use inexpensive materials to make design mistakes on, but you will end up with a more pleasing design if you do a mock-up.

inexpensive throw-away wood and to make any jigs that you might need. For this mock-up, I used some scrap poplar for the legs and other parts of the base, and a piece of 3/4" plywood for the top. Inexpensive construction grade lumber also works well for making mock-ups. The legs on this table are tapered, so I made a taper jig and played around with the proportions of the legs until I had something that looked pleasing. The legs connect to the aprons using T-bridal joints, so I also made a router jig to assist in making those joints and fine-tuned the process using the poplar legs in my mock-up. Doing all this with the mock-up meant that I didn't make any mistakes once I started working with the more expensive walnut.

Table Top

The dimensions of the table were limited by the size of the plank of claro walnut. The plank was not big enough to make all the parts of the table, so I decided to just make the tabletop using the claro walnut. Everything else was made from a single plank of black walnut. Claro walnut has a beautiful grain with swirls of different colours in it, so using it for the top of the table made a lot of sense. The more uniform colours and straighter grain of the black walnut suited the base of the table better.

The plank of claro walnut had been sawn from the center of the tree, which meant that there was a large amount of waste in the middle of the plank where the pith was. There were also



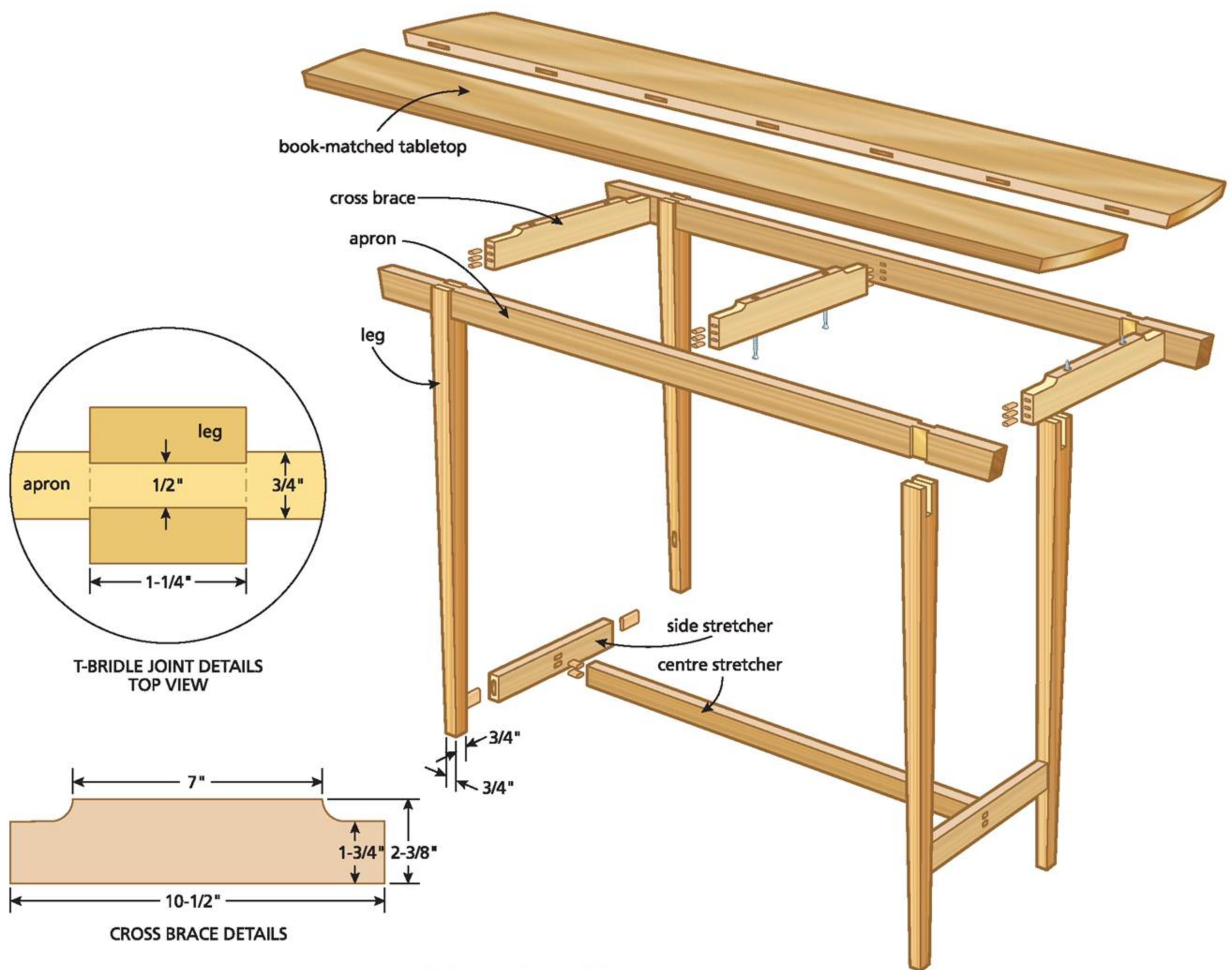
Tape Off the Waste – Before removing wood from the boards, and not being about to turn back the clock, use tape to cover up the portion of the wood you're thinking of removing. This will allow you to clearly see the wood that will remain and figure out if the grain will align after trimming.

some other defects in the plank, so I used a white pencil to mark the waste areas on the plank. Only one side of the plank was straight enough and defect-free enough to make the tabletop. I cut out a section approximately 9" wide by 6' long. The plank was 2" thick, so I flattened one face and straightened one edge on the jointer and then re-sawed it on the bandsaw to yield two pieces that would eventually be glued together to make a book-matched tabletop.

Next, I had to get the two halves of the tabletop to match each other. I wanted the grain to run more or less parallel to the edges of the tabletop and the two halves to be as symmetric as possible. Use blue masking tape to hide the parts you're going to cut off so that you can see what they will look like when glued together. Cut off the excess wood, and then joint the edges that will get glued. Using hand pressure only, butt the two halves together and look for gaps. Mark where the gaps are and use a hand plane to remove the high spots. Continue doing this until the gaps disappear. Once the two halves are ready to be glued together, use a biscuit joiner to insert biscuits about 12" apart into the joint. This allows clamping the two boards without worrying about the boards slipping and creating a ridge down the middle of the tabletop. Once the glue is dry, cut the top to final

Mark the Cuts – With a straight edge and some chalk mark the parts from your blank. Notice how the white lines are not necessarily parallel to the edge of the board, as Neil was careful to keep the grain lines parallel with the sides of the individual parts.





width, ensuring the glue joint is in the center of the finished tabletop.

The ends of the tabletop are curved for visual interest. Make a template and trace the curve onto both ends of the top. Cut off the waste and clean up the edges using a block plane. I also put a bevel onto the bottom edge of the tabletop using a block plane. This was done primarily to make the top look thinner and lighter, but it adds some visual interest and is something that people notice when they touch the edges of the table.

Milling Parts

I milled all of the parts for the base of the table from a single plank of black walnut. Using chalk or a white pencil, mark out all of the parts on the plank. It's important at this stage to look at the grain direction and ensure that the grain is parallel to the parts. Also, the legs should be marked in a section of the plank where the grain is rift-sawn (that is, at a diagonal when viewed from the end). All of

Materials List

Part	Ltr	Qty	T	W	L	Material
Tabletop	A	1	3/4	14	61-1/2	Claro Walnut
Apron	B	2	3/4	2	47	Black Walnut
Cross Brace	C	3	3/4	2-3/8	10-1/2	Black Walnut
Leg	D	4	1-1/4	1-1/4	32-3/4	Black Walnut
Side Stretcher	E	2	3/4	1-5/8	10-5/8	Black Walnut
Centre Stretcher	F	1	3/4	1-3/8	38-1/2	Black Walnut
Loose Tenons	G	To	Fit			Hardwood

Hardware List

Name	Qty	Size	Details	Supplier
Stainless Steel Screw	6	#10 x 2"		

the other parts should be marked in a section of the plank that is either rift- or quarter-sawn. I avoid sections that are flat-sawn or where the grain is really swirly. This results in some waste, but the end result is more visually appealing. Once all the parts are marked out, cut them apart using a jigsaw and a band-saw. The parts should be cut oversize

at this point in time. Sticker them and allow them to settle for a few days. This allows the wood to relax and reach its final shape as internal tension in the wood is released and moisture levels equalize. Then, mill all the parts to their final dimensions, with the exception of the legs, which get milled to a square shape now and tapered later on.

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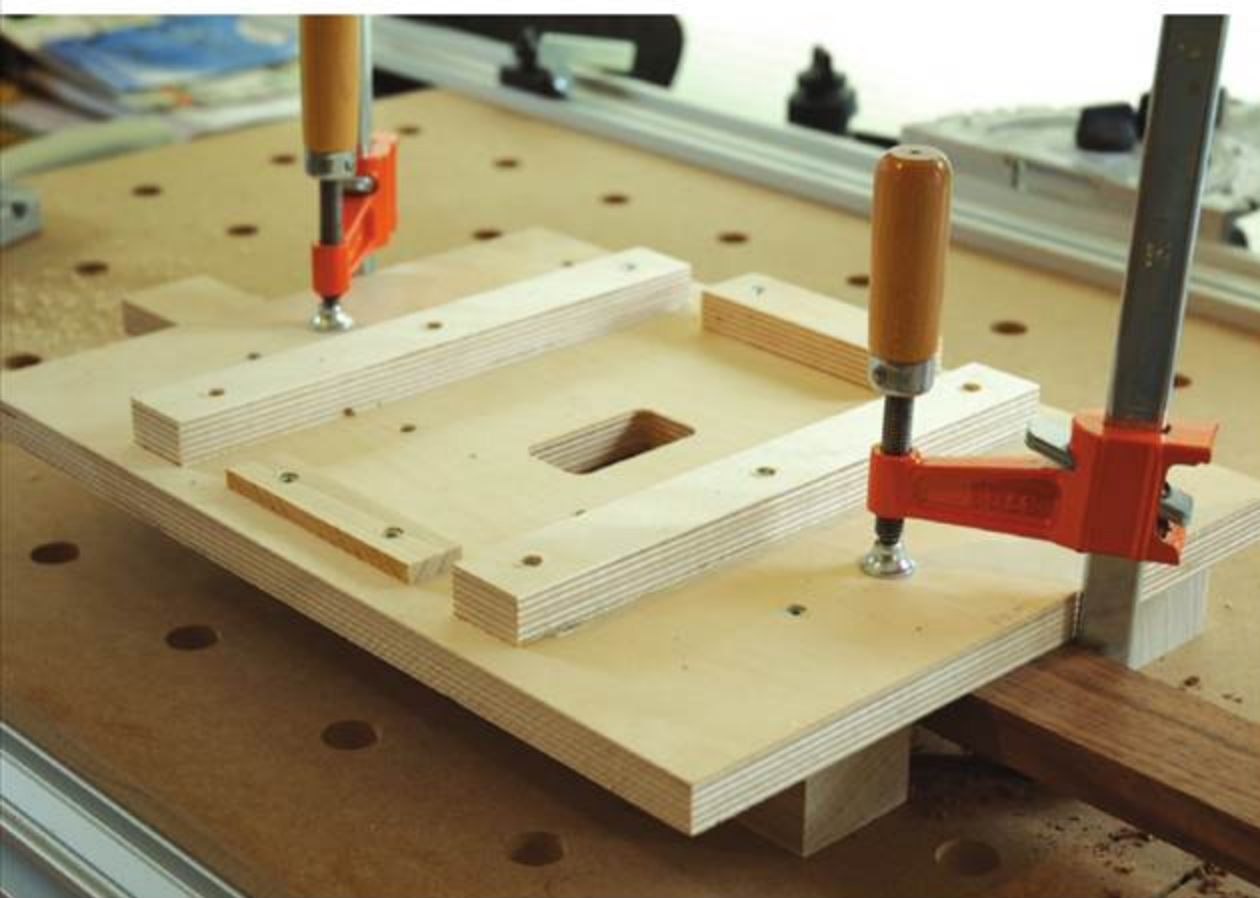
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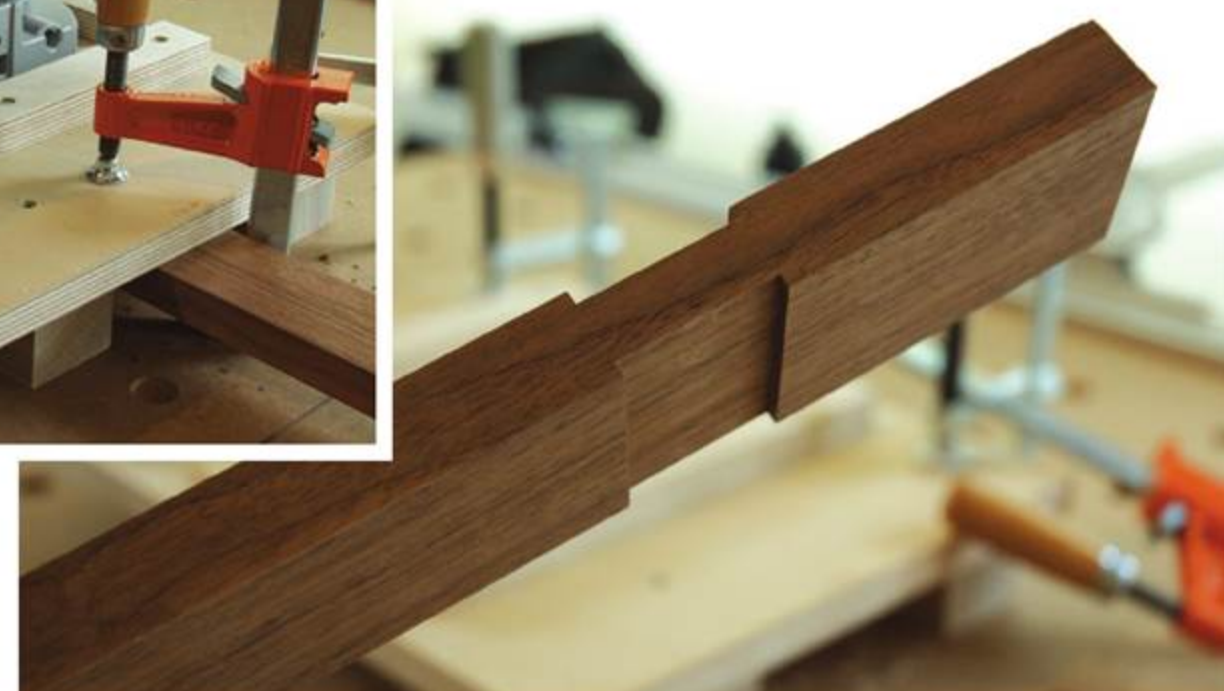
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Bridle Joint – Once it's clamped to the apron, this simple jig will help guide a straight bit in a router to produce the tenon portion of the bridle joint. As long as the jig is fastened to the same part on the opposite side of the apron, the resulting tenon portion of the joint will be ready to accept the mortise.



Joinery

The legs on this table are attached to the aprons using T-bridal joints. This joint is similar to a mortise and tenon joint, except in this case the "tenon" is in the middle of the apron, and the "mortise" is on the end of the leg. Cutting dados on each side of the apron forms the tenon. I used a jig to guide a plunge router to cut the dados, but you could also use a dado blade on your table saw. The apron was clamped



Chop the Mortise – Once the cheeks of the mortise are cut into the top of the legs Neil chops out the waste with a chisel.

under the jig, and guides on the jig allowed the router to move from side to side and cut the dado.

Next, cut the mortise on the ends of each of the legs. First, use a bandsaw to make two cuts and define the cheeks of the mortise and then use a chisel to chop out the waste. Note that this could also be done using a tenoning jig on a table saw. Final fitting of each of the joints was done using the bandsaw to trim the cheeks of the 'mortises' on the ends of the legs till they fit snugly over the "tenons" in the aprons. This is backwards to the way that you would fit a normal mortise and tenon joint, but it works in this case.

All of the rest of the joinery in this table is done using mortises and floating tenons. Each joint has one, two, or three tenons to maximize the amount of glue surface, and hence the strength of the joint. I use a horizontal mortising machine to cut the mortises but these could also be cut using a plunge router and some jigs or by hand using mortising chisels. Note that the mortises in the legs that attach to the side stretchers are cut before the legs are tapered, as it is easier to cut mortises on square parts.



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Time to Taper – Neil used a jig to cut the leg tapers on his bandsaw, but a table saw could also be used. Either way, ensure the workpiece can't shift during the cut.

Tapering the Legs

The inside two surfaces of each leg are tapered from 1 1/4" square at the top to 3/4" square at the bottom. This gets done after all the mortises have been cut on the legs. I used a simple shop-made tapering jig to do the tapering on a bandsaw, but you could also taper these legs on your table saw or with a jointer. Clamp each leg into the jig and then cut a wedge-shaped piece off one of the inside faces of the leg using a bandsaw. Rotate the leg 90°, and then cut the other inside face. Care needs to be taken when doing this to ensure that you taper the two inside faces of the leg and not the outside faces.

Once the tapers are cut, clean up the bandsawn surfaces using a hand plane. Note that the taper on the inside surfaces of the legs starts below the portion of the leg where it joins the apron in the bridal joint. This makes it easier to cut the dados in the aprons to form the T-bridal joint.



Pre-finish the Parts – Finishing the individual parts before assembling them is often easier, and leaves a smoother finish. Neil applies blue tape over the joints so they don't get any finish on them, which would reduce the strength of the joint.

Fitting the Tenons

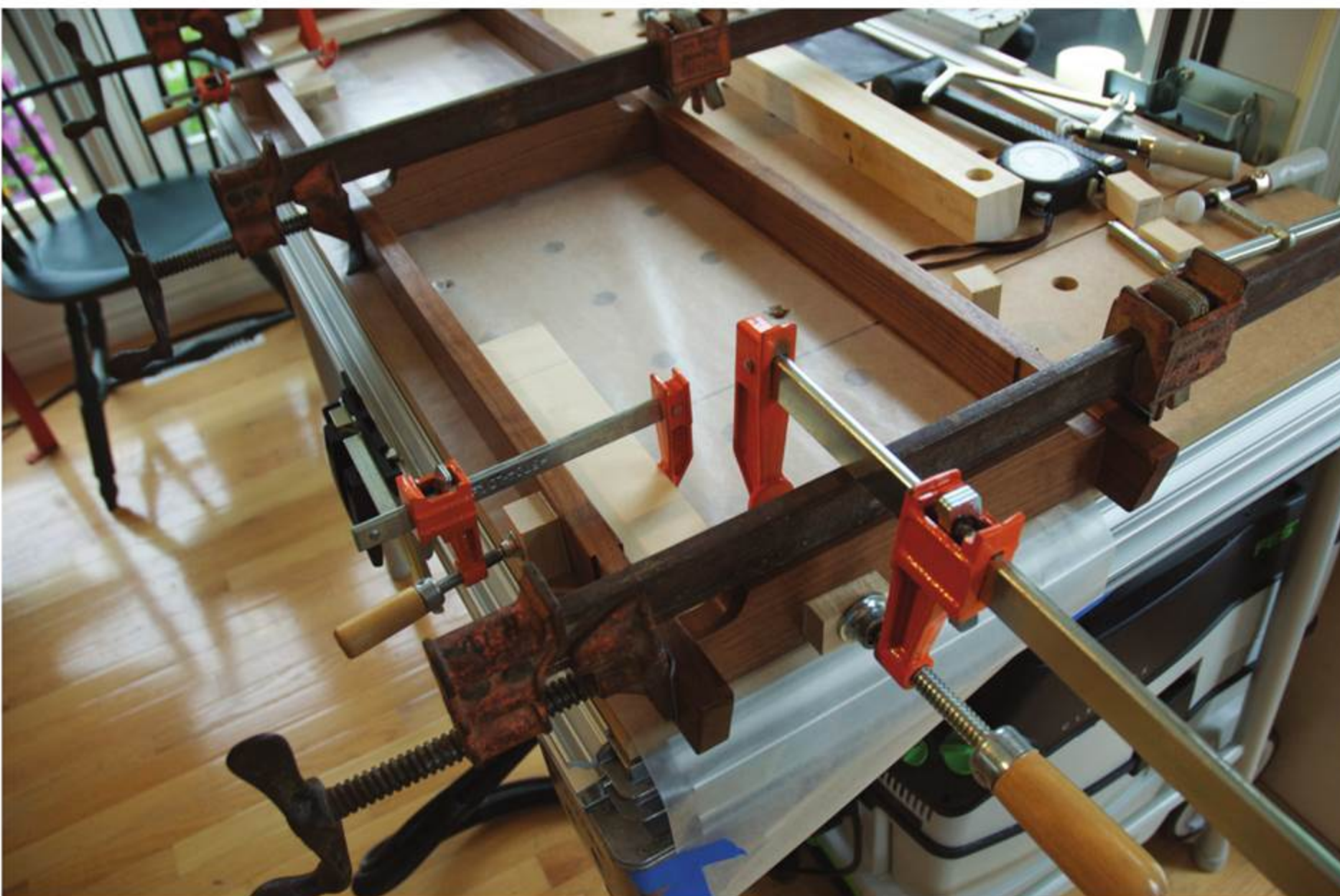
I made the floating tenons from leftover pieces of the black walnut. Cut and plane strips to the appropriate thickness and width to match all of the mortises. Use a round-over bit in a router table to round over all of the edges. For each joint, measure the depth of the two mortises and cut a tenon about 1/16" or so shorter. This ensures that the tenons don't bottom out when they are being glued, and also provides some space for extra glue to accumulate. Test fit all of the tenons and where necessary sand the tenons to ensure a good fit. Lastly, mark each tenon with a pencil so that you can remember which joint they're intended for.

Surface Prep and Pre-Finishing

Once all the joints are cut and the legs are tapered, it's time to prepare all of the surfaces for applying finish. I use hand planes to smooth all of the flat surfaces and remove power tool marks. I also use hand planes and, where necessary, files, to round over all of the edges. After hand planing all of the surfaces, it just takes a little bit of sanding with 320-grit sandpaper to produce a silky smooth surface.

Once all of the parts have been surface-prepped, use blue masking tape to cover up all the mortises and other joinery. Any surface that is going to receive glue should be covered to prevent the finish from getting onto, and weakening,

Sub-Assembly #1 – The initial glue-up involves the two aprons and three cross-braces. Note the two L-shaped plywood braces being clamped in place. They hold the assembly square while the glue dries.



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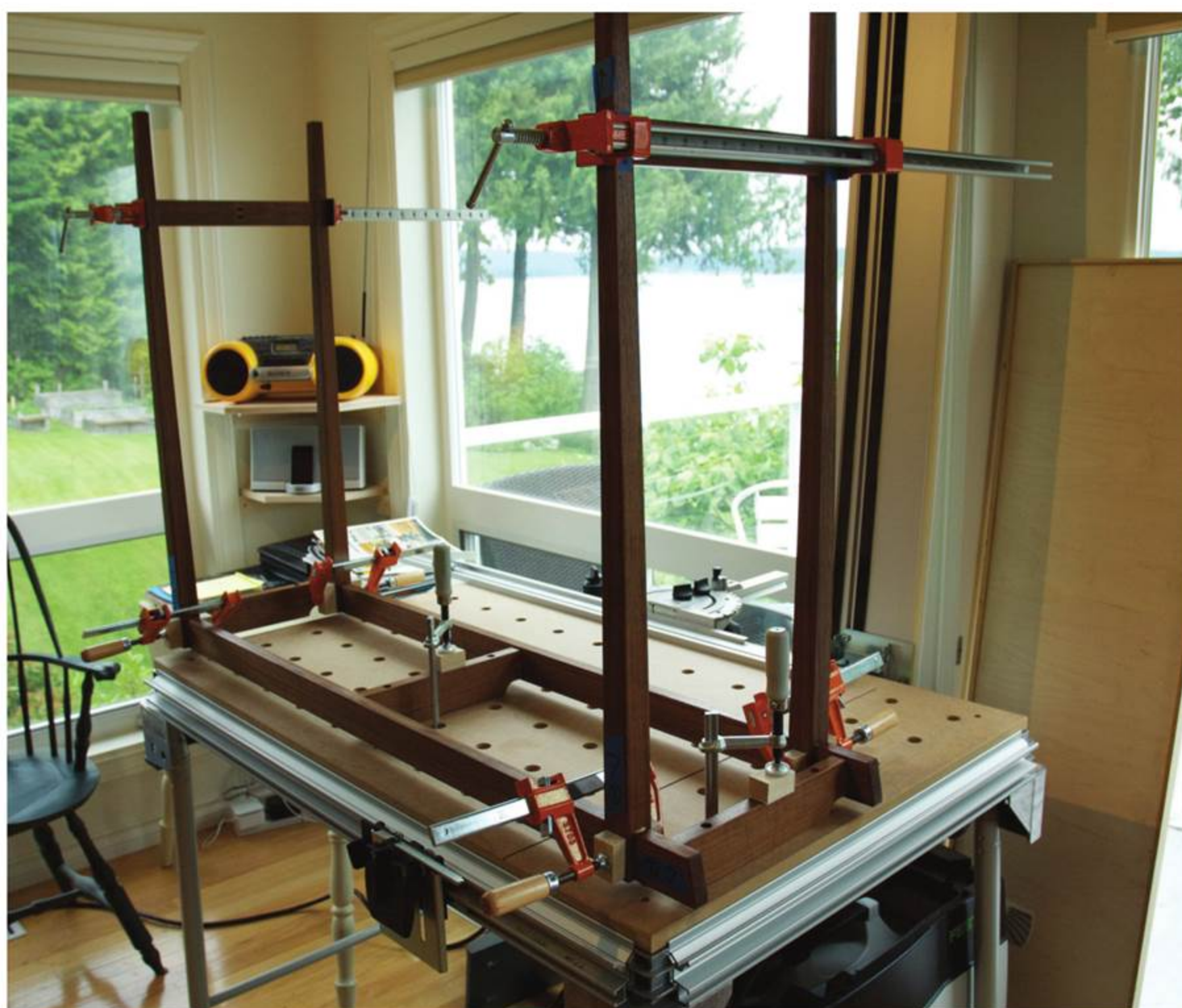
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Sub-Assembly #2 – With the apron assembly dry, Neil adds the four legs and two side stretchers. He uses small cauls during clamping so as to not mar the finished wood surface.



Sub-Assembly #3 – The center stretcher is the last piece to be fixed to the base. Loose tenons are slid in from the outside and trimmed to length afterwards.

the joint. Apply your favourite finish. On this table, I used several coats of a wipe-on OSMO Polyx-Oil and sanded between coats with 320-grit sandpaper.

Glue-Up

Once all of the parts are pre-finished, it's time to glue everything together. First, do a dry-fit and ensure that all the joints fit nicely and nothing is wonky.

While it's dry-fit, rub some Clapham's beeswax onto the wood around all of the joints. This helps prevent glue that squeezes out from sticking to the finished surfaces.

This glue-up gets done in several steps: Glue the two aprons and the three cross-braces together. Use a flat work surface to do the glue-up on, and when necessary use some plywood L-shaped

brackets to ensure the joints are perfectly square while the glue sets.

Place the apron subassembly upside-down on a flat surface. Glue a pair of legs and the matching side stretcher together and then glue the legs to the aprons (that is, the bridal joints). Clamp and let the glue set. Repeat with the other pair of legs.

The last step is to glue the center stretcher to the side stretchers. This is done with a pair of floating through-tenons at each end of the center stretcher to simplify the glue-up and to add an interesting detail to the joint. Using through tenons allows the center stretcher to be held in place and the tenons inserted from the outside of the side stretchers. I round over the exposed end of the tenons before gluing them in place to add a little bit of interest to the joint.

Once the glue has set, it's necessary to clean up any squeeze-out. Pre-finishing and waxing all of the parts prior to glue-up helps make this step easy, as white glue will not stick to a wood surface that has been finished and waxed. To remove squeeze-out, it is simply a matter of using a blade from a hand plane or using a knife to pop the glue off. It's better to wait until all the glue is dry before doing this so that the glue doesn't smear. Rubbing the surfaces with a cotton rag and some Clapham's beeswax afterward will also assist in removing any residual squeeze-out.

Attaching the Tabletop

The tabletop is attached to the base using six stainless

steel screws (two in each cross-brace). In order to accommodate seasonal wood movement in the top, the holes in the cross-braces that support the tabletop are elongated so that the screws can move from side to side as the width of the tabletop expands and contracts. This is very important. Wood will expand and contract perpendicular to the grain lines, but not length-wise, as humidity changes from summer to winter. If your joinery or tabletop-mounting methods do not allow this seasonal movement to happen, cracks and/or glue joint failures may occur.

Buffing and Waxing

Once the tabletop is attached to the base, the last step is to apply another coat of Clapham's beeswax, and buff it using a soft cotton cloth. Scraps of denim fabric work well for this.



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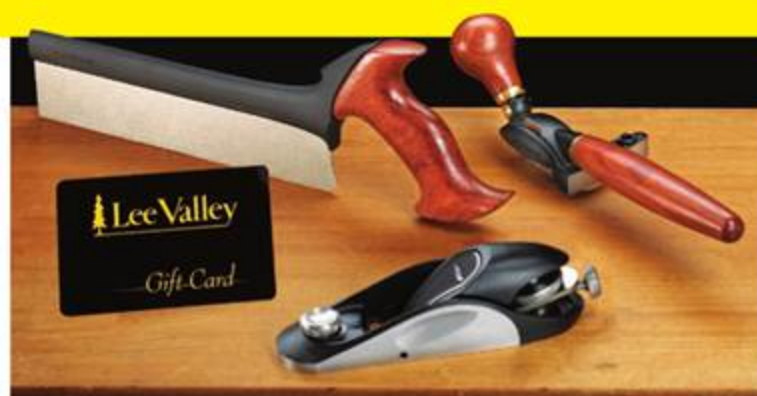
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Build a Shop Library

No woodworker knows everything. Whether it's technical information, project articles from magazines, hardware and tool catalogues or design inspiration, there are many great reasons to keep a mini-library in your shop.

BY ROB BROWN

Why not use this shop project to show off your skills a bit? Surrounding yourself with nice pieces of furniture can only lead to trying to better yourself down the road by making even nicer pieces. And I guarantee the nicer you make this cabinet, the more likely you are to use it in the future. If it ends up looking far too nice for your workshop, just bring it inside where the family can use it, and make another one for above your workbench.

Design

Almost all of the design and construction details are reasonably simple. I didn't see any reason to get fancy. The KISS theory works well on cabinets like this, not to mention most things in life. The overall design was loosely inspired by some of James Krenov's cabinets. The size of this cabinet is very easy to modify, so feel free to build it to suit a specific area in your shop or home.

Photos by Rob Brown Illustration by Len Churchill

The trickiest aspect of this build is the maple leaf carvings on the doors. If you'd rather simplify the cabinet, just skip this step and make standard straight-sided doors. It's not as hard as it looks, though, so I encourage you to challenge yourself. The construction details for the leaf carving are in the Finer Details column of this issue.

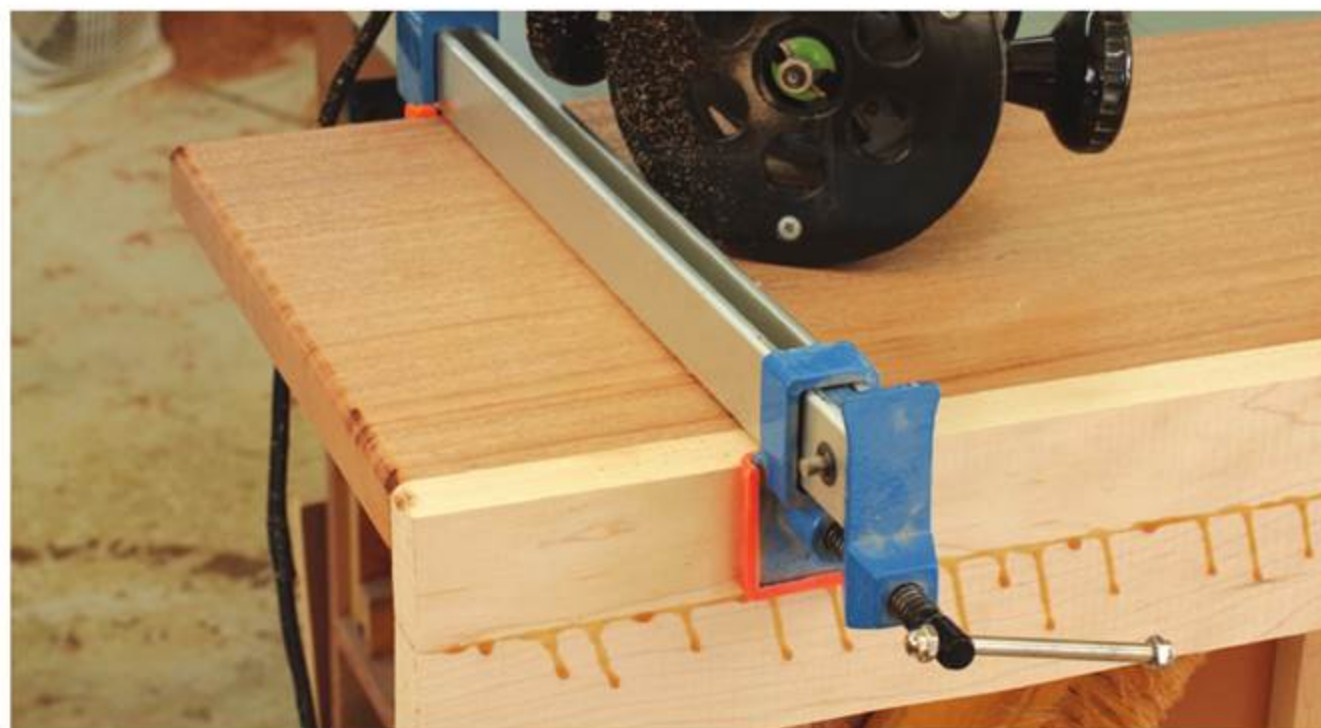
Material & breakout

I was lucky to find some wide planks of quarter-cut African mahogany. They were perfect as the straight grain and lack of glue joints made machining easier, and the grain was in keeping with my KISS approach.

I cross-cut the two blanks so each would include a side and either one top or bottom. This would allow me to dress the shorter sides while still attached to the longer top/bottom. After cutting the two blanks to rough size I marked them so I could ensure mating the parts up afterwards so the grain would flow around the cabinet.

Because I don't have a jointer wide enough to accommodate 13" wide stock I used my hand plane to flatten one surface of each of the blanks. At this point I could run them both through my planer and bring them to final thickness.

I then cut the top, bottom and two sides to finished



No Chipping – With a piece of scrap clamped to the back of the top, a router bit wouldn't chip out the trailing edge of the cut.



Slight Angle – An angled table saw blade and sacrificial fence can be used to create a 15° angle on one edge of the top and bottom. Brown leaves a 1/16" wide flat section on the edge of the work-piece once this cut is complete, but it can be sanded smooth later.

dimensions, making sure to cut the extra material off the front edge of the sides to keep the grain flowing around the cabinet.

Before hitting the joinery I rounded over the front and side edges of the upper surface of the top, as well as the lower surface of the bottom. The rear edges of these two parts stayed square.

I then set up my table saw and sacrificial fence to add a 15° chamfer to the inner edges of these parts. This could also be accomplished with a sharp hand plane.

Dowel joinery

A series of 3/8" dowels secure the four main case parts. I started by making a hole drilling jig that would help me locate dowel holes in the upper and lower ends of the sides. With the jig clamped to the end of a side I drilled a series of holes, a bit deeper than required, to ensure none of the dowels would bottom out before the joint was brought together.

You can also use the same drilling jig to locate the holes in the top and bottom, though I find it more accurate to use dowel centers to transfer the hole locations. With some dowel centers in the sides, I aligned the parts with the help of a cleat that was clamped to the top or bottom. The cleat would give me something to butt the side up to while positioning it in place over the top or bottom. Align the parts, press them together and small dimples appear where the holes are to be located. After setting the depth on my drill press to ensure the holes didn't come through, I drilled mating dowel holes in the top and bottom panels.



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Lots of Dowel Holes – This simple jig can help drill a series of dowel holes in the ends of the gables, as well as the inner surfaces of the top and bottom. Brown just used it for the gable holes, then used dowel centers to transfer hole locations to the top and bottom, before heading to the drill press to bore the mating holes.



Rabbet for the Back – With the cabinet dry-assembled, and clamped together, Brown creates the rabbet to accept the back panel on his router table.

Hinges

I used knife hinges for these doors, but there's no reason why you couldn't use butt hinges or even European-style kitchen door hinges. Knife hinges are harder to install, but as long as they are installed properly they have a very subtle look and a very long life. You must plan ahead if using knife hinges, as it is much, much easier to rout the mortises that accept the hinges before the cabinet is assembled. I routed the four mortises in the top and bottom now. Read the article on installing straight knife hinges in this issue to learn how I installed them on this cabinet.

Back panel

A through rabbet is easy to cut, but if I machined one into the rear, inner edge of the top and bottom panel it would have been visible at either end. Instead, I inserted some dowels into each corner joint, clamped the cabinet together, turned it on its back and, in multiple passes, routed a rabbet for the back panel on my router table. I decided to leave the corners round, though you can square them up if you like.

I made the back panel assembly now, and fit it to the cabinet, but didn't glue it in since I was going to apply a finish to the entire cabinet before assembly. I machined the two rails and stiles to rough size and roughed out a back center panel. I proceeded to cut the rails and stiles slightly over finished length, and then ran a groove in the inner edges of the four parts to accept the back center

panel. I then cut the rails to finished length and machined stub tenons on their ends. After the parts were sanded, I assembled them and let the glue dry. Once dry I fit the assembly to the opening, which included rounding the four corners.

Finish the cabinet

With the parts that make up the case complete, I unassembled it, sanded all the surfaces and applied masking tape across the dowel joints on the top, bottom and gables. I used Osmo TopOil Clear for this library cabinet. I wiped on five coats, letting the finish dry adequately between applications. The

application is very easy and the resulting surface is smooth and feels great on the hand.

Assembly – Three Stages

With the parts finished and buffed to a nice sheen, I removed the tape and prepared for final case assembly. Doing the glue-up in two stages was necessary, as it would take too long to apply glue to all the dowels and bring the cabinet together before the glue dried.

The first step was to apply glue to the dowels in only one side of the bottom panel, then bring that joint together. With that complete I only had time to put a few dry dowels in the other three joints to assist

Materials List

Part	Ltr	Qty	T	W	L	Material
Top/Bottom	A	2	15/16	12	32	African mahogany
Gables	B	2	7/8	10-3/4	12	African mahogany
Back Rails	C	2	3/4	2	27-1/4	African mahogany
Back Stiles	D	2	3/4	2	13	African mahogany
Back Center Panel	E	1	3/8	10	27-1/4	Veneered MDF
Doors	F	2	7/8	11-13/16	To Fit	Maple

Hardware List

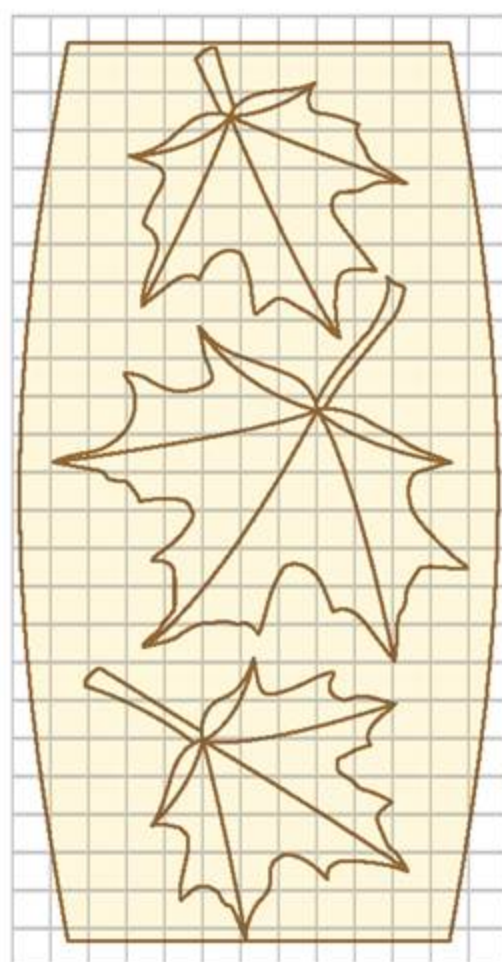
Name	Qty	Size	Details	Supplier
3/8" dowels	40	3/8" dia. X 2"		Misc
Straight Knife Hinges	2 Pairs	3/8" x 1-3/4" x 1/8"	05H01.06	Lee Valley
Double Magnetic Touch Latch	1			Misc
Countersunk Washers	3	#10		Misc
Screws	3	#10		Misc



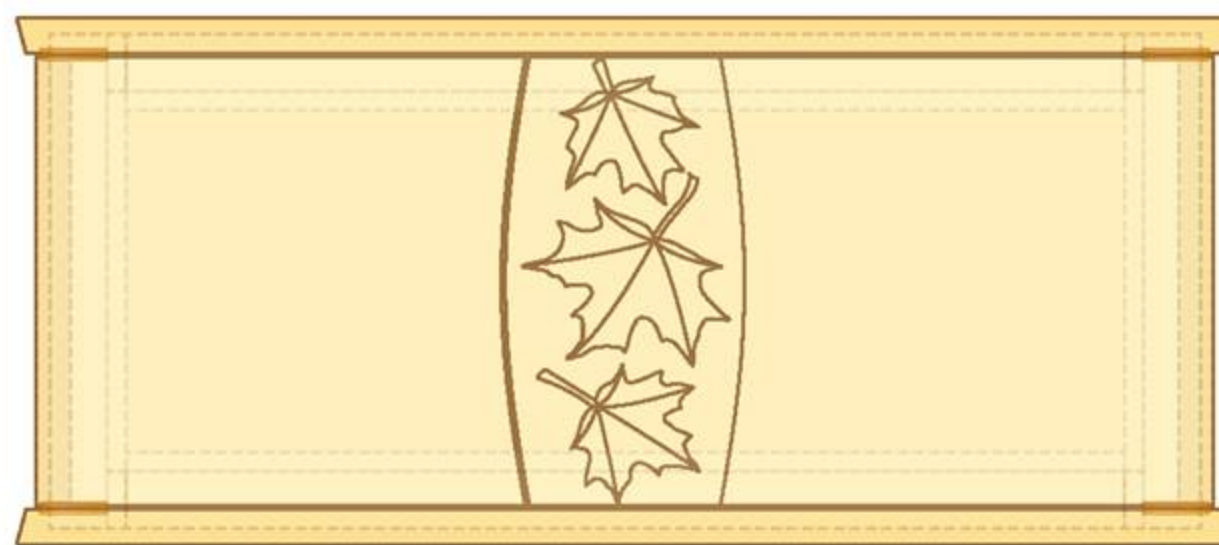
Finish it Early – Though it takes a bit of planning, you generally get a nicer final result when you apply a finish to the cabinet parts while they're apart, then assemble them once the finish has cured.



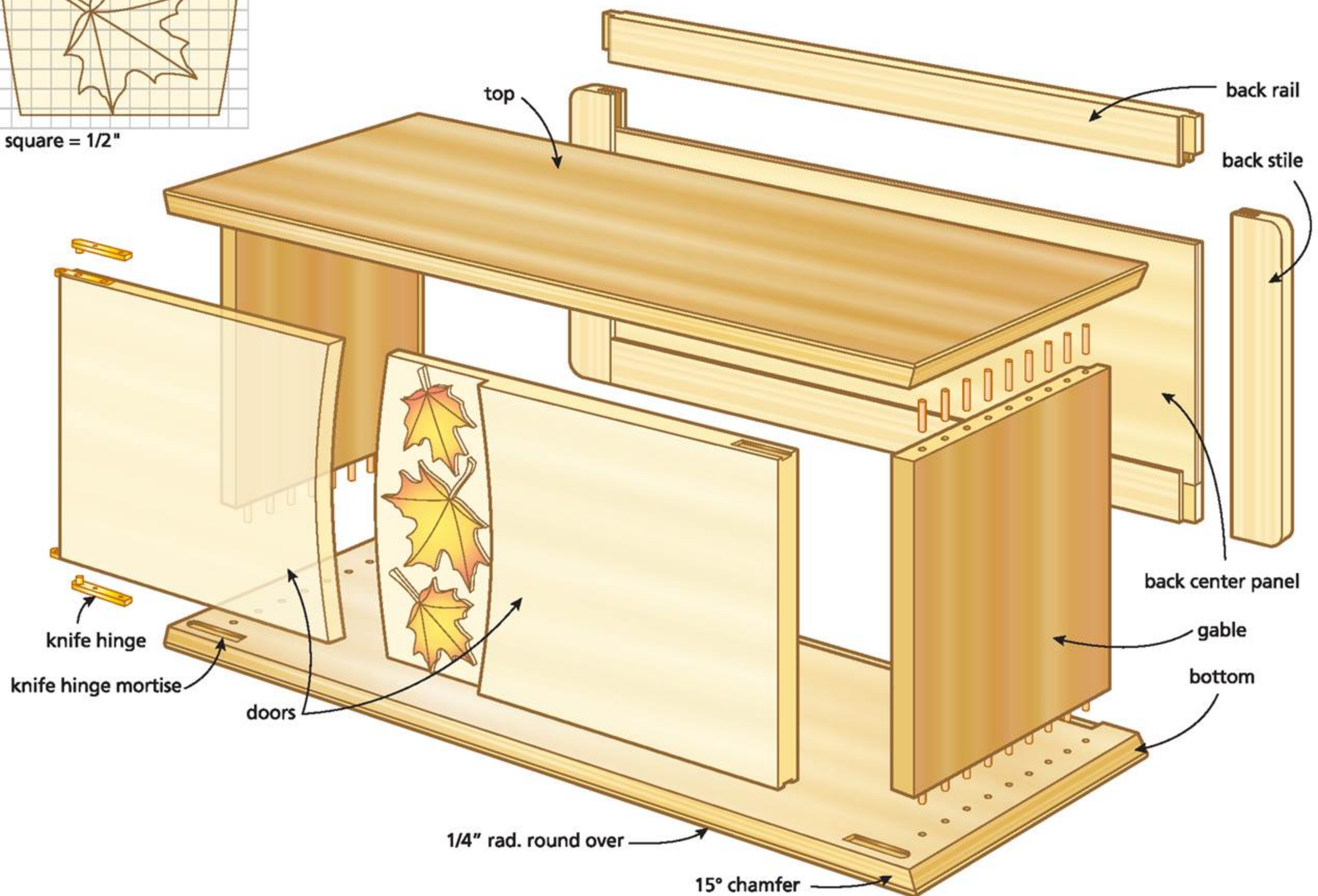
Mark a Radius – Brown was able to find a cap the exact dimension he required to trace an arc on the corners of his back panel. If you're not that lucky, a small compass will do the trick. The corners need to be rounded only if you leave the corners of the back rabbet round.



1 square = 1/2"

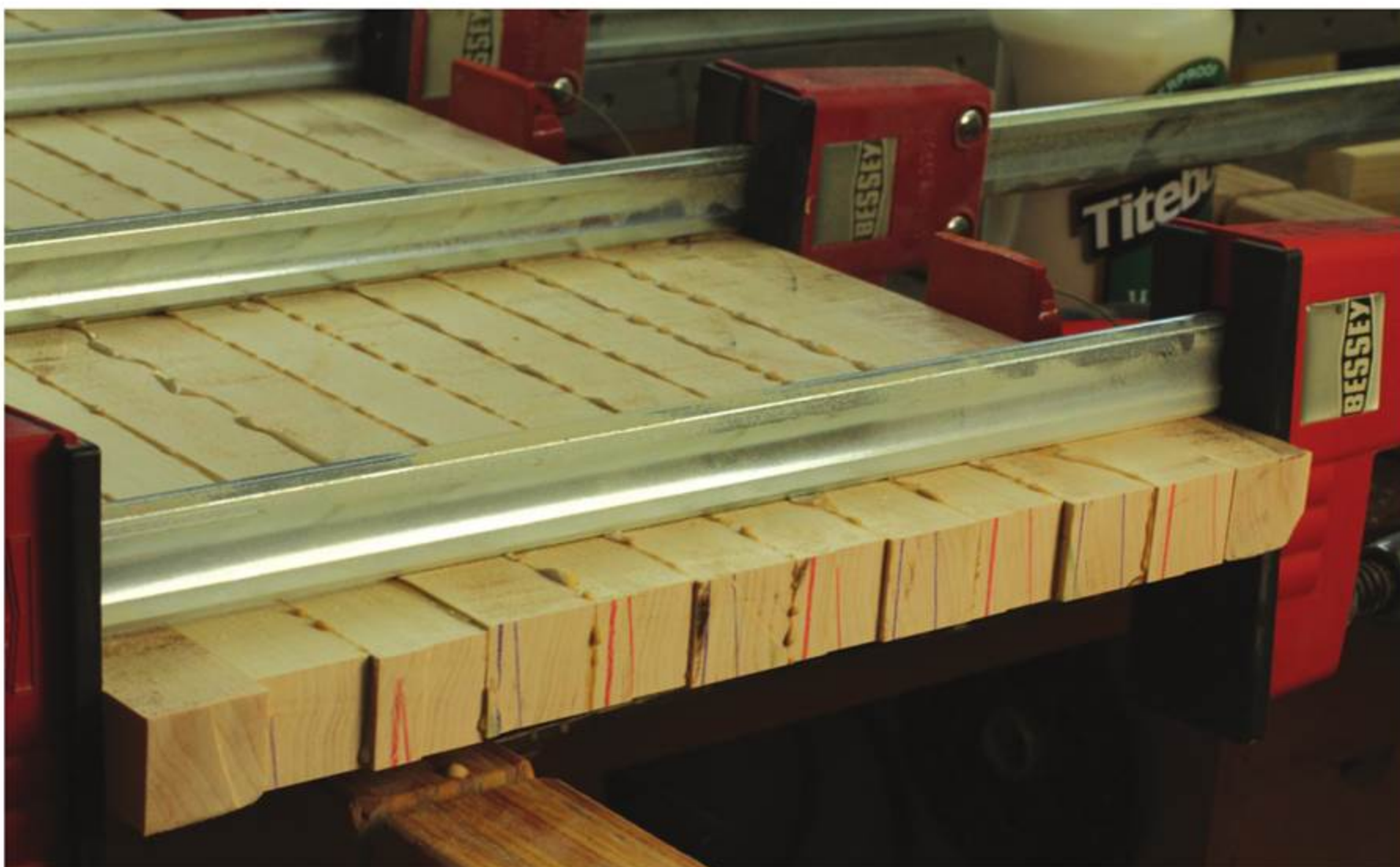


FRONT VIEW





Assemble the Cabinet - Because the mahogany parts are already finished Brown used carpeted clamping cauls so the clamps wouldn't damage the finish. During the first step, shown here, Brown glued and assembled one corner joint only. When dry he clamped a second joint. Brown brought the last two corners together for the final assembly. The back panel was put in place each time to ensure the joints were square.

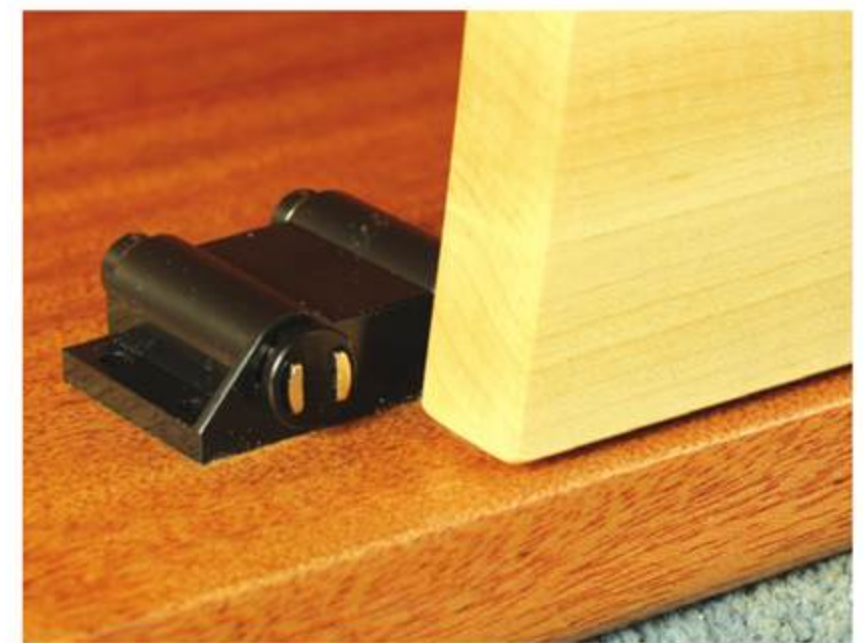


Rip and Re-glue - To minimize the seasonal movement of the doors Brown ripped flat cut material into strips, then rotated and re-glued it.

with alignment and bring the four case pieces together. I added the back to ensure the joints would be fixed squarely and clamped the joints. While using clamps on these finished surfaces I was sure to use smooth cauls with some padding between the cauls and the finished cabinet.

With the first stage dry I removed the unglued side, top and back, applied

glue to the dowels and dowel holes in the other bottom/side joint, brought the parts together and clamped the assembly. When dry I repeated the process one last time, and quickly glued everything together. I immediately applied glue to the back panel and rabbet. A few clamps, and some soft cauls, and the case was assembled for good.



Door Stop - With the cabinet upside down, position one door in its closed position. Butt the magnetic door latch up against the inside of the door, mark the hole locations and add the screws. Once you attach the washers to the back of the door they will stay closed until a press of a finger opens them up.

Doors

Because of the carving work I added to the joint between the two doors I made the doors a bit differently than is typical. A pair of frame and panel doors, or even veneered doors, would look great here, and you should feel free to go down that road. If you're up for a challenge you can follow the steps I took.

If these doors swell much at all they will bind in the opening. However, because of the carving I was doing, I needed solid wood doors. This is why I opted for cutting strips of wood off a flat cut board, rotating the strips 90° and gluing the strips back together. The result would be a pair of doors with quarter-cut grain that would not move much with the seasons. I glued up one wide panel for the doors, then cut them apart so the grain would run continuously.

I was aiming for a finished door thickness of 7/8". Because the doors were taller than I could obtain from one 32" length of 5/4 rough lumber I had to cut two 32"-long lengths and rip my quarter-cut strips from them, alternating the strips from each board as I glued them up to ensure the pattern and colour was as even as possible.

After cutting two blanks to rough length, I jointed and planed them until their surfaces were smooth. With one long edge jointed I ripped 1-1/8" wide strips from the two boards. I also made sure to keep the strips in the same order as they came off the board.

With the strips cut I rotated them and glued them back together. I used a few

longer cauls clamped to either face of the panel to ensure the strips were glued together as flush as possible. Once the glue was dry I planed the 32"-long panel to a final thickness of 7/8" and cross-cut one end square.

Lay out the maple leaves

At this point I determined where the maple leaves would go, and used a scroll saw to create the gap between the two doors. For more information on how I designed, laid out and completed the maple leaf carving, read *Finer Details* in this issue. With the two doors separate, I machined the hinge mortise and hung the door with the straight side.

Once the first door is swinging perfectly, put the second door in place and mark where it should be trimmed to length in order for it to mate nicely with the first door. Remember, it's fairly easy to remove wood from between the two doors to adjust the gap, but it's very difficult to add any wood to ensure an even, nicely spaced gap. Rout the last two door hinge mortises and hang the final door. If it swings perfectly you're in luck. If not, some small adjustments should be made.

Hardware

You could easily drill holes in the doors and install standard door pulls, but if you want to go to the trouble of adding the maple leaves, or another design, to your doors, you probably don't want anything to take away from the look. I used a double magnetic latch so a press of either door would open it up. A small washer is attached to the back of each door so they stay closed when not in use.

With the doors now working perfectly it's time to sand them and apply a finish.

To hang the cabinet, I selected a spot in my shop for the library to live and located the studs. After some measuring, and layout on the cabinet, I drilled a few screw and countersunk washer clearance holes in the upper rail of the back then fastened the cabinet in place with a few #10 screws and countersunk washers. If you plan on loading this library completely full, and possibly storing tools on top or hanging below the cabinet, it might be a good idea to add a few more screws through the bottom back rail.

Now comes the fun part: collecting all your woodworking reference books, and all the magazines you plan to build projects from, and finally giving them all a proper home.

What books or magazines will you store in your shop library? Add your thoughts to the comments section at the end of this article on our website.

ROB BROWN

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The TASK apron arrived this week. Quite an impressive piece of work!

As requested, enclosed is a photo of me in my garage-workshop, proudly displaying my nice apron!

It was only ten years after I retired that I was able to devote my time to woodworking. Most of my initial efforts were in making a variety of furniture pieces for our home and for family members, such as chests of drawers, night tables, coffee tables, napkin holders, etc.

My main interest in recent years has been developing skills in hand-cut dovetail boxes as well as Nativity sets, which have become quite a popular item.

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BOARD & BATTEN

Wood Siding

Vertical wood siding is a time-proven, versatile, environmentally friendly, locally available option that requires minimal tools and equipment to install.

BY CELINE SCHMIDT

If you tour around Canada's stunning East Coast, known for its damp and wind-driven weather, you will regularly spot vintage outbuildings that still retain their original board and batten siding. This vernacular building treatment was the most efficient option in the heyday of the timber-frame barn, whose horizontal framing members were well-suited to vertical siding attachment. With the advent of mass-produced nails and sawmills turning out dimensional lumber, stick-framed buildings evolved as the typical construction method. However, stick-framing is

comprised mainly of vertical parts, leaving little in the way of nailing points for vertical siding. Thus, horizontal siding became mainstream and board and batten fell by the wayside, except for mostly post and beam outbuildings.

The increased popularity of rainscreens lends itself well to a revival of board and batten siding. A rainscreen is created when siding is spaced off the building's sheathing/moisture barrier with furring strips. The airspace that is formed allows any moisture that gets past the siding to dry out before it causes damage. Furring strips are most easily attached horizontally to stick framing, which provides perfect nailing points

for vertical siding. It has been argued that rainscreens are more effective with vertical furring strips, since water that infiltrates can drain directly downward. However, siding should be applied so that it fulfills its primary purpose: to shed water. Properly installed, breathable siding coupled with adequate roof overhangs should not allow significant water leakage in the first place.

Why I Love It

As a woodworker, I most enjoy working with materials and finishes that are not harmful to me, my clients or the environment. I also enjoy sourcing local materials. After all, we do not have much opportunity to do that here on the prairies. I love that board and batten can be made to look polished with surface treatments such as rounded edges and sanding, but can also be instantly rustic when constructed with rough sawn lumber and all its lovely machine marks. I love that I can apply this siding as a crew of one, with only a couple of ladders and a hammer. It is also great that the remnants can be disposed of enjoyably, in a backyard bonfire. Given today's artificial construction materials, board and batten is a rare task that feels like a clean, outdoorsy endeavour. Bring out



Furring Strips – The bottom layer is pressure-treated to protect from splash-back. Spacer boards are visible at lower right.

the noisy compressors and nail guns if you must; I will stick with my 16 oz. straight claw.

Material Choice

Hands down, cedar is the holy grail of wood siding, but the cost can be prohibitive. Of course, here on the dry prairies, it is perfectly sensible to use raw spruce as a siding material, especially in vertical application. Raw woods develop a patina that may be uneven, due to sun exposure, but are wonderfully maintenance-free. In damper climates, spruce is still acceptable when finished with solid colour stain. There are many exterior finish options, but be sure to use a breathable finish. There is an argument to finish both sides of the boards to minimize cupping. As well, wood expands and contracts seasonally and uncoloured stripes may appear as the wood moves; therefore, it is best to apply finish to the boards before the battens are installed.

One-by-eight inch boards are very efficient, as one board can be ripped into three strips of roughly 2.5" to use as battens. You can vary the board and batten widths, or there are many other variations on this theme. This siding can be done as batten-on-board, as described in this article, board-on-board (for improved water shedding and/or if you do not have access to a table saw) or even board-on-batten.

Furring

One-by-four inch spruce is the most efficient and readily available material for strapping. Set up your saw horses and circular saw and fill your pouch with framing nails. Using pressure-treated 1x4s, start at any corner and run a first layer of furring flush with the bottom of the sheathing, using two nails at each and every stud. The entire weight of the siding will hang off these furring strips, so they should be well attached. Split furring strips on a stud where necessary (stagger these splices on subsequent layers) and angle the nails to catch the framing.

Remaining layers of furring are regular 1x4" spruce. Cut two spacer boards at 21" for installing subsequent layers of furring. Tack the spacer boards to the siding so that the second layer of

Tools

- Tape Measure
- Pencil
- 4' Level
- Speed square
- Combination square
- Sliding t-bevel
- Chalk line
- String line
- Hammer
- Pry bar
- Tin snips
- Saw horses
- Hand saw and/or jigsaw
- Circular saw
- Table saw
- Mitre saw (optional, but makes for faster batten application)
- Router with round-over bit (optional)
- Safety glasses and hearing protection

Materials, in order of application

- Furring
 - 1x4" spruce lumber (bottom layer pressure-treated)
 - Optional: 2x4" spruce on gable ends
 - 3" framing nails
 - Window and Door trim
 - 2x4" lumber
 - 3" hot-dipped galvanized siding nails or 3" deck/coated screws
 - Aluminum drip cap
 - Roofing nails
 - Boards and Battens
 - 1x8" lumber of your choice
 - 2" hot-dipped galvanized siding nails (board attachment)*
 - 3" hot-dipped galvanized siding nails (batten attachment)*
- * Add a half-inch to nail length if using rough sawn lumber



Separate Levels – Optional thicker furring strips at second story/gable ends add interest and efficiency of materials.

furring will be 2' above the first layer. The spacer boards also allow you to install the furring strips without assistance, as you can prop one end on the spacer board while nailing the other end. Move these spacer boards around and up as you progress. If you wish to break up the wall face (gable end or second story) for interest and/or ease of installation, change to 2x4" furring strips above the 8' height. The 8' layer can be lowered a couple of inches for easier nailing under the eaves, if the roof pitch is steep. On the gable end walls, run furring strips parallel to the roof line and then fill in the horizontals. Run furring

to the edge of any rough opening then fill in around the entire opening for flange and trim attachment. Note that if you are using 2×4s for trim, you will need a few pieces of 1×6" furring for the top and bottom of the window and door openings to accommodate nailing of both the trim and siding.

Trim

Trim can be as simple as applying 2×4" dimensional lumber directly onto window and door flanges (after whatever waterproofing treatment you desire). For windows, start at the bottom and cut a piece of 2×4" at 1/16" longer than the window. Rip or plane a 10° angle on the top edge to assist water shedding. Round-over or sand the edges before installing. Attach every foot or so with pairs of fasteners. To get the length of the side pieces, hook your tape onto the top of the window on each side and measure down to the bottom of the lower trim you just installed. Once side pieces are attached, measure and install the top trim. Using roofing nails, install a length of aluminum drip cap along the top. Door casing runs past the bottom in the same manner. Side pieces run past the bottom furring strip about an inch, as will the siding.

Boards

As you work, set aside any less knotty boards to be ripped into battens. To allow for expansion and contraction, boards are attached with only one nail in the center of the board at each furring strip. If you use boards wider than 8", or are



Rough Openings – Window, door flanges and trim require nailing all the way around an opening.



Trim – The simplest window and door trim is made from 2×4" lumber with aluminum drip cap.

worried about cupping, you can drive two nails 3"-4" apart, rather than one nail in the centre. Boards can be spliced with a mitre if longer lengths are required. If the lumber is quite green, install boards without leaving any space between them, if possible. It is not always possible to achieve perfect spacing, especially on walls with window and door openings. If boards must be spaced out to fill in an area, gaps can be left of up to 3/4". It is better to space boards out than to rip boards to fit, as this is time-consuming and unnecessary.

Start at the corners. Cut a board to length, which will be an inch or so past the bottom furring, depending on how much clearance there is to the ground. After two corners on a side are installed plumb, run a string line off the bottoms between them to keep a nice line.

The next boards to go on are cut around each side of any openings so that battens do not land at the corner of a window. Cut the board a little long to start. Hold the board against the side of the trim and mark the drip cap angle and bottom edge of the window onto the side of the board. On the sawhorses, use a combination square to transfer these lines onto the face. The width of the cut-out depends on how you will be spacing the boards. The top cut should mirror the angle of the drip cap. Test the fit. The cut-out should butt against the bottom of



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Board Placement at Rough Openings – Seams should not be placed at the edge of a window or door. Notice how some boards were spaced further apart to ensure seams were located in the correct position.

the window trim, while there should be 1/16"+ of space above the drip cap. If the fit is adequate, mark and cut the board to length off the string line.

Fill in boards between those already installed, cutting the same drip angle over windows and doors. Plumb each board as you install it, especially if there are a lot of bowed boards.



Window Cut-outs – The depth of this cut-out is arbitrary depending on board spacing, but is generally at least 2" from either edge of the board.

Drip Cap – Schmidt often makes her own cedar drip cap from 2x4" material, but the approach to cutting boards around aluminum cap is the same. Angle the top cut and leave a bit of a gap above the drip cap to encourage water shedding and evaporation.



Finish Before Installation – Now is the best time to apply finish. The boards won't move around on you, and you are sure to cover the entire front face of every board so if the battens shrink you will still see finished surfaces.



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This is a great time to apply finish, if that is your plan. Chalk a line for the bottom of the upper layer of boards and install these next.

Battens

Count and rip the number of battens required based on the number of seams. Battens can be rounded over for a more refined look and also prefinished. Plumb each batten as you install it and try to center it over the gap. First-level battens are the same length as the boards. Again, mirror the drip cap angle over windows. Corner boards are generally around 4-5" wide and are glued and screwed. Below the window, cut a bit of an angle on the top edge of the batten so that it does not protrude and catch water. Upper layer battens and corner boards are the final touches.



Corner Boards – Glue and screw corner boards for added strength. Schmidt prefits, finishes then installs each corner board as a unit.



Finished Window – Note the partial angle cut on the battens under the window. This will drastically reduce the chance the batten soaks up, or misdirects, water.



CELINE SCHMIDT
furniture@gmail.com

Celine does most anything wood-related (and sometimes even drywall ... shh) from near the center of Saskatoon, Saskatchewan



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Basement Boatbuilding – Part 2

BY DON WILKINSON



For those of you who have a short attention span, or are just joining the ranks of the enlightened by purchasing this magazine, in this issue I am making yet another feeble attempt to conclude the saga of my basement boatyard (back issues are available at the gift shop on your way out or can be mailed to your home in a plain brown wrapper).

You may recall that I had successfully(?) removed most of the walls, some of the wiring, part of the plumbing and all of the goodwill, peace and harmony, such as it was, of the family home. Now I was as ready to begin construction of my treasured kayak as I ever would be. All I needed to complete my dream was to choose what model to build and, somewhat less importantly, figure out just how I was going to build it.

Part of the problem – okay, all of the problem – was that this was my wife’s dream, not mine. Kayaks are dangerous, just watch any adventure video and you see those stupid little boats tipping over right, left, and center. And if by some miracle they happen to stay upright, they are constantly falling over waterfalls or getting sucked under the rapids. Who needs that crap? I have enough trouble staying alive just getting out of bed in the morning.

Eventually, however, I (my wife) found the kayak that I (my wife) wanted to build. Admittedly, this little boat looked pretty sleek and possibly even somewhat sea-worthy, and not one photo in the brochure showed a waterfall or set of rapids anywhere. The fact that the boat was shown sitting on the display

room floor of the manufacturer somehow slipped my notice as Kelly ripped the brochure from my hands. Clearly, this had to be the boat specifically designed for me; at least, according to Kelly and what she claims the brochure said.

So, having concluded that I was destined to build a kayak, I happily (?) placed my order for the bits and pieces they referred to as “a complete kayak kit” and made arrangements to pick it up after discovering that shipping it from Portland, Maine was going to cost twice as much as the boat itself. I won’t go into detail of how that episode went, suffice to say that the border control people are still wondering what that blue streak with the large brown box on top was. (Note to border control: It was my wife’s minivan, she was driving and I was sound asleep in the back with no idea she was going to drive through your flowerbed behind your tollbooth in order to get back into the country. And without paying the taxes, duties or admission fees, I might add.)

Safely home the next day, Kelly happily headed off to work while I trudged downstairs to see just what trouble I (my wife) had got into. I certainly had no intention of unpacking everything, or building the frame to construct the kayak on just yet. Or reading the construction manual from back to front. And I was definitely not going to dryfit the hull pieces together or drill the thousand little holes or sew it all together (that’s women’s work). Nor was I going to sew the

sides together (still women’s work) that turned the myriad bits and pieces into the completed hull of my kayak. But that’s exactly what happened. Somehow.

Golly, but building a kayak was such a grand idea of mine. I still wonder why I never thought of doing so before.

To say that Kelly was somewhat surprised to see the completed hull of the boat when she got home is a wee bit of an understatement. But really, the woman had been married to me for most of the past 30 years or so and should have known me better by now, right?

By the end of the following day I had drilled several thousand more holes into the pieces that, if I had read the directions correctly (stop laughing), should have made up the kayak deck. According to the instructions (you’re still giggling), it should have taken me at least two weeks of evenings and weekends to reach this point in the construction. It was clear that either: (A) I was really, really good at kayak building and should consider getting into the business, or (B) Americans are really bad at following directions, or (C) I had done something wrong.

I choose to go with a healthy dose of (A) followed by a smattering of (B). And I don’t care what anyone else thinks.

DON WILKINSON
YukonWilk@gmail.com



Illustration by Mike Del Rizzo

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Shorter Clamp Time	✓	
No Foam – Less Mess	✓	
Shorter Open Time	✓	
Doesn't Stain Skin	✓	✓
Bonds Most Materials	✓	
Bonds Oily / Exotic Woods	✓	
Lower Cost – Better Value	✓	
Longer Usable Shelf Life	✓	

Woodworking Handbook

8 FL. OZ. (237 mL)

Titebond III
ULTIMATE
Wood Glue
Rated #1 By Pros
Waterproof
Exterior/Interior
Superior strength
Longer assembly time
Water cleanup
NET 8 FL. OZ. (237 mL)
made in USA

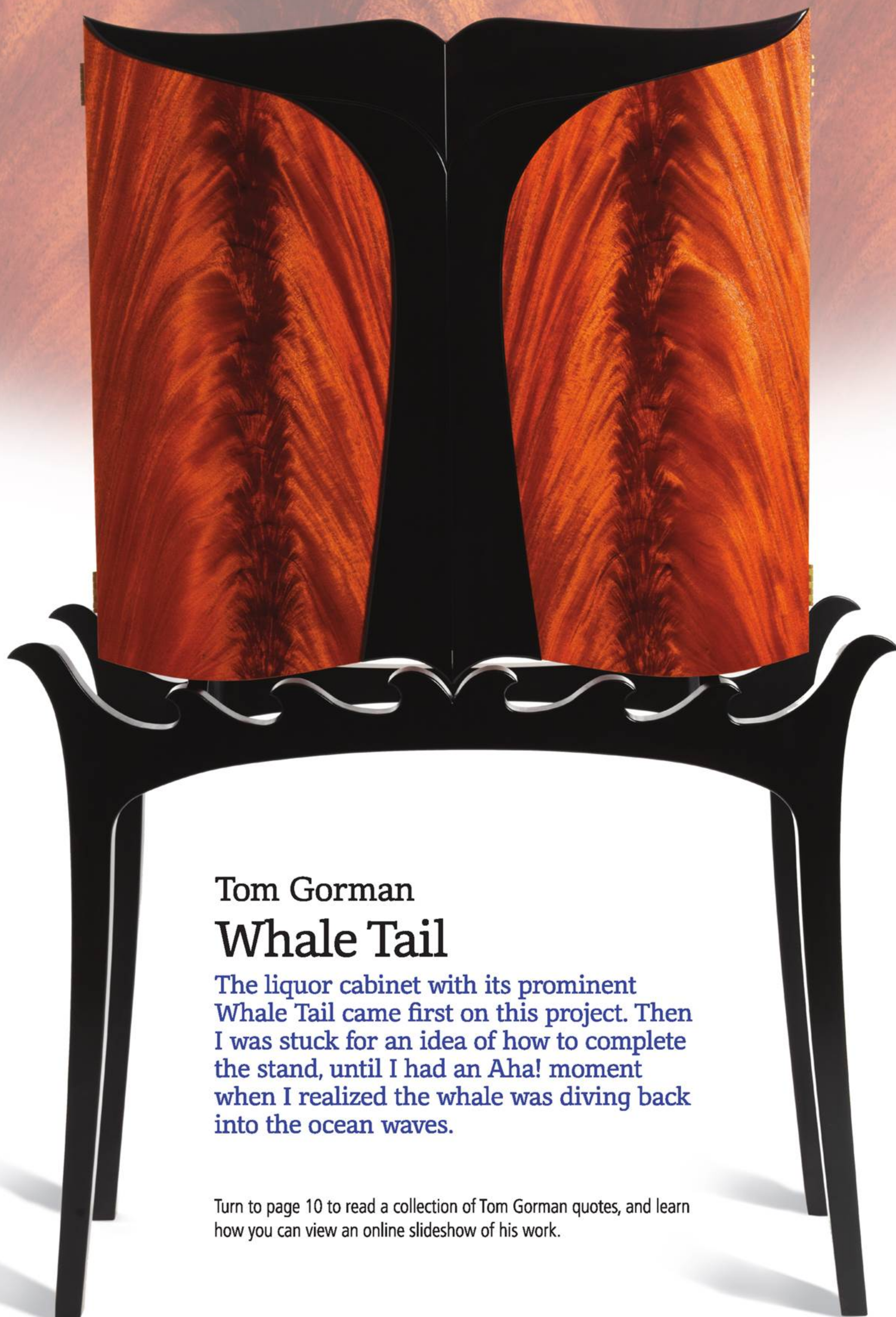
As the leader in wood glues, we want you to know the truth about polyurethane glue and woodworking. A straightforward comparison between Titebond® III Ultimate Wood Glue and polyurethane glue tells the story.

Titebond® III is THE ultimate choice for bonding wood to wood. Period.



www.titebond.com/TBIIIvsPolyurethane





Tom Gorman
Whale Tail

The liquor cabinet with its prominent Whale Tail came first on this project. Then I was stuck for an idea of how to complete the stand, until I had an Aha! moment when I realized the whale was diving back into the ocean waves.

Turn to page 10 to read a collection of Tom Gorman quotes, and learn how you can view an online slideshow of his work.