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CONTENTS

DECEMBER / JANUARY 2011

FEATURES

18

42

28

28

DEPARTMENTS

COVER STORY

Cover photo by: Matt Dunkin; retouching by Gerry Wiebe Graphic Design

8

editor's letter

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Most woodworkers don't do a lot of woodworking over the holidays. The days have grown shorter and we spend more time eating and shopping, attending office parties, decorating the house and preparing for family dinners. Sometimes there's barely enough time to sit down and have a sip of eggnog. Maybe this is how it should be. Many of us have spent the last month in our shops preparing an array of handmade Christmas gifts to wrap and deliver in time for the big day. Some of us may not mind emerging for a little social interaction.

This issue features a number of great gift ideas, for both the gift-giver and receiver. Two articles cover gift ideas that woodworkers can make and give, including turned ornaments and small recipe boxes. However, if you've got a woodworker for whom you need to find a present (or if you are a woodworker whose wish list is currently blank), our list of "hot products" contains a collection of useful items. Coupled with my collection of woodworking-related books, this magazine can double as a message board. Simply circle a few items featured inside and casually leave the issue open on ottomans, at the breakfast table, on the kitchen counter next to the coffee maker. Someone's sure to take notice.

However, if you would rather forget about the busy times surrounding Christmas, I understand. Our team has provided a few things for you too, from a router bit comparison to some impressive projects. There's even a story about youth in custody learning woodworking at Brookside Secondary School.

I wish you all the best this holiday season. And don't worry if you don't get anything done in the shop, preferring the company of leftover turkey stuffing to your table saw. New Year's resolutions are just around the corner. Making more time to work wood can be the first thing on your list.

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CANADIAN Woodworking & HOME IMPROVEMENT
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readers' letters

From our website's forum...

Referring to the bench-top planer comparison in our last issue, 'Krisintoronto' writes:

My local Home Depot store carries the Ryobi planer, and I know Canadian Tire has at least two different models, as does Rona. Why not include them as well?

I contacted Canadian Tire a number of times. Although I spoke with a few different people, they never sent me a planer to test. Rona was interested in working with me, but could not get a bench-top planer to me before we went to press. I had much better luck with Ryobi. They sent their AP1301 planer to me and I immediately put it to work. After undergoing the same test I subjected the others to, I realized it was a solid performer. It has no fancy extras, but it goes about its job dressing lumber with no obvious problems at all, which is exactly what you should expect from a bench-top planer. It's a little lighter than the rest, and its construction isn't as beefy, but it will service the average amateur woodworker very well. At $279 this machine delivers great value. It would take me years of testing to come up with a clear answer to the question "Who delivers the best value when it comes to bench-top planers? King, Porter Cable or Ryobi." – Rob Brown

My attendees read your magazine

I thought that you might be interested in the results of our survey from the most recent Hamilton Wood Show.

The survey showed that 75 percent of the attendees who knew about our show from a 'magazine', saw our ad in Canadian Woodworking.

Thanks for your support!

Gina Downes
www.HamiltonShows.com

woodworkers' gallery

Spice Cabinet

by Alejandro Balbis

It's nice to see woodworkers still opting to mainly use hand tools where most woodworkers would reach for power tools. This is a great example of the type of project that can be completed with a simple set of hand tools, some knowledge and a healthy dose of elbow grease. Alejandro Balbis from Longueuil, Quebec made this cabinet to store spices, nuts and other ingredients. White pine was used to make the drawers and hidden components while the splines, front edges and knobs were made from black walnut. The carcase was made with quarter-sawn red oak, which is the only change he would make – its open grain was very coarse, making the through mortises even more difficult.

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

Correction

In our October/November issue, we credited Brian Hargreaves with the cover photo while it should have been Andrew Gene.

Busy Bee Tools Unveils New CX-Series of Machinery

Over the past two years, the engineers at Busy Bee Tools have been … well … busy. In order to address the growing demands of serious woodworkers and metalworkers, they have developed a new line of over 20 machines, which they have branded the CX-Series. The impetus for this hard work was the perceived need for a wider selection of heavy-duty machines at great value. "We put a lot of time into developing each machine, from the actual specifications of each unit, to looking at new ways to improve old features," says Hanif Balolia, VP of Marketing at Busy Bee Tools. Overall, you will find a bit of everything in these new machines; from more power to better paint jobs to a three-year warranty. With all these changes, there's one thing that will stay the same. "We will price these machines as aggressively as ever, something that will never change at Busy Bee Tools," says Balolia proudly. Over the next several months, Busy Bee will be rolling out many new machines, including six table saws, three bandsaws, three floor combination sanders, two planers, two jointers, four dust collectors, two shapers and two panel saws, with other offerings on the drawing board for 2011. Visit their website for more details – www.busybeetools.com.

Dimar **Divided Light Door Bits**

Frame and panel doors are usually made with five parts: the frame, two rails and two stiles. When you're making larger doors, or ornate smaller doors, it's common to divide the panel into more than one piece for aesthetical or practical reasons. This makes the machining process more difficult. Dimar has made our lives a bit easier by introducing a new router bit set, the strength of which is making frame and panel doors with multiple panels. The set comes with three different edge profile options and a cutter for machining the groove for the wood or glass panel to be housed in. All of these bits will need to be used in a router table to keep the operations safe, simple and accurate. The set will make frames between $^5/_8$" and 1" thick and panel thickness (or at least tongue thickness) can range from 2mm to 6mm.

Loyal Subscriber Draw Winner!

Randy, from Brantford, ON is our most recent winner of a $250 gift certificate from Lee Valley.

Randy has been woodworking for 25 years. In his spare time he does scroll saw work, turns bowls and pens, and makes furniture for family and friends.

Randy cashed in his certificate at the recent Woodstock Woodshow, hence the big smile!

A Safety Feature – For safety reasons, a quick glance at the shadow board will tell the teacher what tools are not accounted for.

Simple Projects with Huge Rewards – These little boxes are the first project for many youths who end up at the school.

Step by Step – Each step of three simple projects is laid out visually so the students can get a clear idea of the process involved in making it.

Brookside Secondary School

"Don't talk crime" is the first rule in this woodworking shop.

BY ALISON MCELWAIN

Kevin O'Gorman teaches woodworking at Brookside Secondary School, where boys in custody attend high school. He has taught here for nine years and of all the rules that govern the wood shop, a place where the "tool board" is a safety feature and the planer and jointer have "Teacher Only" written on them in red, one rule is non-negotiable: "*Don't talk crime.*" Don't talk crime to him, don't talk crime to each other. This single rule allows them to be boys and to learn a skill they will have for the rest of their lives – the basics of woodworking.

The day I'm there to observe, three boys are starting the beginner project, a keepsake box. O'Gorman has an example of all the steps mounted on the wall, from single board to finished piece, and keeps each student engaged in the project, observing, "Idle time is their worst nightmare." He stands with a student by the bandsaw, who cuts the board into smaller pieces that will make the sides, bottom and top. Watching the boy work, he says, "Be aware where the blade is, and your fingers. You can't be aware of anyone behind you." Another student looks on. A third boy, younger than the others, has already made his rough cuts. He sands the blocks of wood. It seems early to me, they are nowhere near ready for assembly, but O'Gorman's teaching philosophy is "sand a bit now so they don't get bored sanding a lot later."

These days, very few high schools offer a shop program like the one O'Gorman runs here at Brookside. Student work is often donated to charities like the Giving Tree or the Terry Fox Foundation and the students enjoy knowing something they have made (whether a rocking horse or a picnic table) goes to a good cause. As I walk the halls with Vice Principal Louise Nadeau, I can't help but notice how every boy I greet stops and smiles, is happy to talk to me, quick to laugh and eager to engage in conversation and explain what they're doing. I am overwhelmed by their friendliness and astonished by how much they remind me of the teenagers I work with at a high school just north of Peterborough. In fact, the Brookside boys might be more willing to engage in conversation than those I work with. This is when I become aware of Brookside's tragic irony. Louise Nadeau says it perfectly: "They've had to have done something terribly wrong, made a very bad choice in order to get the education they deserve." This is the only way they will get to take wood shop. O'Gorman agrees: "If these kids could find a structure like this on the outside, they'd never come back."

Back in the shop, the young boy shows O'Gorman his sanded blocks and finds encouragement: "That's real good. That's a lot smoother than it was." O'Gorman is teaching him how to see that his work counts for something. This project is an opportunity for him to *make* something, an opportunity for a kid to be proud of a personal achievement and deemed worthy and capable. Who knows, one of these boys may be discovering a profession.

ALISON MCELWAIN
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Photos by: Rob Brown

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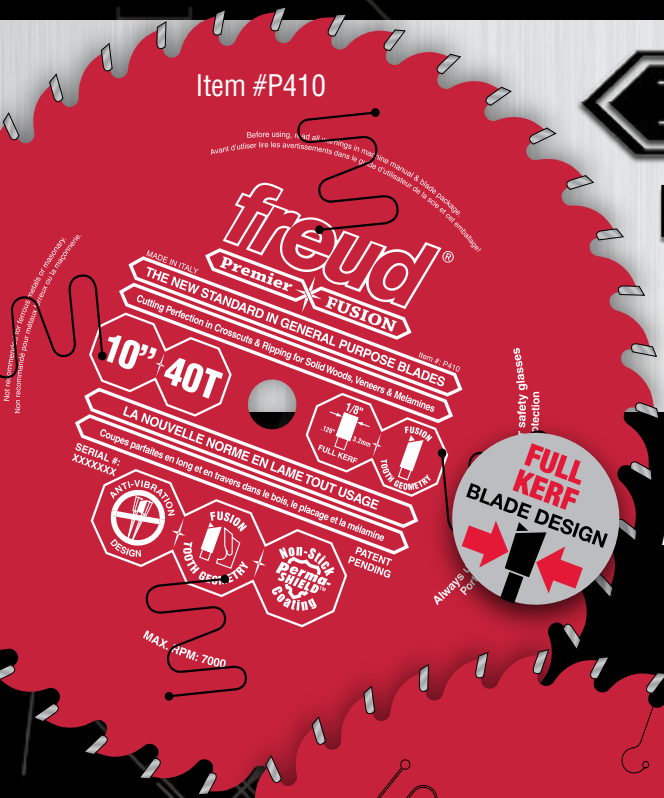

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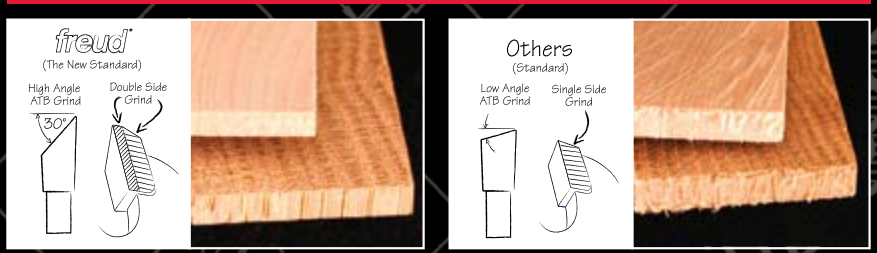

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Crafting a Window Seat

Use some time-saving tricks to make this window seat, then take all the time in the world to relax in it.

BY MATT DUNKIN

A window seat has the potential to be a magical place. A well-designed one becomes a place set away from the main activity of a house, where people can have a quiet conversation or read a book but still remain involved in whatever else is happening. The window seat allows you to be nearer to the out of doors while you are still sheltered inside your home.

When we bought our 1920s house, there was a cantilevered area projecting almost two feet beyond the side of the dining room that provided an ideal nook for a window seat; it was five and a half feet long with a double window. During the first few years that we lived in the house it contained a large dark sideboard that acted as storage for napkins and candles, wine, hot plates and dish towels. As a storage area the sideboard was conveniently located near our dining room table but it blocked light from streaming through the window and made the room feel crowded. I began to dream of building a window seat in that nook with storage beneath it and finally got the opportunity last winter. We were fortunate to have the cantilevered nook to house our window seat but we could also have built a bank of shelves or cabinets on either side of the window to provide a backrest and create the alcove into which a window seat fits so ideally. Because built-in window seats belong to the disciplines of furniture making, cabinetry, and trim carpentry, they require a well-rounded approach to their design and construction.

Design Parameters

In approaching the design of the built-in seat, I knew that retaining the storage area of the piece of furniture we were removing from the nook would be a priority. Because it would be low to the ground and almost as deep as kitchen cabinets, drawers with full extension slides would allow the most storage and the easiest access. I wanted the seat to

Photos by: Matt Dunkin

Strong and Straightforward – The structure is made of 3/4" plywood and sits directly on the floor, where it can be shimmed. To secure the structure, fastening methods are kept simple: pocket screws and toenailed screws do the job nicely.

Easy Access – Full extension slides reveal a full selection of wines and liquor. To keep the façade uncluttered, one drawer front is used for three drawers on the left side of the bench.

fit in with the painted trim of the house and be a comfortable place to sit and read a book but also a place that could be used as additional dining room seating for large family gatherings.

In formulating the finished height of the seat, I projected that a piece of 3" upholstery grade polyurethane foam set on a 16 ½" plywood seat base (when compressed by a sitting person) would match our dining room chair height of 18 ½". I divided the drawer area into three and kept the center drawer bank, as the widest, at 30" making for little waste with the ¾" x 5' x 5' Baltic birch plywood that I planned to use as the material of choice for the carcase, the drawer sides and some of the drawer fronts. I happened to have a considerable stock of plywood off-cuts that I could incorporate into the project. While this would make for drawer boxes that were of thicker stock than was necessary I wanted to ensure that I used the materials at hand and created a seat that wouldn't shift or flex under pressure, especially if my kids were ever to try and step on the drawers.

The Frame

I began by carefully removing the historic baseboard and saving it for future projects. I sealed the area where the plaster met the floor with sprayfoam to seal any gaps. Knowing that the cantilevered projection would not be square, I made my carcase smaller by a generous ½" and was glad I did. This allowed me some adjustment during installation. Once my width dimensions were set, I proceeded to create a simple vertical frame out of ¾" plywood with sides, a back and a divider between each bank of drawers to hold the drawer slides. I decided it was unnecessary to create a base with a recessed toe kick and it would have robbed me of precious storage space. I glued and screwed into the sides and dividers through the plywood back and then prepared to get measurements for drawers.

The Drawers

I wanted to incorporate a wine rack into the window seat, so on the left hand side I laid out three drawers: two blind drawers recessed above the one bottom drawer to which I would attach the drawer front. This would allow the facade to maintain its symmetry, matching the one full-height drawer on the right side that would serve as a liquor cabinet. The center drawer bank would have three shallow drawers for napkins, place mats, candles and other supplies.

I attached the full extension self-close drawer slides with a Kreg drawer slide jig. I then measured for the drawer boxes and began to rip the drawer material from plywood offcuts. I made the sides of the drawers full length and then ripped a channel ¼" deep and ¼" above the bottom of the drawer bottom with a dado blade on my table saw that would allow me to insert a ¼" plywood drawer bottom. Knowing that drawer fronts would cover that channel at the front, and that the back would never be seen, I didn't bother concealing it. I cut the plywood drawer bottom material ⅛" smaller to allow the drawers to be squared when assembled. I glued and fastened through the drawer fronts into the drawer sides with pocket screws that would again be hidden at the back of the drawer or by the drawer fronts. For the two blind drawers I fastened the drawer front to the sides with a mitre joint and brad nails after scalloping a shallow pull on the bandsaw at the top of the drawer fronts. I flipped the drawer boxes upside down, squared them and ran a bead of hot-melt glue around the perimeter of where the sides and bottom met to keep them square. I then installed the drawer slides onto the sides of the boxes.

The Installation Begins

With the carcase and drawers built, I was ready to install the window seat. I inserted the window seat into its nook so it would be flush with the walls of the nook area and installed the drawers, testing them to make sure they were square and opened and closed smoothly. The floor rose dramatically where the cantilevered area had settled, so I had to shim the

Keep It Simple, Smarty – Mitre joints and butt joints re-enforced with pocket screws are used for the drawers. A curved recess at the front of the drawer allows it to be pulled out.

frame with cedar shims to level it. I then shimmed the space between the wall and the top of the frame of the seat and fastened to the wall framing with 3" screws, testing the drawers for smooth functioning again. I repeated the shimming, screwing and testing procedure at the front where the carcase met the floor at either side. Finally, I countersunk and toenail-screwed through the fronts of the partition between the drawer banks with 3" screws down into the floor. This I later covered with veneer edging and paint.

A Simple Approach to Cutting an Irregular Shape

The nook area to which I would be fitting the top of the window seat was nowhere near square. I used a simple method to cut a custom shape that would reference each corner but that wouldn't involve a lot of guesswork. I took a piece of plywood smaller than the top of the seat provided and cut four scraps of 1x4 stock and cut a 45° angle at one end of each. I then laid the 1x4 pieces down on the piece of plywood and fit the points of the 45° angle into the four corners of the seat, leaving myself 1/8" of an inch of clearance to get them in and out (even then it was snug due to its irregular shape). I screwed the 1x4s in place onto the plywood, labelled the window side and then carried the jig out to my waiting sheet of ¾"x4x8 paint grade birch plywood. I turned it upside down and marked all four corners onto the plywood with two of the points along the factory edge. I then used a long straightedge to connect the points and cut the resulting trapezoid out with my Festool Track saw. I was pleased with the fit of the resulting top when I flipped it over and inserted it. I fastened the frame to the top with pocket screws. A small bead of paint-grade caulking would close the 1/8" perimeter gap.

Matching Historic Trim

I wanted the window seat to look as if it had always been there, and so matching it to the trim in our house was important. The door openings in our house are trimmed in a traditional style with (from bottom to top) plinth blocks, side casing, a bead moulding, frieze board and a special cap moulding. I was fortunate to find some pieces of poplar cap moulding at a local Habitat for Humanity Re-store, and the rest I made myself with the table saw and a router, scaling the width of the trim down to more closely match the scale of the seat.

Good Point – To make it easier to obtain the shape of the nook, Dunkin used this simple four-point jig. Each arm can be extended right into the corner and screwed into place. Those measurements can be transferred to the work piece.

My first step was to cut mitred returns to reveal the profile of the cap moulding where it met the wall and glued and brad nailed the returns into place. Next I joined the cap moulding to the plywood top with biscuits, pocket screws and glue, then sanded the surface perfectly flush. I set my router table up with a ¼" roundover bit to handle the next three pieces of trim. I cut plinth blocks out of dressed 1 ¼" stock and rounded them over on the three exposed edges of the face side; that would provide a stop for where the dining room baseboard met the window seat. One-by-two poplar provided the short section of casing, again rounded over on two sides with the router table. Finally, to create the bead moulding I ripped down some 1 ¼" poplar to 3/8" thick and rounded over two edges. I then mitred a return for the bead moulding and added a short section of frieze to complete the trim. I was now ready to add drawer fronts and continue the bead across the front to complete the look.

The Drawer Fronts

The three long central drawers I ripped out of 1x6 poplar leaving a 1/8" gap between the drawers. I removed the top two drawer boxes and the resulting space allowed me to mount the front onto the bottom drawer with 1 ¼" pocket hole screws drilled straight through from the inside. I like pocket screws for this application because they are self-tapping and

Details Are Important – Detail of existing trim that needs to be matched.

A Good Match – The trim incorporated into the bench makes it seem like it was always there.

have a large pan head to pull tight against the inside of the drawer box. With the middle drawer box back in place, I rested the drawer front on 1/8" spacers set on the drawer front below and screwed it into place. The remaining top drawer front was installed with the drawer front again installed on spacers but this time with the drawers open a few inches to allow my drill access.

Taking careful measurements for the side drawer fronts, I cut them out of a single piece of ¾" Baltic birch and sanded the edges to smooth them for paint and fine-tune the fit. To install these I started my screws inside the drawer box and let them protrude through the box by 1/8", fit the drawer front where it needed to go and then pressed hard to create two tiny holes in the back of the drawer front. Opening the drawer I then used the holes and screws to index where the drawer front should attach and screwed it into place. I was able to then draw a horizontal line with a straight edge to locate where the final piece of bead trim was to go. I ripped it to the correct depth so that it would make a clean line, which continued right across and tied the look of the seat in with the nearby door and window casing. I fastened it to the drawer fronts with glue and brad nails, holding it in place with small clamps until the glue dried.

The Finish

Indoor air quality was an important consideration for me when I approached the finishing of the window seat. My clients are often interested in using materials that are good for the environment and that are healthful for people. The paint of choice for the outside of the window seat was two coats of low-VOC (Volatile Organic Compounds) Aura Latex Paint in a Satin finish from Benjamin Moore. It had a fast dry time, minimal odour and, importantly, is easily wipeable, unlike less durable zero-VOC paints. I wanted to clear-coat the interior of the drawer boxes and chose an AFM Safecoat Low Odour Polyureseal BP in a Satin Finish. Safecoat products are often acceptable to people with environmental sensitivities and contain minimal VOCs. Wetting the wood beforehand and dewhiskering the resulting raised wood fibre saved on the amount of sanding between the two coats I applied.

Comfy Cushion – A custom-made cover with a generous cushion helps give the entire area a professional look. And it's comfortable to sit on too.

The Cushion

I sourced the 3" polyurethane foam for the cushion, from a local upholstery shop and they cut it to my measurements; purposefully snug so that it would prevent movement. I ordered the cover for the foam from Tonic Living (www.tonicliving.com) in Toronto, who took my measurements and then shipped it to me. I was able to order the espresso colour in an organic cotton, with a wrap-around zipper and piping. Wanting the cover to be tight, I sized the cover ½" smaller than the foam and was pleased with the resulting fit. The recommendation was that the cover be dry cleaned but we have washed and hung it with no ill effects. Some throw pillows of various sizes provide ample and flexible padding for our backs.

Our window seat continues to be both a meeting place for our family, and a quiet place to curl up and find some solitude. It has become a central feature of our home, and an addition that has added both to our home's value, and our enjoyment as we live here. And I enjoyed the process of turning it from dream to reality.

MATT DUNKIN
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Recipe Box

Explore the world of box-making with this easy-to-build recipe box.

BY JIM SINCLAIR

Box-making is a rich area of woodworking with a wide variety of approaches and techniques. Combine this with the many choices of woods and you have endless possibilities for box making. This project to build a recipe box will help you explore one set of techniques and see some of the effects that minor variations can have on the resulting box.

Box Techniques

This particular box design will use a mitred carcase and panel approach. With this approach, the box is assembled with the top and bottom and the lid is then cut free of the constructed box. The carcase will be built using a four-corner match technique. This will provide a continuous grain pattern all the way around the box. The carcase of the box starts as a single board that's just a bit longer than the length of the front plus the side. It is re-sawn into two boards. The inside faces from the re-saw operation will become the outside faces of the box.

If you don't have a bandsaw for re-sawing, there are techniques for re-sawing with a table saw, but the width of the table saw blade's kerf is such that you lose some of the re-saw advantage for matching the grain at the fourth corner. A reasonable alternative is to go for a three-corner match instead. This eliminates the need for re-sawing to get the corner match. You can use $^{3}/_{8}$" stock that you purchase directly or produce with your surface planer. When using a three-corner match, you can select wood with a fairly consistent grain pattern in order to get a fairly good match at the fourth corner.

A set of keys will be used to reinforce the carcase mitres and provide an attractive detail to the box appearance. Once the lid has been separated from the base of the box, a pair of end inserts will be glued to the sides. The lid will slip over these end inserts to hold it in place on the base of the box.

Designing the Piece

This design is for a box that will hold 3" by 5" recipe cards. The first step is to measure the cards. The recipe cards we have are actually about $^{3}/_{64}$" over-size in both dimensions. Allowing for some slight additional size discrepancies and some room for card movement led me

Photos by: Jim Sinclair Lead photo by: Brian Hargreaves Illustrations by: James Provost

to an interior size to design for of 3 ¼" high by 5 ¼" wide. The overall height consists of the 3 ¼" card space, a ⅛" saw kerf, the two ⅛" grooves for the top and bottom and finally the two ⅛" sections that hold the top and bottom, for a total box height of 3 ⅞". The saw kerf allowance is for separating the lid from the base after assembly.

The overall width consists of the 5 ¼" card space, two ⅜" side thicknesses at the mitres and two ⅛" thick end inserts for a total box width of 6 ¼".

The interior depth is somewhat arbitrary, depending upon how many cards you might want to fit in the box. There is one problem that needs to be avoided. As long as the height of the card is significantly greater than the depth of the box base, even a single card will sit easily in the box. If the depth of the box is deeper than the cards are high, the cards will fall over flat when there are only a few in the box. This is not the end of the world; the depth dimensions to avoid are the ones in between. It is at these depths that a card can fall over and get jammed between the front and back of the box. By making the sides 3 ¾" to match the final height, the box will hold a good number of cards and when only a small number of cards are contained, they can fall over flat and not get jammed.

The key locations are somewhat flexible. For this design, I started out by choosing to go with the top and bottom keys both being ½" in from the top and bottom. Assuming the lid key is in the middle of the lid, this gives a lid thickness of 1 ⅛". This also provides us with the location of the eventual saw cut to separate the lid from the base. Finally, the middle key was positioned ½" below what will become the top edge of the box base, once the lid has been cut away.

I chose to make the recipe box out of cherry, with holly and ebony keys. Feel free to use whatever wood suits your fancy.

Basic Preparation

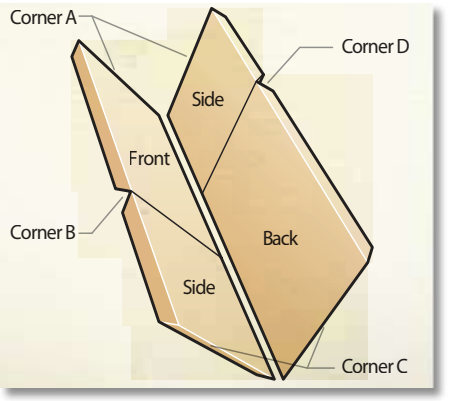
Mark all the blanks that you are going to re-saw into thinner stock with distinct triangle patterns on one long edge so that you can easily put the pieces back together in the correct order after they have been re-sawn apart.

When re-sawing, place a jointed edge down against the bandsaw table surface and a jointed face against the bandsaw fence. After each thin panel is removed, lightly joint the re-sawn face on the remaining board before re-sawing off another panel. When all the thin panels are removed, surface plane the re-sawn faces to get the panels to their ⅜" final thickness.

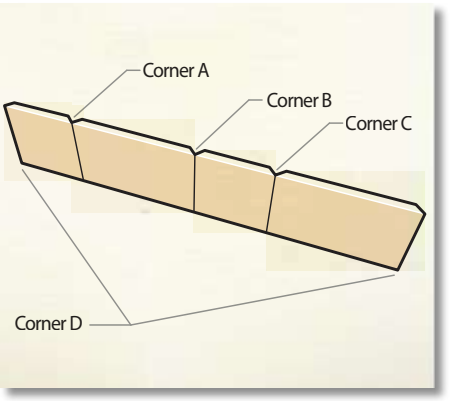
Materials List

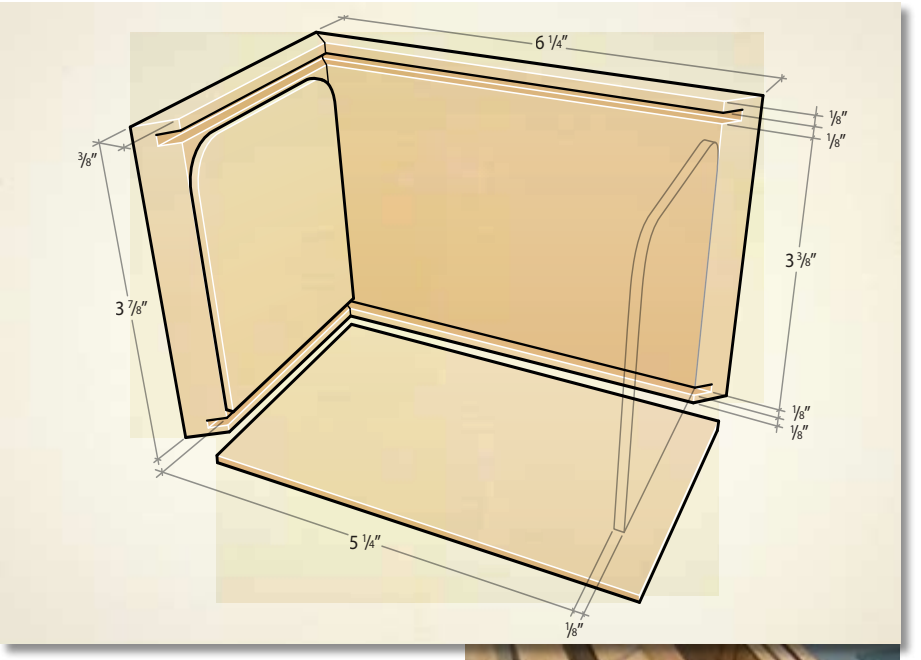
Part	Qty	T	W	L
Front / back	2	⅜	3 ⅞	6 ¼
Side	2	⅜	3 ⅞	3 ¾
Bottom panel	1	⅛	3 ⅜	5 ⅞
Top panel	1	⅛	3 ⅜	5 ⅞
End inserts	2	⅛	3 5/16	3

Four corner match



Three corner match





The Triangle Trick – Mark stock so the grain of the panels will match after re-sawing.

Preparing the Sides

In order to create a four-corner match you will need to select a pair of adjacent re-sawn panels. With the pieces held together as they came apart, mark both ends A and B, respectively. Mark them far enough away from the ends that they won't get cut off when you cut your mitres.

Next, open them up and mark the bottom of the faces that will become the outside of your box. You will cut one long side and one short side out of each panel. Be careful when cutting the sides from the front and back that you cut the shorter side pieces from opposite ends of the blanks.

These marked outside faces should always be up when cutting the mitres. I find that I get my best results when I separate the front and back pieces from the sides before I cut the mitres. I do this with a very thin kerf blade on a scroll saw. A small bandsaw blade should also work just fine. Once the blanks are separated I cut the mitres on each end.

The grooves to hold the top and bottom can be cut on the router table. Install a 1/8" spiral bit and set the bit's cutting depth to 3/16". Set up a solid fence so that there is a 1/8" gap between it and the bit. Attach both horizontal and vertical feather boards to hold the pieces square to the fence and tight to the table. Push each piece through twice, once to create the top groove and once to create the bottom groove. To make this operation a bit easier, these grooves can be machined before the parts are cut to finished size and mitred. It is sometimes easier to deal with larger pieces.

Use a block plane to add a 1/16" chamfer on the inside edge at the top and bottom of each of the carcase pieces. The insides of the carcase pieces are now ready to be sanded for finishing.

Preparing the Top and Bottom

To prepare the top and bottom, it is back to the bandsaw for some more re-sawing. Slice off some large panels just over 1/8" thick and then use the thickness planer to bring them down to just under 1/8". There are a couple of problems with working with stock this thin in the planer. The first is that your planer's cutting blades may not actually go down this close to the planer bed. The second is that the combination of pressure from the rollers and cutters is often enough to blow boards this thin apart. Fortunately, both problems can easily be overcome by building a simple shop-made auxiliary bed for your planer. Cut a melamine board to the width and slightly over the length of your existing bed. Put a cleat on the underside of the infeed end to hold it in place and put it on top of your planer's existing bed. This will raise the infeed and outfeed surface up into the operating range of your planer and cover the lower rollers in the planer, reducing the pressure on the thin boards. In case of a blow-out, don't stand directly behind your planner while surfacing these small pieces. In fact, this is always a good rule to follow.

Once you have the thin stock panel prepared, have a look at it and find some grain pattern that appeals to you. A piece of paper with a window cut in it approximately the size of the top and bottom works well for finding an attractive section. Use a pencil to lay out the pieces you want to use and then cut them out slightly over-sized. A shooting board can be used to square up the top and bottom and trim them down to their exact size. Once you can do a complete dry fit, you may find that some additional shooting board work is necessary to get the top and bottom panels to float nicely.

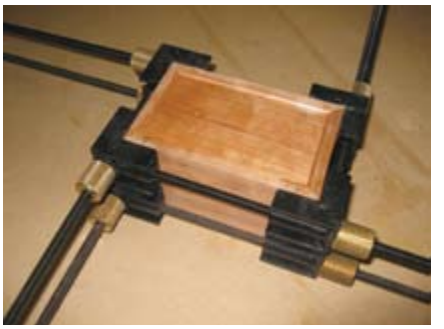
Keep Track of the Corners – Label the corners of the blanks to help keep all of the parts positioned properly during assembly.

Feathered Friends – Feather boards help with slot cutting by holding the workpiece tight to the fence and down to the table's surface.

Second Surface – A shop-built auxiliary planer bed will help when planing thin parts.

The end inserts can be selected from the same thin stock using a similar approach. When selecting the end inserts, arrange them so that the grain runs horizontally. This will orient any wood movement in the end inserts to coincide with the wood movement of the box sides and away from putting pressure on the box mitres. Once you have the end inserts cut to exact size, trim off the ½" radius on their top two corners. These are to make it easy to put the lid on the box.

Shoot for Perfection – You can use a shooting board to trim the top and bottom square and to exact size.

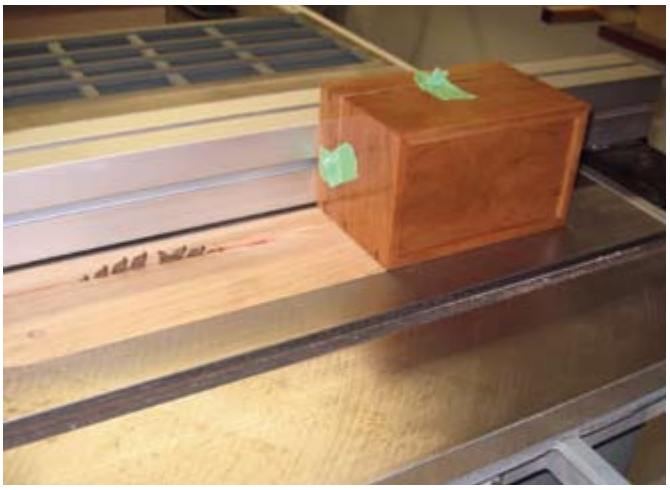


Four corner clamping – Picture Frame clamps, or masking tape, help clamp the four sides together.

Preparing the Keys

Cut a test saw kerf in a scrap block of hardwood. Use this test block to check the thickness of your key blank. You are looking for a fit that allows the blank to go into a test slot with only modest finger pressure. You will need a key blank about 12" long by ¾" wide. I cut mine somewhat longer than this so that I can use my thickness planer to plane the blank down to the correct thickness and so I don't have to get my fingers too close to the saw blade when cutting the keys from the blank. The keys for the recipe box consist of a core of holly sandwiched between a pair of ebony veneer sheets. Mill a thin strip of holly down to a thickness equal to the thickness of your table saw blade less the thickness of the two veneers. Glue the veneers to the core using a vacuum bag, a veneer press or lots of clamps and cauls. When the glue is dry, use a hand plane to smooth the two long edges of the blank. Do a final test fit of the key blank in your test block. If it's too tight, do some very fine sanding on both sides to fine tune the fit. Cut the keys to size on the bandsaw. Mark 45° lines with a square then cut them to size. They don't have to be cut perfectly straight, as they will be trimmed to final size after they're glued into the slots. Cutting them oversized will make them easier to handle and less likely to get lost down the throat plate of your bandsaw. Cut several extra key blanks to give yourself some flexibility when fitting the keys to the slots. If you want to go with a simpler set of keys, mill up a solid blank to the same thickness as your table saw blade and then cut your keys from it.

A Jig of Key Importance – This shop-built jig will help cut accurate slots for the keys.



Hats Off to Masking Tape – While separating the lid from the lower box, use masking tape and a spacer to help keep everything aligned.

Preliminary Finishing

For the recipe I box, I decided to go with a simple shellac and wax finish. I applied seven very thin coats of shellac by wiping it on with a small cloth pad. I sanded the finish after each intermediate coat with 400 grit sandpaper. After the final coat I sanded with 2000 grit sandpaper. To finalize the finish, I wiped on a thin coating of beeswax, let it sit for a few minutes and then buffed it out with a clean cloth to a nice shine.

The top and bottom panels should be finished on both sides before assembly. The inside faces of the long sides should also be finished before assembly. For the short sides, draw a pencil line on the inside down the center of where the saw cut will be made to separate the box base from the lid. The portion of the short sides above the pencil line should also be finished. This area will eventually become the inside of the lid. The portion below the pencil should not be finished; this will be the surface to which the end inserts are glued. For the end inserts draw a pencil line on the side that will be glued to the box base side, just below the interior height of the base. Everything on this side below the pencil line should not be finished. These surfaces will eventually be glued to the short sides of the box base.

Assembling the Box

I use multiple picture frame clamps to clamp small mitred boxes together. They stack nicely to provide whatever height is needed. They provide pressure on all four corners at once, automatically square up the corners and eliminate the need for cauls. You could also use masking tape across three corners and then, when the four sides are brought together, apply tape to the final corner.

Make sure you dry fit everything first to make sure you can get good pressure along the full length of all the mitres. During your dry fit, don't forget to allow for keeping the box square. If things are going together out of square, you will need to apply pressure across one of the diagonals. Figure out how you are going to do this before applying the glue.

Cutting the Key Slots

Build a shop-made jig to hold the box while cutting the key slots. Start with a hardwood block about 8" long by 4" wide that is fully squared up. Use your table saw or mitre saw to cut the block into a pair of 45° supports. Square up a ¾" piece of plywood to about 13" by 6" to be the base. Rub glue the support blocks to the top of the base next to one side. Glue one on first, then, when dry, add the second in the proper location. Once the glue is dry, attach some adhesive backed sandpaper to the 45° faces of the support blocks. This will help hold the box secure while the keys are being cut. I also added a small adjustable stop block to the base, consisting of a piece of softwood with a slot cut in it, a wing knob and a carriage bolt that passes through a counter-bored hole in the base.

Set the rip fence on your table saw so that the blade passes through the center of the support blocks when the side of the base without the support blocks is next to the fence. Adjust the height of the saw blade so that it cuts approximately 2/3 of the way through the depth of the mitre when the box is supported in the jig. Pre-cut the slot in the jig by making a pass through the table saw without a box held in the jig.

Cutting the key slots can now be done with two settings of the stop block. First, set the stop block to position the box so the lid slot is cut. Since the bottom key and the lid key are equally spaced from the bottom and top, this setup will serve for both sets of slots. Put the box in place and push the jig through so it completely clears the blade. Lift it up and away from the blade and then bring it back to the front of the table saw. Rotate the box to cut the next slot and make another pass. When you have made all eight passes at this setting, adjust the stop block to cut the middle set of key slots. Make your final four passes and you are done with cutting the key slots.

Adding the Keys

Test fit each of the keys. They should slip into the slots with only a modest amount of finger pressure. If you encounter a slightly thicker key or a slightly wider slot, rearrange which key goes with which slot until they all fit well. Once you are happy with the fit of all the keys, glue them in by brushing

Mix Things Up – With many variations on this theme, you will never have two of the same boxes again.

a small amount of glue on each side of the key and pushing it into the slot. Make sure the long flat surface of the key is pushed in evenly and fully seats against the bottom of the slot. This should leave you with no gaps at the surface where the key meets the side of the box. Glue in all the keys and wait for the glue to dry. Once the glue is dry, use a flush cut saw to get rid of most of the protruding waste. Here are two hints for using a flush cut saw to trim keys. First, keep as much of the saw surface as possible registered against the box face in order to get a clean level cut. Second, angle the blade so that you cut the unsupported wood fibres on the outside of the key first and work your cut in toward the portion of the key that is supported by the box side. This will avoid chipping out pieces of the key below the surface of the box sides. Once all the keys have been trimmed, do a final clean up with a block plane. Now smooth the outsides of the box in preparation for finishing.

Exterior Finishing

The outsides of the front, back and sides can now be finished, as can the top and bottom edges of these pieces. Be careful when doing the edges to not get any finish on the exposed top and bottom that are already finished.

Separating the Lid from the Base

Set your rip fence so the blade will cut a kerf that is centered between the lid key and the upper base key. Set the height of the blade to be just over $^3/_8$". Hold the box securely against the fence to cut the slots on each of the four sides. After each slot is cut, push a spacer into the slot and tape it in place. I use left-over key stock, since it has already been sized to be exactly the thickness of the saw kerf. These spacers keep the lid and the base square to each other, hopefully minimizing any inconsistencies in the cuts at the corners.

Final Finishing

The saw marks on the bottom edges of the lid and the top edges of the base that were exposed when the lid and base were separated need to be cleaned up before being finished. A few passes with a block plane works well for this job. Keep the number of passes on each edge consistent. You want the edges of the lid and the base to go back together with no obvious gaps. Use a very lightly charged pad when applying finish to these edges. You don't want to get any finish on the inside or outside of the box.

Adding the End Inserts

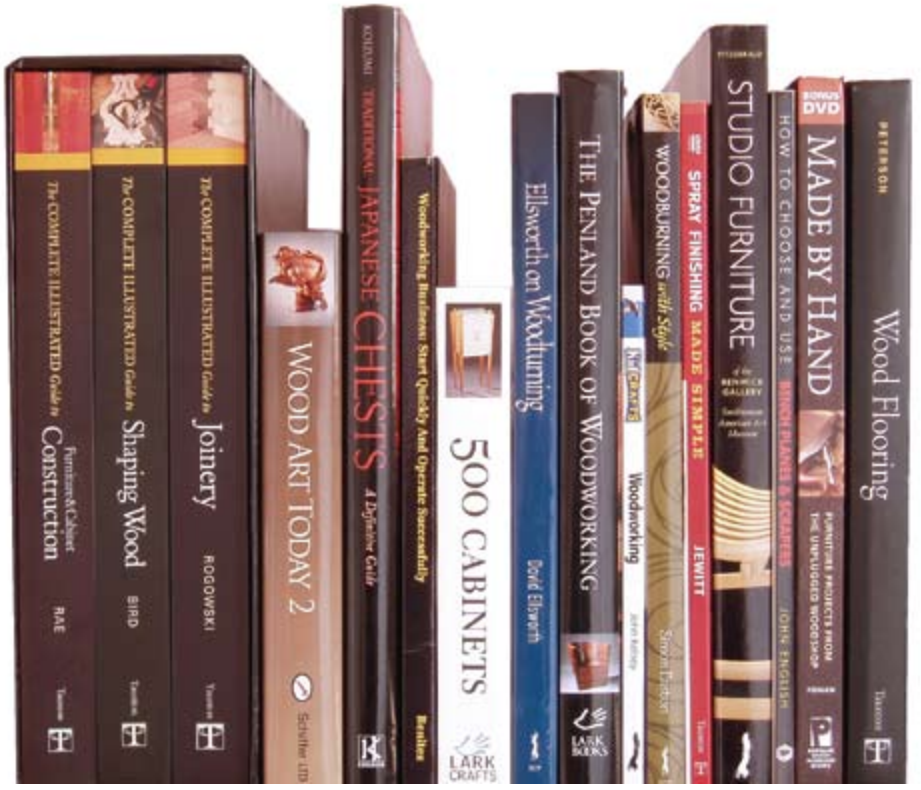
With all the finishing completed, the end inserts can be glued into the box base. Apply glue to the unfinished face of the insert and clamp it to the unfinished short side of the box base. Watch to make sure that the insert stays firmly seated at the bottom of the box as the clamps are tightened. You don't want the end inserts sticking up so much the lid won't go back down all the way on to the base. Wait for the glue to dry and you have yourself a completed recipe box.

Variations

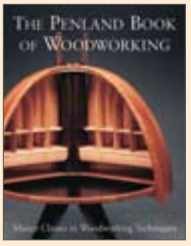
Using the same basic approach as this recipe box, you can easily change the choice of wood for the top and bottom, change the choice of wood for the keys, change the size of the keys or change the dimensions of box. Your results might come out something like one of the boxes shown here.

JIM SINCLAIR

Woodworking Books



From instructional to inspirational, woodworking books are a great way to spend some holiday free time. This is a highlight reel of new – and some not so new – books that every woodworker should check out.



The Penland Book of Woodworking – Master Classes in Woodworking Technique

Thomas W. Stender, Editor
Lark Books
www.larkbooks.com
ISBN 978-1-57-990-768-6

The Penland School of Crafts has been operating in the foothills of the Blue Ridge Mountains for over 75 years. This book details how ten instructors – all experts in their fields – make some of the furniture for which they are best known. Each instructor is vastly different from the next, and the tips they detail are highly innovative yet understandable and useful to the amateur woodworker. The director of the school, Jean McLaughlin, says the aim of the book is threefold. "To give the reader insight into the creative and technical processes of leading woodworkers, to provide detailed, intermediate-level technical information, and to showcase a range of approaches to the material." The book excels on all three levels. Even when I strongly disliked the style of furniture being discussed, I revelled in the unique approach the maker took to break new ground to complete the finished piece. If you would like to see how one-of-a-kind pieces of studio furniture are made, and start to add some new techniques to your arsenal, either take a trip to North Carolina or pick up this book.

The Penland Book of Woodworking – Doug Sigler performing one of the bent lamination steps.

Kid Crafts Woodworking

John Kelsey
Fox Chapel Publishing
www.foxchapelpublishing.com
ISBN 978-1-56523-353-9

Many kids have the natural desire to learn about tools and make wooden objects, but as adults it's difficult to know where or how to start teaching. Kid Crafts Woodworking starts at the very

beginning, with short sections on, among other things, the properties of wood, gluing and metal fasteners. Nothing long or boring, just the basics, for a kid-length attention span. With straightforward paragraphs and clear, simple photos, the book goes on to discuss the safe usage of basic tools. Then comes the fun part – the 21 projects. Easy-to-follow instructions will guide your child through the projects, but there's no reason why you shouldn't be there every step of the way. Just don't get too eager and do all the work for them … it's their project after all.

Made by Hand

Tom Fidgen
Popular Woodworking Books
www.woodworkersbookshop.com
ISBN 978-1-55870-895-2

Made By Hand – Tom Fidgen cutting joinery with one of his favourite hand saws.

Tom Fidgen, a regular contributor to our magazine, works only with hand tools, so he has a slightly different way of looking at a project – and an honest respect for good, old-fashioned hard work. He seems to appreciate the small things in woodworking, gaining great satisfaction from a smoothly planed surface or a strong mortise and tenon joint, and it rubs off. Made by Hand takes the reader through the entire process of making six different projects with nothing but hand tools. He talks a lot about the philosophy behind his style of working and how you can bring some of the simple life into your next project. He doesn't hit you over the head with electricity guilt – he realizes that balance is what most people ought to strive for. Tom's welcoming, open writing style is also a nice surprise. It's almost like you're having a conversation with him right in your living room, discussing what really matters in woodworking.

Studio Furniture of the Renwick Gallery

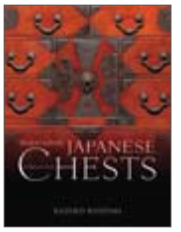
Oscar P. Fitzgerald
Smithsonian American Art Museum
Fox Chapel Publishing
www.foxchapelpublishing.com
ISBN 978-1-56523-367-6

The wide variety of landmark furniture pieces, no matter the style, is what makes this book so visually stunning. That, and the fact that all of the 84 pieces that comprise the collection are beautifully photographed and a short description about each maker and piece is included. Many of the great makers from the last 100 years are covered – Sam Maloof, Wendell Castle, Tage Frid, George Nakashima – as well as many lesser known makers. If you read this book one hundred years from now, I'm sure it would be as thought provoking as it is today. These are 84 great pieces, and this is one great book.

How to Choose and use Bench Planes & Scrapers

John English
Linden Publishing
www.woodworkerslibrary.com
ISBN 978-1-933502-29-8

Even in today's world of electric machinery, when most people were asked to name a woodworking tool, planes and scrapers would probably be at the top of the list. They are as useful now as they were years ago but, because of their electrified cousins, they are often overlooked in favour of a faster option. In this comprehensive book, John English explains what each type of plane is for, how to set it up for optimal performance and how to use it. The text is thorough and the photos are informative. All in all, this is a good read for a beginning or intermediate woodworker. Or a woodworker who simply never gave hand planes and scrapers a fair shake.



Traditional Japanese Chests – A Definitive Guide

Kazuko Koizumi
Kodansha International
www.kodansha-intl.com
ISBN 978-4-7700-3112-9

If you're even the slightest bit interested in the history of Japanese furniture, you will love this thorough collection of chests. The attention to detail is astounding, the photographs glorious and the historical insight intriguing. This is exactly what you would expect from a book that covers such a proud history of chest making on the land of the rising sun. Almost 100 pages of colour plates are complemented by information on typical construction materials, finishing techniques and regional characteristics. This book will please the antique collector, interior designer or woodworker equally.

Traditional Japanese Chests – A late nineteenth century step tansu made of zelkova.

Woodworking Business: Start Quickly and Operate Successfully

A. William Benitez
Positive Imaging
www.woodworking-business.com
ISBN 978-0-9842480-3-2

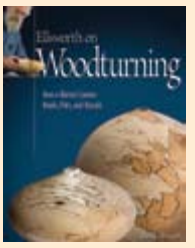
Woodworking Business is an informative, common-sense-based book that may answer many questions for the amateur woodworker who is considering going professional. This is not a gorgeous book. It doesn't have glossy photos or beautiful graphic design. What it does offer is practical, down-to-earth tips while forcing you to consider the toughest question of all: Is running your own business right for you? Chapter topics include Setting Prices, Contracting Jobs, Getting Help and Everyday Lessons. Although it's written from an American perspective, most of the information is pertinent to a Canadian reader.

Wood Art Today 2

Jeffrey B. Snyder
Schiffer LTD.
www.schifferbooks.com
ISBN 978-0-7643-3463-4

Wood Art Today 2 – Jerry Bennett's On and On, made from mahogany, maple, brass and acrylic paint.

Skirting traditional woodworking – sometimes seemingly allergic to it – this book shows you things you didn't think were possible with wood, and many things you wish you had thought of first. The variety of the finished pieces is wonderful and makes for a nice read. Including 89 artists in total, each brief section contains background information, inspirational thoughts and technical details on how each artist completes their work. Wood Art Today 2 covers furniture, turnings, boxes, sculptures and more. One of the things I like most about it is you can open it up to any page and start learning about a specific artist and the work they do. This one is a lot of fun.



Ellsworth on Turning – How a Master Creates Bowls, Pots and Vessels

David Ellsworth
Fox Chapel Publishing
www.foxchapelpublishing.com
ISBN 978-1-56523-377-5

Ellsworth on Turning – David Ellsworth uses many different tools to create his turnings.

David Ellsworth has been refining his style for years and now, with his first book, you get to see exactly how the "grandfather" of turning does it. Offering more than just turning information, a number of chapters in this book discuss topics that non-turners will be interested in. Having said that, turning is the main focus here. Ellsworth speaks to what he knows best – an open bowl, a natural-edge bowl and the highlight of the book, a hollow vessel with an impossibly small opening. He also covers basics like sharpening, design, finishing and more. One chapter even details the stresses that turning puts on the human body and how to get the most from this overlooked "tool". A crucial read for a wood-turner and an enlightening read for a woodworker.

The Complete Illustrated Guide to Woodworking

Gary Rogowski
Lonnie Bird
Andy Rae
Taunton Press
www.tauntonpress.com
ISBN 1-56158-602-1

Comprehensive is the only word to describe this three-book set on joinery, shaping wood and furniture and cabinet construction. The three authors answer questions you didn't even know you had. They also do it in a clear, concise and visually pleasing way. Even beginning to list the topics covered would be futile. Safe to say, if you want to learn about something that would fit under these three headings, this set will steer you in the right direction. Each book starts out with the basics and builds on that information, finishing off with quite advanced techniques.

Spray Finishing Made Simple

Jeff Jewitt
Taunton Press
www.tauntonpress.com
ISBN 978-1-60085-092-9

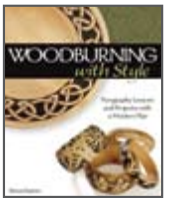
Finishing is often an afterthought and spraying a finish isn't exactly the first technique discussed when the topic does come up. While it's often easier to wipe on a couple of coats of finish and be done with it, there are times when spraying a finish makes the most sense. There are many advantages to spraying a finish but there are some drawbacks too. Spray Finishing Made Simple does what it claims – it takes an imposing, unfamiliar topic and makes sense of it. This book is for the first-time spray finisher, as it starts with the basics and progresses through the stages. Don't let the unknown stand in your way if you're interested in learning about spraying. Pick up this book and get spraying.

Wood Flooring - A Complete Guide to Layout, Installation & Finishing

Charles Peterson with Andy Engel
Taunton Press
www.tauntonpress.com
ISBN 978-1-56158-985-2

Wood Flooring – Many of these techniques, like making curved borders, will carry over to furniture making.

Another comprehensive book by Taunton Press, Wood Flooring is extremely informative, not to mention visually compelling. From subfloors to finishing, and everything in between, you can be sure this is the only book you will ever need on the subject. My favourite chapter was on inlays and curves: using jigs and templates to add circular inlays to a floor, laying out and installing laminated curves, even working with stone and metal inlays … there's a lot to learn in that one chapter alone. Much of it could be adapted to making furniture. If you want to lay a basic wood floor this book will help you add lasting value and beauty to your home. If you're looking to one-up your super handy DIY brother-in-law, you can start here too.



Woodburning with Style

Simon Easton
Fox Chapel
www.foxchapelpublishing.com
ISBN 978-1-56523-443-7

I will admit, I'm not a pyrography genius. In fact the last time I used a woodburning tool, it was Christmas Day and I was about five years old. It didn't go well. A lot has changed since then. The tools have improved, there is a large and growing group of woodburning artists and there are great books to show you the basics and inspire you to pick up the art of pyrography. Woodburning with Style is the perfect book if you're just learning. Not only will it teach you about the equipment available, it covers decorative techniques, lettering, portraits and more, before providing a chapter of inspirational projects and photographs to really get your imagination going. Pyrography is an art in itself but can also be used in conjunction with turnings, carvings or furniture making.

500 Cabinets

Ray Hemachandra
Lark Books
www.larkbooks.com
ISBN 978-1-60059-575-2

500 Cabinets – Greg Moffatt's Tall Oval, made from spalted sycamore and maple.

The ultimate in cabinet design inspiration. Fantastic photographs, coupled with a little bit of information on each piece, is more than enough to give you that nudge to go ahead and try something different with your next cabinet. From surface decoration to using different materials, non-standard shapes to unique finishes, there's a taste of everything for everyone. You won't learn how any of these pieces are made but it will make you wonder. 500 Cabinets is the extension of the "500" series by Lark Books and, like the rest, this one will delight readers of any skill level. It will even interest those who know nothing at all about woodworking. There are many Canadian makers included. This is a collection I'll refer to over and over again, because each time I look through it I'll do so for a different reason, getting something different each time. This one rarely makes my bookshelf … it's always right on my desk. And of the collection here, this is my favourite.

ROB BROWN
rbrown@canadianwoodworking.com

Inside-Outside Ornament

You don't have to tell your guests this delicate ornament was easier to make than Christmas dinner.

BY ALLAN CUSWORTH

By using the inside-out turning technique, you will be able to create a Christmas ornament with a visible decoration inside. The ornament in this project will be approximately 3" high with a little Christmas tree inside a 2" teardrop-shaped oval opening. I suggest you try the techniques on some scrap pieces of construction lumber before you start cutting into a piece of expensive wood. The learning curve can be steep but the results are certainly worth it.

I like to plan a project before placing any wood in the lathe because many design problems can be foreseen and solved ahead of time. I suggest that you at least make a sketch of your finished ornament showing the overall and detail dimensions for the outside and the inside.

The decoration for the inside can be a Christmas tree, snowman, candle or anything you can turn small. However, you must make sure that it is sized correctly to fit inside your finished ornament. There will be a chance to tweak that fit when you make the Christmas tree decoration later.

Preparing the Main Ornament Blank

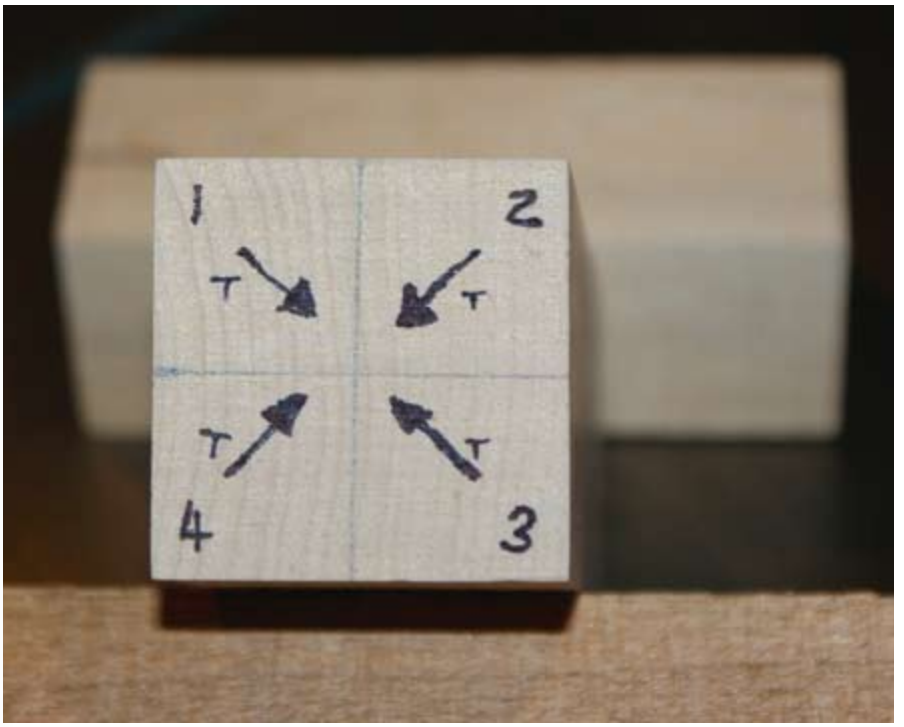
The project requires a blank of dry wood, 2" x 2" x 6" long, that is perfectly square on the ends and true; not twisted. It should also be clear of any knots or inclusions. This will make a 3" long ornament and will allow ½" at each end for the top and bottom embellishing, and 1" at each end for mounting in the lathe. If you are not concerned about the grain matching you can use four square pieces of equal size cut from a board instead of cutting all the pieces from one piece of wood.

Decide which end of the blank will be the top of the ornament and mark it. I placed a "T" on each of the sections. Number the outside corners and draw an arrow towards the inside corners so the grain configuration can be matched later in the reassembly process.

Cut the blank lengthways into four equal square pieces on a bandsaw or tablesaw using a fine-tooth blade to provide a smooth surface for gluing. Make sure the saw is set accurately at a 90° angle so the pieces will fit together accurately later. I always place the assembled blank in the lathe the same way: ornament bottom towards the chuck in the headstock, ornament top towards the live center in the tailstock.

Assemble the pieces so the four numbered outside corners are on the inside with the arrows pointing to the outside corners of the block. The blank is now oriented "inside-out". A small rubber band helps hold the pieces in place while the tape is applied. I use a thick one that held a head of broccoli from the supermarket. Wrap the top and bottom ends with painter's masking tape, making sure that the four ends are flush. Use a hose clamp to hold the "top" end of the blank. A size 32 works well for a 2" square block, and leaves only a small bit of the end sticking out. The hose clamp flap needs to be facing away from you when the assembly is in

Photos by: Allan Cusworth Lead photo by: Rob Brown



Get Organized – Number outside corners, add arrows pointing towards the inside corners and a "T" marking the top end of the ornament.

the lathe. After the hose clamp has been fitted on the piece, you can wrap it with some masking or filament tape for added safety.

There are a number of other methods that can be used to fasten the four sections together for the first turning step. They can be glued together using PVA yellow glue with paper in between the sections to absorb some of the glue making it easier to separate them later or the ends can be wrapped with filament tape or strong rubber bands. Some turners make a special disk-type jam chuck with a tapered square recess to clamp the tailstock end of the assembly when tailstock pressure is applied. I have experimented with some of these mounting methods and feel that the chuck-and-hose clamp method is the quickest and most secure way to do the first turning step, and is safe when used carefully.

Place the assembly in the 2" (50mm) jaws of a four-jaw chuck with the taped up "bottom" end towards the headstock with a cup-type live center in the tailstock. Be careful not to use a long sharp point that will increase the chance of spreading the four sections apart when applying tailstock pressure to the assembly.

For a 3" long ornament with ½" on each end for embellishment, the inside oval teardrop-shaped cut-out will be 2". Mark the location of the cut-out on the block and use a square to continue the marks on all four sides.

Turn the Inside Cavity First

With a ½" spindle gouge, cut out the teardrop oval shape of the inside cut-out profile. I like the lathe speed to be around 1500 RPM. A rule of thumb for cutting this shape is to cut about halfway through the elements when looking from the flat side. If the shape is cut out too shallow, the ornament walls will be too thick. If it is cut too deep, there will not be enough wood left for the wall of the ornament. It is a good idea to experiment with these cuts during your practice sessions with construction lumber. Hand spin the lathe before you turn it on to make sure the hose clamp turnbuckle does not hit the tool rest. Always be aware that there are square corners and a hose clamp turnbuckle ready to take a bite out of your fingers when the lathe is spinning.

The inside surface has to be completed now since it will not be accessible after the ornament has been reassembled.

Inside "Out" – Assemble the blank with the inside corners on the outside and dimensions for the inside oval cut-out marked.

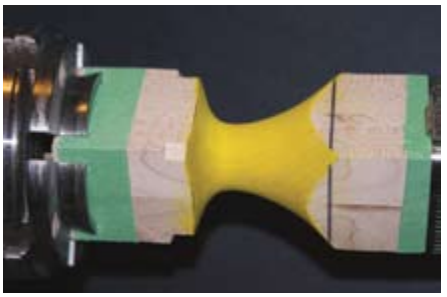
Slow the lathe down to about 800 RPM and sand the "inside" surface, starting with a grit size that will remove all the tool marks and progress to 320 grit. Note that each grit size in the progression should not be more than 50 percent finer that the previous one or you will leave scratch marks.

Finish the inside surface as desired. I used yellow craft paint, which is available from most hobby or craft supplies stores. I want a flat, non-shiny interior surface for my finished ornament. You can also use a dye, a stain or any other finish you like. I have used leather dye for a flat black finish. Note that dyes and stains can bleed through the thin walls to what will be the outside surfaces. In that case you will probably need to paint the outside surfaces. Always test finishes on a scrap piece of the same wood first.

We need to prepare the ornament for the installation of the Christmas tree decoration inside. To do this, make $^{1}/_{8}$" deep x ¼" chamfer on the inside corners, at the bottom end. This is the corner with the arrow pointing to it. This will create a ¼" x ¼" deep square opening. The hole will be square but it will fill with glue and hold the decoration in quite well when we glue it in later.

Reassembly

Take the piece out of the chuck and remove the hose clamp and tape from both ends. Make a $^{1}/_{16}$" chamfer on the inside corner of the "top" part of each section by rubbing it on a piece of sandpaper on a flat surface. The arrows are pointing to the inside corners. This will create a small hole for centering the blank in the live center and will guide the installation of the ornament hanger loop later. If you sand the chamfer along



Create a Colourful Cavity – Turn the inside oval cut out and finish the surface. Notice the chamfer for installing the centerpiece

Turn the Centerpiece – Turn the Christmas tree decoration or whatever you want to have in the center of the ornament.

the whole blank, there will be hole in the bottom of your finished ornament.

If the face sides of the two flat sections are not perfectly flat, touch them up on a piece of 150 grit sandpaper on a flat surface. Assemble the pieces so that the arrows are pointing towards the center. The block will now be back in its original position with the grain closely lined up. Permanently glue and clamp sections 1 and 2 together, and then 3 and 4 together to make two flat sections with PVA yellow glue. Allow these two sections to cure. Before gluing these two flat sections to each other, we need to make the Christmas tree decoration.

Making the Decoration for the Inside

Clamp a piece of scrap wood 1" x 1" x 3–4" long into the 1" (25mm) chuck jaws to make the Christmas tree decoration. There are many cutting techniques for making Christmas trees. I like to make mine using a skew to cut uneven layers of branches. I place one of the half sections close by so I can take some measurements with a vernier calliper to make sure that its outside dimensions will fit in the area at the bottom of the teardrop oval created in the first turning step. The last step in completing the decoration is to make a ¼" tenon at the base that will fit into the ¼" chamfered square hole. Use a vernier calliper to verify the fit. If you made the chamfer too large you can adjust the diameter of the tenon to fit.

Part off the Christmas tree and wrap its tenon with painters' masking tape. Colour the decoration. The colour should contrast the finish on the inside surface oval area of the ornament. I used green craft paint. You can add some coloured balls by using 3D Fabric Paint or, if you really want to be "cool", make some garland using silver or gold Glitter Glue. These supplies are available at most hobby and craft stores.

After the Christmas tree's paint is dry, remove the masking tape and glue the two flat pieces together using PVA yellow glue with the decoration glued into the chamfered hole. A little extra glue in the corners of the hole will fasten it in. Make sure that you get glue all the way to the inside edges of the inside teardrop oval cavity but do not over-glue since glue squeeze-out will be very difficult to remove from the inside of the finished ornament. Clamp it up and let the glue dry completely before proceeding.

Now Turn the Outside Surface

Place the glued-up assembly in the 2" (50 mm) jaws in a four-jaw chuck with the ornament bottom towards the headstock using the same tailstock cup-type live center configuration as before. Do not apply too much tailstock pressure as it may split the glue joint.

Turn the outside profile of the top section according to your sketch. Set the lathe speed at around 1500 RPM and take light cuts. Use the ghost image of the inside surface profile as a guide when the lathe is spinning and stop the lathe frequently to check your progress. Make the finial at the top with a large diameter so the glue joint will remain strong and there will be some wood available for drilling a hole for the ornament hanger loop. When you create the icicle at the bottom of the ornament (at the headstock end) it is a good idea to make it large enough for a strong glue joint where the decoration was glued in.

Outside "Out" – The glued-up assembly is ready to turn the outside profile.

Parting Ways Can Be Difficult – Carefully part off the ornament into your waiting hand.

Sand the outside surfaces very carefully since you will be sanding a lot of air. Sand through the grits as before to 400 grit if you want to get a smooth

Finish the Outside – Now you're ready to finish the outside with a contrasting finish.

finish on the outside surface. Stop the lathe after each grit size and sand with the grain to help reduce scratches. I have left some of the sanding marks on the ornament to give it a spun-type textured finish.

Slow the lathe speed to around 250 RPM and separate the top end of the ornament away at the tailstock end with a skew. Support it lightly with your hand to prevent whipping and sand the end carefully. Using the skew, pare down the bottom end of the ornament at the headstock end and let the ornament fall into your hand. Sand the bottom tip by hand.

Complete the top end by hand drilling a small hole to fit the ornament hanger loop. Use the little chamfered hole at the center as a guide. I used a $^1/_{16}$" drill bit with the shank held in a pin vise. Work slowly so the top of the ornament does not split apart.

My hanger loops are made by twisting 24 gauge brass wire with beading pliers to make an end to glue in the hole. However, the hanger loop can be a small brass screw eye, the loop end of a fish hook or any other type of ornament hanger loop you desire. You can also drill the hole right through to the inside and use a piece of fancy string with a large knot at the end.

Use Protection – Use facial tissue to protect the centerpiece from the exterior finish. A lacquer spray can works well on this delicate ornament.

Finishing the Outside

The outside of the ornament can be painted or finished naturally. If paint is to be used, I suggest that it be a gloss type to create a contrast with the flat inside colour. The colour should also be a contrasting colour. I have brushed on gold lacquer based paints with great success. If a clear lacquer finish is desired, place some pieces of facial tissues in the four oval holes to cover the decoration. You can use tweezers to help the tissue cover the inside edges. Fasten a fishing tackle swivel to the ornament hanger loop, hang the ornament in a well ventilated area, and lightly spray it a few times with it spinning. Lacquer dries very quickly, so quite a few coats can be applied a short period of time.

After the finish has dried completely, you will have a Christmas ornament that you have turned inside-out. Your friends, relatives and just about everyone else who is not a woodturner will wonder how you carved out the inside of this beautiful piece of work. Make a number of them using different cutting depths and shapes, blank sizes, ornament styles, colours and finishes. The design opportunities are almost endless.

ALLAN CUSWORTH
acusworth@telus.net

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Making Compound Curves

An accurately made form and a healthy dose of planning both play important roles in producing furniture parts with compound curves.

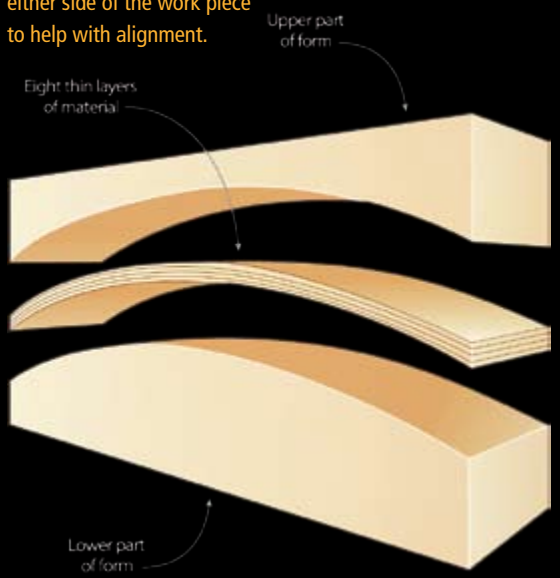
BY ROB BROWN

Dress the material on all four sides, then **resaw it into thin, flexible strips**. The thickness of these strips will depend on the severity of the bend and type of species you're working with but a multiple of the strips should equal the thickness of the finished piece. Cut one strip and test bend it against the form to get a starting point. If it's difficult to bend, or if it breaks, you will need thinner strips. Thinner strips also have less "memory", which will reduce spring-back. The laminations for this table have been machined to 3/32" thick, so eight layers will form the ¾" thick part. In terms of width, you will need to mill the parts much wider than you initially think because after the first glue-up you will have to resaw the curved blank into narrow strips, then plane them flat so they can be glued up a second time. This second resawing process removes approximately half of the material. When in doubt, start with wider material.

For stage one of the glue-up, the set of laminations are glued between two forms. These two forms will be used for both stages of the glue-up. The radius on each form's face differs by ¾" (more importantly, the final thickness of the laminated furniture piece). A trick to help keep the colour and grain of the part consistent is to keep the laminations stacked in the same order they're initially cut from the rough stock, then re-glue them in that same order.

If you can, scrape the glue from your lamination before it dries hard. When completely dry, joint one edge and rip the other side of the curved blank on your table-saw, giving you

Two Stages, One Form – This is the set-up for the initial glue-up. During the second glue-up a liner will be inserted on either side of the work piece to help with alignment.



Lead Photo by: Michel Visser Interior Photos by: Kathy Ward Illustration by: James Provost

Resaw Into Thin Strips – After you formed the initial bent lamination resaw it into thin strips and prepare them for the second lamination.

Lots of Clamps – The blue F-clamps apply pressure to the top section of the form (above), while the orange bar clamps apply pressure to the liner (below). The red toggle clamps help bring the liner together while aligning the thin strips. Left and right legs are made.

A Liner Keeps The Strips in Order – Half of the liner (right half, in photo) is screwed to the form while the other half is clamped in place, precisely positioning the second glue-up.

two parallel, square sides. With your planer, dress both jointed and sawn edges to ensure you are dealing with smooth surfaces. Resaw your curved lamination into narrow strips the same thickness as the first batch – in this case 5/32". After each cut, re-plane the freshly cut surface of the blank before you cut the next lamination from the blank. Once all the strips have been resawn, plane the rough surface of each strip so each piece is 3/32" think. The easiest and safest way to do this is with a false bed surface in your planer made from ¾" melamine. With a cleat on the underside, the false surface will raise the thin strip to the blade (most planers will not lower the blade close enough to the bed) and support these thin strips. Don't stand directly behind the planer when machining very thin strips, as there's a slight chance the rotating blade could cause kickback. It's also a good idea to make a few extra strips just in case this happens.

To laminate these curved pieces together and form a compound curve, you will need to add a liner to the jig. The liner's only purpose is to align the laminations while they're drying. The thickness of the liner should be the same, or slightly less than the thickness of the final piece being glued up – two pieces of 3/8" wiggle board for this ¾" thick leg. Glue the pieces of wiggle board to each other in the form, making sure not to glue these layers to the form. When dry, screw both sides of the liner to the form, leaving screws as far from the centerline of the form as possible. With a template cut to the same radius as the curve required, screw it to the liner and use a router and template bit to machine the groove. The template bit must be the same width as the finished part – ¾" in this case. More than one pass may be required. During the second glue-up stage, the laminated strips will be held in this cavity. Remove the screws from one side of the liner. This loose side will be clamped against the laminations during the second glue-up, sandwiching the laminations between the two sides of the liner, perfectly aligning all the layers. Apply glue to the curved strips and place them in the groove. Masking tape will assist with keeping the strips positioned while you fiddle with getting the clamps positioned. Carefully apply pressure to the loose liner and the upper half of the form, capturing the laminations in the groove. Applying packing tape to the liner parts and forms will keep everything from becoming one. Since the lamination is completely enclosed, 24 hours is needed for the glue to dry. The finished lamination should only need minimal shaping after it is cut to length.

If you are unsure about the procedure practice with some cheap lumber – 2x4 material works great – before you slice into that last board of curly koa.

Glenn Ward is a custom furniture maker in Waterloo, ON. **www.eidosdesignstudio.com**

ROB BROWN
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www.duragrit.com/cw

Bosch **10-piece Daredevil Spade Bit Set**

Bosch re-invents the Spade Bit with the DareDevil! The difference between a DareDevil spade bit and a standard spade bit is immediately recognizable, even in the package! The full conical threaded tip pulls the bit through the wood for fast effortless drilling – requiring 53% less force than a standard spade bit and drilling up to 10 times faster! – a benefit that will be noticed the first time you use the bit overhead. The DareDevil horns aren't just for show either – they're spurs and reamers which score the hole before drilling through resulting in cleaner holes, perfect for plumbing and electrical work. The Bosch DSB5010 10 piece set includes all the 6" long bits needed to get started.

Why it's hot: Faster drilling, requires less effort, and produces a cleaner hole! A great spade bit set for plumbers and electricians, or for the Do-it-yourself'er!

$29.99 MSRP

www.boschjoethepro.com

DELTA **Planer**

DELTA Machinery introduces a new 13-inch Portable Thickness Planer that delivers superior precision required by today's woodworker. The new premium planer (model 22-590), designed with exclusive patent-pending features, boasts ultra cut quality to minimize snipe and maximize ease of use, accuracy and capacity in the workshop.

Why it's hot: A combination of extensive field research and the brand's woodworking history ensures premium cut quality and precision as critical requirements of planers, and the 22-590 delivers on these needs and more for today's woodworker.

$599

www.deltaportercable.com

General **Cabinet Saw**

This new General International 2 HP cabinet saw features a full cast-iron table, cast-iron cabinet mounted trunnions, European style riving knife, arbor lock for one-tool blade changes, and a sturdy T-style rip fence.

Why it's Hot: With its 2 HP dual voltage motor (pre-wired for 230V), the 50-200R strikes a great balance between power, precision and affordability. Whether looking for a first "serious" saw or to upgrade from an existing unit, the 50-200R may be an attractive option for many shops.

Special introductory price $999.99 (plus applicable taxes) until Feb 28th, 2011 (at participating General International retailers).

www.General.ca

DEWALT **New Compact Router**

DEWALT's new Compact Router combines power, ease-of-use, ergonomic features and innovations designed for visibility, control and overall performance. The new router features a 1-1/4 peak HP motor that delivers significantly more power than competitors' models to ensure users be as productive as possible. Additionally, variable speed control and a low, contoured gripping surface allow professionals to experience increased control compared to existing models.

Why it's hot: Knowing that its end users requested improved visibility and accuracy over competitors' units, DEWALT's new compact router features dual LEDs to provide ample illumination on the work surface, and an extended ¼-inch router collet. The router collet provides greater bit contact with the router bit shaft than traditional routers, allowing users less vibration.

Model DWP611 - $159

Model DWP611PK - $229

www.dewalt.com

Stockroom Supply **Little Ripper**

Turns Logs into Lumber!

The Little Ripper is a Canadian-made product which is simple and easy to use. This jig is a must for anyone who enjoys the challenge of seeing a project through from the beginning to end, especially the hobbyist who wants to build a project with wood not available at their local supplier.

Why it's Hot: This product and method guarantees straight safe cuts on any upright bandsaw.

It is ideal for resawing logs and lumber.

To really see why the Little Ripper is so popular, watch videos and online demonstrations on our website, listed below.

Manufactured in Canada

Distributed by Stockroom Supply

Includes Sliding Table Accessory and a free High Tungsten Blade

$349 (Free Shipping)

www.StockroomSupply.com

BlackJack **Shelf Pin Drilling Jig**

This 20" long drilling template and bushing guided drill bit allows the user to drill rows of holes perfectly spaced on the industry standards of 32mm (1-¼") centers and at 37mm (1-7/16") or 64mm (2-½") from the edge. Indexing holes for the included ¼" drill or the optional 5mm drill allow the user to drill an unlimited length of holes.

Why it's hot: The BlackJack Shelf Pin Drill Jig is the fastest and easiest way to drill shelf pin holes before or after the project is finished. No other jig is this portable or convenient. It takes all the guesswork out of drilling shelf pin holes.

$29.99
www.BlackJackCompany.com

Rosewood Studio **Five Day Course**

Rosewood Studio's five-day "Excellence With Hand Tools" is a practical, hands-on course teaching proficiency and accuracy in the tuning and use of planes, chisels, scrapers and saws. From what sharp is and how to achieve it, to hand cutting dovetails, the $760 tuition fee covers all materials and the use of a top quality kit of hand tools.

Why it's Hot: This is our most popular class for woodworkers at all levels. Mastering hand tools adds accuracy, efficiency and pleasure to woodworking, even for the "plugged in" craftsman. We shorten the learning curve so students can stop struggling with their tools.

www.rosewoodstudio.com

Benchmark **Acuralevel**

Everyone needs a good level, and the new Benchmark Acuralevel measures up. The level features a zero to eight percent adjustable grade finder, LED illuminated center vial, and magnetized frame with ruler. Also included is a protective carrying case.

Why it's Hot: A lighted vial makes sense when working in dimly lit areas such as basements, walk-in closets, attics and work sheds, the percentage grade finder allows for easy calculation of slopes, especially helpful on drainage projects, and the magnetized frame frees up an additional hand when working with conduit or metal shelving.

$19.97
www.homehardware.ca

Wolverine **Grinding Jig**

Producing razor sharp tools and finely finished bevels has moved from an art to a science. Any grinding job from skews, scrapers, bowl gouges or roughing gouges are all easy prey for this jig. The WOLVERINE will speed up your grinding, give you sharper tools and prolong the life of both tools and grinding wheels.

Why it's Hot: Makes sharpening skews and gouges a snap, which means less time grinding and your tools last longer. Easy to set up. The best investment an amateur or occasional woodworker can make.

$87.95
www.oneway.ca

Forrest **48-Tooth Woodworker II**

Forrest Manufacturing has taken its award-winning general-purpose saw blade to a superior level of performance. The new 1048 Woodworker II has more teeth, a higher bevel and sharper points than the original 40-tooth Woodworker II, making it exceptionally good for cross-cutting everything from soft woods to plywood. It cleanly slices through wood fibres and operates quietly with virtually no vibration.

Why it's Hot: Cross-cutting involves severing the fibres in the grain, often resulting in splintering or a fuzzy cut. The 48-tooth Woodworker II eliminates those problems. It also produces smooth rips without side scoring or splintering, making it a good all-purpose combination blade.

Price: $134.00
www.ForrestBlades.com

Festool **Dust Extractors**

Featuring standard equipment HEPA filters and Self-Cleaning filter bags, the new CT 26 and CT 36 Dust Extractors from Festool are engineered to filter 99.97 percent of dust and fine particles, delivering near dust-free results for sanding, routing, sawing and more. The updated units deliver best-in-class suction, tool-triggered autostart and variable suction control, helping users efficiently achieve the best possible results.

These brand new Dust Extractors from Festool represent the most evolved, most complete dust removal system available today. Breathe easier and increase your productivity by upgrading to a system designed with dust control as a top priority.

For additional details and pricing, visit:
www.festoolcanada.com/ct

Bosch **9+2 All-purpose Reciprocating Blade Set**

From Bosch – the inventor of the jigsaw blade – comes the latest innovation in reciprocating saw blades. The Bosch RAP9EPK reciprocating blade set includes two of THE EDGE metal cutting blades: one clean cutting, one metal demolition. EDGE blades have increased heat resistance resulting in extended blade life in metal cutting. These blades start sharper, and stay sharper longer.

Why it's hot: A high quality, enduring Swiss Made recip blade for every purpose, and a pouch to put them in – a great all-purpose general usage set for the pro or gift idea for the handyman!

Also included in this set are five standard 6" Metal cutting blades, two 6" and one 9" wood-with-nails blades, and an all-purpose 9" blade.

$29.99 MSRP

www.boschjoethepro.com

Benchmark **Acuratape**

The 25 foot Acuratape features an LED light and magnifier for easier reading, a pencil holder and pin point scriber for accurate marking, a magnetic tip, and a shock absorber blade return mechanism.

Why it's Hot The pencil holder and pinpoint marker are great for accurate marking, laying out circles and scribing straight lines. The LED light illuminates the magnifier allowing measuring, even in poorly lit areas. The Benchmark Acuratape is now available in an imperial/metric version.

$17.97

www.homehardware.ca

Craftex **10" Table Saw**

This 10" table saw features a powerful 1.5HP TEFC motor, solid cast iron table, solid cast iron extension wings and a smooth gliding fence with micro adjustment. Large hand wheels, up-front controls, multi position ON/OFF switch, tool-free blade change and overall high quality construction make this saw a winner in any workshop.

Why it's Hot: The CT146 contractor's saw combines power, precision and overall high quality at a fantastic price. Complete with an absolute dream for a fence, this has been one of our best sellers.

On sale for only $599.

Drop into one of our showrooms or visit us at www.busybeetools.com

Dura-Grit **DuraDisc 5" Carbide Sanding Discs**

with Heavy Duty Hook & Loop Kit

Your random orbital sander or bench sander has never seen anything like the carbide DuraDisc™ from DuraGrit. With DuraGrit's Carbide Fusion Technology™, it will sand through your entire project. DuraGrit's testers sanded more than 10,000 feet of wood with a single disc, which looked barely used afterwards and still performed like new!

Why it's Hot: Sand hard and soft wood with your ROS. Shape and grind wood, plywood, fibreglass, laminates, wall tile, rubber, leather and many more materials on your bench sander. You'll have trouble running out of ways to use them!

Available in 46,60,80,120 & 150 grit – all five- & eight-hole compatible.

$24.98 ea. USD

www.duragrit.com/cw

DELTA **Drill Press**

DELTA Machinery introduces the new 18-inch Laser Drill Press – once again raising the bar in the drill press category - with features that include the patent-pending industry first Auto-Tensioning Belt Drive System, a full six-inch quill stroke and DELTA's oversized woodworker's table.

Why it's hot: "Our most advanced drill press to date, the DELTA 18-900L encompasses a total package of features technologically designed to meet and exceed the demands of today's woodworker, including the need for capacity, accuracy and ease of use," said Clyde Arceneaux, DELTA product manager.

$899

www.deltaportercable.com

Skil **Flooring Saw**

Rip cuts, mitre cuts and cross-cuts all in one innovative tool! Developed using SKIL's renowned cutting heritage, the new SKIL flooring saw cuts solid, engineered and laminate wood flooring. Its dual sliding rails provide accuracy and effortless operation for cross cuts and mitre cuts and its innovative locking system secures saw on rails for rip cuts.

Why it's Hot: Completes most cuts for a flooring installation – and it's portable! Only 25 lbs, designed to work in the room you're flooring, and has integrated handle for easy transport. Professional or a DIY'er, you are going to love this tool!

Suggested Retail $199

www.skiltools.com

Festool **Plunge Cut Saw**

Lightweight, accurate, and easy to handle, this Plunge Cut Circular Saw's portable design offers the precision and capability you'd expect from a traditional table saw, mitre saw, or panel saw, with the portability of a handheld circular saw. This guide rail-based system is ideal for breaking down sheet goods, ripping long boards and making angled or even compound cuts.

The latest evolution in a category Festool created in 1964, TS 55 EQ continues to gain ground among jobsite and workshop users who value precision, convenience and efficiency.

For additional details and pricing, visit:
www.festoolcanada.com/ts

STANLEY **FatMax Xtreme Tape Rule**

The STANLEY® FatMax® Xtreme™ Tape Rule features 13 feet of standout and a Mylar® polyester film wrapped blade with Blade Armor™ coating on the first six inches to protect the blade from wear and tear.

Why it's hot: With tape rules, standout length is the key factor. It's the feature pros use to gauge tool quality, and general users need to get the job done. With today's increasing shift in standard building materials from 8 foot lengths to 10 foot and 12 foot lengths, it makes it easier for a single user to get the job done, without requiring assistance on every measurement.

Available at all home improvement and general retailers across Canada.
Price is $29.99
www.stanleyhandtools.ca

shoptested

Peugeot **Bevel-Edged Chisels**

by Ted Brown ✪✪✪◐☆

I recently received a number of Peugeot bevel-edged chisels, which are available with a chrome vanadium blade or a titanium alloy blade. In order to evaluate the tools, I prepared them using a set of Japanese water stones. After removing a varnish coating, I flattened the blade backs using a 1000 grit stone, followed by a 4000 grit water stone. The backs of the tools were easily flattened with just a couple of minutes' work. I applied a micro-bevel to the 25° cutting edges using the 4000 grit water stone.

The titanium version felt harder during the preparation and took about 50 percent more time to achieve a keen edge. Both of the tools cut well, producing a fine shaving from end grain pine. The chisels come with a choice of either a wooden or composite handle. I preferred the feel of the wooden-handled tools when struck with my Japanese chisel hammer; however, the aesthetic is completely up to the buyer. These chisels will compete against the German 2-Cherries or Hirsch brands.

Photo by: Ted Brown

Coming Events

The Hamilton Woodworking Show
January 28, 29, 30
Canadian Warplane Heritage Museum, Hamilton, ON
www.hamiltonshows.com

The London Woodworking Show
February 11, 12, 13
Western Fairgrounds, London, ON
www.woodshows.com

Kitchener-Waterloo Woodshow
March 11, 12, 13
Bingeman Park, Kitchener, ON
www.woodshows.com

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

Evolutionary Performance. Revolutionary Design. Unquestionable Breakthrough.

POPULAR MECHANICS
BREAKTHROUGH AWARDS 2010

Introducing the Bosch 12" Dual Bevel Axial-Glide™ Miter Saw. Another game-changing breakthrough from the innovation leader. Carpenters, remodelers and cabinet and furniture makers alike will marvel at our new patented Axial-Glide™ system, featuring a robust cast aluminum arm with sealed ball bearings to deliver durable precision and unprecedented smooth travel and control at all angles. Upfront bevel controls make adjustments quick and easy. The rail-less design of the GCM12SD achieves an amazingly compact footprint – up to 12" smaller than competitive saws. Evolutionary performance – revolutionary design – by Bosch. Learn more at **www.boschtools.com/glide**

BOSCH
Invented for life

ROUTER BIT COMPARISON

With so many choices, what bits should you buy? After a battery of tests, here's what I would recommend.

BY ROB BROWN

After running well over half a mile of material past a total of ten router bits, I have a much better idea of what bits leave the smoothest profiles – out of the box and after a lot of hard use. I tested ten router bits, all of which are commonly available in Canada. Some of the details I found along the way surprised me. Keep in mind that it is not only the scores after the test that are important; the scores before the test are crucial as well because that is when the expectations are high. We all expect a new router bit to be working at its best, creating silky smooth profiles with ease when brand new. As I found out, that's not always the case.

The Process

In order to reduce variables, I used a classical roman ogee from each manufacturer. Each bit had a ½" shank, except for the Mastercraft, which had a ¼" shank. Not all manufacturers make the exact same profile, but to reduce differences, the diameter of the cutting circle was as close to 1 ½" as possible. Each bit was installed in a router table and was used to machine its profile in 320' of MDF. A power feeder was used to obtain consistent results across the test, and to save my poor shoulders. I glued up a test panel of hard maple, mahogany, cedar and oak so I could get a good cross-section of results from the end grain of four popular materials. I tested on end grain because it is more difficult to machine and I felt I would end up with larger variations between the

Photos by: Rob Brown

profiles, which would make it easier to see the differences in each sample and grade them accordingly. I set the bit to machine an appropriate depth of cut, took the initial test pass, then fed 320' of MDF past the bit and then repeated the end grain test pass on a fresh solid wood edge. I used MDF because its high percentage of abrasives make it hard on cutting edges. After each test cut, I removed the freshly machined edge and numbered it so I could send it to two seasoned woodworkers to judge. Our numbers were averaged to give a final score.

Many Differences Off-the-Shelf

Comparing the initial test cuts gives me their "off-the-shelf" performance, and there were substantial differences. Some bits machined a perfect edge, as you would expect. A few bits left unacceptable surfaces for a brand new cutting edge. The worst performer was the Mastercraft, which was the only off-the-shelf bit to leave small checks on the routed surface of most of the species. The new Mastercraft, Power Sonic and Elite bits left small ridges on the surface, caused by nicks in the blade. The rest of the bits produced at least an acceptable edge that could be sanded and finished with minimal effort. Three bits – Freud, Dimar and Lee Valley – left a flawless surface.

Listen Carefully

As I fed the MDF past the bits, the only thing I could comment on was the sound the router made as it spun each bit. All ten bits started off sounding smooth and even but as the test progressed there where a few who stood out … for the wrong reasons. The Mastercraft, Power Sonic and Elite bits all caused the router to work extra-hard, starting about half way through the MDF test cuts, even though the 3 ¼ HP router with electronic speed control was providing what should have been more than adequate power. This indicates the edges were losing their sharpness, causing the router to work very hard to try and maintain proper speed. All the bits made it through the test though.

MDF Torture Test

After making mountains of sawdust, I was really looking forward to seeing how the bits would compare to each other. I scored the ten profiles, then sent them out to Scott Larry of Larry's Electric, a woodworking retailer in Peterborough, and Matt Dunkin, owner of Green By Design, a construction company, so they could give each profile a score out of ten. For the most part, we all agreed on where the profiles ranked. All bits produced worse edges after the test but the scores didn't degrade at the same level. The CMT profile dropped by over four points, while the Blue Tornado and the Mastercraft edges fell by less the one point. Most profiles dropped by between two and three points. An edge rating that drops only a little after the test indicates its edge was more malleable and degraded slower – regardless of how good the initial edge it produced was. A larger drop in rating indicates the carbide is more brittle and will stay sharper to a certain point, then drop drastically. These numbers are relative to how good the initial edge was and show what the trend is. Although there is some relevance to these numbers, the most important factor is the overall score of the edges after the test took place. The CMT, Power Sonic, Elite and Mastercraft

Wearing Down the Edge – Each of these ten bits were subjected to 320' of MDF followed by a solid wood end-grain test cut to determine a winner.

Manufacturer	Cost	Before-test Rating	After-test Rating	Overall
Freud	$85.00	10	8	18
Dimar	$72.00	10	6 ⅓	16 ⅓
Lee Valley	$39.80	10	6	16
Woodpecker	$24.95	9	6 ⅓	15 ⅓
Samona	$48.99	9	6	15
Blue Tornado	$24.99	8	6 ⅓	14 ⅓
CMT	$55.00	8	3 ⅔	11 ⅔
Elite	$12.99	7	4 ⅓	11 ⅓
Mastercraft	$39.50	6	5 ⅓	11 ⅓
Power Sonic	$29.99	7	4	11

Best Overall – Freud
Best Value – Woodpecker

Big Differences in these Small Bits – After the torture test, a lower quality bit leaves burns, whiskers and a slightly rough edge on this red oak sample (lower right). A good bit left a much smoother surface with virtually no burning, whiskers or checking (upper left).

edges would all need an incredibly high amount of sanding to produce an acceptable edge. A combination of burning, checking, whiskers at corners and uneven surfaces were left by these bits. In most cases, the profile seemed like it was burnished more than cut, due to the previously keen cutting edge being dulled dramatically.

Faring better than this quartet was the Samona, Woodpecker, Lee Valley, Blue Tornado and Dimar bits. These five bits all produced edges that could be sanded and used without too much trouble. Minor burning, checks or whiskers were left on the edges, which isn't surprising considering the abuse I hurled at them. What was surprising was the Freud edge. It had very minor imperfections and would need nothing more than a light sanding to be considered ready for finishing. All these bits had two cutters, except for the Freud, which had two main cutters and two secondary cutters.

Steady as She Goes – A powerful router and power feeder helped machine consistent results – something that's very important when trying to obtain a quality edge.

These cutters obviously helped spread the work around, increasing the time it takes to dull the cutting edge. All three of us scored the Freud profile the highest.

When buying a bit, initial price is just the starting point. How good will the initial profile be? How long will that bit stay sharp? Will I use this bit often or only seldomly? Is the carbide thick enough to sharpen numerous times? Hopefully some of these questions will be answered by the information I've found. Now, if someone can help dig me out of this mountain of sawdust, I would appreciate it.

Thanks to the manufacturers who made this bit comparison possible. King for the use of a power feeder, Bench Dog for their router table surface and Freud for their router.

ROB BROWN
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Polishing and Buffing a Finish

With the right tools and a systematic approach, it's not hard to get that gleaming finish of your dreams.

BY MARTY SCHLOSSER

As with all fine finishes, preparation is key. You simply cannot achieve a deep shine without the underlying surface being smooth and completely free of surface glue. You have two tools to select from: a well-tuned scraper or sand paper. If you sand, you need to progressively work your way to 320 grit before the wood is ready to accept your finish. That is, unless you're planning to stain the wood before applying the top coat, in which case you need to stop at 180 grit. Anything finer than that and the ability of the stain to effectively colour the wood is going to be limited. Then, ensure the stain is fully dry – at least overnight – before applying the top coat of your choice. My final guidance on sanding is this: when sanding with machinery, regardless of whether you're staining, always do a final hand-sanding with the grain to ensure there'll be no sanding swirls to contend with.

What You'll Need

- Wet/dry sandpaper in grits 220, 320
- Automotive-style polishing pads in grits 500, 1000, 2000, 5000
- Buffing pad, suitable for mounting on polisher, or variable-speed, random orbit sander
- Buffing compound, available at most automotive supply houses

The Correct Top-Coat

You can't achieve your desired mirror-like finish with an oiled or waxed surface. What is called for here is a film-forming finish that dries hard: lacquer, urethane or shellac. And of those, the ones that leave no witness lines (those telltale lines left as polishing cuts through successive finish layers) are best. You'll hear terms such as "burn-in" bandied about by suppliers and finish manufacturers to describe finishes whose successive layers bond together to form one unified thicker layer. To be perfectly honest, I've had very few finishes show witness lines, and of those that did, I believe it had more to do with having

Photos by: Marty Schlosser

Polishing Pads – To polish the surface you will need to use very fine abrasives – 500 grit to 5000 grit – for the first step of the process.

waited beyond the manufacturer's recommended waiting time between coats than the finish's lack of burn-in characteristics. Polyurethanes are most particular in this regard; don't wait until you need to sand between coats but reapply the next coat as soon as the manufacturer indicates you may proceed, as long as the previous coat really is dry.

You need to apply enough coats to ensure there is enough finish for the polishing and buffing stages to work with, and if you're dealing with a porous wood like oak you will have to fill the grain beforehand. Before you start the buffing process, the surface must be flat, with no visible grain. As you'll find out, the buffing process removes a certain amount of finish; if there's not enough, you'll go through the finish to the bare wood and have to start all over again. As is the case with virtually all finishes, several thin coats are preferable to fewer thick coats. Because thicker coats require more time to dry, more airborne dust will settle on their drying surface. Those minute dust "nibs" need to be cut down before you move onto applying successive layers of finish, so deal with them once they are dry by using sandpaper one grit level finer than what had been used on the bare wood. Better yet, deal with dust "nibs" by heeding my advice about applying thin coats – "an ounce

Buffing Pads and Compound – For the second step, pads and compound are necessary to bring out and fine-tune that high-gloss look.

Opposing Edges – To polish a more intricate edge you will need to use a wood block with the mating edge to get into all the corners and curved areas.

of prevention is worth a pound of cure" – and there should be almost none to deal with. Allow your topcoat to cure for a few days; a full week or more is even better or else the finish will be still too soft to take an effective sheen.

Waterborne or oil-based topcoat?

I may as well deal with this question right away, as more and more woodworkers are turning to waterborne finishes. The fact of the matter is that I have had equal luck in polishing and buffing both waterborne and oil-based topcoats alike, and the application of them is similar. So, your choice of one over the other needs to be based on other issues. Once you've selected your topcoat, go ahead and apply it using spray, brush or rag depending on the manufacturer's recommendations and what you feel most comfortable with. If brushes are your applicator of choice and you're applying a waterborne topcoat, I've found that going over the area one last time with a slightly finish-dampened (not fully wet) foam brush removes any trace of bristle brush marks.

Dealing with Finishing Errors

You can't expect your finish to take on a piano-like shine if you've got drips and runs all over the place. If you have any, then cut them off using a sharp chisel or take out your trusty scraper and scrape them off, being careful not to take off any more finish than is absolutely necessary. If you find there are several to deal with, you'll probably need to apply another final top coat before proceeding with the polishing.

Proper Polishing – From Coarse to Fine

At its simplest level, polishing is merely sanding with progressively finer abrasives. My polishing system calls for dry, water-free products and I am especially impressed with the Abralon sanding pads. Mount a 1000 grit polishing pad on your sander or polisher and set the speed to low and turn your machine on before touching down on the surface. Start your first pass at the left end, bottom corner and work your way to the right, keeping the machine moving at all times. When you get there, continue moving your machine to the next row, overlapping the first by approximately 50 percent, then work your way back to the left end. Continue this way until you've covered the entire surface. Depending on the machine, you may wish to increase the speed to medium. Be especially careful at the edges and ensure you keep the machine level or you may cut through

the finish. Don't be too particular about getting rid of all swirl marks at this stage unless they're pronounced, in which case you may need to go over the area of concern a second time. Vacuum the entire surface, being careful not to scratch the surface with the wand; using a brush attachment helps in this regard. If you find that the 1000 grit wasn't coarse enough to level the top, you may elect to do your second pass using a 500 grit pad and then move back to 1000 grit. The objective here is to establish a completely smooth surface.

Polishing the Edge Profile

If it's a chamfer or square edge, depending on your experience and level of control over your machine, you should be able to do this and all successive polishing with your machine. However, if the profile has a radius to it, you'll need to make a custom-shaped sanding block that matches the profile so you can polish with this and successively finer grits, by hand. To help contour the abrasive surface to the wooden edge profile, you may want to use a piece of thin cloth or paper towel between the abrasive paper and the block. As with any machine polishing, hand polishing calls for careful attention and a steady hand; move the block only with the grain and check your progress frequently. Stop as soon as the finish feels the same on the edge as it does on the flat surface.

Once you're happy with the 1000 grit polished surface, replace the polishing pad with the 2000 grit pad and go over the entire surface, then again deal with the edging as before. Repeat this process through the 5000 grit pad and you should be seeing reflections showing.

Buffing Comes Next

This is where the magic begins. Replace your polishing pad with a new buffing pad. I like to label my buffing pads, ensuring I don't get them mixed up and contaminated with dissimilar buffing material. Using a kitchen knife, lightly dip into the medium-coarse polishing compound as you would a butter dish and pick up a very small amount then smear it onto and all around your pad. Set your machine to its low-speed setting and go over the entire surface just as you did when polishing. Friction will cause the pad to heat up and become sticky, causing resistance as you move along. At this point, you may increase the rotation speed slightly; however, it is very possible to burn the finish, so don't turn it to high speed or you'll run into trouble. You should be able to cover the entire surface for all but a large table without applying any more buffing compound. If a shine does not begin to appear, you need to smear on some more compound. With this first pass under your belt, look after buffing the edges. If dealing with a complicated (that is, a non-square or simple chamfer) edge, in most cases you should be able to use the buffing pad's edge by turning the machine speed down to its lowest rotation speed. Of course, load up the edge with compound before doing this, or you'll surely burn through the finish in no time flat. Take a good look at the results you've achieved thus far; if you feel more gloss is called for, then replace the buffing pad with a new one and apply your finer polishing compound and give it another go. Again, be very careful not to get caught up in the process and buff right through the finish, as it can become quite intoxicating to see the deep, mirror-like finish appear. More doesn't always translate to better when it comes to buffing.

Bring the Gloss Up – Starting in one corner, use overlapping passes to buff the entire surface.

Like A Mirror – After the two stages and a coat of wax, the surface should be glossy enough to see your reflection in.

After you've completed this second round of buffing, again take a good look at your handiwork. If the finish appears too reflective, you may wish to revert to your first pad and "buff down" the finish to a lower gloss level. That's a unique feature with buffing: it can be played around with until you're fully satisfied.

Waxing – The Finishing Touch

As with most finishes I use, I like to apply a protective layer of wax. My all-time favourite is beeswax. Whatever wax you elect to use, choose one free of polishing grit and one that dries hard. Apply it sparingly with a clean cloth, allow it to dry until hard, then polish it using either a fresh cloth or a fresh buffing pad designated for this specific purpose. As the weeks turn into months and small scratches appear, a fresh waxing may be all that is required to renew the surface.

It's been said, and rightfully so, that the correct finish on a piece of furniture, properly applied, will enhance its value. When a deep gloss and mirror-like finish is called for, by following the advice outlined here you should be able to achieve professional-level results, with a minimum amount of effort. Please pass the buffing pads and wax!

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Tall Case CLOCK

Exquisite materials and a stylish design come together to make this living room centerpiece.

BY DON KONDRA

After doing their research and purchasing the movement, my clients approached me so I could work out the details of this clock with them. Because the movement is so beautiful, we went with a design in which the movement was as visible as possible.

The wood choice was easy; they already had pieces made with pitchy cherry. This wood has black pitch pockets and is culled at the mill as being unsuitable for commercial work. I do custom spray finishing for a local furniture store that has a standing order with a mill for this beautiful wood so I was able to secure enough for this project.

In hindsight, the design was fairly straightforward. The dimensions for the carcase were determined by the physical requirements the clock mechanics need to work. After reading the supplied drawings four or five times, this turned out to be 62" high x 20" wide x 11" deep.

I did add an inch and a half to the minimum required width of the carcase. In order to start the pendulum swinging, it is important to start it slightly out of its normal arc. I also made the carcase an inch deeper than necessary because I was concerned about the stability of such a tall and relatively narrow cabinet with such a large door. The extra depth would give me a slightly larger foot print. And a bit more peace of mind.

The three major elements were the half circle on the door, the coloured moulding securing the glass and the shop-made cove moulding on the top and bottom. I decided to make the top of the case a web frame and glass panel. This would ensure that the interior of the carcase would receive as much light as possible and allow access to adjust the chimes. Removing the glass panel also seemed a more elegant solution than having the back panels open for access to the chimes, which would require moving the clock away from the wall.

All parts of the clock were to be bookmatched in the sense that the side and door frames are cut from the same board. The back panel is shop cut veneers in a solid frame. One of the boards was large enough to yield the veneer, rails and stiles.

Photos by: Don Kondra

"Reverse" Bent Lamination – In order to straighten out a twisted or warped board the culprit was ripped in half, then re-glued in its original orientation, relieving any internal stress.

Create the Perfect Arc – With a router and a circle-cutting jig machine a template to the correct dimensions.

Transfer the Arc – Use the template to cut the top rail of the door to shape.

Make the main case first

I began by making the main case. If you decide to duplicate this piece, the actual dimensions will depend on your choice of clock kit so I will not be providing an actual blueprint; instead, I will discuss my process. The first challenge was to sort through the stock and find enough straight material for the stiles. With a length of five feet, it quickly became apparent that this was not going to happen. In situations like this I use a trick I call reverse bent lamination. After marking all the material as to where the parts will be used, I cut them to rough width and length. Then, using the bandsaw, I carefully resaw the material down the middle; i.e., the 4/4 material is cut into two ½" thick pieces.

Using a flat surface as a reference (my workbench) I clamp and glue the boards back together. In effect I have taken a bowed board and created a flat board. Once the glue is dried I can remove the clamps and continue to joint and thickness plane the material in a normal fashion.

The side stiles are 2 ⅛" wide, which is as narrow as I felt I could go and still have room to install the inset door hinge mounting plates. The door stiles are 2 ½", which is the minimum width required for the hinge cups. The idea was to make the members as narrow as possible to allow a lot of light into the cabinet. Top rails on the sides are 2 ¼", middle is 2 ½" and the bottom is 3" wide. For the back panel the side stiles are 2 ¾" and the middle is 3". The top rail is where the chime bar is attached and needed to be 3" wide. The middle and bottom rails are also 3".

For joinery on the side frames and door I used an offset mortise and tenon. If I had used a router to create the rabbet for the glass, the end of the rail would not line up with the edge of the stile.

Normally, glass panels are installed from the back and secured with strips of wood, but I prefer to install the glass from the front and make the mouldings part of the design. In this case, the mouldings are walnut-coloured with a black gesso. They are then secured with brass nails.

The top of the door arc is marked and rough cut on the bandsaw. Then I used a circle-cutting jig and a router to create a template in ¼" baltic birch ply. I used this template to copy rout the arc in the door rail to final size.

On larger pieces I use a dowel and screw system so the parts can all be finished before assembly and can come apart for repair or shipping if necessary. The back panel has a rabbet cut on

Quick and Easy – Using a dowel and screw system makes assembly and finishing easy.

each side that fits into a groove on the back of the side stiles. For the bottom of the carcase I used a vacuum veneer bag system to glue shop cut veneers onto a baltic birch core. When the glue dried, I trimmed the panel to size and glued on solid cherry edges, which will become the first layer of moulding.

I used a mortising machine to create the ¾" deep mortises. The offset tenons are cut on the table saw with a dado blade. The rabbets for the glass are also cut on the table saw.

At this point, I do a dry assembly to check everything fits and is the correct size, then disassemble and sand all the parts before finishing.

With everything fitting nicely, I pre-drilled all the screw and dowel holes in the top and bottom and drill the matching dowel holes in the sides and back. Assemble the carcase without gluing in the dowels and use the pre-drilled screw holes in the top and bottom as a reference for a countersink pilot hole bit for

Finish it Off – With the cove cut, mark the rest of the moulding's shape on the end grain then work towards that shape with a selection of different machines.

Cut the Cove – By using two straightedges clamped to your table saw at an angle you can create custom coves.

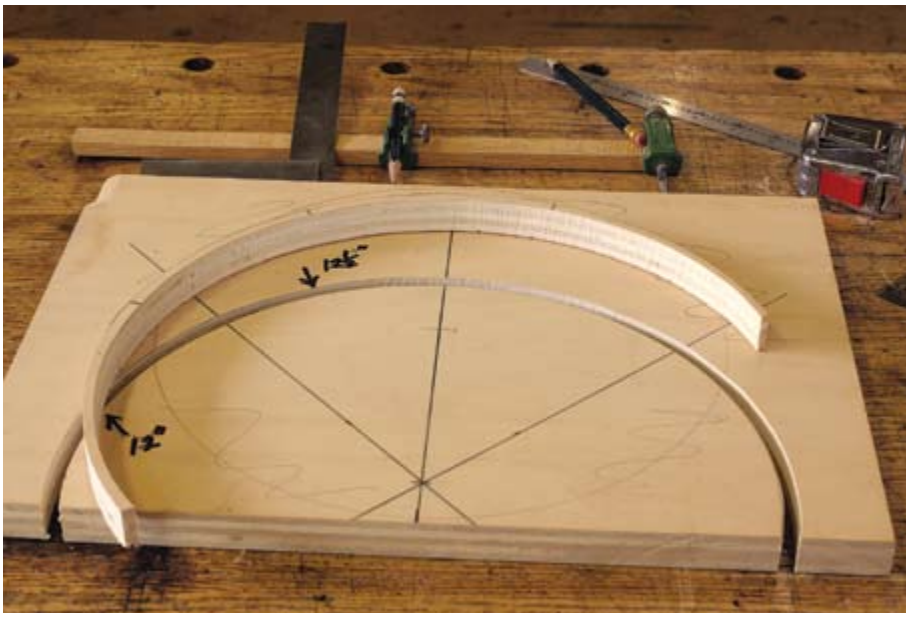
#8 x 1 ¾" screws. The clock mounting board is secured with a mortise and tenon into each side rail without fasteners, just a press fit.

Base and Top Moulding Sections

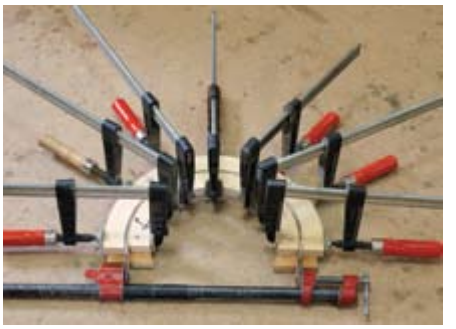
The plan was to create a thick mitred box that would have an applied cove moulding and be attached to the carcase with screws. It would be wide and deep enough that the top edge would be another layer of moulding. It also needed to be substantial enough to have some visual impact. I decided on a height of 6", which would make the top moulding 3". I made a plywood mock-up and placed the carcase on it to double-check my initial impression. I often use ratios such as ½/3 to determine dimensions and I like to make ¼ or full size mockups just to be sure. It's much easier to find out problems with a mock-up, as opposed to the real thing.

I machined 8/4 x 6" material to create the box/base with mitered corners at the front. The inside corner braces have tenons that fit into grooves I machined with a wing cutter and router. These braces are where the carcase is screwed to the base. I also pre-drilled for leg levellers. It is important that the case be perfectly level in order for the clock to keep time accurately.

For the cove moulding I needed to build up the 4/4 figured cherry I had chosen to use in order to have enough thickness to cut the back angle on the cove. Again, the top and bottom moulding are cut from the same board in order to match. After much procrastination and head-scratching the set-up for cutting the cove was as simple as raising the table saw blade to the required depth of ¾". I clamped sticks on each side of the blanks for reference and angling the



Bandsaw Accurately – Draw the proper arcs on some 3/4" material then bandsaw to those lines. You need to remove the same amount of material as the total thickness of the strips you will be gluing up.



Clamp the Laminations – Glue and clamp the laminations against the form.

blanks until there was 1/8" of clearance on each side of the blade. It is necessary to leave a small amount of uncut material on each side to support the blank once the cove has been cut to finished depth.

I clamped front and back plywood fences to the table saw surface, which captured the part perfectly. With the blade barely protruding above the saw's surface I ran the blanks through slowly, raising the blade by increments of a little less than 1/8" until I reached a depth of 3/4". From there it was a simple matter of drawing the final profile on the end of the blanks and bandsawing/jointing the angle. The top and bottom profiles were created on the router table. I used a hard rubber backing and sandpaper to clean up the saw marks. Then I bandsawed/disc-sanded the mitres and glued them onto the base.

The top cove moulding was basically the same procedure; after it was machined I glued strips of 3/4" x 3/4" material to the back of the moulding to allow me to screw them to the top web frame.

Final Details

With the carcase, base and mouldings completed, it was time for some of the finishing touches.

The top moulding for the door is a bent lamination. I start by drawing the dimensions on a piece of plywood that will become my bending frame. The outside and inside of the arcs are different radii and need to be cut out to make a cavity for the laminations. I usually do this very carefully on the bandsaw. That normally gives me a surface that is easily cleaned up. This "cleaning up" is important because it will become the final shape of the moulding and any inconsistencies will be transmitted to the lamination.

Next, the main frame is trimmed to allow clamp access and screwed to a backer board to provide some stiffness

Plane It To Width – Bring the curved moulding to final width with a hand plane.

Use Feather Boards When Routing Small Pieces – In order to provide constant pressure and avoid kickback use two feather boards.

while supporting the material to be glued. The outside of the frame is cut into parts to allow for clamping one section at a time and allow access for clamps. All the jig parts need to be waxed wherever there is the possibility of glue squeeze-out.

The finished moulding is ¾" high x ¼" thick, so I used three pieces of ⅞" x 5/64" material. Basically, I machined a blank 26" long by ⅞" thick and a couple of inches wide. I bandsawed off a strip a full ⅛" thick, joint the edge, bandsawed another strip, etc. Then I thickness-sanded the bandsawed surfaces until the three pieces added up to ¼". Keep track of the strips so you can put them back together in the same sequence they came off the blank.

By experimenting, I found this thickness of strips was thin enough to bend around the frame without cracking. An alternative is to use eight strips of store-bought veneer. The extra width of ⅛" allows for trimming if I don't get it into the bending jig just right. It is important to note that I make my bending strips at least a total of 4" longer than needed. If there are going to be any gaps in the lamination, they will occur at the ends. To glue the lamination, I start by marking the middle point on the strips, apply a bead of glue down the middle of two strips, put them together and line the mark up with the middle mark on the jig. I always start clamping in the middle, then alternate one side then the other.

Once the lamination is made I machine the rest of the moulding material and shape the top edges on the router table with a ⅜" round over bit. Machining such narrow stock requires the use of front and top feather boards for a clean cut. Machine long lengths of moulding whenever possible. They are easier to push past the feather boards. My method of cutting the moulding to length is a little unusual. I don't like to use a chop saw on such thin parts so I

Sand to Final Fit – Instead of using a mitre saw, bandsaw the pieces to with 1/8" and sand them to a press fit. You could also use a handsaw for these small strips

Oil Warms Cherry – Apply a coat of oil to the wood to bring out the woods warmth, then the topcoat for protection.

bandsaw the parts 1/8" longer than the opening and use a disc sander to sand the mitre. Ideally, all four pieces should be press fit.

I always have my glass parts cut 3/32" smaller than the opening. The glass for the door required a full size template in 1/8" baltic ply and is also slightly undersize.

Installing the moulding with brass pins (linoleum nails) can be stressful. I use a piece of 1/4" MDF placed on the glass as a safety measure so I don't break the glass. I drill an angled pilot hole 3/4" deep for a 1" nail then, again using the piece of MDF, I use a nail set to drive the nail home.

For door hinges I chose to use three European-style full overlap hinges. I like the adjustments they allow and the spring-loaded closing is a nice touch. It eliminates the need for magnets or catches to keep the door closed.

For the nighttime chime shut-off switch, I drilled a hole to accommodate a 3/16" brass rod through the top web frame in line with the brass shut off switch on the clock mechanism. This arm already had a hole drilled in it so I cut a slot in the brass rod to slip over the arm and then drilled a matching hole in the rod. I used brass snare wire to secure them. This joint is immediately behind the clock face and isn't readily visible. For a handle, I hand-carved a piece of curly maple and used epoxy to secure it to the rod. To operate the switch, you reach over the top moulding. The throw of the switch is short enough that the handle is never visible.

The final touch was to turn a door knob out of macassar ebony. I applied two coats of Watco Natural oil and installed it with a countersunk screw from the inside.

The finish on all the case parts is a coat of Watco natural oil and two coats of sprayed post-catalyzed lacquer.

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Learning to Woodwork – Practicing on the Lathe

BY DON WILKINSON

Another couple months have gone by and I still haven't told you how I became the Yukon's Number One turner extraordinaire. Well, sit down and prepare to be dazzled. My all-time top secret is: Practice! Thank you! Thank you very much! (I'm imagining a multitude of clapping and cheers. Maybe that should be "jeers".)

After many hours of standing around staring at that great hulking beast sitting in the shop (my lathe, for those of you not paying attention), I discovered the hard, and at times painful fact that all you need to do to become a good turner is practice, practice and then continue practicing.

Knowing myself as well as I do, I quickly realized that maybe I shouldn't set out to turn the world's greatest bowl or candlestick. At least not right that minute. That would surely lead to discouragement and probably pain when the piece of wood – or the entire lathe – inevitably failed me. Failure of equipment tends to irk me. This often makes me upset, which leads to bad words being spoken. And oft-times the possibility of tools being tossed – some of which have never been found again.

I knew that I just needed to spend some quality time turning large pieces of wood into larger piles of shavings. Lots and lots of quality time. Now all I had to do was figure out how to do it. My plan was to simply experiment with the lathe and hopefully figure out what the barbeque tool look-alikes were actually used for. To be honest, I still have a few that I've never used, simply because they don't seem to have any other purpose than to round out the number in a set to eight.

Experimentation, unfortunately, has always played a huge role in almost everything I've done in my life, including hang gliding, driving a car, motorcycle riding and the discovery of the effect a hammer has upon a rifle bullet when placed on a cement step. My brother actually learned more from that last one than I did. (We call him "Three-fingers Dave" now.)

Compared to those experiences, I figured lathing would be a piece of cake. I spent a few fascinating hours figuring out how to minimize the number of times something would fly off and bonk me on the head. Once that was safely accomplished, the many bumps and bruises, kissed all better by my loving wife, and the numerous cuts and scrapes bandaged, I set out to make shavings. Great heaps and mounds of shavings. So many shavings that by the time spring eventually arrived in late May, the entire back half of the shop was piled to the rafters, I had lost at least one dog and possibly a kid buried deep within.

But I persevered, and by then I was thoroughly familiarized with my tools. The big honking U-shaped thingy could strip the bark and shavings off a length of firewood faster than the eye could follow. I had great fun learning how to direct the streams of shavings reaming off the lathe in almost any direction I wanted. To the left. To the right. Straight up, ahead and even back over my shoulder. Yes, either shoulder! I could hit anyone I wanted to, as long as they were somewhere in the shop. It was great fun. Too bad there wasn't a practical purpose to my skills.

It was at this point I decided it was time to actually make something. Unfortunately, this was the Yukon and decent wood was hard to find. I had to venture forth and discover new, previously untapped treasures in which to bestow my immense talents. Since the local lumberyards had yet to discover anything made of wood, other than spruce two-by-fours, I gathered my chainsaw and headed into the vast wilderness surrounding Whitehorse, where I found a veritable treasure trove of woodworking delight.

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Illustration by: Mike Del Rizzo

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