



Canadian Quotes:  
**ADRIAN FERRAZZUTTI**



Make a  
**TWIG  
TRELLIS**



Top Ten  
**ROUTER  
BITS**

APRIL/MAY 2015  
ISSUE #95

# CANADIAN **Woodworking** & HOME IMPROVEMENT

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p.34

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p.26

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HOUSE** p.20

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### 20 Build a Grill House

This great project will trick you into loving our cold, long Canadian winters.

BY MIKE GOLKA



I finished my last editor's letter by announcing that Don Wilkinson, and his wonderful Woodchuckle column, would be leaving us. I'll start this letter by letting you know that we've talked Don into continuing his column for us. As soon as our Feb/Mar '15 issue was sent out we started receiving letters from our loyal readers, thanking Don for his articles, wishing him well and telling us how much he'll be missed. Canadians are a shy group when it comes to writing in, but when faced with the possibility of losing Don's regular column they came out of their skin. We had to scramble to get this one into this issue, but I'm very happy to say "Welcome back Don!"

After you turn to the last page to read Don's newest column you'll notice a few spring projects in this issue. Geoff Coleman shows you how to make a comfy seat for your canoe, so it will be ready for paddling season. I share some tips and techniques on how to use twigs to create furniture, then show you how to make a twig flower lattice for your yard. And seeing as winter is only about seven months away, I suggest you get to work on planning and building the cozy grill house pictured on our cover, for your yard. Mike Golka takes you through the steps necessary to build this gorgeous and super-functional out-building, which will surely turn winter into your favourite season.

A project inspired by the Haida on Canada's west coast is also featured in this issue. Frank Pellow discusses a bit about the style of design the Haida use, and how to create one of these sharp carvings for yourself. And speaking of sharp, Rich Keller takes a close look at the different types of helical cutterheads available, and gives you the low-down on how they could improve your woodworking.

*Rob Brown*



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# letters

## One Great Dad

My Dad, Norman Coffin, of Glace Bay, Nova Scotia reads your magazine faithfully and has finished many projects from it. He is always doing something with wood, and many local people have a bit of his craftsmanship in their home, which he gladly does from the goodness of his heart. One of his proudest pieces is his workbench, which came from *CW&HI*. He cut and dried an ash tree on our property for the project.

We are very proud of our Dad, and I can't even imagine how proud he would be to pick up his favorite magazine and see a picture of himself and his most prized project.

Thank You.

Laurie Coffin



## Subscription Draw Winners

**Terry W. Erin, ON**  
has won a Belt Sander and Palm Belt Sander from Triton.



**Chris S. Edmonton, AB**  
has won a \$250 gift card from Lee Valley.



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## End of an era

Don Wilkinson,  
I just finished reading the Woodchuckle in the Feb/Mar '15 issue of Canadian Woodworking. I see it will be your last article. That is truly sad. I always enjoyed reading your article. Thank you for all the great stories. I hope the future is bright for you.

Steven D.  
Cornwall, Ontario

*Thanks for taking the time to write me Steve. I'm glad you enjoyed the column. You may be pleased to hear that after receiving a number of similar letters and emails, and with the pleas of the editor and publisher, I have decided that I cannot in good faith abandon my faithful readers. I will continue to write Woodchuckle for as long as readers continue to send emails, letters and a small monthly stipend my way. Or until I run out of stories.*

*Thank you once again for taking the time to write. —Don Wilkinson*

## Coming Events

### Lie-Nielsen Tool Event

Mar 20-21, 2015  
Century Mill Lumber  
Stouffville, ON  
[www.lie-nielsen.com](http://www.lie-nielsen.com)

### 36th Annual Niagara Woodcarvers Show/Competition

Mar 28-29, 2015  
Heartland Forest Nature Centre  
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[www.niagarawoodcarvers.ca](http://www.niagarawoodcarvers.ca)

For more woodworking events:  
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List your club and event FREE.

## Great digital issue!

I have a digital subscription to your magazine and appreciate being able to download the current and past issues in PDF format. I spend lots of time at doctors' appointments and waiting rooms. To make the wait easier, I spent some time downloading all of your past issues and copying them to my tablet. I now have something useful to read while waiting. The 10" tablet is the perfect size to display a full page of the magazine, and because tablets have no fans sucking in dusty air, I can safely use it in my shop.

Rick  
[www.undergroundwoodworking.ca](http://www.undergroundwoodworking.ca)

## shopnews

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## New HEPA filter Dust Collectors from Grizzly

Grizzly Industrial's new dual-filtration HEPA filter cyclone dust collectors feature a primary filter efficiency of 99.9% at 0.2-2 microns, and a secondary HEPA filter efficiency of 99.97% at 0.3 microns in size. Cyclonic action separates the heavy dust particles and drops them into the 55-gallon drum. Pleated polyester cartridge filters then trap the fine dust. Casters mounted to the drum also make disposal of the chips and dust easy. Other features include a vertical motor support for reduced vibration, thick walled 11 gauge steel blower housing, 14 gauge steel cyclone body, 360° blower rotation, TEFC Class "F" motor and a magnetic switch with remote control device. [www.grizzly.com](http://www.grizzly.com)





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- Table tilt: 10° left, 45° right
- Floor-to-table height: 37 1/2"
- Cutting capacity/throat: 16 1/4" left
- Blade size: 131 1/2" long
- Approx. shipping weight: 342 lbs.



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- Arbor: 5/8" • Arbor speed: 4000 RPM
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- Rip capacity: 30" R, 12" L
- Approx. shipping weight: 208 lbs.



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- Amps: 16A at 110V, 8A at 220V
- Precision-ground cast iron table with wings
- Table size: 27"D x 40"W
- Floor-to-table height: 34"
- Footprint: 20"L x 21 1/2"W
- Arbor: 5/8" • Arbor speed: 3850 RPM
- Rip capacity: 30" right, 12" left
- Overall size: 60"L x 36"W x 40"H
- Approx. shipping weight: 416 lbs.



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### 6" JOINTER

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- Maximum depth of cut: 1/8"
- Maximum rabbeting capacity: 1/2"
- Cutterhead diameter: 2 1/2", Speed: 4800 RPM
- Number of knives: 3
- Knife size: 6" x 5/8" x 1/8"
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- Max. rabbeting depth: 1/2"
- Cutterhead dia.: 3"
- Cutterhead speed: 4800 RPM
- Cuts per minute: 20,000 (G0656P), 21,400 (G0656PX)
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- Minimum stock length: 8"
- Maximum cutting depth: 1/8"
- Feed rate: 16 & 30 FPM
- Cutterhead diameter: 3", Speed: 4800 RPM
- Number of knives: 3
- Power feed rollers: solid serrated steel
- Precision-ground table size: 15" x 20"
- Overall dimensions: 42" L x 32 1/2" W x 45 1/8" H
- Approx. shipping weight: 675 lbs.



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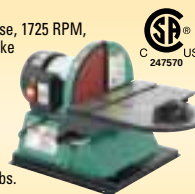


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### Task Signature 10" Cabinet Saw Blade



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## Best Build

Check out the **Woodworking** section of our forum for our latest "Best Build" thread – a bed. This month's winner, Jamie Holden receives a **dual marking gauge** from Lee Valley.



To find out more about this project, go to: [forum.canadianwoodworking.com](http://forum.canadianwoodworking.com) or simply go to [CanadianWoodworking.com](http://CanadianWoodworking.com) and click **FORUM**.

## Woods to Know

### African Blackwood (*Dalbergia melanoxylon*)

View these woods and more at:  
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## Free Plan

### Build a Gate

This stylish gate, with contrasting glass panel, will be the centerpiece of your yard.

View this plan and more at:  
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## Video Links

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Canadian Quotes:  
Adrian Ferrazzutti

Fuji Spray –  
Turning Trash into  
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## shopnews

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## New Grizzly Hybrid Saw

Grizzly Industrial's new hybrid saw is a blend of the best features of contractor-style and cabinet-style table saws. Like the cabinet saw, it has an enclosed cabinet with 4" dust port, heavy-duty cast-iron trunnions and has a powerful 2 HP motor. Like the contractor-style saw, at 286 lbs. it's light enough to move around and it's easy on the budget. The fence on this machine is also a hybrid of some of the best features we've had on table saws in the last 30+ years. This saw also features an innovative quick-release blade guard and riving knife system that can be changed in seconds. The saw is pre-wired to run on a 110V, 20A circuit. [www.grizzly.com](http://www.grizzly.com)





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# Sheridan College's Graduating Class: 2015

"1/16", a January 2015 exhibition of work from Sheridan's graduating class, showcases work from 16 students, as they prepare themselves for life as furniture designer/makers outside of a school situation.

BY ROB BROWN

Josh Fawcett-  
Drummond –  
Team Slayer  
Gaming Chair  
Elm veneer, Oak



Jake Whillans –  
Lounge Chair  
White oak



Photos by Artist



**Wooju Kim – Barstool**  
Walnut, birch



**Nathan Clarke – Hume Dining Chair**  
White oak, Steel

**Ashley MacDonald – Modern Luxury**  
Lacquered MDF, African mahogany



**Stefan Tobolka – Switch Sideboard**  
European beech, maple



**ROB BROWN**  
rbrown@canadianwoodworking.com

 Go Online for More

**SLIDESHOW:** Visit our website to view a slideshow with these, and many other pieces of work, by Sheridan's graduating class.

# Adrian Ferrazzutti

...on the cabinet scraper, CNC machines and his education with James Krenov.

BY ROB BROWN



**Arm Chair** – Ferrazzutti is most proud of this series of chairs. He says clients really take to the design, and they are very comfortable. (Photo by Dean Palmer)



44 years old, [www.adrianferrazzutti.com](http://www.adrianferrazzutti.com)  
Location & size of studio – Guelph, ON  
4000 sq. ft. shared wood shop  
Education – College of the Redwoods Fine Furniture Program

## How long have you been building furniture?

If you count the chairs I made in high school, it's almost 30 years. No, really it's been since 1996, so what's that ... 18 years.

## What sort of furniture do you specialize in?

Chairs are a favorite of mine, I do a lot of them. Tables too.

## Tell us a couple interesting things about your personal life

I love making the ice rink in the back yard for my kids. Pottering around the garden is important to me.

## If you were not a furniture maker what would you be?

With my last name I always thought I could be a Formula One race car driver.

## Do you prefer hand tools or power tools?

Power tools. My fingers are starting to hurt from all the hand work.

## Solid wood or veneer?

I really enjoy working with both.

## Figured wood or straight grain?

Ten percent figured, 90 percent straight in solid; 90 percent figured, 10 percent straight in veneer.

## Inherited Vintage Stanley Sweetheart or fresh-out-of-the-box Veritas?

Inherited Stanley with a Hock replacement blade.

## Flowing curves or geometric shapes?

It depends on the project. I work with both.

**Sharing Knowledge** – Ferrazzutti teaching a vacuum veneering class at the Centre for Furniture Craftsmanship, in Maine. (Photo by Karina Steele)

# quotes

Since moving my shop out of my house, and into a large warehouse with six fellow woodworkers, my routine is more 9–5, 10–5. We call it the crack of noon at my shop as we sometimes start at 11. I'm all business when I'm in the shop. My head is down and I'm working hard, always thinking of the next steps ahead of time so there's not a lot of wasted time or movements. Chisels are dull, tools covered in glue, pants are ripped, music is loud, dust is flying.



When I'm teaching I always bring out the cabinet scraper and announce to the class that it's my favourite tool.



I've never been one to find inspiration from the wood itself.



I'm getting tired of the reclaimed, live-edge movement, but I think it's here to stay.



I had the chance years ago to see work by the late Stephen Harris. I remember really liking what he made. Michael Fortune, Peter Flemming, Gord Peteran, Jamie Russell, Michael Hosaluk, Don Kondra.



I'd love to see shows and competitions put on by museums like the ROM and other major art galleries across the country. So much of what we do goes from workshop to home, never to be seen by more than a handful of people.



Some international makers I like are Wharton Esherick, John Makepeace, Tage Frid and James Krenov.



People like Esherick, Nakashima, Krenov, Maloof, Frid, among many others, have transformed a gruelling occupation that defined one as being of a certain class, into an art form and a way to be an artist.



I find the design process is very challenging, yet can be very rewarding.



If I had to pick one of the pieces that I'm most proud of it would be my arm chair, with slung leather seat and back. I took many renditions to refine the lines and the dimensions of the components. I've made many of them, and it's just nice to see how positively people respond to them.



I teach a fair bit and I see many people searching to make something real, something they can touch. So much of what my friends do all lives in the clouds.



When I started at the College of the Redwoods program I was not very well versed in James Krenov's work. I read his books and applied to the program. It sounded like a magical place to learn and even though my current work is different from Krenov's, I never felt constrained with creating and design when I was there. I only got encouragement from Krenov and the staff. Other



**Mondrian Cabinet** – After hiding sketches of this cabinet from James Krenov, Ferrazzutti was told “You must make that” by Krenov when he finally saw the design. (Photo by Seth Janofski)

students may have wondered what I was doing though ... weird guy from Canada ... There was one design I didn't want to show Krenov, as I thought it would be too much, or he'd hate it, so I kept the sketches to myself. He saw them a few weeks later and asked, “What is that?” I said, “A cabinet on a stand”. Jim replied with, “You have to make that!” I was so excited, it was the next thing I made. It's my Mondrian Cabinet.



I've seen CNC machines in action, making very complex chair components and left/right parts. Why not if you need 100 left arms and 100 right arms – who wants to do that by hand? The problem is you often need to feed the machine all day long to pay for it. I have students who would rather run up the street to have templates and patterns machined on a CNC, as they come back perfect. It's a good idea. The difference in the end always comes down to the design, the fit, and the finish, which are often due to hand tools.

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# Top 10 Router Bits



There are literally hundreds of options when it comes to choosing which router bits to buy. Everyone has their own preferences, in terms of style, process and function, but this list will take you pretty far.

BY ROB BROWN

## 1/4" Straight

Whether you're cutting a shallow recess for a hinge, routing a small mortise to accept a tenon or machining a groove to capture a panel, a straight bit like this is great to have around the shop.

## 1/2" Straight

Similar to the 1/4" bit, but a lot more robust, this bit is great at plowing grooves and dadoes in material. In fact, tenons could be machined with this same bit, housed in your router table. It can also be used to create a bombproof mortise in heavy material, if a large, strong tenon is required.

## 3/8" Spiral

If the mortise and tenon is your go-to joint, this spiral bit is your best option. An up-cut spiral bit will best clear the mortise while cutting, leaving a mortise with true, even sides. Though perfect for mortises, there's no reason why you couldn't cut grooves, rabbets, etc. with this bit. If smaller scale work is your forte, select a 1/4" spiral bit.

## Round-Over

In the perfect world every woodworker would have a complete selection of round-over bits, covering every size imaginable. Since that's not the case I would recommend either a 1/4" or 3/8" diameter bit to take care of most of your needs. I do, however, really like my 1/8" diameter bit for quickly rounding sharp edges of jigs, fixtures and some other rougher work.

## Classical/Roman Ogee

A nice routed edge really dresses up an otherwise bland piece of furniture. What style to go with is personal preference, though I prefer a classical bit. These bits create shadows and add depth to tops, drawer perimeters, base mouldings and so much more.

## Adjustable Rabbet

Cutting rabbets in curved work is very hard, unless you have one of these babies. Select and install the appropriate bearing diameter, and you're off to the races. I can't tell you how many times one of these bits has saved me from a difficult situation.

## 1/2" Flush Trim

These straight bits, with a bearing on their ends, tackle the majority of flush routing in a small shop, and help produce multiple identical parts. Whether it's flushing solid wood, sheet stock, laminate or another material, these bits are crucial to have around. A 1" long cutter will be enough for most woodworkers, but if you plan on doing a lot of pattern work I would suggest a bit with a cutter at least 1-1/2" long.

## 3/4" Pattern Tracing Bit

Used in similar situations as a flush trim bit, except with a bearing towards the center of the bit. This small difference will allow woodworkers to switch between the two, in order to always cut "downhill" reducing tear-out on solid wood. There are also some situations where having both styles of bits is very handy. These bits can also be used when a through-cut is not wanted.

## Small Dovetail

Whether it's working on a small box, or doing some finer drawer or carcase joinery, a small dovetail bit may save the day. Dovetail bits can be used in a router table, or freehand, with a straight-edge to guide them. Ensure you cut in the proper direction in both cases. If used in a router table, both male and female parts of some dovetail joints can be machined without changing the height of the bit.

## Large Dovetail

Like it's smaller brother, a large dovetail bit will work wonders for joinery. Sliding dovetail joints, for one, are very strong, and aren't overly difficult to machine with one of these bits. If you're using it in conjunction with a dovetail jig, ensure you purchase the correct bit; sometimes specific dovetail bits are required.

*Chamfer? Rail and stile? Cove? What bit do you feel is missing from this list? Share your comments on our website, listed at the end of this article.*

ROB BROWN

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Photo by Rob Brown



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# Introduction to Helical Cutter Heads

There are many advantages to using a helical cutter head in your planer or jointer, but they aren't cheap. Is a helical cutter head something you should consider? Learn what the buzz is all about.



Photos by Rich Keller (Lead Photo by Rob Brown)



**Magnum Cutter Head** – General International’s cutter uses longer knives, and a unique system to hold each knife in place.

BY RICH KELLER

## Four main advantages

Helical cutter heads are also called journal heads or indexable insert cutter heads. What this means on a technical level is that the cutter head employs a more or less foolproof system for cutter placement. When you change cutters, you are virtually guaranteed correct placement of the cutter in the head. Most cutters used for metal working lathes and milling machines employ this type of system, but to woodworkers it’s largely unknown. This is one of four benefits to woodworkers.

The second advantage of indexable inserts is the fact that they are made of carbide. While carbide knives have long been available for straight knife heads, they are not the best choice of knife for straight knife heads. If you happen to hit a staple, nail, or screw there is a strong chance that you will crack the knife, ruining it. Because a crack through the knife can’t be sharpened out, you are forced to buy a new set of knives, which could be several hundred dollars. Indexable inserts are not unbreakable. They will still chip and crack if you hit metal. However, they are inexpensive, with most inserts ranging from \$3–6, making a “chipped tooth” much less painful to the wallet. You can also replace just one insert at any given time, so if you happen to chip one in the middle of a job, you can change that one insert and keep going.

The third advantage of helical cutter heads is a noise reduction. Conventional straight knife cutters take one big bite

of wood, three or four times per rotation, when the knife contacts the wood. Helical heads have the inserts staggered around the circumference of the head. Because of this, only one or two inserts, which are usually 1/2" to 3/4" in width, are in contact with the material at any time. The result is dramatic. Machine noise can be reduced by as much as 50 percent through the installation of a helical cutter head.

The fourth, and probably most important advantage for woodworkers is the greatly reduced tear-out that these cutter heads produce. While most planers have no problem with straight-grained wood, they generally do not produce good results with knots, burls, and figured woods. Helical heads typically produce much smoother finishes on these difficult woods.

## And one disadvantage

There is one surprising difference with helical cutter heads over straight-knife machines: Helical cutter heads take more effort to feed. If you were to install a helical cutter in your jointer, you will notice that it takes more effort to push the board through the machine. The reason is simple. Previously, the wood only met with resistance from the spinning knives three or four times per rotation (depending on how many knives your machine has). With a helical cutter head, there is always at least one knife in contact with the wood, thus constant resistance to your push. As a result of this, planers and jointers typically use more horsepower when a helical cutter head is installed.

## Types of cutter heads available

There are three common types of helical cutter heads available to us today. While this is not an exhaustive list, it will represent 95 percent of what’s available in the market place.

General International offers what they call the “Magnum” cutter head. This system employs double-sided carbide inserts, typically in an arrangement of four rows around the cutter head. General International offers its helical cutter head as standard or optional equipment for all current models of planer and jointer that it carries. “Magnum” inserts are two-sided and about 1-1/4" wide, which is wider than most inserts used by other manufacturers. Because of this difference, the “Magnum” head uses fewer inserts than a typical

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**Generic Cutter Head** – King Canada, Busy Bee, Grizzly Industrial offer this type of cutter head on most of their planers and jointers. (Photo by King Canada)

competitor's head. General International's 15" Planer (30-115HC) uses a head with four rows, containing a total of 42 inserts. The "Magnum" cutter head also has an additional shear angle, each cutter is skewed 14° off the axis of the cutter head.

There are several manufacturers using what I call a "generic insert cutter head." King Canada, Busy Bee, and Grizzly Industrial offer this cutter head as an option on all but a few of their smallest machines. This type of head is characterized with 3/4" square, four-sided inserts, set typically into four or six rows, spiralling around the head. These inserts are set squarely in the head. King Industrial's 15" Planer (KC-390FX) uses a cutter head with four rows, containing a total of 64 inserts. (The total number of inserts varies slightly from manufacturer to manufacturer.)

Byrd Tool Corporation in Leitchfield, Kentucky offers aftermarket cutter heads for virtually all its machines and also offers custom heads. Its cutter head features their patented "shelix" system. Like the "generic" cutter heads, it uses 3/4" four-sided carbide inserts, but these inserts are also set at an additional skew angle off the axis of the cutter head. These inserts are also specially ground with a radius to their cutting edge. Because of the skewing of the knife and the design of the cutter head, a slight radius is required to prevent gouging by the leading corner of the knife. Byrd also uses thicker inserts, 2.5mm thick as opposed to most others which use 1.5mm thick knives.

## Comparisons

The most important question is simple: What difference does it make? Helical cutter heads are raved about by manufacturers, but are we just being up sold? To answer these questions, I test ran three different machines. I used Busy Bee's CX15SC representative of the "generic" cutter head, General International's 30-115HC representative of its "Magnum" cutter head, and Byrd Tools Shelix cutter head, installed in an 8" jointer (I have assumed for this test that face jointing and thickness planing will yield the same quality of cut.)

At the outset of this article, I mentioned four advantages to helical cutter heads. I have based my comparisons of each head on these four points. HSS knives are notoriously tricky to set in a machine, owing to the fact that they must somehow be adjusted into proper cutting position. Because insert cutters are



**Byrd Cutter Head** – Byrd Tool Corporation has been producing replacement helical cutter heads for years.

of a fixed size, and set against some sort of shoulder in the cutter head, their placement is somewhat foolproof.

Both the "generic" and Byrd cutter heads use the same system to hold their cutters in place. Both use a flat-head screw passing through a hole in the middle of the cutter to hold it in place. The "generic" cutter head typically has a three-sided recess in which the cutter seats, while the Byrd cutter head has a single shoulder on the rear of the cutter. With both styles of head, screw torque is critical. Insufficient torque will cause the cutter to come loose, while too much torque will cause the cutter to crack. Byrd Tool specifies that its screws be torqued to 55 in-lbs. This roughly translates into a "firm hand tightening with a screw driver." Clearly this will have a lot of variation. In my shop test, I firmly hand-tightened a series of screws and then checked each with a torque wrench. My "firm hand tightening" varied by as much as 10 in-lbs.

The "Magnum" cutter head holds the cutters differently than most insert heads. The insert in the "Magnum" head is held with a gib and set screw, similar to traditional HSS knife machines. The cutter is registered on two pins to provide positive placement. Screw torque is much less critical on this style of head. Recall that the "Magnum" head also uses fewer inserts than most other heads. This means that the time required to change all the knives is significantly less. When it comes time to buy new inserts, you'll be buying fewer. But remember, they are only two-sided, not four-sided, so you will buy them twice as often. Also note the special screw with both right- and left-hand threads. Don't drop one in the sawdust, because you won't find these at the local hardware store.

The second advantage I mentioned was the fact that these inserts are all carbide. While there are variations in the type or grade of carbide used in different cutter heads, all three of the helical heads we tested used German-made carbide inserts. All these inserts came in suspiciously similar packaging, even though their size varied slightly.



**Four-Sided Inserts** – You can easily rotate the small knives on the Byrd and generic cutter head if you damage any cutters, or they get dull. Be sure to tighten the cutters with a torque wrench, as they will break if tightened too much. (Photo by Rob Brown)



**Curved Edges** – Each of the four cutting edges on the smaller inserts are curved. This is because the knives are often held at an angle, and the leading edge of each knife would otherwise dig into the wood. (Photo by Rob Brown)

The third advantage I mentioned was noise reduction. While testing Busy Bee's CX15SC, I was also able to run the same board through their CX15. The difference between these two models is strictly the cutter head. Decibel readings of the CX15 were around 99-101dB, while the CX15SC ran around 90-92dB. Both were measured while cutting. The machines are virtually the same at idle. This also includes the background noise of a 1.5HP dust collector. With a difference of around 8dB, that's fairly significant. Decibels are measured on a logarithmic scale. This means that for an increase of 10dB, the sound feels like it is 10 times as loud. Less machine noise will require less capable hearing protection. The sound will also carry less distance, reducing the chances of noise complaints from neighbours or family.

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**Gib and Set Screw** – The Magnum cutter uses a gib and set screw to secure each knife. (left) The set screw isn't found at your local hardware store, so make sure to keep track of them when changing the knives on this cutter. (right)

The fourth advantage, and probably the largest advantage for woodworkers, is the reduced tear-out. I ran both moderately curly maple boards, and knotty/crotch grain walnut boards through all three machines. While all three machines had significantly less tear-out than a straight-knife machine, they did not differ significantly from one another. This surprised me.

It seems that the major reason for reduced tear-out is the sharpness of the cutter. HSS knives will produce fairly good results when freshly sharpened. However, HSS quickly loses its sharp edge, while carbide inserts will stay sharp significantly longer. This may be the reason why they are able to provide tear-out-free cuts. While testing the two machines at Busy Bee, it was difficult to tell which board had been planed with the helical head, and which one had been planed with the HSS knives. The board that was run through the HSS knife machine showed only very slight tear-out. However, this was a brand new machine with sharp knives.

## Conclusion

Is it worth buying a helical cutter head? In my opinion, yes. As mentioned, there are four distinct and measurable advantages; reduced operating noise, reduced tear-out, and carbide knives with simplified replacement. If you work with hard, knife dulling, or figured woods, you may need to change your knives 5–10 times less often.

## Which one is the best to buy?

I have owned a Byrd cutter head for about eight years now. At the time I purchased it, there were not a lot of other options out there. After witnessing the results of the other heads, I have to admit that they produce results almost indistinguishable from the Byrd head. The “Magnum” head from General International is especially intriguing as it requires much less time to swap all the cutters. Your choice of which one to purchase may revolve around availability more than anything. If you are purchasing a new

machine, buying the cutter head already installed from the factory is a simple plug-and-play solution. If you already own a machine, you may very well be able to purchase a new cutter head from the machine manufacturer to fit your machine.

*Do you think a helical cutterhead is worth it? Do you have one on your wish list? Join the discussion on our website, in the comments section at the end of this article.*



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Rich suffers from a serious illness which makes him compulsively buy tools. He began woodworking to hide the symptoms of his illness. Rich makes his living fixing other people's tools.

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Anyone who loves to BBQ, and lives in Canada, knows how short the season is. This project solves our cold weather problem and opens a host of entertaining opportunities.

# Build a GRILL HOUSE

Photos by Mike Golka (Lead Photo by Greg Fox) Illustration by Len Churchill

While at my local spa dealer getting supplies for my hot tub, I noticed a building in the show room. Curiosity got the better of me and I discovered it was a grill house. They're manufactured in Europe and sold here as a pre-fab kit. I immediately fell in love with the idea, but realized what they were offering was too small for my family needs. My solution was to design and build my own. What I ended up with was a great structure to spend some quality family time in. All told, the project totalled about \$5000.

Before tackling this project I would strongly recommend you speak with your insurance provider. Though the grill I made is very safe, and my insurance company had absolutely no problems with this structure, you sure don't want to get any surprises once the grill house is complete.

## The design

I have become reasonably proficient with Sketchup through modeling my woodworking projects so it seemed like the logical choice. It's possible to use pencil and paper, but you might eventually get fed up with all those eraser shavings. I really liked the look of the log-surfaced exterior wall the kit was offering, but knew this material wouldn't be easy to source, so I opted for a framed and sheeted wall. I do segmented turning as a hobby so I'm comfortable with angles. I settled on an octagonal shape. If you're confident in your engineering and construction skills you can adjust the overall shape of this project to look different, and possibly fit your lot better. After modelling the entire project in 3D it was time to start building.

## Work from the ground, upwards

A good foundation is key to any build of this type. I chose pressure treated 4×4s for the outer ring and pressure treated 2×4s for the spider-web inner support. Patio stones were levelled around the perimeter, at the corners, and sand was used to assist with drainage. Once framed out, the floor was sheathed with 3/4" spruce plywood. The walls are pretty straightforward; 2×6 bottom plate, 2×8 top plate and ripped 2×4s in half for simple stud walls. You could use full 2×4s for the studs, but I found once the 3/4" pine was attached to both inner, and outer, face of the wall, having narrower studs worked a well with the bottom plate. The top plate gets an angled groove machined into the outside edge to receive the roof frames. The ends of each wall require the plates and studs to be mitered or beveled at 22.5°, so the sides of the octagon fit together nicely. By tilting your table saw blade to 22.5° and ripping a 2×4 down the center, you get both right and left bevelled pieces. This being a prototype build, I framed up all the wall sections before installing them. If I were to do another I would sheet the outside first. The wall panels were set on the 4×4 foundation and temporarily fastened with 3-1/2" long wood screws. I used a couple of ratchet straps placed around the outside of the wall panels to draw them into one another. Measurements were taken at the diagonals of each corner and adjustments made to bring the walls into final alignment. I used the same



**Warm Welcome** – The entryway not only helps keep weather out, but it also welcomes visitors on their arrival. (Photo by Greg Fox)

3-1/2" long screw through the mitred 2×4s at each corner and bottom plates. Small, angled brackets cut from 2×6s were installed at each corner.

## Sheeting the walls

The knotty pine was mitred at 22.5° on each end to achieve a tight fit at the corners. This is probably not necessary as the corners are covered with a trim board. The tongue and groove knotty pine boards are installed groove-down, working from the bottom. Once the walls are sheathed trim boards are mitred at 22.5° and fitted vertically at each corner. The top plate is supported with a gusset at each end. The gussets are cut from 2×6s and screwed into place through the wall boards and trim.

## Roof sections

The roof panel frames are made from 2×4s. Just as with the walls, the outer stud on each side needs to be bevelled. The difference is that these corners are formed by compound mitres. By setting the saw blade to 15.5° you get both left and right again. These angles, coupled with the angle of the 2×4s

at the top and bottom, form the compound angle required. Cross bracing was installed to stiffen the frames. For the same reasons as the walls, I chose to erect the roof frames unsheathed. The bottom edge of each frame was set into the groove in the top wall plate and tilted up. A 2×4 was positioned to temporarily support the frame, and screws were put through the 2×4 that sat in the groove into the wall plate. All roof frames were erected this way, working around the building and making any necessary adjustment to achieve a tight fit at the corners. Screws through the mitred corners at several locations on each frame, and into the wall plates, secure the roof.

Plywood eave panels were cut and installed at the lower edges of the roof frames. The roof was then sheathed with the same knotty pine 1×6s.

## The entryway

I had left the top wall plate spanning the door opening in place. This made this wall section rigid until the roof was installed. After trimming the top plate flush with the doorway studs, side walls laminated from 2×6s were installed. Be sure the material is fairly dry before gluing and sizing it. I used 3/4" plywood to form the peaked entryway roof. I installed 2×2s and sheathed the entry with the knotty pine. Because summer was waning I decided to shingle the building at this stage. I used IKO Architectural shingles. The roof pitch is quite steep so great care must be taken. Use scaffolding so as not to over-reach.

I made the door from a lamination of eight 2×4s. I used a pocket hole drill jig to drill holes part way through the 2×4s

so I could screw as well as glue them together. Again, ensure the 2×4s are fairly dry before using them here. The window opening in the door was cut into the core after it was glued up. I had a local glazier make up the glass for my windows. They were made from two 1/8" thick panes and a 1/4" spacer to produce a 1/2" thick dual pane window. The window in the door is a hexagon shape. I cut the hole 1/2" smaller than the glass all around and routed a dado into the edge of the opening to accept the glass. A framework made up of 2" wide boards was brad-nailed over the glass to sandwich it in place on the door.

After measuring the



**Inner Strength** – In the top half of this image is the inner trim piece that Golka used to cover the mating rafters. Below the trim piece is the angled bracket used for strengthening the corners, where the top plates meet.



**Simple Door** – The door keeps most of the wind out, and offers some insulation value. The grill in the interior adds a lot of warmth. A window in the door is a nice addition.

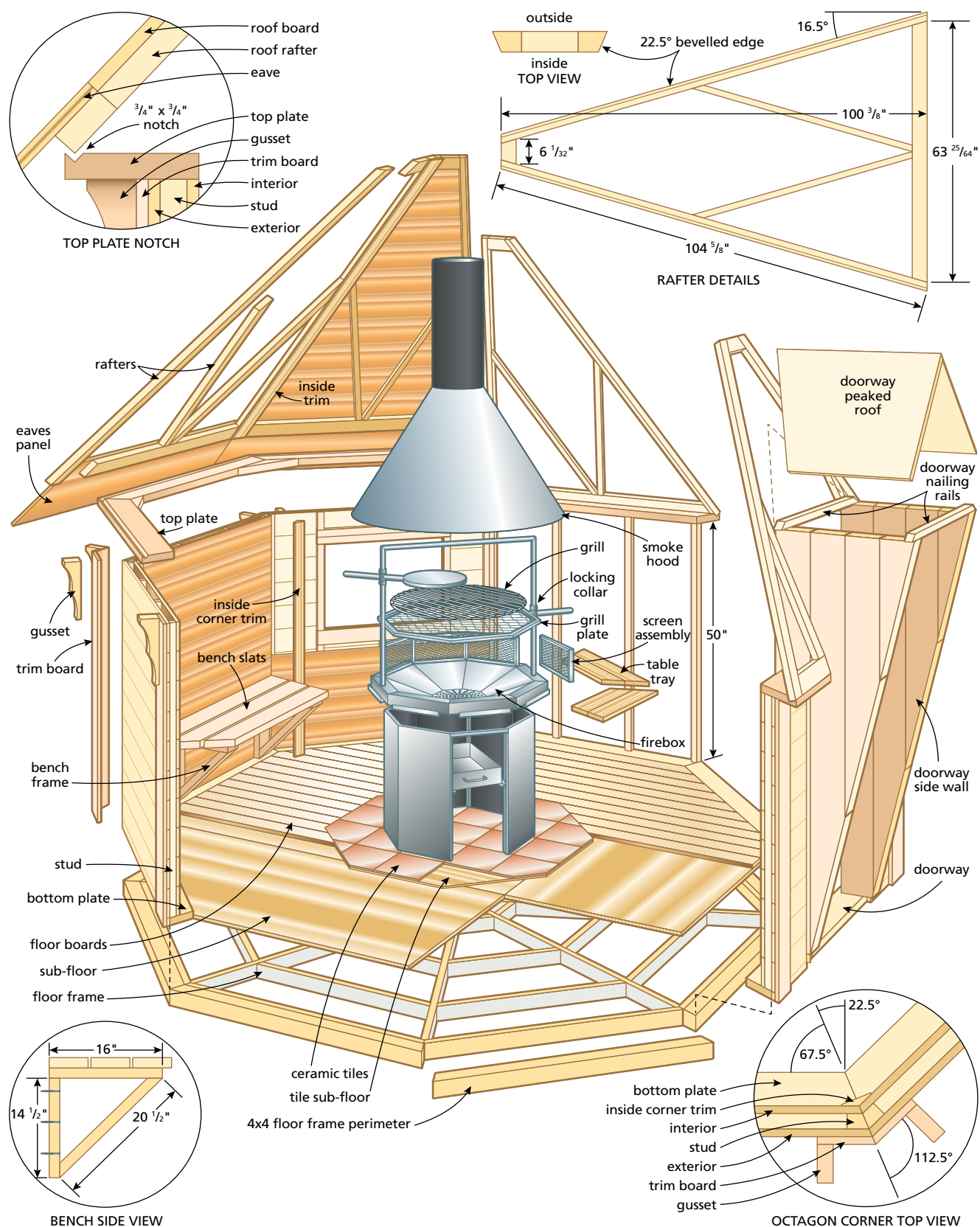
finished door, and subtracting from the opening, I cut equal width strips of 2×4s to center the door and leave a 1/8" gap all around. With the jamb and door installed I cut strips of knotty pine that would cover the sides of the 2×6 entry wall and jamb and protrude 1/2" into the opening. This formed a stop for the door as well as a sealing surface. The hinges were dadoed into the door and jamb, the door hung, and the latch set installed.

## Move inside

The interior walls were covered with knotty pine much the same way as the outside. To trim out the wall corners I tilted the blade on my table saw 24° and ran a 3" wide x 3/4" thick spruce board on edge through both ways to form a pie-shaped profile. This was fit into each corner and nailed in place with brads. I used 10 ft. long 1×4 spruce boards to cap the joints where the roof panels met. Until this point I hadn't decided on a floor covering. Since I had enough knotty pine left, and my wife gave her blessing, I went for it. Ceramic tile was used to create an octagon pad in the center of the room under the grill. It was necessary to shim the tile with 1/2" plywood to bring it to the same height as the 3/4" thick knotty pine. The plywood base and knotty pine boards brought the floor to the same elevation as the 2×6 wall plates, which make sweeping out the grill house a breeze – just open the door and out it goes. No dust pan required.

## Seating

Ample seating area is created with benches placed around the walls. I used 2×6 spruce for these. Supports were made by creating triangular shapes from three pieces of 2×4. These were fastened to the wall via screws. If you use vertical supports you will likely find them interfering with your feet while the grill house is in use. Three sections of 2×6, mitered at 22.5° at each end and spaced with 1/2" gaps,



screwed to the supports form the bench section. I repeated this on all but the entry walls. My wife covered 2" thick foam cut to match the pie-shaped bench section with cloth material. This completed the seating. The covers are removable for cleaning.

## Windows

My plan called for awning style windows in four of the walls. Having gone this far on the do-it-yourself path, I figured "why not?" Using spruce material I made the outer frames with half lap joints at the corners. These were made to fit



**Take a Load Off** – Simple seats around the perimeter of the grill house are easy to make. Golka secured the supports at an angle so there was more foot room.

flush with the 3" thick walls. I also made 1-1/2" x 1-1/2" inner frames, with mitred corners, from spruce lumber. Similar to the door, a dado was cut on the inside edge of this frame to accept the glass. A 2" wide frame cut from the knotty pine was used to hold the glass in the dado.

### The grill

The grill itself was the final major task of this build. I had a local shop make up the smoke hood and two funnel-shaped



**Simple Windows** – The windows are operable, though they generally stay closed during the winter. Like the doors, they aren't exceptionally efficient, but they work well enough for this grill house.

weather guards from 22-gauge galvanized sheet metal. Being a welder by trade, I tackled the rest myself. The firebox was created by welding stainless steel sections around an octagon base plate of the same material. The base plate was perforated with 1/4" holes to allow air in and ash out. The rest of the construction was from carbon steel material. Flattened expanded metal was used for the screen and grilling surfaces. The skirting was bent from 16-gauge sheet metal. All other material

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### The Griller

– Unless you're an experienced metalworker you will want to hire a professional for this part of the build. Removable wood trays surround the grill.

was purchased at a local hardware store: angle iron, round bar and flat bar. The 12" diameter flue was made by joining two sections of 6" dia.

black stove pipe. These sections are available at most hardware stores and, after flattening, somewhat snap together. There are eight removable table trays positioned around the grill. These were made by gluing two knotty pine boards together and screwing two 3/4" angle iron clips to the underside of each.

I keep a fire extinguisher nearby at all times, but thankfully have never had to use it. Better safe than sorry though. And

the last bit of advice I have regarding the fire is to never leave it unattended.

The finish used on the outside was Olympic Natural Cedar stain. The total time for this project was in the neighbourhood of 150 man-hours. This was a great little project to enhance both the backyard and our social life. The grill house has already been the setting for many family gatherings as well as a place to enjoy the company of friends with a glass of wine all while sitting around campfire. If you've never BBQed over a wood fire you have to try it. The flavour is incredible, especially if you throw a few chunks of mesquite on the fire.

**MIKE GOLKA**

m.golka@shaw.ca



Mike is a construction superintendent with a passion for segmented wood turning. With the addition of this grill house, his shop is no longer the only place to find him.

Check out Mike's website for more grill house details and photos:

**GreatCanadianGrillHouse.com**

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# Iron-On Veneering

Learning how to apply veneers with an iron can open up your woodworking world. It allows you to use expensive, exotic species on surfaces without tools like a vacuum press. Once you get the hang of it you'll find it's pretty easy to do.

BY CHRIS KUBASH

**M**y sculpture representing grasses and a spider-web was created specifically for the "Fine Works in Wood" exhibition given by SAWS in Alberta in 2013. I decided that the small Baltic-birch plywood base would be veneered with commercial Makassar ebony scraps that I had on hand. A situation such as this is perfect for the iron-on-veneer technique.

Normally, both sides of panels should be veneered, and with similar if not identical species of wood. However, in situations where the panels are thick, or small in length or width, or are perhaps supported by internal bracing, only the visible surface need be veneered. The resulting cup (which will always be present to some degree) is negligible. Of course, this technique can be used on both sides of a much larger panel if you do not have access to conventional veneer presses.

A note on materials – this technique works well on thin commercial veneers. I have tried it on thicker (1/16") veneers with mixed results. Don't bother trying with 1/8" stock. I have had good luck with both "white" and "yellow" PVA and Aliphatic Resin woodworking glues. This technique is not for contact cement, epoxy or plastic powdered resins. What's required is a glue with thermoplastic qualities – when not yet fully cured, they can become soft with the application of heat. If you need a waterproof glue, don't hesitate to use an adhesive like Titebond III, or another similar option. I would wholeheartedly recommend testing your iron-on veneering technique with scraps to become familiar with the process, and gain the confidence to use this technique with your next project.



## Secure the veneers

I find it helpful to tape the veneers down, so they don't curl and roll away. Apply the glue to your veneer and substrate. I use a simple roller. I like to roll enough glue that it looks like a very thin layer of paint. Wait until the glue is almost dry, with just the slightest bit of tackiness left. The glue sheen will be dull. Make sure not to start applying heat too early, or a weak bond may result. You can even leave the glue to dry for a few hours, sometimes more, depending on the type of glue you're using.

## Add some heat

With the iron set to "cotton", place the glued panel over the glued veneer and press down, being careful to align the work properly. It may not stick all that securely, but flip it over immediately and start to iron it. Work from the center out. Don't move frantically, but slowly and methodically.



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**SLIDESHOW:** SAWS 2013 Exhibition



**Apply the Glue** – Apply glue to both the inner surface of the veneer, and the surface of the substrate using a roller. Kubash likes to tape down the veneer so it doesn't have a chance to curl.



**Apply the Heat and Pressure** – Once the glue has dried, Kubash puts the veneer in place and, starting from the center, applies heat to the veneer and uses a block to press the veneer to the substrate. Pay special attention to the edges, as you don't want to roll the block over the edge, cracking the veneer.



**Trim the Excess** – Kubash uses a sharp knife to carefully cut most of the waste off, ensuring he works with the grain. With the majority of the waste removed he then trims the last 1mm with a sharp block plane.

Don't linger so long that the veneer burns. Once again, test if you are uncertain. After a few seconds I start to follow the iron with a hard block, so I am using two hands at the same time. Make sure the edges are well heated, and pressed with the block. Remove the iron, and continue to rub with the block, until the heat subsides. You will know when you can stop, because the veneer will stop lifting.

If you find a spot that didn't "take" you can try passing the iron over it again a little longer, and finishing up with the block. If you start pressing from the center, you should not have problems with air bubbles.

## Trim the waste

When the piece has cooled off, you can trim it. I use a sharp blade to carefully remove most of the material (remember to cut with the grain). I try to stay away from the edge by 1mm or so. You don't want to cut through the edge, or this will show up as a flaw in the final product. I remove the last 1mm with a sharp plane (again paying attention to the grain) or sandpaper on a hard block. Be careful to remove the excess just up to the edge, and not to unintentionally round-over the edge. By the way, this technique can be used to apply veneer to rounded surfaces ... but that's the subject of another article.

## Edging

The remaining sides of the base are treated in a similar fashion. With thin veneers, it generally doesn't matter which side is finished last. I try to plan my process so the alignment of adjacent sides is simplified. For this piece I decided to do the large symmetrical surface first, then the back, and finally the two smaller sides. This gave me the chance to align the sides perfectly where they met up at the front.

Tape may be used to align pieces of veneer before you iron them in place. The veneer can be flipped out of the way,

glued, and finally pressed, with the tape there to facilitate alignment.

The veneering is finished, and all that's left is some sanding, and finishing. The alignment is good, and the process was quick and easy. This took me two hours to complete, including all the camera and tripod manipulations to shoot some images of the process. With practice, you will be doing this work in under an hour.

CHRIS KUBASH  
ckubash@gmail.com



**Veneer Edging** – With the main surface complete, Kubash uses the same technique to apply the edges to the substrate. You will need one hand to work the iron, and the other to apply pressure with the block, so make sure your workpiece is fixed in place.



**Continuous Grain** – Because Kubash wanted the grain to line up he was careful to not ruin the offcuts during the initial application of the large face veneer. He uses tape to align the grain, and then the piece can be ironed in place for a perfect grain match.



Toss your tape measure, store your square. This twig trellis is fun and easy to make, especially if you don't like accuracy.

# Make a Twig TRELLIS

BY ROB BROWN

**D**ovetail aficionados, woodworking purists and any maker who has ever even considered why there are three lines between 1/16" markings on your tape measure ... this is your warning: Don't ready any further or your blood will boil. Twig furniture requires a different mindset than most woodworking projects. Precision and accuracy are words that should not be uttered while considering this type of project, unless you're talking about how little you actually need for the piece to turn out nicely.

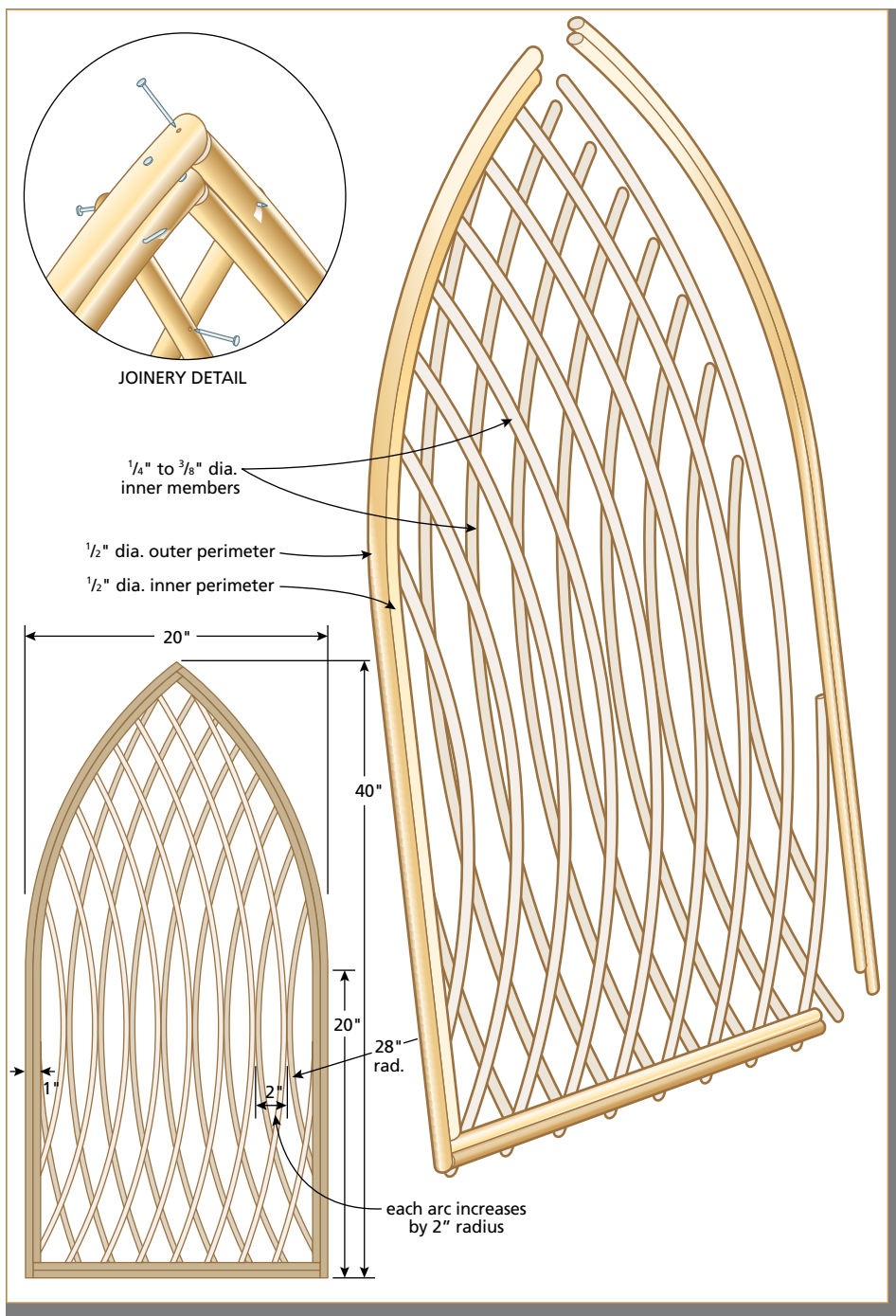
Now that we're rid of the 1/64" snobs, the rest of us can feel more comfortable about discussing twig furniture in a safer setting. Twig furniture is about using the natural materials we can find nearby to build a simple, yet attractive, piece of furniture, without the pressure to reach for your tape measure every 30 seconds. Now, before we get started, if you have an engineer's square nearby make sure you put it somewhere safe for the next few days, as it will only get in your way.

## Designs

The design of twig furniture will be influenced by the size and shape of the materials you can obtain. It's always easier to use straight and curved twigs as they are, and work around their natural beauty in your project. Once the design is complete work towards it, but don't get too caught up in precision. Sorry about that ... the "P" word just slipped out. That will be the last time, I promise.

The design of this little flower trellis is fairly straightforward, but it does include some simple arcs. Arcs and curves add a certain gracefulness to a design, but they can be a little bit more difficult to deal with. On the upside, they tend to add some structural rigidity to a piece of furniture or decorative item.

Since this trellis is only 2D, I drew it out full-size before beginning. This gave me the chance to make any adjustments to proportion, and I could also work directly on top of the drawing to size the pieces during the build. If you're building a 3D project you might want to draw the project full-size in one view, or



### Full-Sized Drawing

—A to-scale drawing will help you work out proportions. It will also give you something to work directly on top of, and make cutting the twigs to length, and vague angles, easy.



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**Simple Crosscut Jig** – Cut a 3/8" x 3/8" rabbet in the long edge of a 2x2, clamp it in your vise, and you have a 90° cross-cut jig. (above) If you want to work with angles, like this 45° cut, mark and cut them into the top of the jig to simplify the process. (below)



just jump right in without getting carried away with the details. Everyone's approach will be different.

## Materials – wood

Pussy willow is the best species to work with. It can often be found as an ornamental on someone's property, or near lakes, streams and rivers. If you can't find any, experiment with whatever you have on hand before committing to a large project, and being disappointed with how it bends, snaps or splits. Reasonably straight wood, with few knots, is obviously best for structural, and most non-structural, members, but each project is different.

The dimension of structural members can vary depending on the project.

Similarly to working with dressed lumber, size the structural elements properly – or make darn sure your guests know to not sit in this 'chair'.

Secondary members can usually be around 1/2" to 3/4" in diameter. These pieces will offer some strength, but don't count on them for supporting anyone's body weight unless they are used very carefully. Pieces between 1/4" and 1/2" in diameter are best used for visuals; creating decorative curved elements, or filling in an otherwise empty area. Pieces less than 1/4" in diameter are hard to fasten without splitting.

I have only harvested twigs in the summer. A typical rule is that when wood is harvested in the summer, with its sap flowing, its bark tends to fall off.



**Fasteners** – Ring nails (far left and center) have a lot of holding power, and are recommended for twig furniture. Finishing nails (right) will not provide as much holding power in end grain, nor are their heads large enough to stop a twig from sliding over them and coming loose. Select a length and diameter of nail that's appropriate for the project you're doing.

I've found this isn't always the case. What I've found is that if you want the bark off the twigs, a summer harvest, and immediate bark stripping, is a must, otherwise the bark is all but impossible to remove. I would assume twigs harvested in the winter would have to be wrestled with if you wanted the bark off. As with the rest of twig furniture making, have an open mind, and go with the flow – whether the bark is on, or off, you can still end up with a functional piece of furniture that you enjoyed making.

I have heard people say they only work with green wood, even going to the trouble of keeping their twigs in a bucket of water until ready for use. With the few small projects I've completed I've only used materials that have had the chance to dry for a few months. If you can use them freshly cut, go for it. Otherwise, use whatever you have on hand, and if you find the results questionable, change things up.

## Materials – fasteners

For the structural members, and sometimes the largest secondary joints, I use screws. Depending on where the piece of furniture will spend its life, choose interior or exterior screws. You might want to also give some consideration to screw colour, as they will be visible.

For the remainder of the joints I use ring nails. They're available in most hardware stores. They tend to not pull out of wood as easy as many other nails, and they have a larger head than other nails. In many instances, once the nail has been hammered into the pieces of wood, its tip can be bent over. This creates a positive mechanical joint between the large head and the bent tip. The only other way to use a nail is by hammering it through one piece, directly into the end grain of another piece. The tip of the nail will not protrude and can't be bent over. In this case I would select as long a nail as possible in order to increase its holding power.



**Pre-drill and Pre-drive** – A hole should always be drilled where a nail will be used to protect against splitting. Brown also found it easiest to drive the nail into the hole so it protrudes slightly from the other side before aligning it with the other half of the joint.

Though I've never used one for this purpose, some say an air nailer is helpful while creating the joinery in twig furniture. I would think this is especially true in the early stages of construction, as you sometimes wish you had a third hand while hammering and holding some of the twigs together. It might be wise to lower the pressure to the nailer, and only use it on

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**Overlapping Joints** – Creating joints that overlap a number of times allows you to drive more nails, and increase the strength of the joint. You'll have to be careful as nails will have a strange way of coming into contact, and blocking each other, near the center of the twig.

larger members; I can't imagine it's easy to pin nail two 1/4" diameter twigs together without shooting a few errant nails. Eye protection would be a must in this situation.

Thin metal wire might come in useful in some situations, though I've never felt the need. When you are working with thin pieces that are splitting on you, this might be the time to try some wire out. Warp the joint a few times, making sure the sharp ends don't catch on anyone, or anything.

## The building process

When you're nailing the parts together, always pre-drill. The perfect sized hole should be either the same size or slightly smaller than the nail. If you don't pre-drill, and the parts don't split, you still run the risk of having the parts split as they dry. This is especially true near the end of a twig.

Joints are usually either butt or lap joints, and are always nailed. There may be times when a half lap or another joint would be used, but it's rare, and I didn't see the need with this trellis. Another joint detail I find helpful: don't nail directly into



**Sideways Strength** – In order to increase the structural integrity of some of the thinner twigs, Brown drives a nail perpendicular to the twigs. He then uses pliers to fold the sharp tip over. A few hammer strikes seat the nail tip against the twig's side.

the pith of the twig, as that tends to be the weakest point. A nail driven slightly off-center will have much more holding power.

Generally speaking I build the outside structural members first, then work towards the inner members. For this trellis I started with the outer rim. I also worked directly on top of the full-sized drawing, which helped select the twig with the right curve, and assisted me with determining what length to trim the twigs to.

I cross-cut, pre-drilled and nailed the outer perimeter pieces together, doing my best to use a curved piece, with a straight end, for the long sides. Butt joints worked okay for these corners, but it wasn't until I added the secondary perimeter that the structure became a bit stronger. In addition to nailing through all the corners, in every direction possible, I added a few nails perpendicular to the two layers making up the outer perimeter, bending over the tip of the nails and hammering them flush with the twigs.

I proceeded to cut, pre-drill and attach the inner members with butt joints, keeping the process pretty light and simple. The process moves pretty quickly when gaps are seen as

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### Nail Overlapping Joints –

For some additional strength Brown pre-drills, then adds nails, wherever twigs overlap.

### Trimming Thin Twigs – A

sharp pair of scissors will work wonders when dealing with thin twigs.



character, rather than mistakes.

For this trellis strength was of minor importance. As long as it stood up, and held itself together in the elements, I was happy. There are times when cross-braces are needed. Tables, and especially seating, are great examples of this. Think of creating 'triangles' when adding cross braces and you're sure to create a piece that will stand up to the thumping of your woodworking friend, who loves nothing better than tight-fitting dovetails created with contrasting exotic woods.

## Finish

Brushing on a few coats of linseed oil will help protect the bark, and give your rustic masterpiece a finished look

worthy of a life indoors. If this project will stay outside you don't need to apply anything for aesthetics, though a finish may repel water and keep the project in like-new condition for longer.

*Do you love the flexibility of twig furniture, or does the thought make your blood boil? Share your thoughts in the comments section at the end of this article, on our website.*



**ROB BROWN**

rbrown@canadianwoodworking.com

Though he prefers working to exacting tolerances, Rob enjoys the relaxed nature of working with twigs, and trading his tape measure for a rough guess now and then.

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# Carving a Haida-Influenced Panel

With a nice design, some sharp tools and a little know-how you can carve a Haida-influenced panel that can become wall art.

BY FRANK PELLOW

For many years I have admired the carvings of the First Nations people on the west coast of Canada and the USA and, in particular, the carvings of the Haida people. The Haida have a rich history of carving wood, and other materials, into totem poles and other smaller decorative and functional items.

## Material selection

Knot-free red and yellow cedar, balsa, basswood and knot-free pine are all good woods to carve, though I'm lucky in that a few years ago I purchased four long, thick planks of avodire, which is great for carving. Avodire is a threatened South American species that should be used with great respect. I used my bandsaw to resaw a 3/8" thick panel. A piece of plywood was glued to the back of this panel to prevent it from warping. Used this way, my avodire supply will last me the rest of my life.

## Haida designs

Because I have only rudimentary drawing skills, the fact that this style is quite abstract, coupled with the fact that almost all the details are carved using variations of five basic shapes, it's possible for me to do the necessary design needed for this project.

I'm not an expert carver, as I've only worked on a few carvings over the last four years. This project is great for getting into carving, and the design can be modified depending on the specific style you are interested in. Since this turtle was symmetrical, I only had to draw half of it, then I could mirror the design. I drew it on see-through parchment paper. If you don't want to do your own design work you can search the internet or books for inspiration. The frog, bear and raven are very common Haida motifs.

With the exception of the turtle's head, my design adheres closely to the native traditions of representing body parts with abstract symbols. I did break tradition by carving a true to life head, though notice the head is turned to face towards the viewer, even though this would be impossible in real life. This sort of anomaly is acceptable in Haida art.

Using carbon paper, the pattern was traced onto the wood, first on one side, then the pattern was flipped and its mirror image was traced onto the other side. Actually, I carved two very slightly different turtles from this pattern and photos of both appear in the remainder of this article.



**Respect the Materials** – To use his valuable stock of avodire respectfully and carefully Pellow resaws pieces for his projects, and glues them to a plywood backer.

## Carving tools

There are many knives, chisels, and gouges available but I find that only a very few are needed on this type of simple panel. The ones I used for this panel are all of the Flexcut brand, though many other manufacturers also produce quality carving tools. The vast majority of the lines traced on this carving were cut using the 6mm 70° parting tool.

With the panel clamped to a work surface, in this case a kitchen table, I got to work. With the right wood, and a sharp carving tool, it really is just as simple as following the lines with the tool. In case you missed it...a sharp tool is crucial, and makes the project safer and easier. I find the best technique is to push the tool with my right hand while directing it with my left hand, but practise with the carving tools to find your most comfortable technique. It's generally best to keep the heel of your forward hand, in my case my left, on the wood while carving.

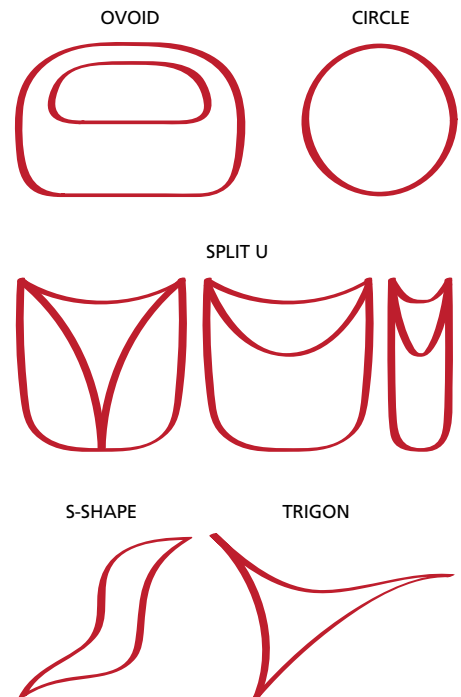
When pushing the parting tool or gouge it's important to keep both of the upper edges of the blade's sides above the surface of the wood, or tearout will be excessive. If you want a deep cut you may have to purchase a deeper tool.

A skew chisel was used to remove some wood on the larger, flat area between the nostrils and the mouth. A straight carving knife was used to cut a narrow slit for the turtle's mouth, as well as to clean up some other cuts.

A somewhat different technique was used to carve the background that surrounds the turtle. Rather than following a drawn line, I just scooped out adjacent indents of random

## Haida Shapes

These five basic shapes are very common in Haida art, and their overall size and proportions can be modified slightly to obtain the shape you're looking for.



**Symmetry is Easy** – Once the design has been determined Pellow uses carbon paper to transfer it to one half of the project, then flips it to create a symmetrical design.

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#### **Lots of Tool Options –**

From left to right, a parting tool, gouge, skew and carving knife are great to have for this project, but you can get away without all of them. Carving tools come in a wide range of sizes, and can be sized to the typical scale of work you do. (Photo by Rob Brown)



**Get to Work –** With the workpiece clamped to a stationary surface Pellow starts working on the carving. Simply following the lines, and using different carving tools as needed, is all that's necessary.

size and location with a small, round gouge. I find the exit portion of the cut is slightly jagged, and that I often need to clean it up.

I then burned my initials and the year near the bottom right of the panel.

### **Finishing**

After completing the carving, I coated the panel with tung oil sealer. The panel was then painted using acrylic paints. These paints can be found at any craft store and they are not expensive. I find that a very little paint goes a long way. I purchased my favourite brush for this

work for about \$1.

The colours black, brownish-red, white, and somewhere in the blue-green range are traditional. I kept to three of these colours but used tan rather than white.

Another tradition is that the uncarved surfaces are usually painted black and/or brownish-red. The carved surfaces are painted white and/or blue-green, or are sometimes left unpainted.

I started by painting much of the black areas of the turtle, followed by the green and tan portion on many of the uncarved surfaces. All of the carved



**Simple Gouges** – To create an appealing background use a small gouge to create a series of random, shallow cuts in the wood.



**Not Too Deep** – When using smaller carving tools ensure their upper edges don't sink below the surface while cutting, as tearout will be excessive. (Photo by Rob Brown)



**Time to Paint**  
– With the carving done, and one coat of tung oil sealer on the project, Pellow colours much of the uncarved portion of the turtle black. This approach is typical of Haida art.

surfaces were left unpainted.

Often (*in fact, so far, always*), after I finish the painting, I find it's necessary to go back and recarve some of the grooves because I have slopped some paint into them. Usually, I also need to repaint some spots where I've dripped one colour onto another. I find the acrylic paint has good covering qualities, therefore this is not a big deal.

After painting the appropriate surfaces I applied another coat of polymerized tung oil sealer, followed by two coats of polymerized tung oil, leaving a day between each coat. I then encased the

panel in a simple custom built frame so I could hang the piece on a wall.

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**RELATED ARTICLES:** Getting Started in Carving (*Dec/Jan 2004*), Sharpening Carving Gouges (*Feb/Mar 2013*), Build Your Own Picture Frames (*Dec/Jan 2013*)

## Carving with my grandson

My 11-year-old grandson Ethan had a school project to write a mythical essay accompanied by a drawing. The legend that Ethan concocted was about the origin of a pike fish. In that rather convoluted legend, lightning struck a deadhead (Northern Ontario term for a submerged log) and turned it into a pike. Ethan obtained permission from his teacher to submit a carving, rather than a drawing, with his project.

The design, which was about 80% Ethan's and 20% mine, is more realistic than in the Haida tradition. Several aspects of their carving styles are incorporated, and the same carving tools and techniques were used. Of course, Ethan obtained an A on the project, his teacher displayed the carving for the rest of the school year and I'm one proud grandfather.

Carving is a great introduction to woodworking for kids. As long as they are respectful of the dangers, and sharp tools are used, the results are often surprising. Keep the projects simple, especially with younger kids, as their attention is limited. It's better to have a good experience on a small project, than to muscle your way through a large project and have a poor experience.



**Kids Enjoy Carving** – A simple carving, based on some Haida-inspired art, is a great way to introduce kids to woodworking. The designs they create can be theirs, and can have meaning to them, increasing the chances of success and long-term enjoyment.



**Finished Pike** – This pike carving was designed and created by Pellow's grandson Ethan. It was a part of a school assignment.

# The Wood Shed

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James DeBoer has always loved two things — farming and woodworking. In an effort to find that ‘perfect piece of lumber’ he began harvesting from his own woodlot in the late 1980s. Fairly soon his chicken shed had somehow morphed into a wood shed. Word was that you could get a really nice stick of lumber from James — quality wood at very reasonable prices. Stuff you just couldn’t get anywhere else. Over time, James began to add a wider range of lumber to the wood shed — both

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James DeBoer





## The Pickings - Plain Domestic to Luxurious Imports

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Day on Saturday, June 13, 2015 — they want to thank all the friends who've made this 25-year anniversary a reality. And, if you've never been to the Shed, it's the perfect time to see it for yourself.

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# Add a SLIDING SEAT to Your Canoe

Add the comfort of an adjustable seat to your canoe to get the most from your next trip into the wilderness.

BY GEOFF COLEMAN

**M**y wife will never accuse me of being sensitive, but we do agree there is something romantic about a canoe ride at sunset, especially when that special someone sitting in the bow seat doesn't paddle at all, but turns around to face the lone paddler in the back.

This dynamic – one of the few romantic gestures I can actually pull off – was threatened when we bought a used canoe. Loading and portaging our old 89 pound aluminum canoe was draining the romance from our trips faster than politicians forget promises, so we went

for an older Kevlar model with fiberglass seats that looked like they came off a John Deere. While surprisingly comfortable for paddling, they just didn't work if you wanted to sit backwards, and I didn't really care for the appearance of them aesthetically. So, a makeover was ordered.

New seats in the traditional ladder style were easily made, but the original bow seat slid forward so the passenger could locate a more comfortable position to paddle from. How would I get a fixed-width seat to slide forward into the narrowing space of a tapering bow?

Canoe seats are commonly suspended from carriage bolts on the gunwales. Two holes are drilled down through each side

of the gunwales, then bolts are dropped in and through another hole in the stretchers of the seat. Four nuts beneath the seat tie everything together. However, this configuration doesn't move.

I turned to my friend Henry Vant Erve, who – while not a canoe enthusiast – is a highly-respected carpenter and cabinet maker in central Ontario's cottage country. Hammering Hank always has a solution and this time was no different.

In the Vant Erve rig, a slotted seat-support bracket is bolted to the gunwales, instead of the actual seat. He attaches the existing seat to the new support bracket. It is shaped to match the walls of the canoe, and to allow 6-8" of seat travel. Corresponding holes are drilled in the stretchers of the seat, and the old seat is then bolted to the support with a wing nut, knob or cam action locking mechanism.

## First, a template

Start by removing your current seat from your canoe. Now you can make a template of the inside of the canoe that extends across the canoe and as far forward and back as your seat-shifting needs dictate. Put some masking tape down the gunwales, and measure the same distance from the bow down both sides to make sure the template is square. Mark the forward most point on the tape. This is also a good time to add a center line to the template, which you'll use to ensure your slots are parallel.

Then draw the general shape of the bracket onto 1/4" template material. The pattern I used provides space for the slots, a surface for the seat to move on, and room for four bolts to secure it. At the same time, weight is minimized without sacrificing strength.

## Rout the slots

Ash is a traditional canoe-building wood, so I found a straight-grained piece 12" longer than I needed, and traced on the pattern. I kept the slots parallel with the straight edge of the workpiece in order to keep the slots parallel to each other once the brackets are installed in the canoe. Parallel slots are critical so the seat slides easily. To give the router a wide surface to ride on, we cut the slots



**Route the Slots** – While the brackets are still part of a larger piece of wood set up a straightedge and stop blocks to guide a router. Machine the slots in multiple passes, always travelling in the direction that forces the router against the straightedge.

first, then cut and refined the shape of the bracket on the bandsaw. I used a plunge router with a 3/8" straight bit, making the cut in multiple passes.

Next I drilled the holes in the seat and brackets to accept the 1/4" carriage bolt hangers that fasten the seat to the brackets. I spaced them evenly, with slight adjustments if they were going to impede the movement of the seat. Then it was over to the bandsaw to cut out the final shape, followed by a run around the router table to round-over the edges. You could also attach the



**Trim to Size** – Although a bandsaw or scroll saw would work fine, you can temporarily attach the template to the bracket and flush trim it to final shape.

template to the bracket and use a flush trim router bit in your router table to bring the brackets to finished size.

## Attach the brackets

With the supports complete, clamp them to the gunwales where you want the seat to be, referring to the marks you made

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**Gunwales Holes** – Place the finished bracket on top of the gunwales, in the correct position, and drill the holes to secure the bracket to the gunwale.

earlier on the tape. Transfer the locations of the holes, drill through the gunwale, insert the carriage bolts, and secure the support bracket. It doesn't hurt to drive in screws across the gunwale on either side of the bolts to strengthen the gunwales. Then, attach your old seat using some kind of fastener that will allow easy but lasting adjustments – many hardware stores have the necessary hardware to finish this seat nicely.

Coat everything with a couple of layers of marine varnish, and with that you're ready for a sunset paddle. Of all the women



**Final Fit** – With the new bracket attached to the gunwale you can use knobs or other hardware to fix the old seat to your bracket.

who enjoyed that romantic experience with me, only one asked for the stern seat and paddled while I fished. I married her, of course.

**GEOFF COLEMAN**  
gcoleman@bell.net



Geoff splits his spare time between the workshop, an as yet undiscovered classic rock band, fishing, and his family. The only time he encourages his wife to be a backseat driver is when he's fishing from the canoe.

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# Make a Set of Clamping Cauls

This simple project will go a long way to improving the furniture you create.

BY ROB BROWN

Most woodworkers think of exotic little projects when they look at their stack of offcuts. Not me. I think of clamping cauls in different shapes and sizes. These little gems assist me in countless ways. I don't use a caul every time I use a clamp, but close to it.

The main use for cauls is to ensure clamping force is distributed across a larger area than just the head of the clamp. If you're clamping up oversized, rough boards for a large tabletop cauls probably aren't necessary, but if you're working with thin edge trim, or other delicate parts, cauls are the difference between nice, tight fitting joints, and having to start over. And with the higher surface area provided by the cauls you are less likely to crush the workpiece you're clamping. This is a great reason to make cauls from hardwoods.

My caul collection is dynamic. When glue sticks to the cauls I tend to replace them, rather than risk imprinting the hardened glue drop into my next finished surface. Applying packing tape to the surfaces will help, but I find this more hassle than it's worth. Offcuts are plentiful and brand new cauls are quickly made.

## Other uses for cauls

I will often position long, thin cauls on the upper surface of a panel if I'm using bar or parallel clamps to secure solid edges.

They ensure the clamps don't touch the surface of the panel, and leave marks. This is especially important when working with veneered panels.

In a pinch I will use a pair of cauls on either side of a bent

**Ease Edges** – Soften all the edges of the cauls so they don't leave marks on the finished surfaces.



lamination. Secured on either side by a small clamp, the cauls help keep the many strips aligned while I apply clamps to bring the laminations in contact with the bending form.

A medium-sized caul will also protect a surface from a mallet blow. And speaking of assembly, a caul, or a few cauls taped together, work wonders in supporting a wide range of shop projects during assembly, sanding or finishing.

## How large, and how many?

A good set of cauls (yes, I do treat my cauls like a collection) will run the gamut in size and quantity. I usually make them in batches of between six and 12, but sometimes make many more. I would break them down into six categories:

- **small** – solid wood no bigger than 1"×3"×1/2" thick
- **medium** – plywood around 2"×4"×3/4" thick
- **large** – solid wood about 2"×8"×1-1/4" thick
- **long** – solid or plywood around 2"×3/4" thick, and between 12" and 60" long
- **curved** – typically offcuts from curved, veneered laminations, about 1" square, they work great for clamping up small, curved work
- **angled** – 1-1/2"×1-1/2"×2" long blanks with notches cut into their faces before they're cut to length

The exact dimensions of your cauls can be dictated more by the offcuts you have. Rather than wait until you need some cauls I would suggest making at least four or five different types right now, then add to your prized collection as needed. Ensure all the surfaces are smooth and square, and the edges have all been eased. Once you get into the habit of making and using cauls you'll find it's a hard one to break.

ROB BROWN

rbrown@canadianwoodworking.com



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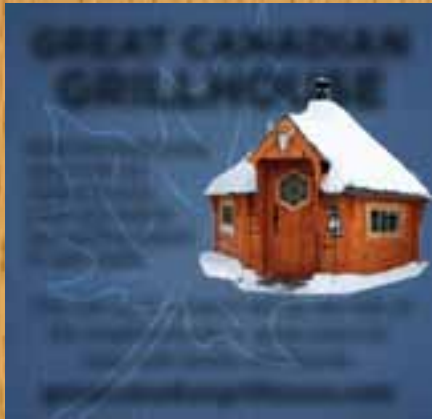
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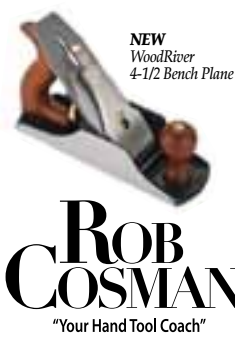




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# A Home in the Woods — Part 4

BY DON WILKINSON

*I'm Baaaaaaack!*

I realize this may be a disappointment to some, but following the release of the last issue, when my fan realized I would no longer be writing for *Canadian Woodworking*, a stunned silence was heard round the world (I'm not sure how that works, but regardless). Word spread quickly from ear to ear and shop to shop and somehow, somewhere, a major letter campaign was launched pleading with me to reconsider and I was inundated with two letters and a teletype (New Brunswick). One of the letters was written by my wife, I think. The other might have been from my editor who didn't want to ask other writers to take my place. He doesn't like to be laughed at.

Once I had wiped a piece of tear from my eye, I sat down with my wife and pondered long and hard over my decision. Apparently I decided it would be better for all involved (meaning her) that I continue writing my column, we would stay married and peace would reign across the known universe. And possibly a few not yet discovered. (I think she's afraid I'd stay home and bother her.)

Now that that's out of the way, I suppose I'd better write the actual column before I get fired. I'm already a full week past the deadline, but it's less than a week before Christmas as I write this, and I'm hoping my editor will forgive me. 'Tis the Season, and all that.

In this issue I'm hoping to wrap up the tale of building my log home in the wilds of the Yukon. I probably won't, but I'm hoping. Writing about it is taking longer than the actual construction.

In the last segment I mentioned that all attempts at lifting 20,000 pound logs using a cable strung between trees didn't work as well as the books promised it would, and I couldn't afford a crane or forklift. What I could afford was a beat up old Chevy 4x4 with a winch I had cleverly installed in the back. I ran the winch cable to the top of a pole I'd erected in the center of the cabin site and then down to whichever log I needed. Or more likely, whichever was handiest. At the top of the pole the cable ran through a snatch block, so-called because I had snatched it from a friend's garage when he wasn't looking.

I next leaned a pair of trees against the house as a ramp for the chosen wall log to slide up. The entire setup worked a treat and I was soon happily lifting those massive logs high into the air, and swinging them into place.

Once on the wall, I began to scribe each log to the one below. For those of you who don't know what scribing is, it's a means of tracing the contours of one log onto the surface of the next using a very sharp and pointy tool that would much prefer to skewer you than trace a line on a log. It looks like one of those geometry

compasses you make circles with in high school math class. Or so I've been told. It seems I missed that class.

Once the entire length of the log has been scribed inside and out, it needs to be turned over and the piece of wood between the lines removed. This is done using a chainsaw, a tool designed by surgeons specifically to provide lots of work for themselves so they make more money, and can then hire people like me to build them a log house. Hopefully before we're in need of their services.

After the wood is removed, and the corners notched, the log needs to be turned over, put into place and inspected to see where exactly you screwed up. Which you have!

And so have I. It looks like you'll just have to come back next issue to see what happens next. It's exciting, trust me! After all, have I ever lied to you before?

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Don is a semi-retired woodworker, semi-husband, retired contractor and some-time father. He now prefers to write about and photograph woodworking than do it himself. He finds it less painful that way. Past articles, and other writings, can be found on his blog [talesofawarpedlife.com](http://talesofawarpedlife.com).

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