



## 10 BEAUTIFUL WOODWORKING PROJECTS FOR THE HOME

BY: SETH KELLER, PAUL MAYER, VERNON MAYER, AJ MOSES,  
AND DAVID MUNKITTRICK

In this project guide, you will find instructions for ten of our favorite woodworking plans for the home, all curated by Woodworkers Guild of America contributing editors. These handcrafted items will be sure to complement any home style and make excellent gift ideas. Implementing a variety of common woodworking techniques, these plans are suitable for many different skill levels and come complete with full instructions, cut lists, diagrams, and step-by-step photos. Choose your favorite or create all ten - It's easy to fill your home with simple, beautiful handcrafted items.



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## BUTTER BOARD & SPREADER SET

BY PAUL MAYER



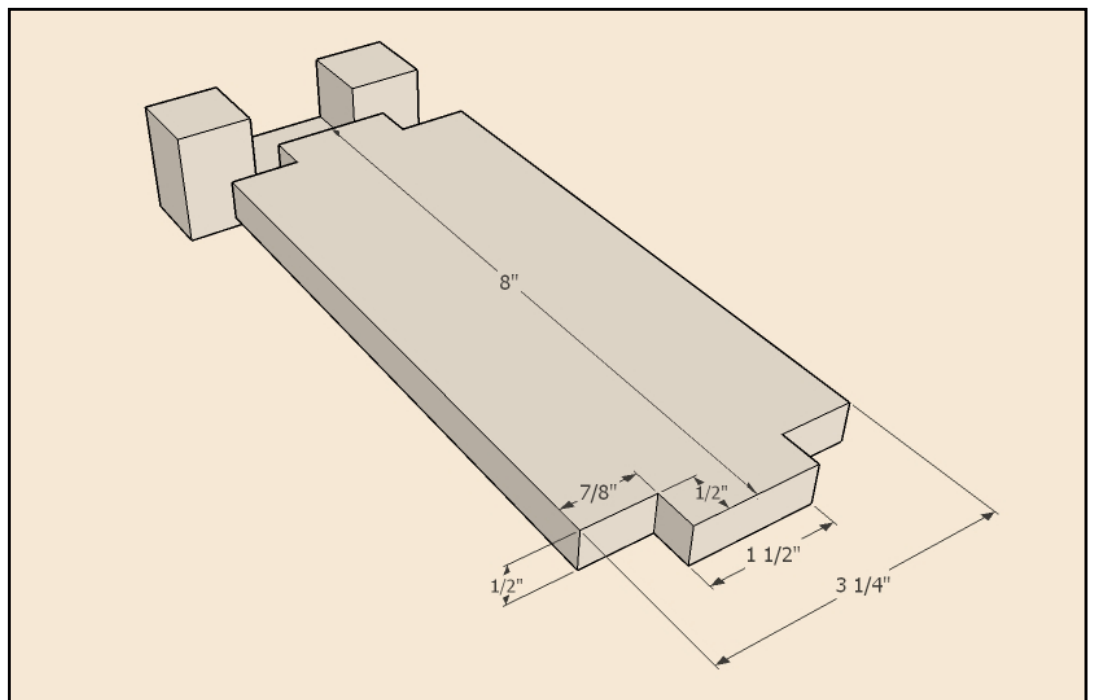
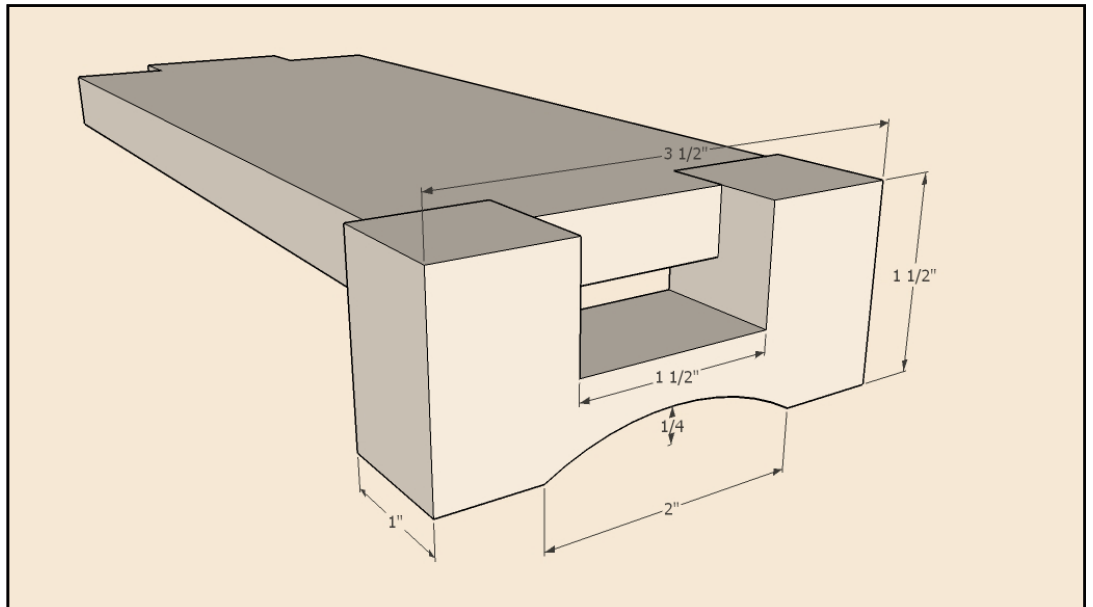
This butter board and spreader set provides a great accent to a special meal. From a woodworking perspective, it is easy to crank out a bunch of these in a single day, and the project also provides a great use for scrap wood.

The convenient on-board storage also provides a nice home for the spreader while not in use. The spreader also doubles as a handle that can be used to pass the set

around the dinner table. This project is designed for batch production, and you can easily get caught up on your holiday "shopping" in a single day by utilizing each setup to make a bunch of identical parts.

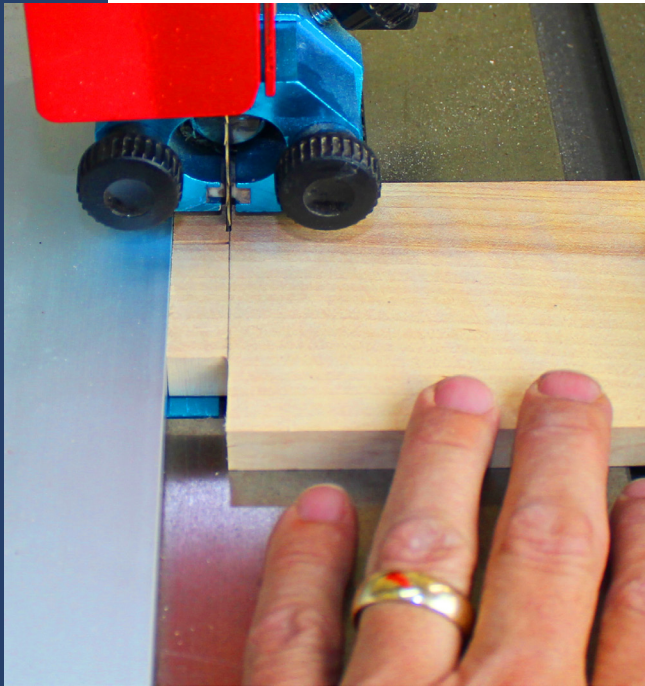
Small projects like this provide a great use for leftover pieces of special wood such as the curly birch used here. For the base I used some small pieces of walnut that I salvaged from my scrap pile.

**LET'S BUILD THE BASE FIRST.**



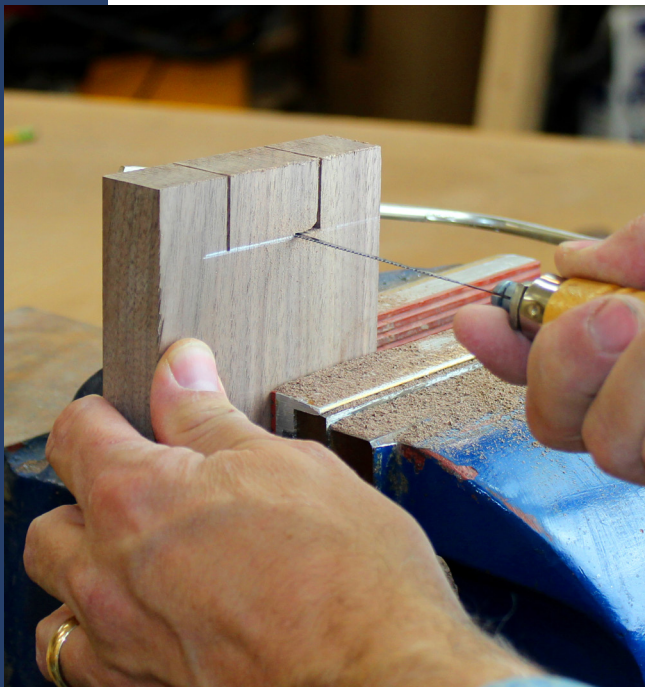
Note that the leg is extra thick, and projects beyond the tenon, to allow an angled cut being made later.





### **CUT FINGER JOINTS**

I used the band saw extensively on this project, as it provides clean cuts, accuracy, and good safety while dealing with small pieces. Test the fit carefully on scrap pieces so that you get the perfect fit on the finger joints. Once you get each setup dialed in, you can run a bunch of these relatively quickly. Careful setup on the band saw is key here. Take your time at each setup, and do not cut past your lines. Leave the leg pieces long for safe handling until the finger joints are cut and fitted to the top piece.



### **REMOVE WASTE ON LEGS**

Use a coping saw or scroll saw to remove waste, cutting carefully to each line. If you can get a good crisp line, then no cleanup will be necessary. If you need to clean up your cut, use a sharp chisel and pare straight down onto a sacrificial backer board.



### **CUT THE LEGS TO LENGTH**

Set your fence to 1-1/2" to get consistency in leg height.



### **CUT THE ARCH**

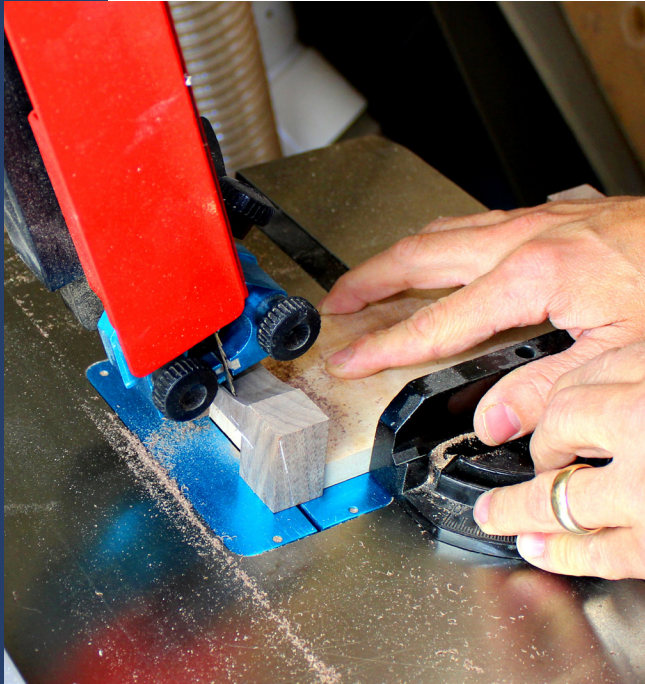
Using the pattern provided, or a coffee can or other round object, draw an arched line on each leg piece and cut using a scroll saw or coping saw.



### **GLUE AND CLAMP THE ASSEMBLY**

Put a light coating of glue on all mating parts, and clamp using minimal pressure. Be sure that the components remain square during assembly. Carefully remove glue from within the knife storage slot with a small screw driver and damp cloth.





### **CUT TAPERS**

Cut the ends at a 15 degree angle, with the angle tapering in toward the top. Cut the sides to a 10 degree angle, also tapering in at the top.



### **SAND ALL SURFACES**

Sanding is an important part of shaping the final piece. Round over all edges to give the pieces a curvaceous appearance, to match the spreader.

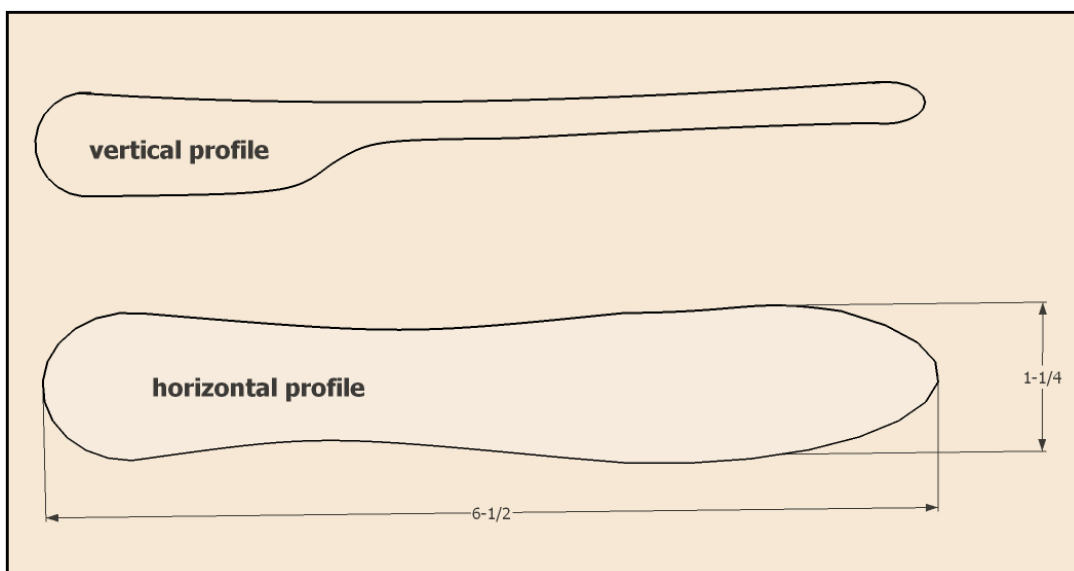
### TURNING OUR ATTENTION TO THE SPREADER...

The spreader is a simple project, which starts with a two board glue-up, followed by some curvy cuts on the band saw.



### GLUE UP BLANKS

Cut and glue pieces of contrasting wood as shown in diagram.



### TRACE HORIZONTAL OUTLINE

I like to use a white charcoal pencil on the dark wood, and a normal pencil on the light wood, for better visibility during cutting.

### MAKE CUTS

Cut out the shape, leaving the line. Next stand the piece up and trace the vertical profile, or just cut it free hand as it is a simple shape. Again, it is important to leave the line so that you can sand to final shape.





### **SANDING**

Carefully sand, first with an aggressive grit, such as 80, to define the overall shape. Then progress through grits up to 220, taking time to smooth and round over all edges.



### **FINISHING**

Use a food-safe finish such as mineral oil (shown here) or a salad bowl finish to bring your project to a lustrous glow.

## ARTISAN SERVING TRAY

BY PAUL & VERNON MAYER



Delight your friend or significant other by building this artisan serving tray for them, featuring contrasting hardwoods for stunning beauty, graceful curves, large convenient handles, and a solid feel that will make this tray a great conversation piece at any party, as well as an instant family heirloom. You will find a couple of pleasant surprises with this adaptation of a classic design. Recessed trays of this style are generally constructed by plowing out large volumes of wood with a router, which is both wasteful of expensive hardwood resources, as well as extremely messy in your shop. This version features sides that are 'built up', which is a more economical and pleasant approach. Secondly, the delicate sculpting of the handles is reduced to two easy steps using a dado blade on a table saw, followed by series of simple cuts with a handheld jig saw.

### START BY SELECTING STRAIGHT, STABLE DEFECT FREE STOCK

This panel is required to sit flat and any stress contained in the stock will cause noticeable warping and twisting of the completed serving tray. Also, small projects like this are a great opportunity to utilize those special off cuts that you just couldn't throw away after previous projects. We generally build these trays with a combination of maple, walnut and cherry, but you can choose whatever materials you find most appealing.

Later in the article, we will describe a finishing alternative that will also allow you to use this piece as a cutting board. If you choose that option, be sure to use stock that is suitable for cutting boards, such as walnut, cherry, maple, birch, or other closed pore hardwoods. Woods such as oak and mahogany, are best avoided due to their open pores that can trap food particles and collect bacteria.





### **RIP THE STRIPS FOR THE TRAY**

The blanks for the strips should be cut to a length of 30". Plane all stock to a consistent thickness. We generally like to bring the stock to about 3/4" at this phase. Rip into strips. The width of your strips is largely a matter of artistic preference. We generally cut most of the strips to 1" widths, with some more narrow for pattern variation. The walnut strips pictured in this article are 1/4" wide, while the maple and cherry strips are 1" wide.



### **LAY OUT THE PATTERN**

One of the more exciting aspects of this project is designing the arrangement of your contrasting wood strips with your own artistic expression. If you are careful when ripping, and you have a good blade and proper setup on your table saw, you may be able to avoid running the pieces through a jointer. But if you see any gaps when laying out the boards, run the identified pieces through the jointer or planer to create gap-free glue lines.



### **JOINT THE EDGES THAT NEED IT**

When jointing, be sure to use safety gear. Push blocks are essential when passing small stock through your jointer.

### **NOW YOU ARE READY TO GLUE UP THE PANEL**

Make sure that you are well prepared before applying any glue. This glue-up is deceptively tricky because of the number of glue joints you will create. Be sure to use a glue that offers adequate open time and water resistance because the tray will likely be washed periodically. We use Titebond III, as it meets both of these requirements.



### **GLUE UP THE PANEL**

Using a glue brush or other device to spread an even coating of glue. Due to the large number of glue joints in this relatively small panel, proper glue coverage is critical, so apply liberally. We generally glue all of these pieces together in a single pass, but you might want to consider gluing up the panel in two stages and then jointing and gluing together the two half panels. This will allow you to complete the glue-up with lower stress on you and potentially save excess sanding or planing in subsequent steps, as you may be able to achieve a flatter panel by concentrating on fewer glue joints in a single glue-up. Let the glue set up in the clamps for a couple hours before removing. Depending on the temperature and humidity, you may be able to get away with removing clamps sooner. In general, more 'bake time' is better. You may choose to A: wipe the glue off with a damp rag while it is still wet or B: remove later with a paint scraper. Option A works well as long as you don't flood the glue joint with too much water and option B works fine as long as you don't wait too long and end up with fully cured glue that rips wood along with it when scraped. If you scrape the excess glue within six to eight hours, you should not have a problem. We usually wipe as much as we can with a wet rag and scrape the remainder from under each clamp after removing clamps.





**FORCE THE PANEL FLUSH AT  
EACH CLAMP DURING GLUE-UP**

Tip: We have found it beneficial to start from one end of the panel, force each glue joint flush along the top, and then move to the next clamp. We generally use a mallet and a flat board to pound the panel down to the pipe and into alignment at each clamp. On your first pass through the clamps, it is beneficial to only tighten to about 75-80% of the final clamp tightness. Once all joints are flush and all clamps are partially tightened, go back and finish tightening. By waiting until that point to fully tighten the clamps, you allow the glue to set up just slightly and it minimizes the possibility of boards sliding out of alignment when the clamps are tightened. At the risk of spurring a long debate on this topic, we have found it works best to tighten the clamps solidly, but not strain for every last psi, as excessive pressure on the clamps can crush wood grain and can cause problems with the integrity of the panel.



**AFTER SCRAPING GLUE,**

run the panel through a planer or wide-belt sander, or alternatively flush the glue joints with a belt sander or hand plane. The flatness of the panel at the ends is extremely important, so pay close attention to this. If you use a belt sander, use caution to not tip the sander over the edge. If a planer is used, use light passes, and lock the cutting head if your planer is so equipped, so that sniping is kept to a minimum. This will allow for a better glue joint when the handle/rim pieces are glued on.





**TRIM THE ENDS OF THE PANEL  
SO THAT THEY ARE EVEN AND  
SQUARE.**

This can either be done on a table saw using a sled, or on a sliding compound miter saw or radial arm saw with sufficient blade travel.



**MACHINE THE BOTTOM PROFILE  
FOR THE HANDLES.**

It is ideal to do this at this point because you will minimize your waste and be able to perform the operation more safely by keeping your dado blade lower. To do this, set up your table saw with a dado blade. The number of chippers is not critical, but we generally do this operation with the full set of chippers (at least 3/4" width), as this leads to the smoothest surface by making overlapping cuts in the rabbet— which means less sanding later. Set up a sacrificial fence on your table saw, as this operation will position the dado blade right next to the fence. Set the height of the dado blade so that your cut will leave a handle that is 3/8" thick. This means a height of 3/8" if your panel is 3/4" thick overall.



**ADJUST YOUR FENCE FOR THE  
FINAL DADO PASS.**

You will ultimately create a rabbet of 1-1/4" on each end of the panel. To do this, you will need to make two passes on each end. Start by making a 3/4" (full width of dado blade) rabbet on each end. Then move the fence so that it is 1-1/4" from the outside edge of the dado and make a second pass on each end of the panel. This should leave a rabbet that is 3/8" thick and protruding 1-1/4" from the bottom edge of the panel.



**USING A PANEL CUTTING JIG,** cut a 2-1/4" piece from each end of the panel. Place witness marks on the top of each end of the panel so that you can easily recognize which end each piece was cut from. This is an important step for the aesthetics of the panel, as it will help ensure proper alignment of the wood strips. To ensure a consistent size and to avoid binding, set up a stop block on the fence, positioned safely in front of the blade (be sure to take the width of the stop-block into account when you set the fence).



**APPLY GLUE TO THE BOTTOM** (narrower side of strips that received rabbet cuts and were cut from large panel). Press onto top edge of panel so that glue bead appears around perimeter. Apply clamps at each end and apply moderate pressure, checking edge of panel for alignment. You will want to pay close attention on this step and get the joint as flush as possible (particularly toward the center), to save excessive end grain sanding later.



**AFTER CLAMPS ARE SECURELY FASTENED,** remove excess glue from the joint, particularly on the inside of tray. Use a wet rag, along with a regular screw driver, to get the bulk of the glue and then remove any remaining glue residue with a sharp utility knife. Repeat these steps on the other end of the panel.





### **AFTER THE GLUE CURES,**

remove clamps and run each edge of your panel through a jointer to get a good gluing surface. If you do not have a jointer, this step can be done carefully at the table saw with the use of a high quality blade.



### **EDGE STRIPS**

Cut two strips of wood of the same species as the current edge strips of the tray (maple in this case). Ideally, for color uniformity, these strips would actually come from the same board as the outside strips on the platter. The strips should be 3/8" thick and the same height and length as the tray. For our project, this measured 3/8" x 1-1/2" x 26". Glue these strips to the edges of the tray, being careful to get good alignment on both the bottom and top edges.



### **CREATE THE HANDLE**

Using the supplied full-scale handle pattern (page 18), print and cut a template out of tempered hardboard, 1/4-in. plywood, or similar material. Use this template to trace the lines for the ends of your tray. Be sure that the entire cut line will cut through both the base of the tray as well as the piece you have glued to the top for the rim and handle. If you cut through just the top rabbet along the edge (except for where the cut extends out to form the handle), you will have an uneven edge along the end of the tray. If your tray now measures 12-3/4" wide, this template should leave a handle that is approximately 4" wide, which is adequate to support even the hands of the football player in your life. If your tray is less than 12" across, the handle will be smaller and you should consider modifying the cut line to accommodate a handle that is at least 3-1/2" to 4" across.





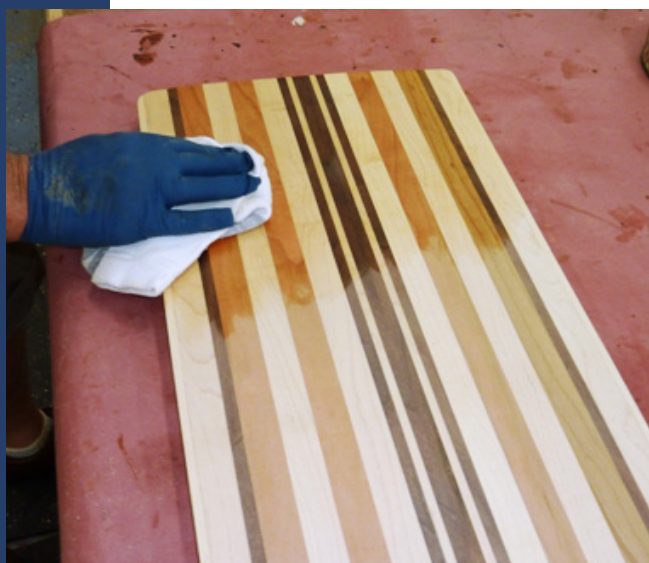
### CUTTING CORNERS

Using a band saw or jig saw, cut along the line you have just drawn on each corner of the tray. Take your time and cut as closely to the line as possible, as this will save you a lot of end grain sanding.



### FINAL SANDING

Sand all surfaces of the tray using a random orbit sander. Additionally, using a hand held belt sander or ROS, sand to your line along each corner of the tray, using progressively fine grits until scratches no longer appear. Sand nice consistent curves around each outside corner of tray as well. Finish sanding entire tray, top and bottom, with a ROS or palm sander. Finally, hand sand with progressively fine grits—up to at least 220-grit. Now you can decide whether your tray will serve double-duty as a cutting board. The tray can be flipped and used for cutting on the bottom and serving on the top. If you choose to use it in this fashion, your finishing job will be quite easy. A simple application of food-safe mineral oil or butcher block oil, will make the board beautiful. This can be reapplied periodically after the board is washed to retain its beauty.



### APPLY YOUR FINISH

If your tray will not serve a dual-purpose as a cutting board, we suggest that you opt for penetrating oil, to enhance the wood grain, topped with three to four coats of an oil based polyurethane (four to five coats should be used if using a thinned 'wipe-on' poly). Sand lightly between coats with 400 grit sand paper.

**TIP:** Let the final coat cure for a full week and then buff lightly with the back of a sheet of sandpaper to remove any remaining surface imperfections. Sandpaper backing generally has just enough abrasiveness to serve as a nice buffing tool and will leave the surface feeling buttery smooth.

**SERVING TRAY HANDLE CURVE PATTERN**

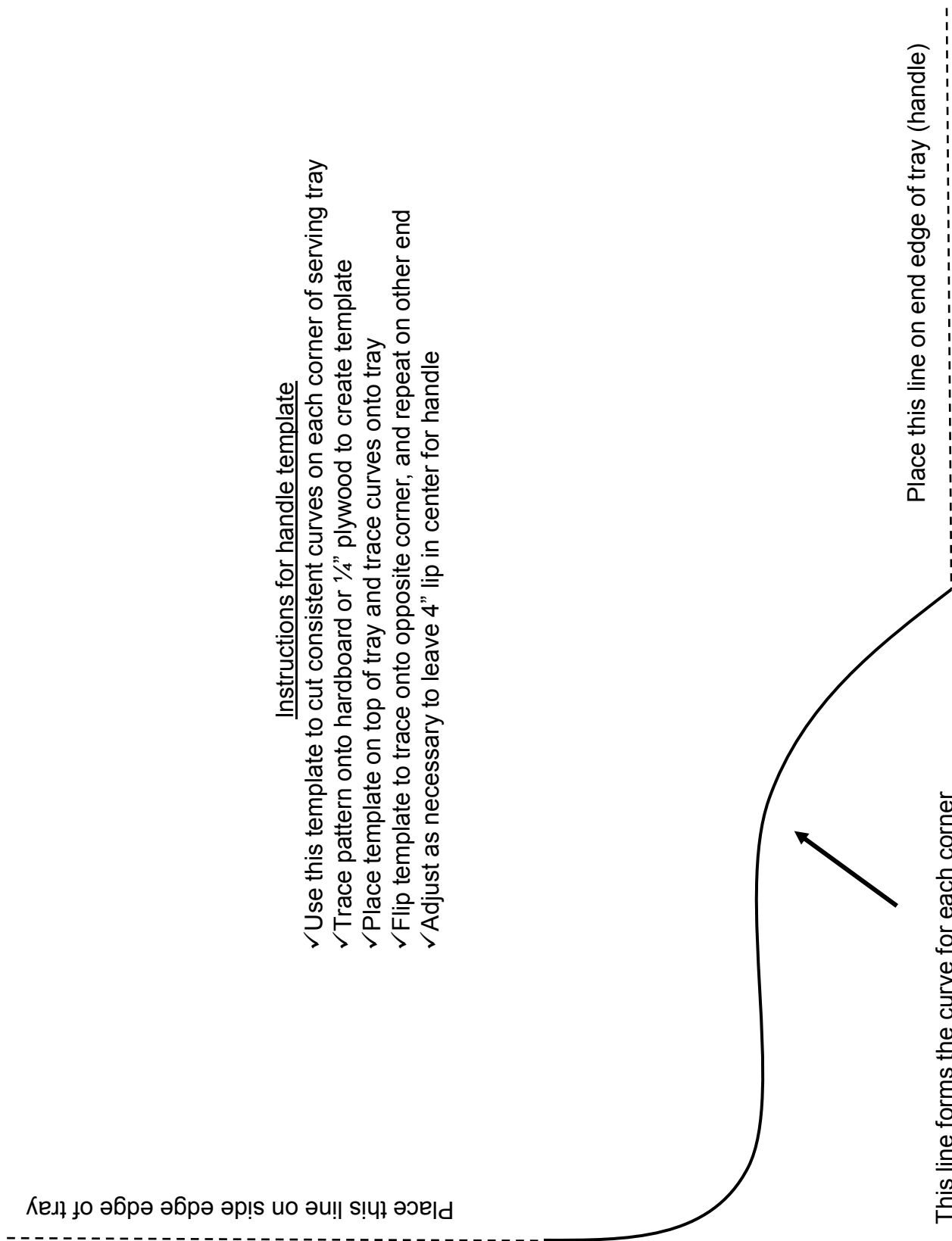
Instructions for handle template

- ✓ Use this template to cut consistent curves on each corner of serving tray
- ✓ Trace pattern onto hardboard or  $\frac{1}{4}$ " plywood to create template
- ✓ Place template on top of tray and trace curves onto tray
- ✓ Flip template to trace onto opposite corner, and repeat on other end
- ✓ Adjust as necessary to leave 4" lip in center for handle

Place this line on side edge of tray

Place this line on end edge of tray (handle)

This line forms the curve for each corner



## HOLIDAY SERVING UTENSILS

BY PAUL & VERNON MAYER



real 'working utensils,' rather than just for show. Those attributes make these an ideal gift for the baker or thoughtful party host in your life.

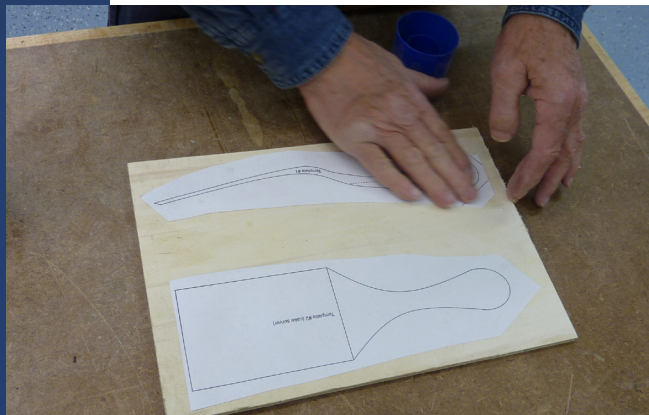
From a woodworking standpoint, this is a relatively simple project, requiring only a few basic woodworking tools. You will build a small panel of contrasting wood strips that are cut into pieces and attached to a solid blank of a hard stock, such as maple. A couple cuts on the band saw and you're ready for some sanding and finishing. The design allows you to avoid having to buy thick stock, as the

Serve your holiday desserts with style! These artisan serving utensils are the perfect complement to the special pies or cakes that you have planned for the holidays. We got started making these many years ago because my mother makes an apple pie that is worthy of a special serving utensil and these have proven to be a fair complement. There are several appealing attributes to these utensils. First, they are unique and pleasing to the eye. They offer more depth and refinement than your typical wooden utensils, which are commonly crafted from a single wood species, but they are much simpler to make than their delicate, sculpted form suggests. They have also been tested by numerous customers, and as the design has evolved to its current state, they have been proven to be

contrasting wood effect not only provides a nice contrast, but also serves to build up standard 4/4 stock to achieve a piece with better depth without added expense.

You will be roughing out your blanks on a band saw following a pattern for horizontal cuts through the stock, followed by vertical cuts. To ease this process and make it more consistent, you can make permanent templates that will be used to trace the cutout lines onto your stock. Three templates are provided (see page 25). Template #1 will be used to make the first cuts (horizontal through the blank), template #2A will be used for the vertical cuts in a pie server, and template #2B will be used to complete the cake server.





### CREATE PERMANENT TEMPLATES

Download and print the full-scale patterns that accompany this plan and apply them to 1/4" plywood or tempered hardboard using adhesive spray. Let the spray dry for about a minute before placing on the template material, which will allow the paper pattern to be removed more easily.



### COMPLETE YOUR TEMPLATES

Cut out the templates using either a band saw or scroll saw and sand the edges smooth. Select your stock. You will need contrasting woods of two or three different species. The utensils pictured here feature red birch for the body of each utensil and the accent on each handle is made of hard maple and walnut. We use only hardwoods with closed pores for these and other food-contact products and tend to avoid woods such as oak and mahogany, due to their open pores that can trap food particles and collect bacteria. Since these require such a small amount of wood, we commonly build them with scrap from the kindling pile unless we are making a large run (like, for example, holiday gifts).



### GLUE UP A SMALL PANEL OF CONTRASTING STRIPS

The panel will later be cut into smaller pieces to be used as the handle accents, so the panel should be large enough to accommodate the number of utensils you plan to build. Generally, we build this panel to be about 6" x 15", which will yield four handle accents. Given the relatively small size of the panel, with proper table saw technique and a good blade, you may be able to attain tight glue joints without using a jointer. Be sure to use a glue that is FDA approved for indirect food contact and offers heat and water resistance because the utensils will be washed after use. We use Titebond III, as it meets both of these requirements.



### **PREP YOUR STOCK**

While the glue is curing, prepare the blanks for the utensil bodies. This consists of cutting your chosen hardwood to a 3-1/2" x 11-1/2" size.



### **PLANE ONE SIDE OF PANEL**

After the glue dries on your panel, remove clamps and scrape off excess glue. Run the panel through a planer or flatten one side with a #5 or higher hand plane to achieve a good gluing surface. It is only necessary to plane one side for gluing purposes, as the other side will be removed by the band saw in an upcoming step.



### **CUT THE PANEL...**

into 3-1/2" x 6" sections. This is wider than you might think necessary, as most of this is removed, but we leave a bit wider for added safety and stability when cutting on the band saw.





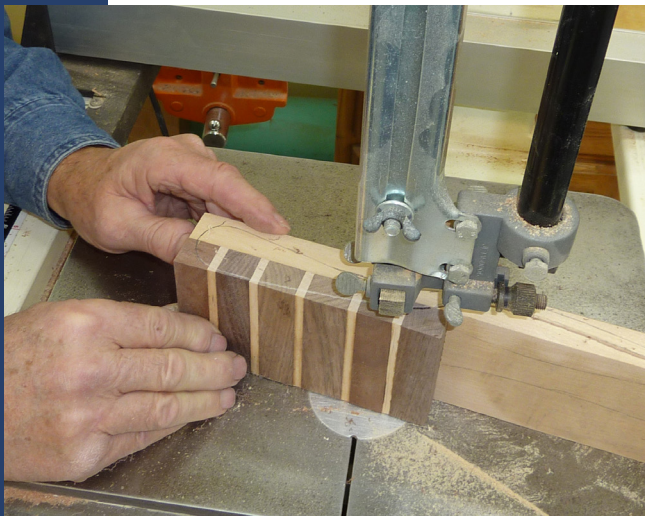
### **ATTACH ACCENT STRIP**

Glue a 3-1/2" x 6" section of the contrasting wood panel to a spatula blank.



### **AFTER THE GLUE DRIES,**

trace template #1 onto the blank. For added clarity, use a white pencil on areas where tracing onto a dark wood such as walnut.



### **MAKE THE FIRST SERIES OF BAND SAW CUTS**

Take your time on this cut and carefully 'leave the line'. This operation can give a good workout to a portable band saw if that is your tool of choice. Be careful to not overly burden the tool.





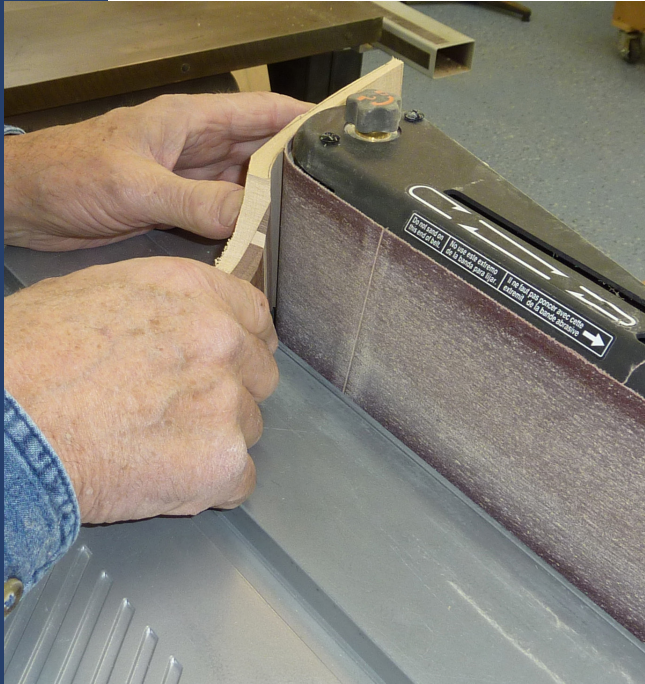
**TRACE TEMPLATE #2 ONTO THE  
FACE OF THE PIECE.**

At this point, you will decide whether your utensil will be a pie server or a cake server, so use the appropriate template (2A or 2B) to determine the design.



**MAKE THE SECOND SET  
OF BAND SAW CUTS**

This procedure will shape the sides of the spatula. Lower the band saw blade guard and again, cut out the pattern, leaving the line. The profile left by the previous (horizontal) cuts is flat enough so that you can safely execute this cutting operation without reattaching the bottom piece to your blank. But if it would increase your confidence in making this cut, use masking tape to reattach the bottom piece, making a perfectly square bottom surface for gliding across the band saw table.



### **SAND TO FINAL SHAPE**

After the final cut is made, sand to the line using a belt sander or random orbital sander. Finish by hand, sanding to 400-grit for a silky smooth feel.



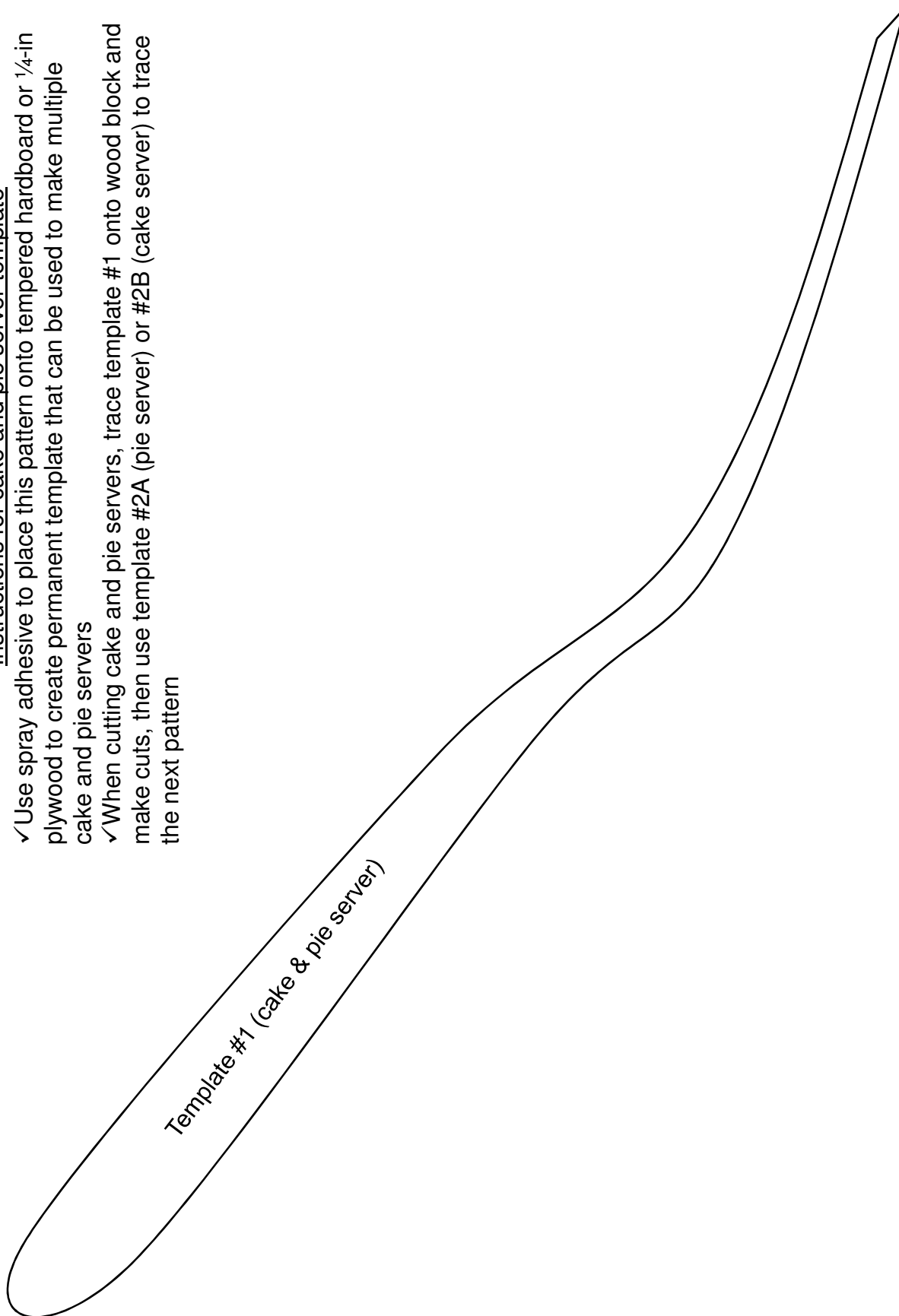
### **FINAL FINISH**

Finish with food safe finish such as salad bowl finish or butcher-block conditioner. Butcher-block finish will need to be refreshed periodically, but is quick and foolproof to apply, while salad bowl finish provides a finish that will last for years.

## HOLIDAY SERVING UTENSIL PATTERNS

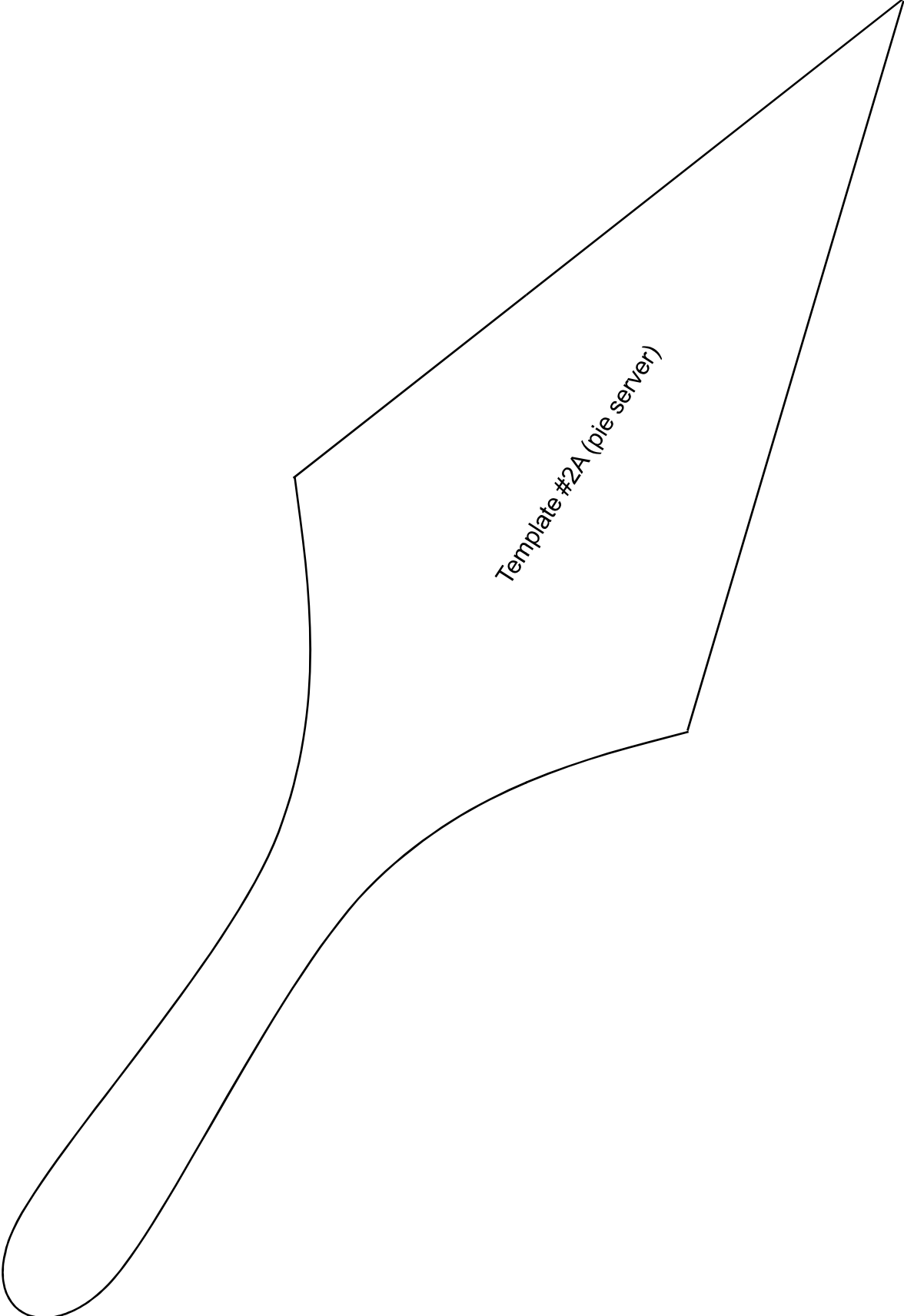
### Instructions for cake and pie server template

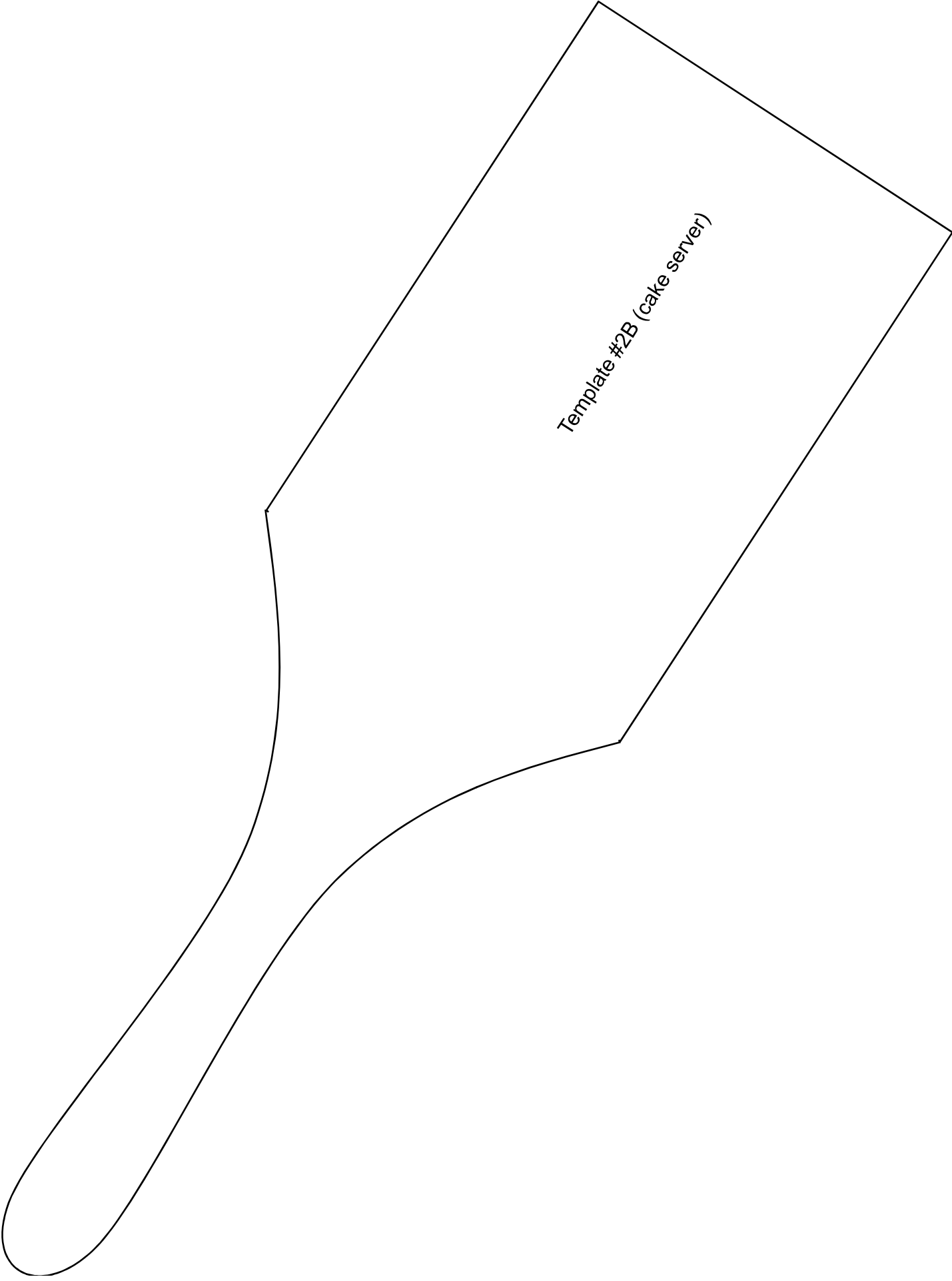
- ✓ Use spray adhesive to place this pattern onto tempered hardboard or 1/4-in plywood to create permanent template that can be used to make multiple cake and pie servers
- ✓ When cutting cake and pie servers, trace template #1 onto wood block and make cuts, then use template #2A (pie server) or #2B (cake server) to trace the next pattern





Template #2A (pie server)





Template #2B (cake server)



## NAPKIN HOLDER AND MATCHING TRIVETS

BY AJ MOSES



Well, this project was born of necessity. My wife and I had a wooden napkin holder for years until the newly acquired kitten found reason to move it from the table to the floor just to check if it, too, was subject to gravity. (Don't ask about the \$300 hand blown glass bowl he also 'transformed'.) The holder broke – the repair wasn't invisible.

So, down to the shop I went, hoping for some inspiration – and to save kitty's very life. I sketched a little, tried clamping some scraps together to get an idea of proper size, you all know the drill.

With the outline of a design in mind I started searching through my meager supply of lumber – probably under 3000 board feet at this point – and struck on a couple things. It would be nice to have a contrast in the wood, to use up some fairly narrow strips discovered in one rack, and to make several holders at a time – or something like that...

### HERE'S HOW IT ALL WORKED OUT



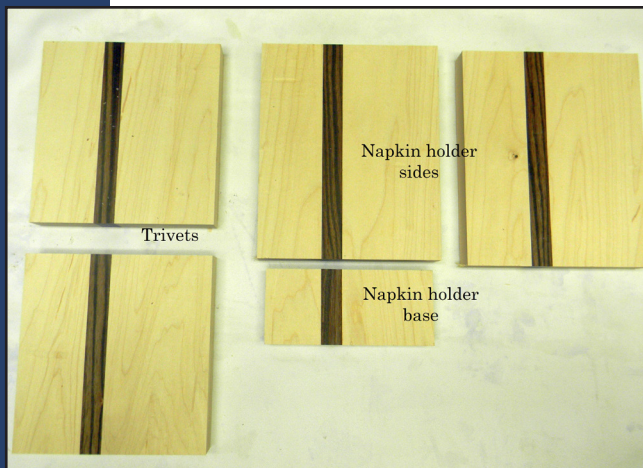
I started with a 5" wide piece of maple, some birch and cherry similar in width and a few thin strips of walnut, cherry, maple and eucalyptus. While laying things out, I also got the bright idea that on the table with the napkin holder we often used a trivet to hold a hot oven dish. Estimating the total requirement at about 30 inches, I cut the maple to length and ripped it down the length to get a 2" and 3" wide piece.

### CUTTING LIST

Quantity	Part	Dimensions
2	Napkin Holder Sides	3/4" x 5-1/2" x 6-3/4"
1	Napkin Holder Base	3/4" x 5" x 2"
2	Trivets	3/4" x 5-1/2" x 5-1/2"



For the contrasting woods I simply glued up 3 layers. Next step was to glue things up. Note that I chose to glue the 3 stripes of contrasting wood together first, then, glue up the entire piece. Since I was making 6 sets at one time, I thought gluing up the strips and then working out the best match of strips with the maple, birch or cherry might be the wisest way to approach this project. After sorting things out, I glued up the 6 blanks.

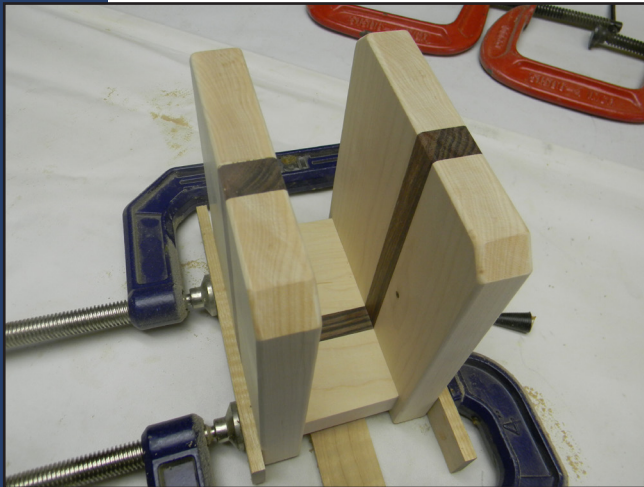


After the glue cured I ran the blanks through a thickness planer and finally a surface sander. Be sure to sand both sides. Once assembled the inner sections will be very difficult to access with any abrasive. After trimming one end, carefully measure and cut the 3 pieces for the napkin holder. Next, the remaining piece can be cut into 2 squares for trivets. When you make the base, trim both edges so the stripe will line up with the vertical sides.





I cut the top corners at 45-degrees to add a little interest. Just be sure to mirror this step on the trivet squares. Other options are a radius on the top corners, or leave them square. At this point I run the pieces through the router using a 1/4" round over bit to soften the edges. A routed bevel on the edges looks nice, too. Here we're displaying 2 different edge bevels you choose how much material to clip off.



Assembly is fairly straight forward. I simply set the vertical pieces in place and put a spare amount of glue on the horizontal section. Use a 1/2" thick piece of narrow stock as a spacer. Be sure the reveal of the horizontal piece is equal at both ends by aligning the stripe. Apply glue and clamp the 3 pieces together. Let it cure for a while.



Use small Miller dowels to reinforce the glue joint.



Let the glue on the Miller dowels cure and then trim off the excess material.



Sand to remove any tool marks left by the saw.





I add little rubber or felt pads to the bottom of the bottom of the legs to prevent scratches on wooden tables.



Of course, my wife, Ann, came up with another possible use.

**SOURCES:**

**Rockler**  
Miller Mini-X Dowels #21747  
(800) 279-4441  
[www.rockler.com](http://www.rockler.com)

**Local Home Center**  
5/16" Self-Adhesive Rubber Feet

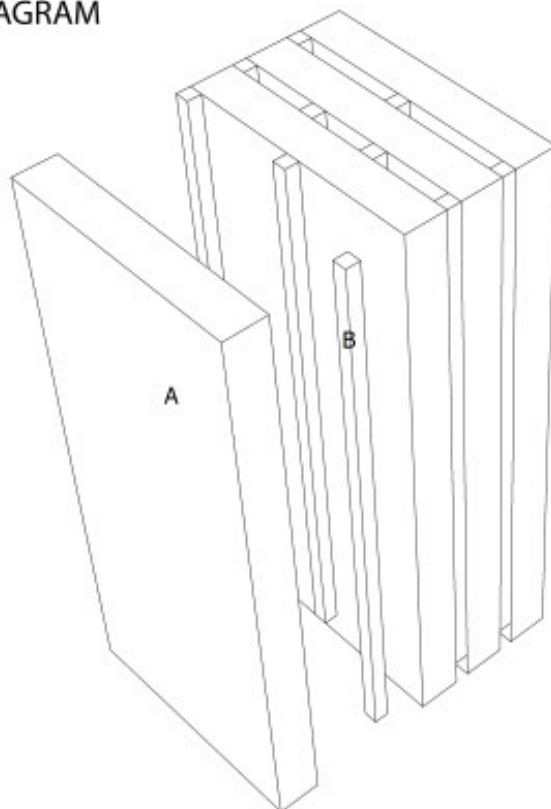
## WALNUT KNIFE BLOCK

BY SETH KELLER



Storing kitchen knives is a perpetual problem. Some people buy them one by one, and when not in use, the knives jangle inside a drawer getting dull and nicked. Other people store an enormous set of nine or ten kitchen knives, six steak knives, scissors, and a sharpening steel in a huge angled knife block on the countertop. The angled block takes up valuable countertop real-estate even though only six or seven knives are regularly used. I am sure you know people like this (maybe you're even one of them!) My upright design takes up less countertop space and shows off the natural beauty of dark walnut wood. The design is really simple: four vertical boards separated by ten strategically placed dividers. The dividers are shorter than the verticals so there is room to facilitate evaporation in case a knife is inserted wet after washing. It would be easy to make three or four of these in an afternoon, reserving an additional afternoon for finishing.

**WALNUT KNIFE BLOCK  
DIAGRAM**



PARTS	W	x	H	x	Th	Qty.
A- VERTICAL	4-1/2"	x	10"	x	3/4"	4
B- DIVIDER	1/4"	x	9-1/2"	x	1/4"	10

My design divides the block up to store seven knives; the big knife slots are about 1-7/8" wide, which are perfect for chef's knives, and the smaller slots are 1-1/8" wide for paring and peeling knives. You can customize it easily for your recipient. I also think the knife block would look great in contrasting wood. Dark walnut and creamy colored maple always makes a great combination. Have fun! Your mother-in-law is going to love you!



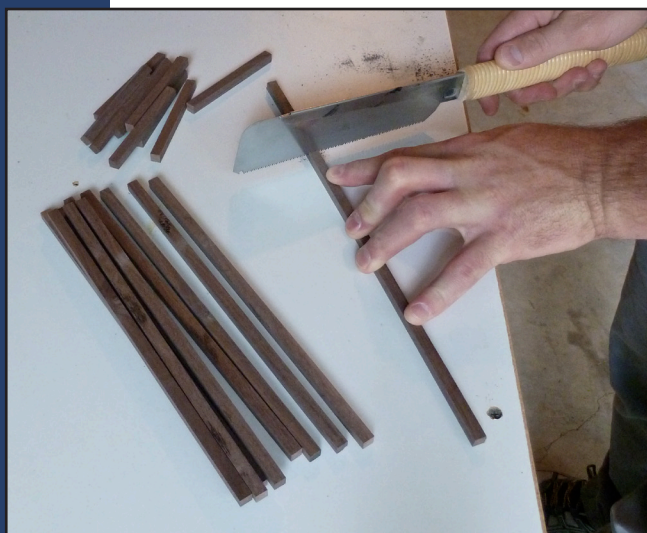
**MILL THE PARTS TO SIZE**

I rip 1/4" wide blanks for the knife block dividers, using a sacrificial push block for the safest operation. I make as many of these strips as I'll need for dividers.





I use the double push block method to rip 1/4" x 1/4" square lengths. The divider blank is as wide as my push block, so I use a second push block to hold the stock tight against the fence. I only count on one divider per blank, as it is very difficult to control a thinner blank that is completely hidden by the push block.



I am always reluctant to use a miter saw or table saw to cut small parts. Instead, I use a Japanese saw to chop the dividers to length. This razor sharp saw cuts these in no time flat.

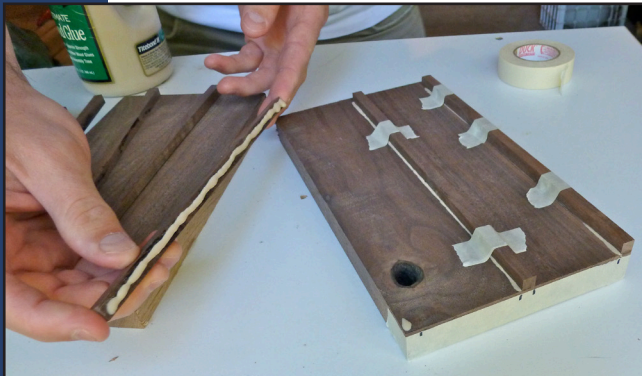


After ripping the verticals to width, I crosscut all four of the large pieces at once. This way, they are all guaranteed to be the same length. You can use a stop block, but I just align them all and chop to length. Make sure your chop saw can handle this much height; of course, you can use a miter sled on the table saw, too.



### ASSEMBLY AND GLUE-UP

I like to lay out all of my parts of the three sub-assemblies to make sure they fit correctly before I commit with glue. The dividers are 1/2" shorter than the verticals, so be sure to align them to one end. Although the glue up is simple, there are 14 pieces, so it never hurts to double check.



After I have laid all of the dividers out, I glue up three sub-assemblies of dividers and verticals. I use copious amounts of glue and "clamp" the dividers down with masking tape. Make sure there is a lot of squeeze out on each sub-assembly. I apply masking tape on the end of the verticals to mark my parts with permanent marker; pencil is hard to see on walnut, and permanent marker seeps into end grain and is difficult to sand off.



Once the glue has set for an hour or so, it is time to fix the sub-assemblies together. I apply a bead of glue across the tops of the dividers and continue with each sub-assembly until all are stacked up.





A concrete block is the most rudimentary clamp! If I were using clamps, it would be really difficult to keep the faces aligned because when the clamps are tightened down, the parts slide. Not so with a concrete block which relies on good old-fashioned gravity. I leave this undisturbed for a couple of hours and let the weight of the block work its magic.



## **CLEAN-UP AND FINISHING**

I plane any unevenness off the edges with a finely tuned hand plane after the glue has set. I also chamfer all of the edges while I have the hand plane out. Of course, if you are uncomfortable with a plane, you can use sandpaper instead.





I wrap a piece of sandpaper around a thin, broad stick and use that to clean the knife slots. I flip the block over and round the edges on the bottom as well.



I use a wiping cloth to apply three coats of oil-based polyurethane to the block. Two pieces of scrap hold the block off my work surface so I can apply finish to every side of the block at once. I squeeze the cloth and gently wedge it into the knife slots to finish the insides as well. Sand with 320-grit paper between applications. If you can, wait a day or two for the finish to dry before wrapping the knife block and putting it under the tree.

## FANCY END GRAIN CUTTING BOARD

BY AJ MOSES



Cutting boards and trivets are commonly available in a wide range of materials, and typically uninteresting. However, the latter need not be the case. As a woodworker I've steadily added tools to my shop. With the router and router table available I've tried to figure out ways to justify the expense. Here's a project that takes cutting boards to a new level and makes new use of a few specialized router bits.

### TOOLS AND MATERIALS

For this article I've chosen lyptus and jatoba for materials. Both pieces were cut-offs from a local cabinet shop. Any good contrasting wood combination will work I also like walnut/maple, birch/walnut, wenge/maple and cherry/maple.

The amount of material depends on the size of the cutting board you plan to construct. I prefer to use 5/4 material which is the capacity of my finger joint bit. Plan to use a quality waterproof glue Titebond III is used in this example. Tools – thickness planer, jointer, table saw, miter saw, router and router table, finger joint bit or other joinery bit, clamps. A drum sander is also nice, but you can hand sand.





### CUTTING THE MATERIALS

You have a lot of wiggle room here. For this project I cut 4 slightly different widths on each of the 2 materials used to give the board a little bit of random character. Typically, I cut materials between 1-1/2 and 3 inches wide. Run all the sides through your jointer to ensure they are quite straight and smooth.

The next step is routing the 'fingers' along the vertical edges of each board. Choose 2 pieces – one from each material type – for your outside edges. Make sure you only cut fingers in one edge of these boards. I typically prepare 3" or 4" lengths – enough for 2 medium or 2 larger cutting boards.

For this project I just used 15" pieces

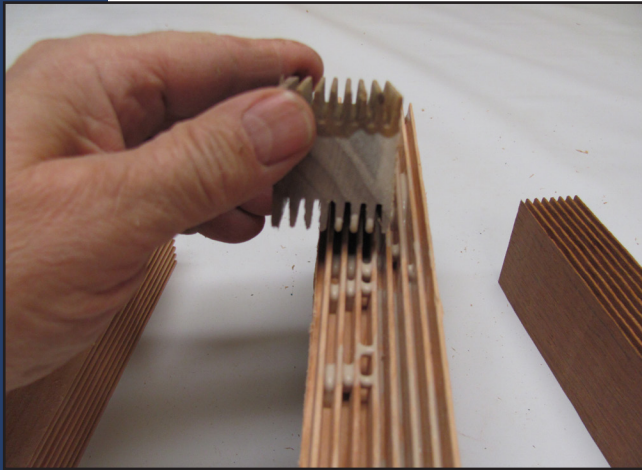


### FIRST ASSEMBLY STAGE

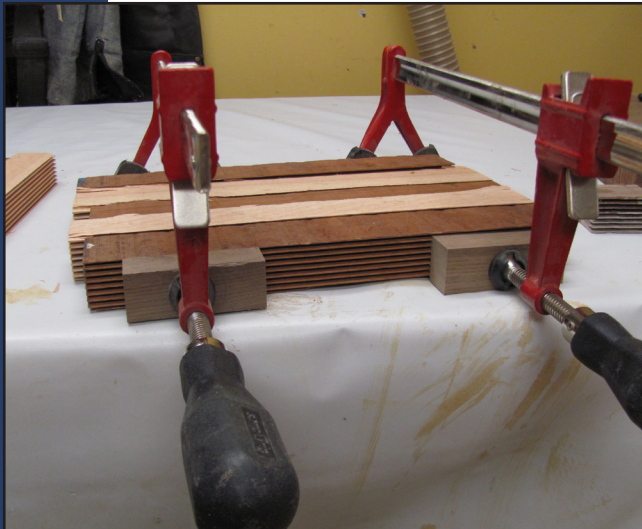
Clean all wood chips from the channels between fingers – I used compressed air for this task. It's important to wear eye protection as chips may dislodge and fly in any direction.

Arrange the pieces in an alternating pattern and test fit before applying glue. This allows you to arrange and adjust your clamps. For long assemblies I glue-up just 4 or 5 pieces at a time to avoid the problem of glue on the first joint curing before the glue on the last joint is applied and the clamps are positioned and tightened. This also ensures more uniform pressure along the entire glue line of each joint.

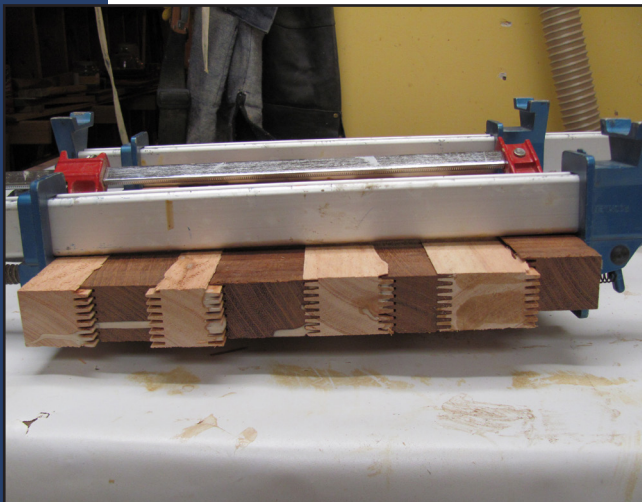




Once you're satisfied with the test fitting disassemble the pieces and apply glue. I use a short piece of 'fingered' material for this purpose.



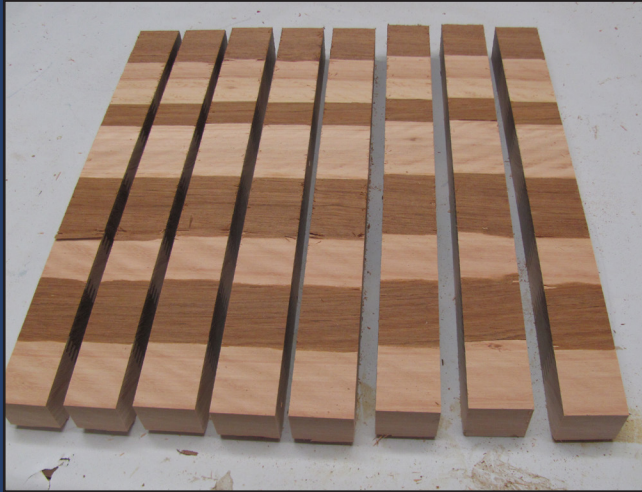
If you glue up less than the total width it's a good idea to use some short sections of material fingered on one side as a clamp block.



Once the first glue up section has cured adequately, add the remaining sections and allow to cure completely.

## CUTTING THE GLUE-UP

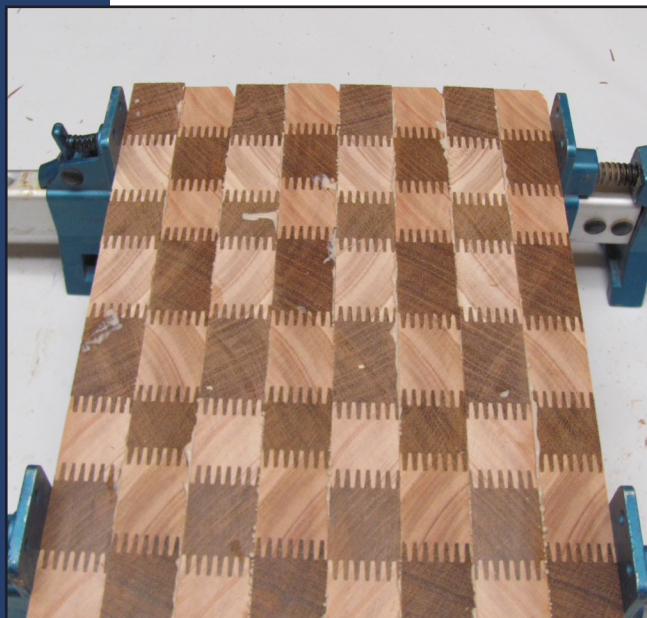
True both ends of the glue-up by running it through the table saw. Next I flatten the top and bottom of the glue-up with a thickness planer or drum sander. These surfaces become your next glue joints so make sure they're quite flat and even.



Once both surfaces are planed or sanded flat we'll start slicing off sections for the next glue-up stage. Slice across the finger joints to get the following collection of pieces.



Next, swap every second strip end-for-end, then, rotate the pieces 90 degrees so the finger joints show.



## SECOND ASSEMBLY STEP

Now you're ready for the final assembly and glue-up. Apply glue to the contact surfaces of each strip and clamp. Let the assembly cure completely. Once the glue cures completely, remove the clamps, trim the ends and sand the top, bottom and all 4 edges. I use a 1/2" round-over bit to soften the top edge all the way around.



## APPLY A FINISH

Finally, apply a food-safe oil finish. I prefer walnut oil over others – it never turns rancid. Note the slightly darker color after the application of oil. The photo looks fuzzy but isn't – this is a fun optical illusion created by the finger joints.

### SOURCE:

#### Rockler

Finger Joint Router Bit #22617

(800) 279-4441

[www.rockler.com](http://www.rockler.com)



## CUSTOM WINE RACK

BY AJ MOSES



This year my wife, Ann, suggested I make holiday gifts for several of our family and friends. She often produces fabric art quilts and they are consistently well received. I contribute too – but not as many gifts as she does. Where does she find the time?

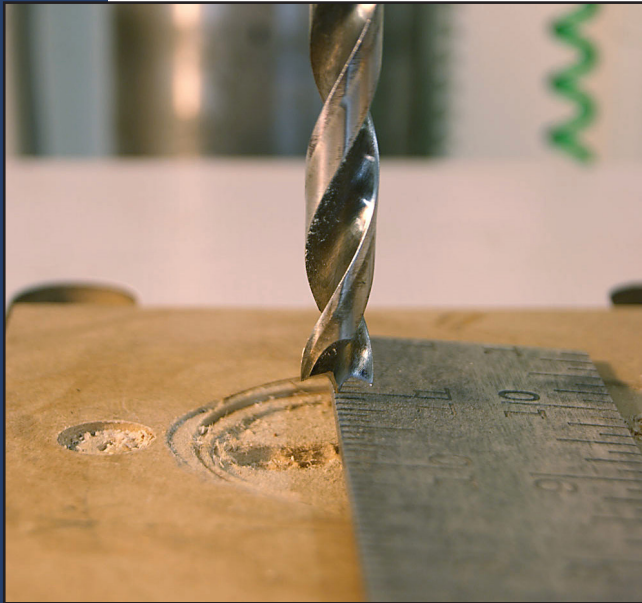
I looked through a couple hundred images of wine racks made from any number of materials, and constructed a half dozen or so before settling on a plan that would work for a very nice gift. My final plan holds 4 bottles per layer. I limited the height to 3 layers just to keep the size and weight of the piece reasonable. An alternate plan includes 5 bottles per layer.

I always start with good quality hardwood. Make sure it's flat and of uniform thickness. The joinery in this project, though not terribly

complex, requires fair precision. Specialized tools required – a dado set and 2 hole saws, (3-1/4" and 1-1/4" diameter). You'll need a drill press to run the hole saws.

Because of the joinery the stock must be uniform thickness. Your best bet is to run the parts through a planer and mill them to 3/4" thickness. Cut pieces according to the cut list – make sure to cut a few "test" pieces from the same material for adjusting your dado blades.

For your order of operations I suggest you do the bottle cut-outs, then the dado joint cuts. The reason is this – the bottle cuts are where things might go wrong – simply put – the piece could slip during the drilling process. If you mess up a bottle cut out you can replace the piece and you don't have too much of a labor investment.



### SET UP THE DRILL PRESS FOR MAKING THE BOTTLE CUT-OUTS

With the head of a square against the front edge of the drill press table align the edge of the square with the center of a drill bit.



Hold the square in this position and draw a line along the edge. This line is used as an index mark for positioning bottle rails.



Clamp a fence to the drill press table. It's best if the fence is thicker than the project material. That way the hole saw is already riding against the fence before it contacts the wine rack material.

Position the front edge of the fence 1/4" beyond the center of the drill bit. You will be drilling out slightly more than half a circle from the waste block. Make sure the waste block is perpendicular to the index line for best results.



Draw index lines on the bottle rails at 4" increments.



With the 3-1/4" hole saw in the drill press, align the first index mark on one bottle rail with the index mark on the table and clamp the rail securely in place.



Gently feed the hole saw into the rail. Note that the rail is tightly clamped to the drill press table, but the clamp is out of the frame of the photo.



If the cut out remains inside the hole saw be sure to remove it before making subsequent cuts.

Move to the next index mark. Continue until half your rails are done. Then change to the 1-1/4" hole saw. Position the fence by nesting it against the hole saw. Again, keep the front edge of the fence perpendicular to the lay out line you made on the drill press table.



## CUT THE DADOS

Set your dado head to the thickness of material and test it carefully. You'll want a snug fit. Test, test, test. Just make sure the dado cut is the same thickness as the material! If the dado cuts are too large your joints will be sloppy. If too small you might chip edges during assembly. If you're using softer or more porous woods consider the possibility of swelling when applying finish. You might want to experiment with your chosen finish on a couple test pieces.

I use a shop-made sled to cut my dados. You could use a miter gauge with a stop block, but the sled is simple to make and goes a long way to ensuring consistent dado cuts on your material.

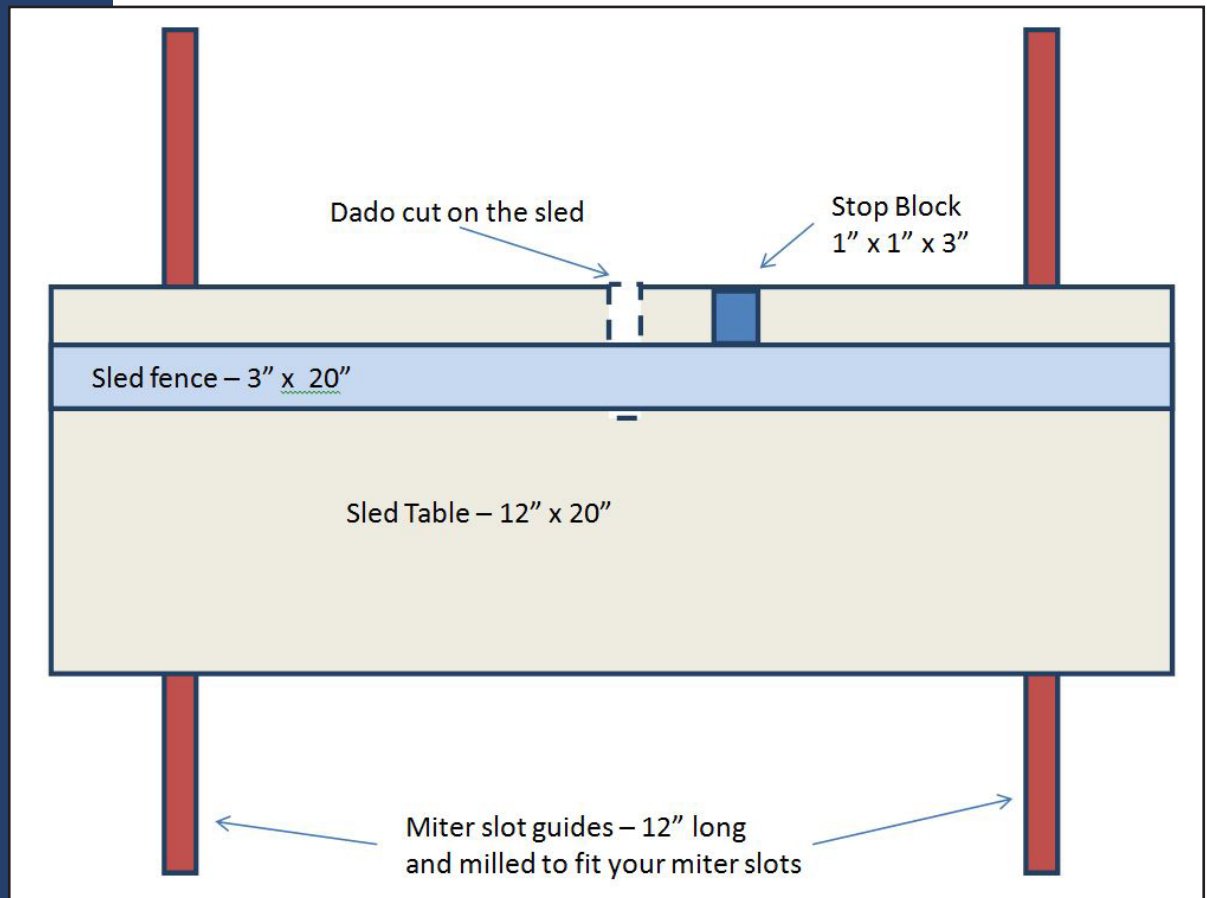


The sled is made up of a base 12" x 20" with 2 slides arranged to match the miter slots on your table saw, a fence perpendicular to the cut, and a stop placed to ensure the data starts 1" from the end of each piece.



**Note** – the end piece along the left edge of the sled as shown in this photo acts as a guide. I place the bottle rails against that end piece and use index marks drawn on the sled fence at 4" increments for making index marks on my bottle rails. (See earlier photo)

**HERE'S A SKETCH OF THE SLED TO ADD CLARITY**



**Tech note:** In this illustration we show the slot guides extended beyond the body of the sled. This is not necessary – it's just to give you a better idea of how the sled is built.



Note that the dados are cut on both ends of each piece, and on the top and bottom edges, EXCEPT, the bottom edge of the lowest rails. These are base pieces and don't require a dado on the bottom.

The sides, 6" x 12" pieces, need dado cuts on both top and bottom edges. For the top rail designed to trim the last layer, (1-1/4" x 20" pieces), cut dados in only one edge.



Sand the bottle cut outs using a spindle sander. These cuts can be sanded out by hand, too.

Gently finish and the faces of all the pieces. Keep in mind it's important to keep everything the same thickness.



Use a router table to round-over each edge – except inside the dado cuts. You can do the same thing with a sanding block and some 220 or 320 grit paper.

Dry assemble your project and make any necessary adjustments.

Final sand and mask off the dado joint surfaces. Apply 3 coats of lacquer or polyurethane. Sand with 400 or 600 grit paper between coats for the best finish. Let the coats cure completely.



Assemble finished pieces using good quality wood glue with a generous open time – 10 or more minutes. It's a good idea to assemble all the layers at one time to ensure perfect alignment. Clamp firmly and let the glue cure thoroughly.



### CUT LIST FOR 4 BOTTLES WIDE

4 bottle rack	8 bottle rack	12 bottle rack
2 pieces 6"x 12"	4 pieces 6"x 12"	6 pieces 6"x 12"
2 pieces 3" x 20"	4 pieces 3"x 20"	6 Pieces 6"x 20"
2 pieces 1-1/4" x 20"	2 pieces 1-1/4" x 20"	2 pieces 1-1/4" x 20"

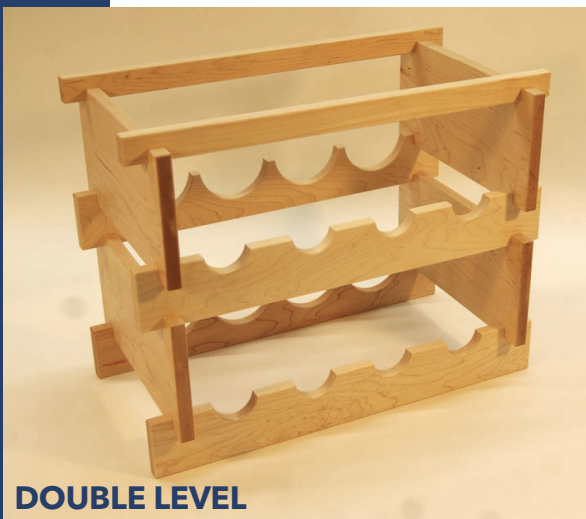
### CUT LIST FOR 5 BOTTLES WIDE

5 bottle rack	10 bottle rack	15 bottle rack
2 pieces 6"x 12"	4 pieces 6"x 12"	6 pieces 6"x12"
2 pieces 3" x 24"	4 pieces 3"x 24"	6 Pieces 6"x 24"
2 pieces 1-1/4" x 24"	2 pieces 1-1/4" x 24"	2 pieces 1-1/4" x 24"

### SEVERAL PROJECTS - 1, 2 AND 3 LAYER RACKS



**SINGLE LEVEL**



**DOUBLE LEVEL**



**TRIPLE LEVEL**

## MODERN CANDLE WALL SCONCE

BY PAUL MAYER



I went to Daniel Kantor of Kantor Group (Minneapolis based design firm) to get a fresh idea for a WWGOA Christmas project. I am delighted with the design he has provided for this modern candle wall sconce, as it looks great and it is relatively simple to build in mass production for Christmas gifts. Dan designed a trio of sconces that can be hung together as a set, or separately. I will walk you through the process of building just one, as the construction techniques are the same across all sizes, and all of the dimensions for the trio are detailed in the diagram (see page 58).

### VOTIVE HOLDERS AND TEA LIGHTS



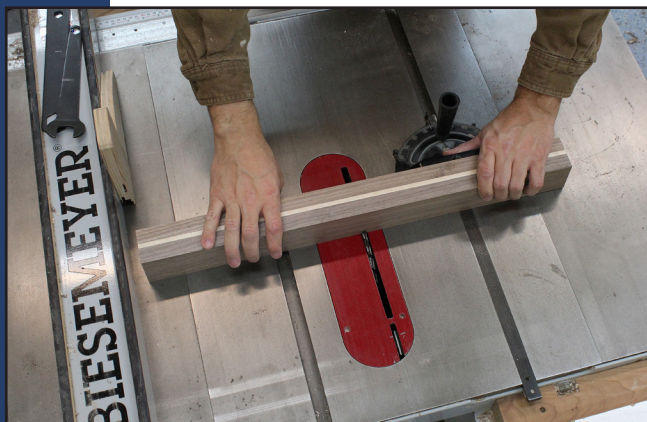
The project is designed to hold a standard 2" votive holder with an LED candle that is sourced below (we have even arranged a WWGOA discount for you during the holiday season). Obviously you can modify the dimensions of the sconce and shelf to accommodate any size or style candle that you would like to use.





### START WITH BLANKS

Either mill some thick stock to the following dimensions or glue together some boards to achieve this size. The size for each blank: large: 2-1/8"W x 2-1/4"D x 40"L, medium: 2-1/8"W x 2-1/4"D x 30"L, and small: 2-1/8"W x 2-1/4"D x 24"L. To mill the blanks for the shelves, I simply made one of my scone blanks 6" longer than necessary and cut two shelf blanks off the end, with dimensions of 2-1/8"W x 2-1/4"D x 2-1/2"L. You could actually mill all three shelves out of one blank but I was concerned about making the last cut on such a small piece. Plus it's easier to get consistency in material between the shelf and body of the scone if you cut these from the same board, so having an extra one glued up and ready was cheap insurance.



### MILL DADOS FOR SHELVES

Select the best face side of your blanks, and measure and mark the center of each face. Set your dado blade (or router) for 1/4" x 1/4", and mill a dado through the piece.



### DRAW YOUR LINES

Follow the measurements on the drawing for the points where the curves start and flex to, and use something flexible (I used a long ruler) to create the arc across these points. Have someone help as this is tricky to do alone.



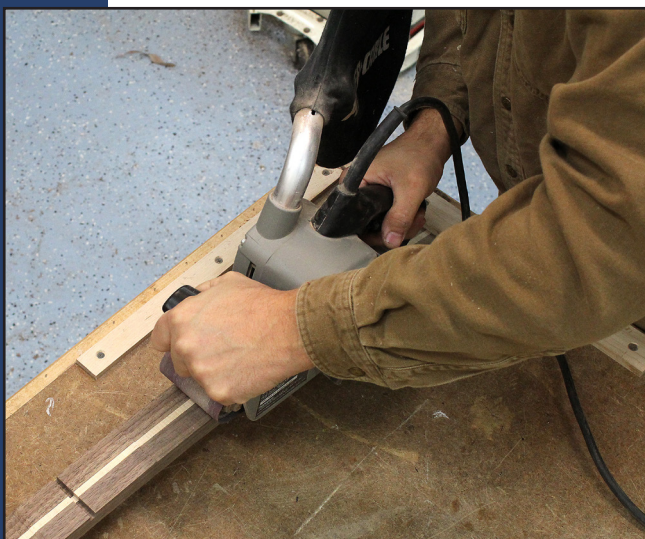
### **CUT TO YOUR LINES USING A BAND SAW**

Take your time, as these are important curves and you want them as smooth as possible. Leave the line so you have room for cleanup with the sander.



### **SPOKESHAVE ON THE INSIDE CURVE (OPTIONAL)**

I found that by using the spoke shave first on the inside curve I could get a smoother curve, particularly on the smallest scone, as the belt sander was not able to sit flat enough to smooth the arc. If you don't have a spokeshave you can do an adequate job here with a belt sander, but the spokeshave just sweetens it up a bit. A large sanding drum on a drill press would work well here as another option.



### **BELT SAND ALL SURFACES**

Get the curve as smooth as possible, but don't remove too much material near the dado, as that will change the depth. Check the material thickness periodically with a caliper to ensure that you are sanding evenly on each side.





### **SQUARE UP THE ENDS**

After belt sanding you will find that the ends have gotten thin, fragile and uneven. To remedy this, trim approximately 1/8" to make the end a bit thicker for sturdiness, and square.



### **MILL RABBETS ON SHELVES**

Mill 1/4" x 1/4" rabbets on the tops and bottom of your blanks, which will be used to secure the shelf. I like the added control of a cutoff sled for this operation, and have also configured a sacrificial fence to prevent accidental cutting on my fence.



### **CUT THE SHELVES**

Set your fence for 1/2" and cut a shelf from each side of your blanks. Use a feather board and push stick to bring better control over this small piece.



### **MILL A RECESS IN THE SHELF:**

Step 1, build a jig. A recess in the shelf surface will help to keep the votive holder in place. I made a little jig for this by tracing the shelf onto a piece of scrap plywood and cutting it out with a scroll saw. Then, I set the shelf piece in there so it would be held securely during the milling process.



### **MILL A RECESS, STEP TWO**

Using a 1-7/8" forstner bit plunge slowly into the top of the shelf, penetrating about 1/8" into the surface. Run your drill press at a slower speed for this operation due to the large size of the bit.



### **SHAPE THE SHELVES**

Use a belt sander or similar to contour the shelves a bit so they are less square and flow better with the rest of the piece.





### **ATTACH SHELVES**

Use a bit of glue and apply enough clamping pressure to secure the pieces together while the glue cures, for perhaps an hour or so. Be sure to force the shelf into alignment with the body at this point.



### **EASY HANGING BRACKET**

This design works much better if the scone is installed in direct contact with the wall, without using a protruding mounting bracket. You may have a key hole router bit which is specifically designed for this purpose, but if not, this approach can serve as a workaround for you. First, use a 3/8" bit to drill a hole about 1/2" deep in the back of the scone, into the thick portion of the top piece that meets the wall.



### **NOW ENTER THE PREVIOUS HOLE AT AN ANGLE**

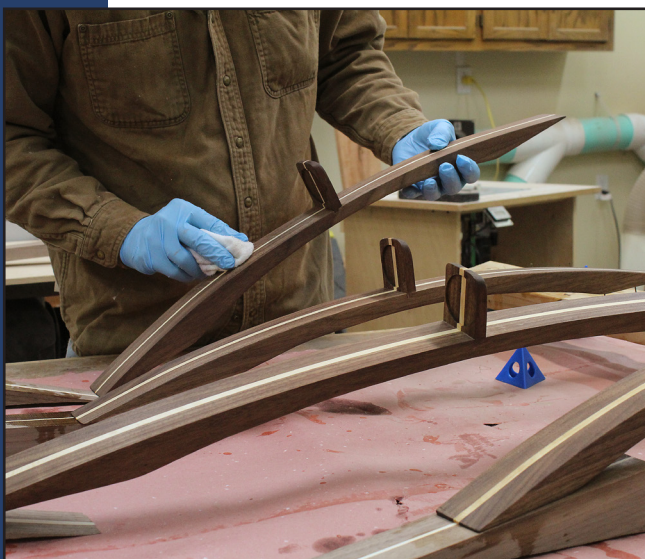
Using a 9/32" bit, place the bit in the previously drilled hole, and drill a hole into it at a 45 degree angle toward the top, approximately 1/4" deep.





### TEST THE HANGER

After you have drilled the second hole, test to be sure that your hanging screw or nail slides securely up into the recess, which will serve to hold the sconce solidly against the wall. Hand sand everything one last time with 150-grit paper (320-grit if you plan to stain) to prepare for finishing.



### APPLY YOUR FAVORITE FINISH

I used a home brew of tung oil and wipe-on poly to pop the grain and give some protection, but you can use whatever you prefer.

#### SOURCE:

##### **Quick Candles**

Votive Candle Holder

Frosted Glass Set of 12, \$6.99, #1101-12

Flameless LED Tealights

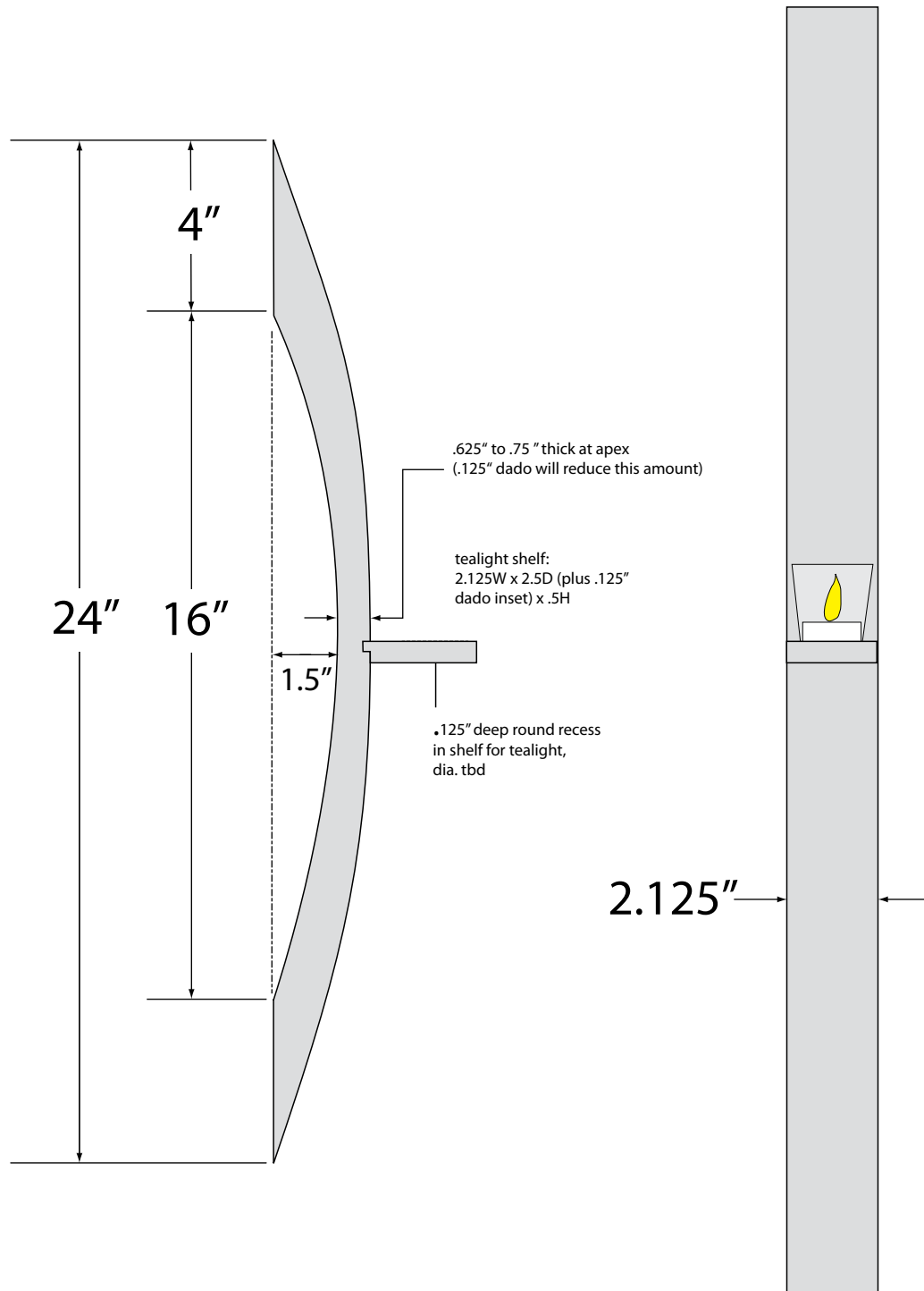
Amber Set of 12, \$9.99, #1088-12

**(800) 928-6175**

**[www.quickcandles.com](http://www.quickcandles.com)**

# 24" Tealight Sconce

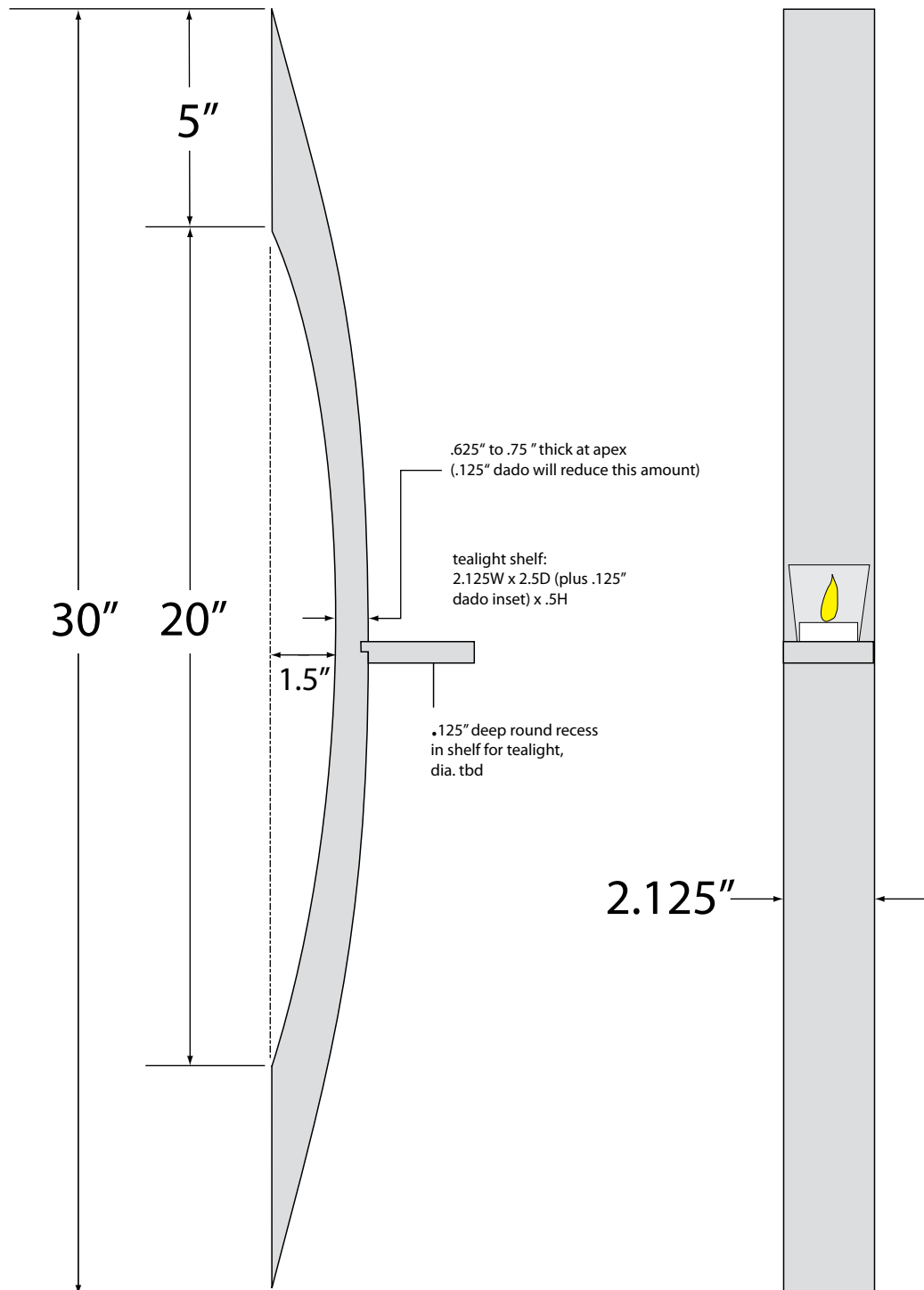
by Paul Mayer and Daniel Kantor





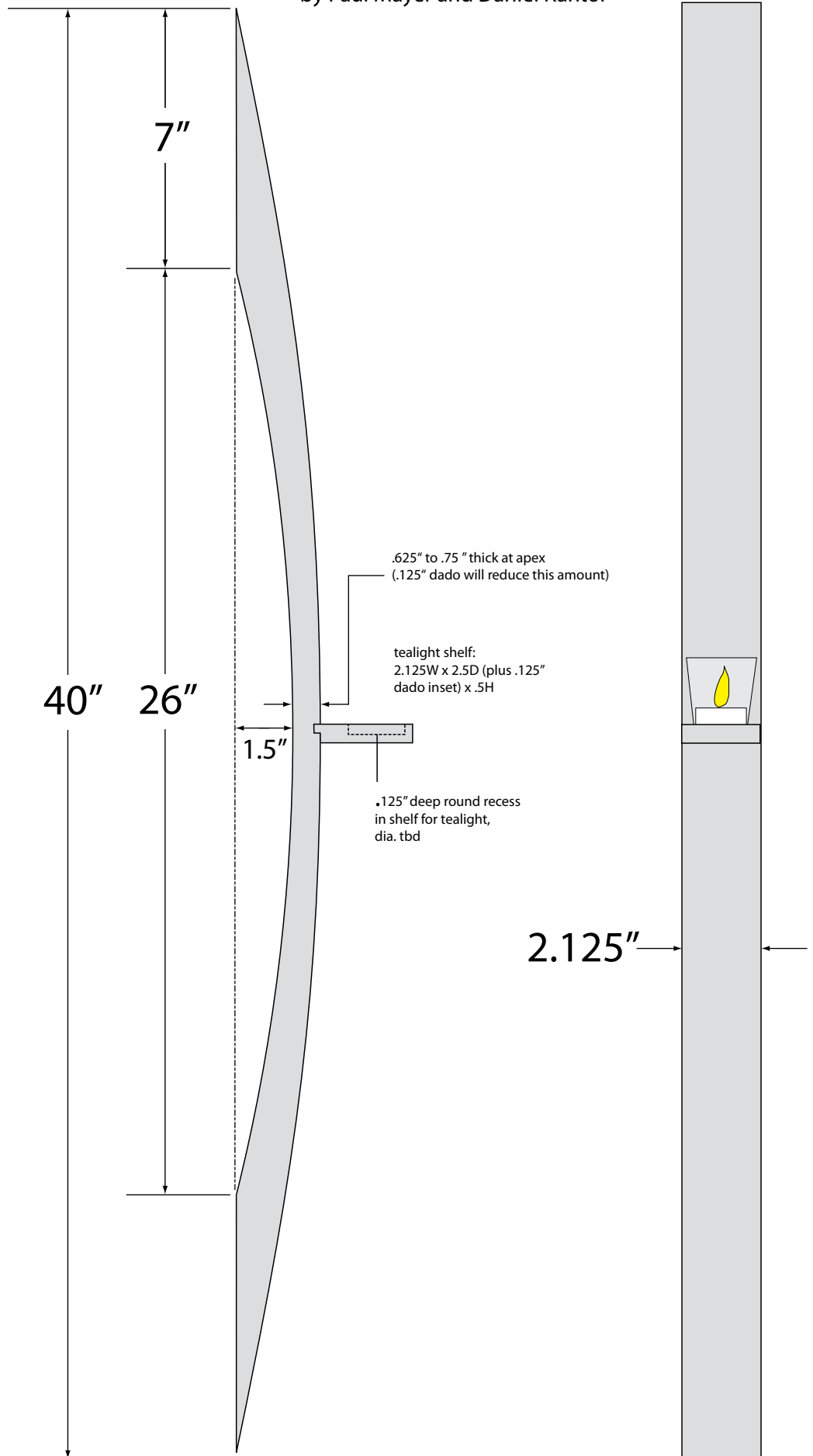
# 30" Tealight Sconce

by Paul Mayer and Daniel Kantor



# 40" Tealight Sconce

by Paul Mayer and Daniel Kantor





## DOVETAILED STEP STOOL

BY DAVID MUNKITTRICK



One of the things I like best about woodworking is the chance to create objects that are both useful and beautiful. The humble step stool is just such a project. A stool spends its life down on the floor dutifully presenting its back for people to step on. Like a true friend, a stool is always there when you need a lift. I think it deserves to look good. I set about designing the stool when my kids were very young. I was tired of hefting them up to the sink to wash their hands. At the same time, I wanted to give my wife access to the top shelf of our kitchen cabinets without her having to call me in to do the job. Of course, the stool had to be strong and stable, but it also had to be large enough to provide a comfortable perch and small enough to store easily. I wanted people to trust the stool before they ever set foot on it. At the same time, I wanted the stool to look good while it waited for its next customer.

From the start, I thought dovetails would be the best joint for the stool. Nothing says “strong” to people like a set of well-cut dovetails. In sketching out the stool, it occurred to me to carry the dovetail design throughout. So, I took

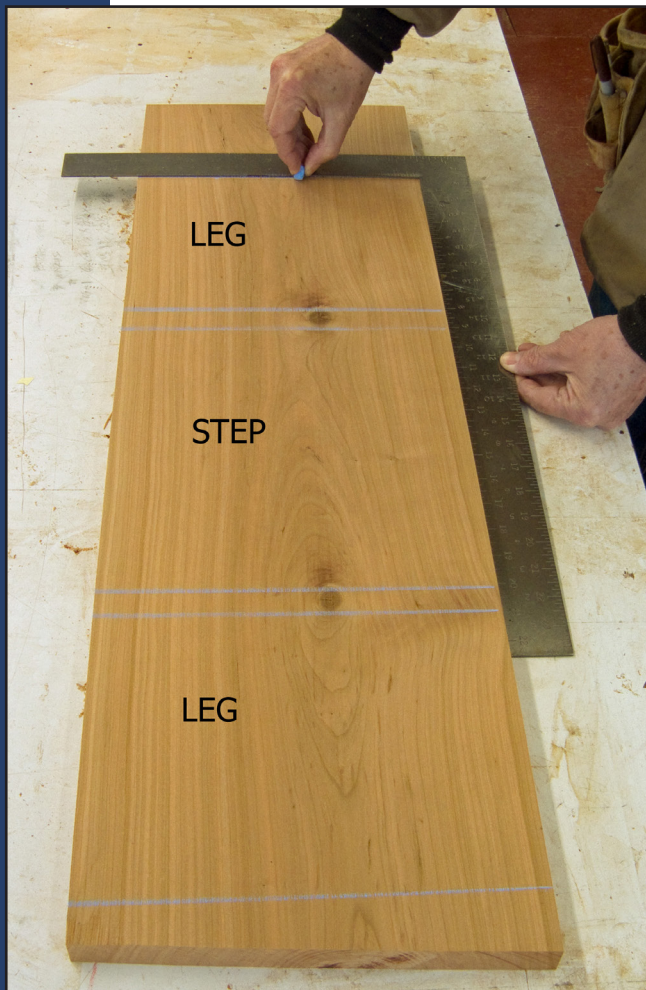
the 10-degree dovetail angle and used it to flare the legs from front-to-back and side-to-side. The resulting leg splay creates an incredibly stable stool. I can literally balance on any corner of the stool without any danger of the stool tipping. The tapered edges added visual interest to the stool. It looked good and it looked stable.

A stool height of 7” to 8” works best; it’s an easy step up for kids or adults and provides the needed boost in height for most situations. An 8” x 14” platform or step is big enough to comfortably stand on but keeps the stool small enough to tuck out of the way when not in use. You can vary the dimensions to suit your needs.

The dovetails are cut on the bandsaw to save time. A sharp set of chisels is required for paring the tails and chopping the pin sockets. A router table is needed to create the feet. The 10-degree leg splay complicates cutting the dovetails, but a ramp creates the angled cut automatically.

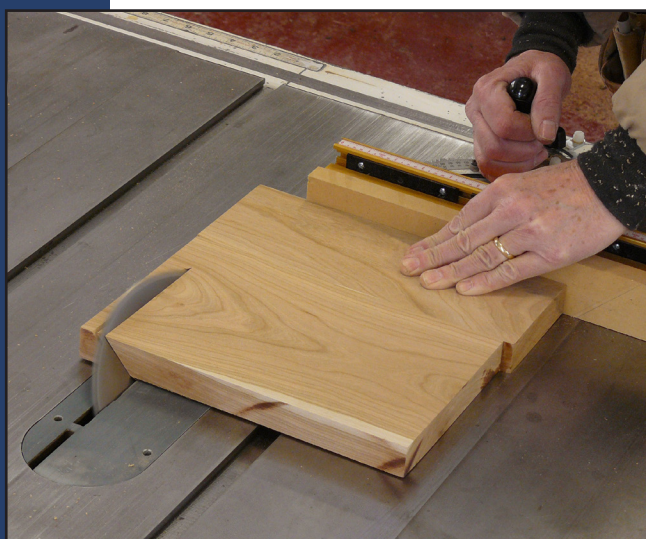
If you’ve never cut dovetails before, than I suggest getting comfortable with cutting 90-degree joints first. The technique I show on the bandsaw can be used to cut dovetails at a 90-degree angle. Even if you’re experienced cutting dovetails, I suggest you make a practice stool with scrap wood first. Practice stools make great shop additions – trust me, I have several of them, including one with the tails cut backwards, (don’t laugh).

Start the stool with a single plank of wood approximately 7/8” thick, 11” wide and about 32” long. If you need to glue up boards to get the 11” width, choose boards where the grain blends well so the joint is not obvious and keep the joint towards the middle of the stool to avoid cutting through the joint when tapering the legs. Note: It’s possible to make the stools from 3/4” stock. However, the stool is stronger and looks better with 7/8” thick stock.



**LAY OUT THE STOOL PARTS AND  
ROUGH CUT THEM TO LENGTH**

Rough out the stool parts on a single plank of wood. Position the parts as shown so the grain flows up one leg, across the step and down the other leg. Plan your cuts to eliminate defects like knots.



**THEN, CUT 10-DEGREE BEVELS  
ON THE ENDS OF THE LEGS  
AND THE STEP**

Cut the 10-degree bevels on the top and bottom edge of the leg. With the blade angled away from the miter gauge, both ends of the step and top of each leg is cut face down. Cut the leg's bottom edge face up using a stop block. (Note: Guard removed for photo clarity)





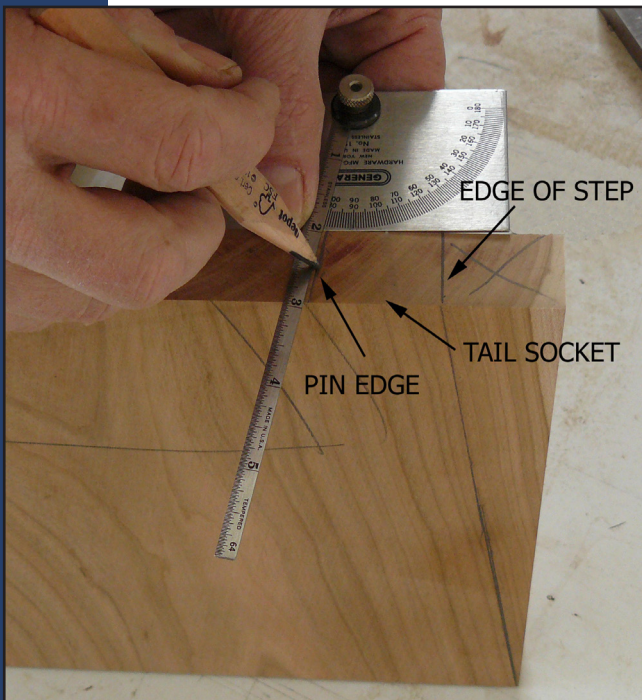
**SET THE PIECES IN THEIR  
ORIGINAL ORDER AND MARK  
THEM FOR FUTURE ORIENTATION**

Lay out the stool pieces to double-check your angle cuts. The top and bottom bevels on each leg should be parallel. The bevels at the top of the legs and the ends of the step should be opposites. Mark the pieces to keep track of their orientation.



**LAY OUT THE 10-DEGREE  
SIDE TAPER ON EACH LEG  
WITH A PROTRACTOR**

Mark the final width of the leg across the top. Lay out the 10-degree taper on both sides of a leg. Square the line across the top edge to indicate the finish width at the top of the leg.



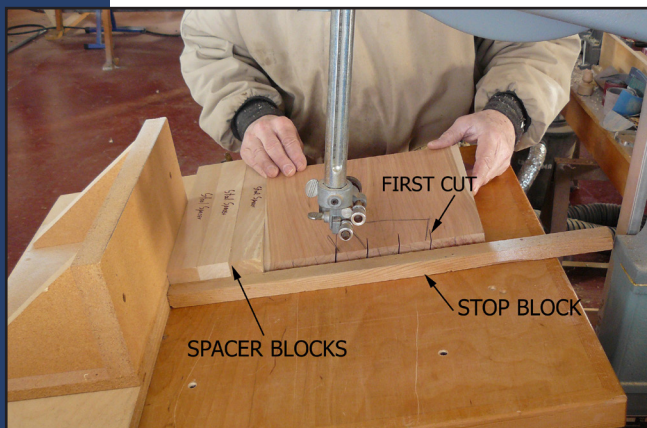
**MARK THE LOCATION OF  
THE FIRST PIN IN ON THE TOP  
OF ONE LEG**

Do the same for the pin on the opposite edge. The typical half pin is eliminated in this stool design. This allows the top, or step, to be completely supported by the legs. The first pin starts after the tail socket. Starting with a tail socket rather than the typical half-pin allows the leg to support the step across its entire width. A half pin on the outside of each leg would leave the top unsupported in those areas. When it comes to dovetailing, there's always a debate about what to cut first, the tails or the pins. For this project, the pins come first because they can be cut on the bandsaw using a fence for a guide. The fence eliminates freehand slips and only requires a partial layout on one leg.



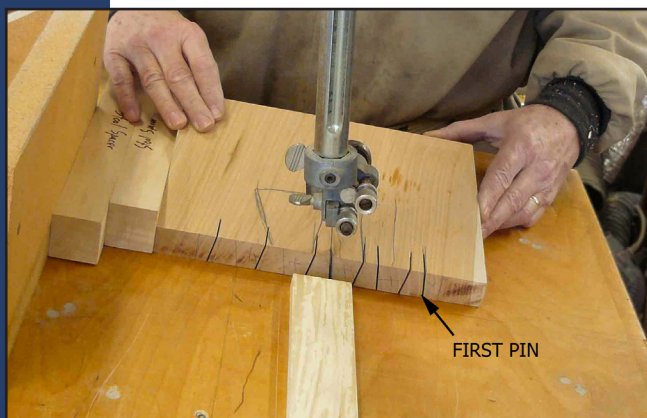
### **DETERMINE THE DESIRED PIN SIZE AND SPACING ON ONE LEG**

I found 1-1/2" pin spacing works well yielding approximately 3/4" wide pins and 15/16" wide tails. Cut spacer boards that are equal in width to the desired pin spacing. Make the spacer boards of 1-1/2" thick stock. Use a protractor to lay out four 10-degree ramps on some scrap. Make one pair long enough for the legs (8"-10") and a second pair long enough for the step (14"). Cut the ramps out on the bandsaw. Attach the two shorter ramps to the face side of a leg blank and parallel with the grain. To make sure the ramp angle is correct, slide the elevated leg edge up against the back of the bandsaw blade. There should be no gaps between the leg edge and the blade back. Attach 10-degree ramps on the backside of the leg. Put the narrow end of the ramp at the top of the leg. Double stick tape or hot melt glue works great for this.



### **SET UP THE BANDSAW TO MAKE THE FIRST CUT ON THE PINS**

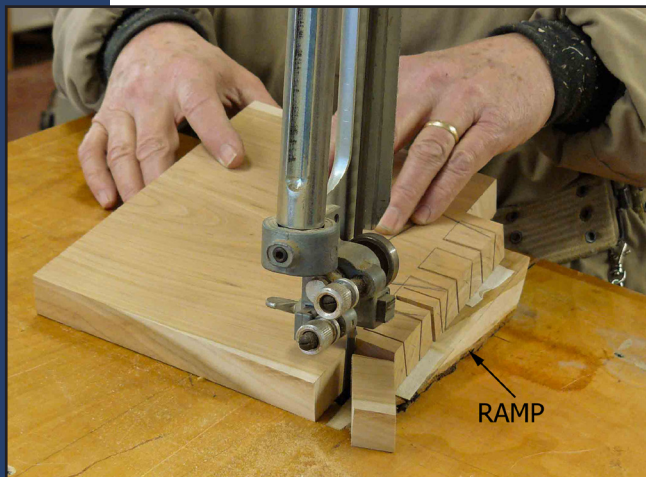
The table angle does not have to be precise, so simply use the table gauge. Make the first set of cuts on each pin. Tilt the table 10-degrees down to your right. Position the fence to cut the inside edge of the furthest pin. Set a stop block for the depth of cut. Make the first cut then add a spacer block equal to the width of your pin spacing and cut the edge of the next pin. Continue to add spacers to cut the remaining pins.



### **THEN, RESET THE SAW AND FENCE TO MAKE THE FINAL CUTS FOR THE PINS**

Tilt the table 10-degrees to your left and reset the fence to cut the outside edge of the first pin. Add spacers and cut the rest of the pins.





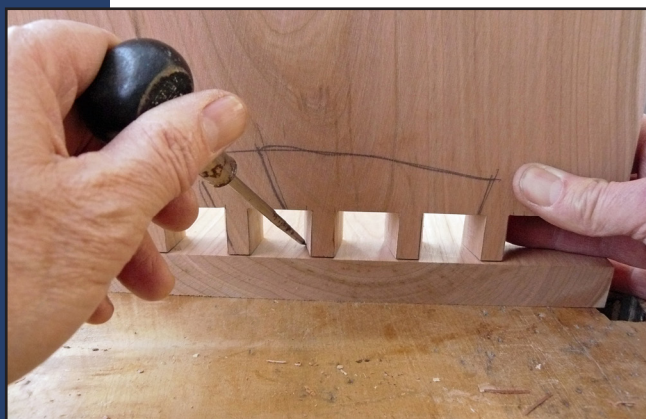
### **CUT THE SHOULDERS ON THE OUTSIDE EDGES OF EACH LEG**

For this cut, reposition the ramps to run along the width of the leg (across the grain). Keep your cut just shy of the line so you can pare later. Cut the pin shoulders with the 10-degree ramps repositioned along the width of the leg blank. The ramps are repositioned so the leg slopes down to the blade for each shoulder cut. The bandsaw table is set at 90-degrees for this cut.



### **CHOP OUT THE TAIL SOCKETS WITH A SHARP CHISEL**

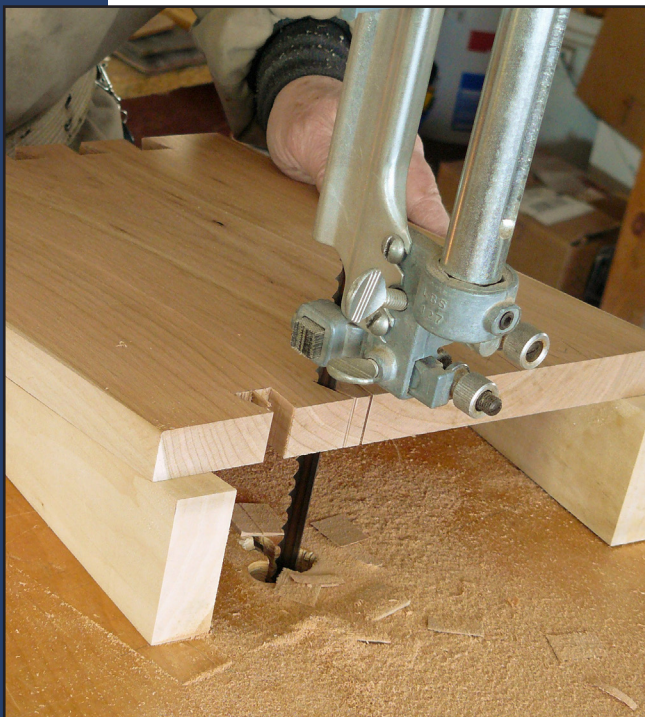
Take care to maintain the 10-degree angle at the bottom of the sockets. The pins are done. Chop out the tail sockets as you would any dovetail joint. Follow the saw kerfs to achieve the 10-degree angle on the socket bottoms.



### **NOW, USE THOSE PINS TO MARK THE TAILS ON THE STEP**

A precise layout here is essential for a good fit so take your time and make sure your layout lines are dead-on. Using the pins to layout the tails on the underside of the step. A scratch awl or a very sharp pencil works best.





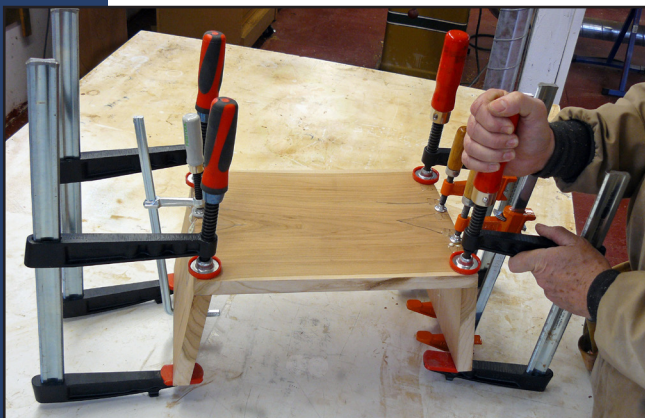
**WITH THE BANDSAW TABLE  
AT 90-DEGREES, FREEHAND  
CUT THE TAILS**

Cut the tails freehand on the bandsaw. Use a second set of 10-degree ramps cut long enough to support the entire step. Keep your cuts shy of the layout lines. Nibble out the pin socket with repeat cuts.



**A STOP BLOCK IS NOT NECESSARY  
HERE BECAUSE THE CUTS MUST  
BE KEPT SHY OF THE LINES**

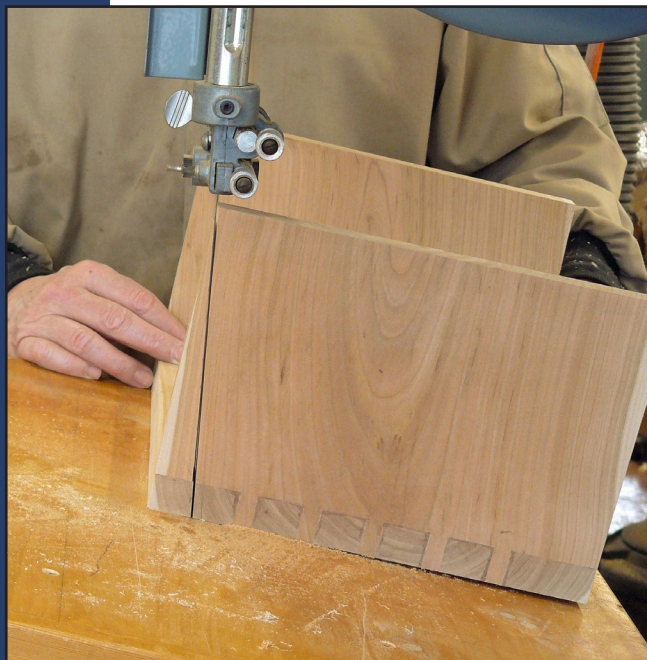
With a sharp chisel and a steady hand, pare down to your layout lines. Pare the tails to the layout line and clean up the bottom of the pin sockets with a sharp chisel. Check the fit with the leg and continue to pare until the joint goes together with light taps from a mallet.



**FOR GLUE-UP, I LIKE TO USE AN  
EXTENDED OPEN TIME GLUE AND  
A SMALL GLUE BRUSH**

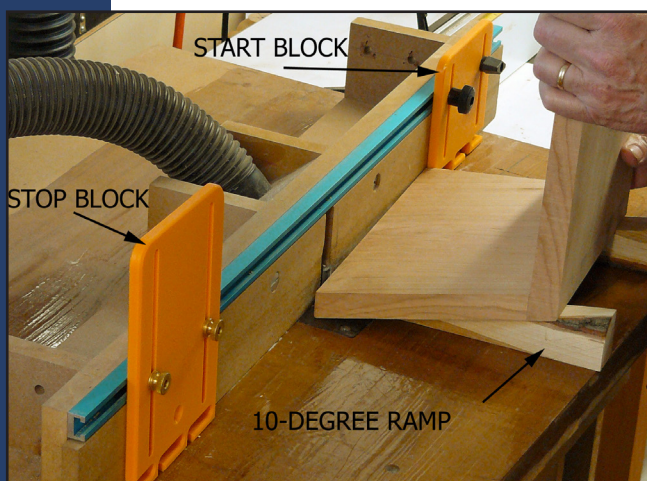
Spread glue on all the mating surfaces between the step and the leg. Clamp the joint with gentle downward pressure on the top. Once the glue has cured, remove the clamps and rough sand the stool to remove excess glue and smooth the joints. Glue and clamp the stool. The only clamp pressure required is downward on the top to make sure it sits tight on the leg.





### CUT THE TAPERS ON BANDSAW

Make sure you have a guideline laid out for the straight cut on the underside of the step. Don't expect the blade to necessarily hit the line as it emerges from the leg, it's just meant to guide your cut, not be your cut; just keep your cut parallel to the line. If your bandsaw lacks the height capacity to cut the leg tapers, you can always use a jigsaw. Cut the leg tapers first with the base of the saw set to 0-degrees. Hold the cut just shy of the step. Adjust the jigsaw base or shoe for a 10-degree bevel cut and rip the edges of the step along your layout lines. Smooth the bandsawn edges with a plane or sanding block. Cut the leg taper with the bandsaw table set to approximately 10-degrees. Lay out the cut on the underside of the step beforehand. Use the outside corner of the leg as your starting guide then parallel the layout line on the underside of the step.



### THE FINAL STEP...

is to create the feet by routing a shallow relief on the bottom of the legs. A 1/2" straight bit works best. A shallow cut, approximately 1/8", is all you need. Rout the feet on the router table. Set a start and stop block to produce a 1-1/2" long foot. Attach ramps to the stool. Set the leg corner against the start block and swing it into the bit. Slide the stool along the fence to the stop block and swing the stool away.



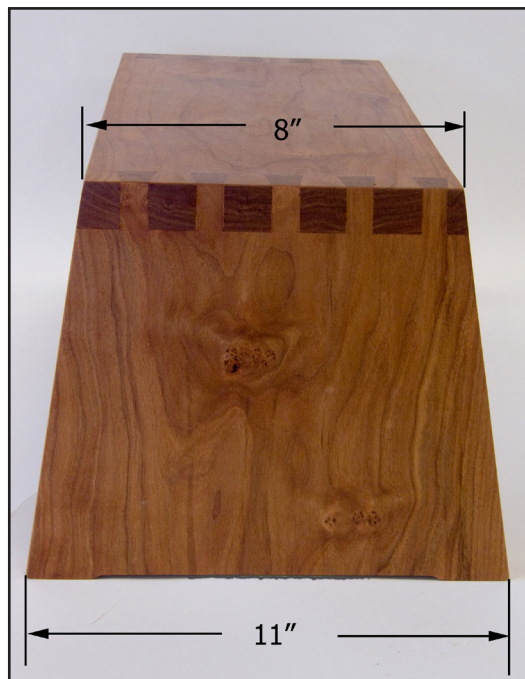
### TIME TO FINISH

Finish sand the stool to 220-grit and apply an oil finish. I don't recommend a film finish like polyurethane because it leaves a slippery surface for standing. Stick with oil, it provides better footing. I like an oil finish on my stools. It looks good and is easy to repair; a real plus when you consider the beating these stools take on the floor.



**THAT'S IT!  
ENJOY YOUR STOOL.**

Once you've made one of these, you're all set to make dozens and believe me, when people see your stool, they're going to ask you to make one for them.



**SOURCES:**

**Highland Woodworking**  
Highland Wood Slicer  
(800) 241-6748  
[www.highlandwoodworking.com](http://www.highlandwoodworking.com)

**Rockler**  
Titebond Extended Set Glue  
(800) 279-4441  
[www.rockler.com](http://www.rockler.com)



## MODERN ENTRYWAY BENCH

BY PAUL MAYER



A bench that will be placed in a home's entryway is an important project for a couple reasons. First; visibility. It will be one of the first things that visitors see when they arrive, and so it will help to set the first impression of the overall home. Second, it is likely to receive a lot of use, particularly if there are children in the home, so durability is critical. When I set out to create woodworking bench plans to construct an entryway bench for a friend's home, it was important that it matched the aesthetic of the overall decor while providing a solid landing pad for the kids and their gear. We collaborated on a design that met these objectives and we built it from sugar maple, as the density of this wood makes it a great choice to withstand years of heavy use.

### ***Some of the key design attributes:***

**Substantial legs.** These 3" square legs deliver the hefty look and feel that my friends desired.

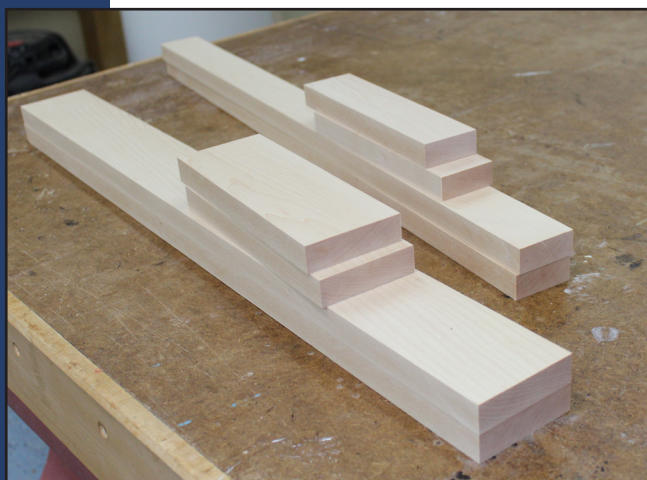
**Thick top.** I started with 5/4 maple stock and removed as little as possible during the panel construction process in order to yield this 1-1/8" thick top that nicely complements the massive legs.

**Lower shelf.** My friends wanted a lower shelf to allow for placement of hats, gloves, etc. We decided on a front-to-back slat design that provides some air flow for drying as well as a nice look.



### START WITH THE LEGS

For each laminate four pieces of 7/8" thick maple, then mill the blanks to 3" square using a jointer and planer. Next, mill 1/4" wide by 3/4" deep mortises in each leg to accept the upper and lower rails. For projects that will be subject to a lot of wracking like this bench, my preferred joint is the tried and true mortise and tenon. For tips on constructing simple and strong mortise and tenon joints refer to these two sections of the "Modern Media Cabinet" article: [Part 1](#) and [Part 2](#).



### MILL THE UPPER AND LOWER STRETCHERS

See cut list for specifications. I left all of these pieces 1-1/2" long to accommodate a 3/4" tenon on each end.

### CUTTING LIST

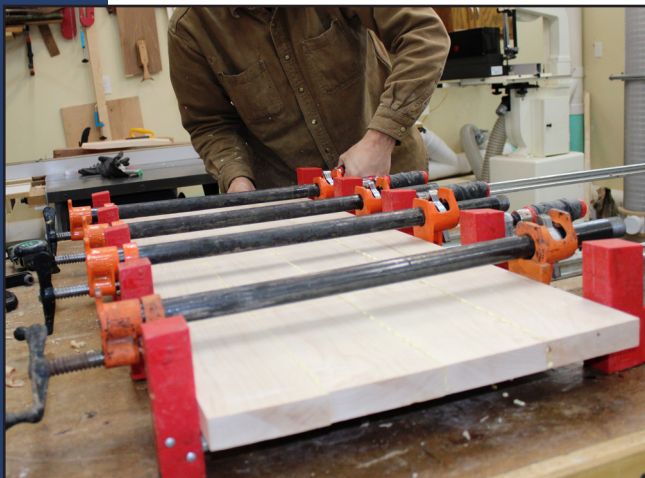
Qty	Item	Size	Notes
4	Legs	3" x 3" x 17-1/2"	If you don't have 3" material you can laminate multiple thinner boards
2	Upper stretchers (front and back)	3/4" x 3" x 31"	Length includes additional 1-1/2" for 3/4" tenon on each end
2	Lower stretchers (front and back)	3/4" x 2" x 31"	Length includes additional 1-1/2" for 3/4" tenon on each end
2	Upper stretcher (side)	3/4" x 3" x 9"	Length includes additional 1-1/2" for 3/4" tenon on each end
2	Lower stretcher (side)	3/4" x 2" x 9"	Length includes additional 1-1/2" for 3/4" tenon on each end
4	Cleat	3/4" x 1-1/4"	Cut 1/4" shorter than stretchers
13	Slat for shelf	3/4" x 2-1/4" x 8-1/2"	Position using 1/8" spacer
1	Top	1-1/8" x 15" x 37"	Made from edge glued boards
4	Corner brace	3/4" x 3" x 7"	Cut 45 degree angle on each end, attach with biscuits





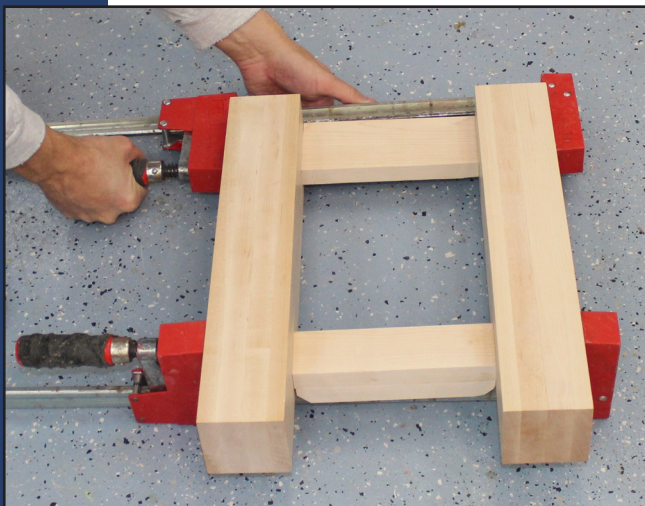
### **INSTALL CLEATS ON LOWER STRETCHERS TO ACCEPT THE SLATS TO FORM THE SHELF**

Make 45 degree cuts on the end of each cleat so that it will fit nicely with the other cleat when the base is glued up. Note that the cleats do not run all the way to the end, and stop short by approximately 1/8". This is done so that the cleat does not prevent the mortise and tenon joint from fully engaging. Use glue and brads or screws to secure the cleat.



### **PANEL CONSTRUCTION FOR SEAT**

I glued four boards together to form the seat, but you can use more or fewer depending on the materials you have available. For tips on panel construction see [this article](#).



### **ASSEMBLY #1, END PANELS**

Assemble the left and right sub-assemblies by gluing and clamping the short rails into place. Clean out the squeeze-out right away using a wet rag and a utility blade so that the glue does not interfere with your finish.





### **ASSEMBLY #2, FULL BASE**

After the glue has sufficiently cured from the previous glue-up, glue and clamp the long rails into position. In this step it is also a good idea to add corner braces using biscuits. These braces help prevent racking of the base and will also be used to attach the top. They also help to force everything into square during glue-up.



### **ATTACH SLATS FROM BELOW**

On the lower shelf I shot 1-1/2" finish nails from below, along with using a little dab of glue. This was a quick method of installing and also served to hide the fastener penetrations. Note the use of 1/8" spacers to maintain even spacing on the slats.



### **ATTACH TOP**

Drill screw holes through the corner braces. Then elongate the holes by rocking the drill toward the front and rear of the bench. This provides some wiggle room to allow the top to expand and contract through seasonal changes, minimizing the possibility that it will split.

### **FINISH WITH YOUR FAVORITE PRODUCT**

I applied polyurethane to provide a durable finish that will stand up to the abuse the kids with backpacks, slushy boots, and all kinds of sports gear will render upon this bench. Be sure that you finish both the top and bottom of the seat to make sure it's completely sealed.