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Prairie Style Lamp

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- Step by Step construction instruction.
- A complete bill of materials.
- Exploded view and elevation drawings.
- How-to photos with instructive captions.
- Tips to help you complete the project and become a better woodworker.

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Prairie-Style Lamp

Starting with some beautiful quartersawn oak and art glass, and a bit of fine woodworking also known as "white magic"…Rick White's craftsmanship shines through. The angled, wood-framed shade makes this a relatively challenging project, especially if angle-cutting isn't your strongest suit. However, several jigs outlined here will make the process much easier.

If you've been a regular reader of *Woodworker's Journal* through the years, you know that contributing editor Rick White is a fan of the Arts & Crafts movement. So is a large percentage of our readership, and it's not surprising why: Arts & Crafts styling has a timeless quality to it. Major figureheads of Arts & Crafts movement also believed in using tools—and most of us are in favor of turning on our table saws whenever it's going to make things easier.

"Prairie" is actually a subcategory of Arts & Crafts, made famous by the architect Frank Lloyd Wright. The wood and overall design of this Prairie-style Lamp reflect classic design aspects of the Prairie movement as well as the typical rectilinear, geometric base of Arts & Crafts pieces.

We wanted an authentic look for the lamp, so we called on our expert finisher Michael Dresdner for suggestions on how to stain it. For the shade, we used Kokomo-brand stained glass

Figure 1: *Make sure your rip fence is positioned opposite the direction the blade tilts when making the first two chamfers on the base molding.*

the same brand Gustav Stickley and his buddies used to specify. The results have produced a lamp that looks great in Rick's house on the Minnesota prairie—or in anyone's bungalow.

Starting with the Base

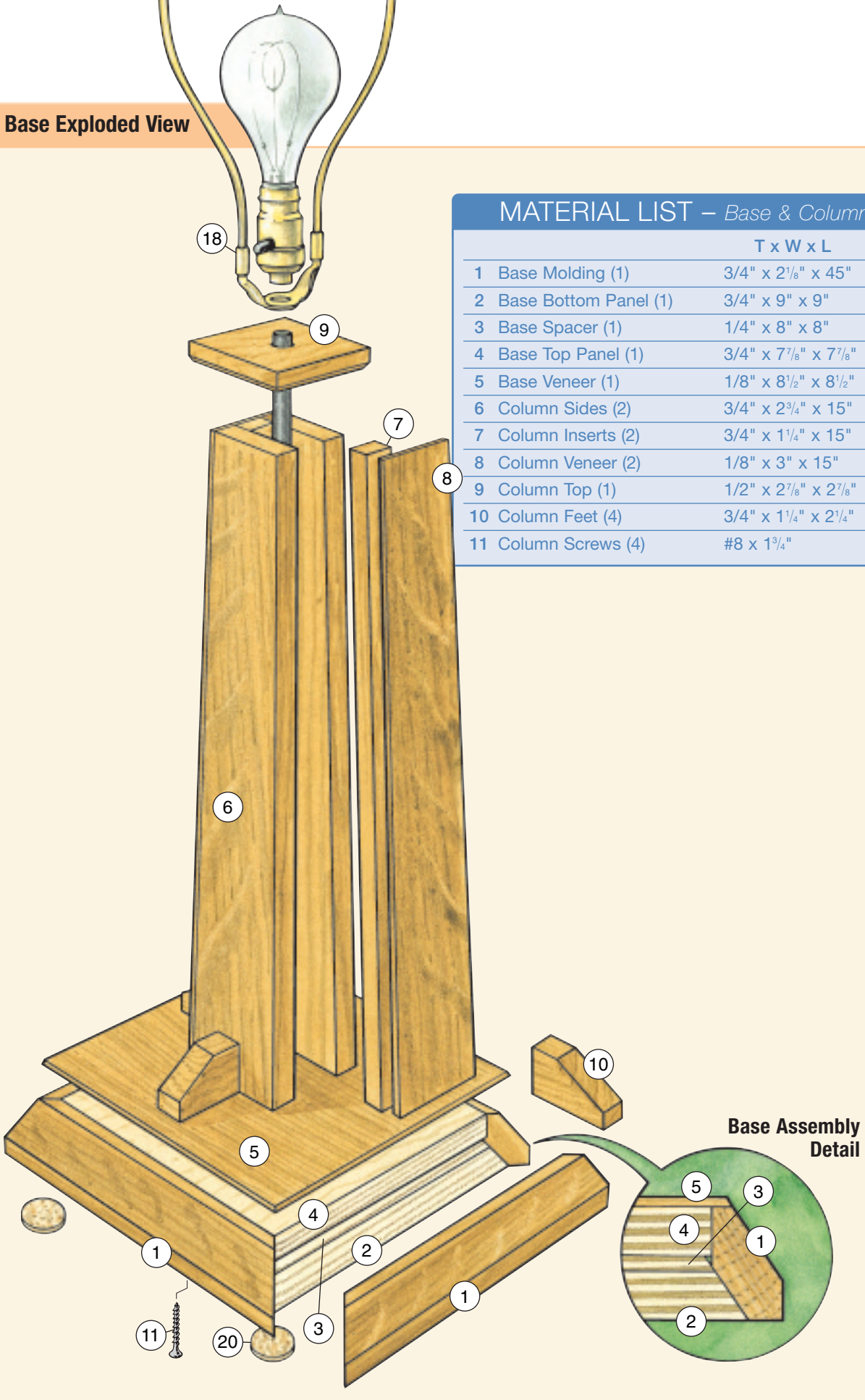
We'll break this project into three sub-assemblies: the base, the column and the shade. Even though you will tackle each subassembly separately, it's important to select all your material in advance to ensure you don't get bad grain matches once you start bringing the project together. As always, we strongly recommend you have all your hardware on hand prior to turning on your saw. You may have to do a little fine tuning if your hardware is odd-sized, and the time to deal with that is before you make your first cut.

Start work on the base by cutting the molding, panels and spacer (pieces 1 through 4) to overall size. Form a long piece of molding on your table saw (see *Figure 1*), which you will miter around the panel subassembly later. Glue the spacer to the lower panel and trim this subassembly to size, referring to the *Technical Drawings* on pages 138 and 139 to establish the proper angle for these cuts. Center the top panel on top of these pieces, but hold off on gluing it in place for just a moment.

Hold the mitered molding in place with a web clamp, and test the fit of the top panel. Trim it until it fits in perfectly, and then glue and clamp the molding and top panel to the bottom panel and spacer.

Turn to your band saw to resaw some highly figured 3/16"-thick veneer (piece 5) to cover your base and, while

Base Exploded View



MATERIAL LIST – *Base & Column*

		T x W x L
1	Base Molding (1)	3/4" x 2 1/8" x 45"
2	Base Bottom Panel (1)	3/4" x 9" x 9"
3	Base Spacer (1)	1/4" x 8" x 8"
4	Base Top Panel (1)	3/4" x 7 7/8" x 7 7/8"
5	Base Veneer (1)	1/8" x 8 1/2" x 8 1/2"
6	Column Sides (2)	3/4" x 2 3/4" x 15"
7	Column Inserts (2)	3/4" x 1 1/4" x 15"
8	Column Veneer (2)	1/8" x 3" x 15"
9	Column Top (1)	1/2" x 2 7/8" x 2 7/8"
10	Column Feet (4)	3/4" x 1 1/4" x 2 1/4"
11	Column Screws (4)	#8 x 1 3/4"

you're at it, slice the veneer for the column. To get to the right thickness safely, we recommend using a slave board underneath the veneer to support it during planing. Set your blades to remove about 1/32" with each pass and bring these pieces to exactly 1/8" in thickness. Set aside the column veneer for now, and then book-match, glue and clamp the base veneer to the base, carefully trimming to pick up the angle of the molding. (We used a belt sander for this operation.)

Moving Up to the Column

The dimensions of the column sides and inserts (pieces 6 and 7) are provided in the *Technical Drawings*. Start this step by cutting the sides and insets to length and forming the angles on their tops and bottoms. Now dig up your tapering jig to form the taper on each edge of these pieces. We used up a few scrap pieces of plywood to ensure that these taper cuts were right on the money.

When the four pieces fit together nicely, glue and clamp them together and sand the joints smooth. Trim the column

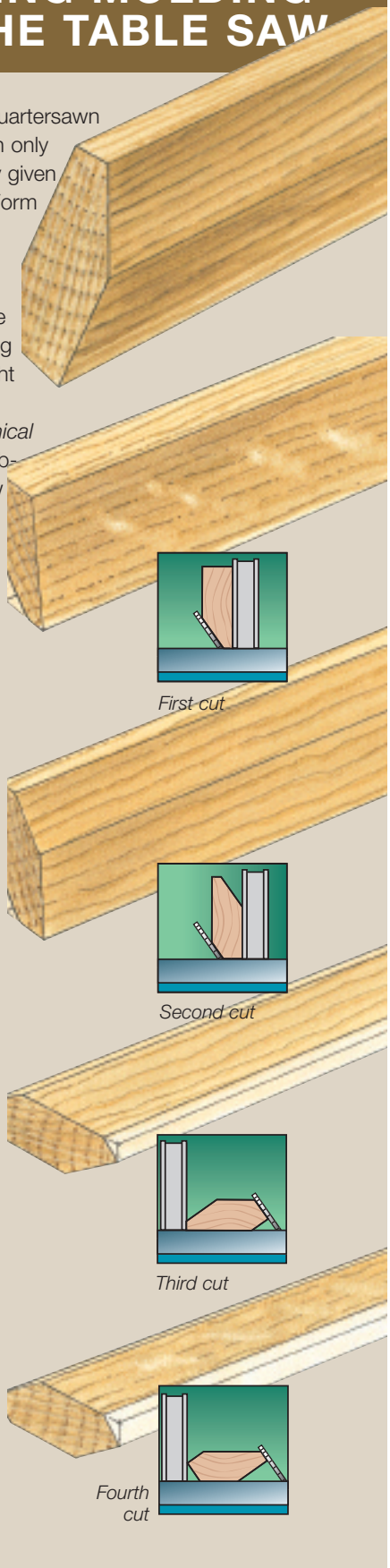
QuickTip

Sharpening Stone Options

Choosing sharpening stones presents three basic options: oil, ceramic and waterstones. Take your pick. That choice has become easier for woodworkers in recent years with huge improvements in the quality and variety of waterstones. They are cleaner to work with than oilstones and don't permanently spot the wood. A diamond waterstone costs a little more, but it will remain flat and true with minimum maintenance (an occasional cleaning), give service life proportional to its cost, and is available in a wide range of sizes and grits. It can even be used to flatten your worn-out oilstones!

MAKING MOLDING ON THE TABLE SAW

Ribbons of quartersawn flake are visible on only one aspect of any given piece of lumber. Form the lamp's base molding to take advantage of the best-looking figure and flake, following the process at right for best results. Look to the *Technical Drawings* for establishing proper saw blade settings.



The first and second cuts are made on the left side of the saw blade, as shown in the photo on page 131.

First cut

Second cut

Move your fence to the other side of the saw blade to complete the molding, this time holding it flat to the tabletop.

Third cut

Fourth cut

ANGLED MORTISE AND TENON JIG

It took Rick a while to work out the angled shoulders for the frames' mortise and tenon joints. On the *Technical Drawings*, you will find elevations for the jig (pictured below) that will make this step easy for you. Its design allows you to cut both the mortise and the tenon.Test the open mortise and tenon joints on appropriately dimensioned scrap lumber.

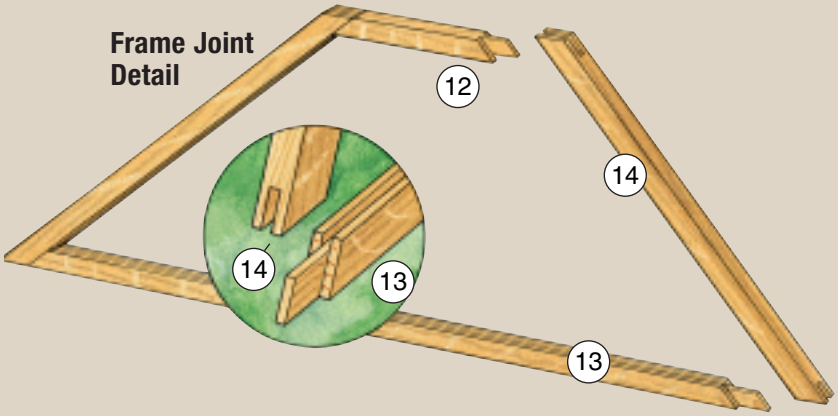


Figure 2: *Before cutting the rails and stiles to length, use a dado blade to plow a groove. This will make it easier to create the rabbets for the glass after you assemble the frames.*

Figure 3: *With the same dado blade in your table saw, use our jig to help chop the mortises and slice the tenons on the ends of the frame's stiles and rails.*

veneer strips (pieces 8) roughly to size, then glue and clamp them over the insert pieces. Once again, take your time trimming this veneer, keeping the corners nice and square.

Now turn to the *Technical Drawings* and mill the column top and feet (pieces 9 and 10) to size. Keep an eye on grain orientation, particularly for the feet. The *Exploded View Drawing* on page 132 will help you decide. Now bore a 1"-diameter stopped hole in the base's center, followed by a through hole to accommodate the lamp hardware (see *Technical Drawings*). Drill another through hole in the column top and glue it in place. Now you're ready to attach the column to the base, using two screws (pieces 11) to hold the subassemblies together. Leave the feet to the side for now.

Making the Shade

The elegant simplicity of the shade's appearance is produced by some sophisticated woodworking. The shade is four frames that are joined by modified mortise and tenon joints, mitered at the corners and capped with a slotted top piece.

Begin by cutting the shade frame top and bottom rails as well as the shade frame stiles (pieces 12 through 14) to size. To achieve the best appearance, slice these pieces from the same piece of well-figured (nice quartersawn flake) white oak. While the pieces are still in sticked-up form, put a dado head in your table saw and plow a groove down their inside edges, as shown in *Figure 2*. Move to your miter saw and cut the stiles and rails to their appropriate lengths while chopping the correct angles on their ends. (see the *Technical Drawings*).

Build the jig shown in the *tint box*, above, to help form the angled mortise and tenon joints. You can find elevations of the jig on page 139 of the *Technical Drawings* as well as details for the three other jigs you'll need to com-

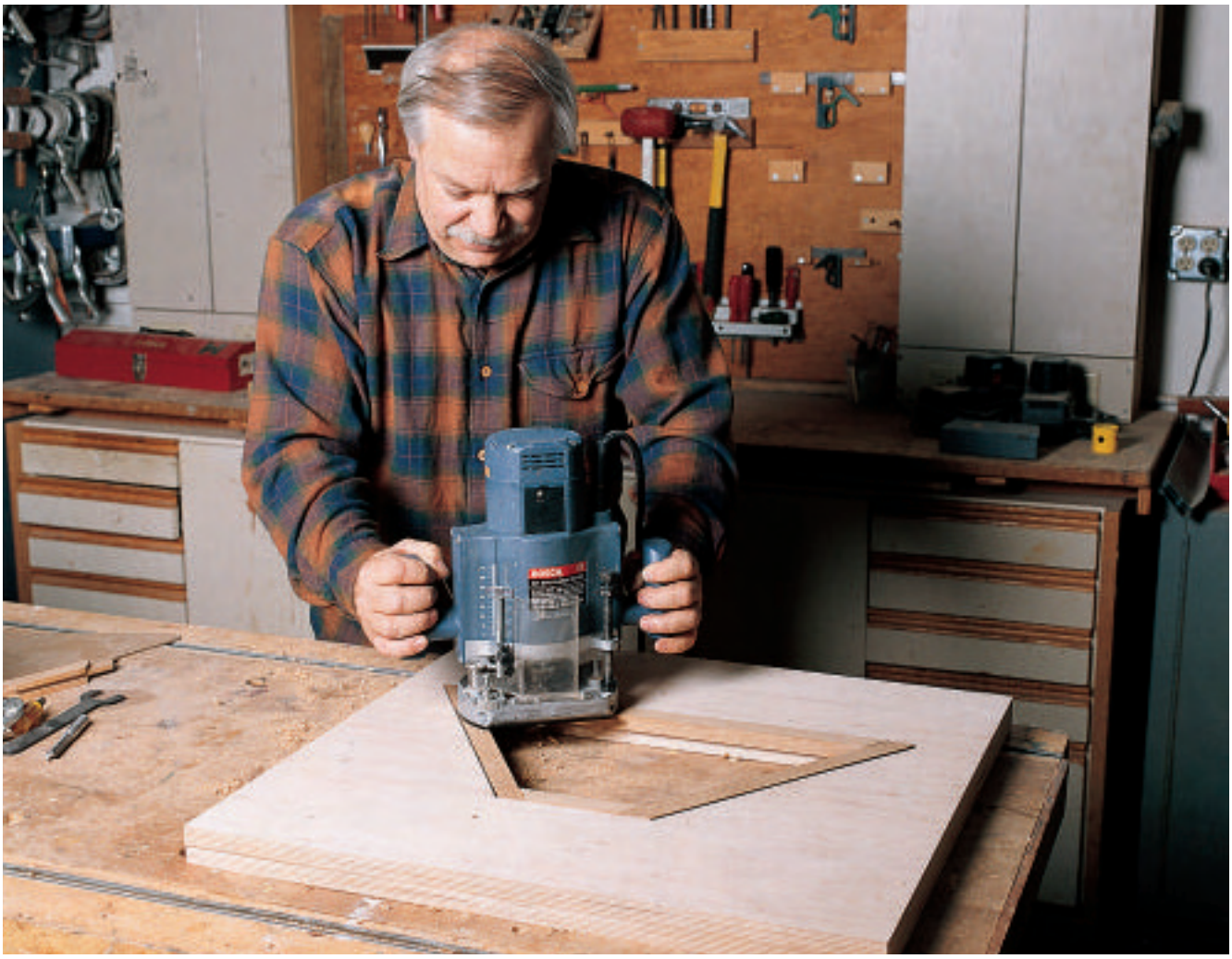


Figure 4: *Use a rabbeting bit and a shop-made jig to safely and accurately rabbet the back of the shade frames. Homemade jigs are the key to success with this Prairie project. See the details for making this jig in the* drawings *on page 139.*

plete this project. Once the jig is ready, use it to plow out the mortises and slice the cheeks of the tenons. Simply adjust the dado head (the same one used earlier to plow the grooves) to the proper height. Then it's a matter of clamping the stiles and rails in place and removing stock from the center of the stiles and the outside faces of the rails, as shown in *Figure 3*. (As always, testing the setup with scrap lumber is a good idea.) Dry-fit the stile and rail subassemblies and, once you are happy with the fit, glue and clamp them together.

With that task complete, create a routing jig like the one shown in the *photo*, above, using the details provided in the *Technical Drawings*. This is a two-level jig that holds the frames securely as you rout the rabbet for the glass into their back faces (see *Figure 4*). When you have routed all the rabbets, use a sharp chisel to extend the rabbet into the corners of the frames.

Beveling Away

Two new jigs are required to miter the joining edges of the shade frames. These jigs allow you to make essentially the same cut, but on opposite sides of the frame. It's a simple operation to do with these jigs but nearly impossible without them. The jigs hold the frame's stiles exactly parallel to the saw blade while you slice 31˚ chamfers on their edges. See the *sidebar* on the next page for more details.

Assembling the Shade Frames

Now for the fun part: Once the miters are cut, it's time to assemble the shade frames. Rick hinged three of the four joints with clear packing tape. Next, apply yellow glue, fold the frame together, and tape the fourth joint. Then use whatever combination of web, squeeze, hand and any other clamps you can think of to complete the clamp-up. (Just be absolutely sure the glue-up is square!) Cut the shade cap (piece 15) to size and test-fit it to the shade frame subassembly. When it fits well, lay out

the ventilation slots and the location of the two-step boring at the cap's center. Step over to your drill press and remove most of the waste from the ventilation slots with a drill bit. Then bore the stopped and through hole to accommodate the lamp harp's mounting bolt. Move to a scroll saw and clean up the ventilation slots. Glue the shade cap in place. After the glue cures, sand the shade carefully through the grits.

Adding More Details

A few more steps and you are on the home stretch. Rip a length of shade frame retaining stripping (piece 16) to use for securing the shade glass (pieces 17) into the rabbet you

QuickTip

Power-hungry Air Compressors

If your air compressor seems to trip the circuit breaker when you use it with an extension cord, it's because the extension cord starves the compressor's motor of amperage. It can even damage the motor over time. Instead of an extension cord, use a longer air hose and always plug the compressor directly into the wall.

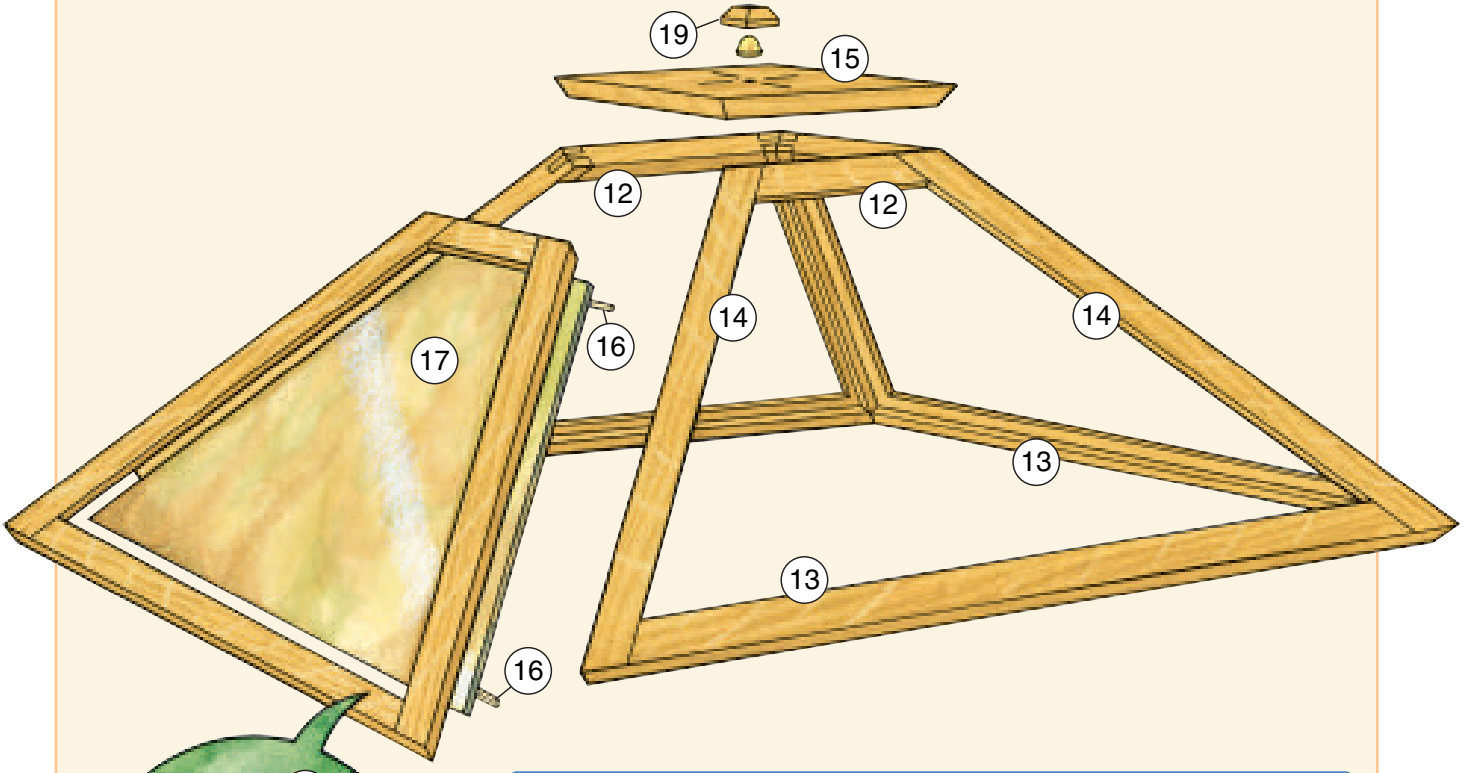
HOW TO CUT PERFECT COMPOUND MITERS

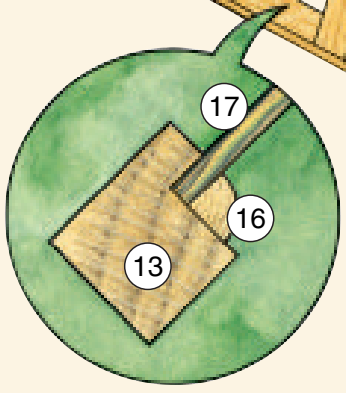
Rick made the two jigs shown above to miter the frames accurately (see the *Technical Drawings*). They hold the stiles parallel to the saw blade during the cuts. The geometry of the shade frame requires that a jig be made for both the left and right cuts. Use some scrap sheet stock to test the fit of the miters. Your saw's angle scale may be a bit off, and if you multiply that variance by the four joints, it will never fit…no matter how many times you cut it!

The first jig miters the left side of the frames.

The second jig miters the right sides.

Shade Frames Exploded View





Retaining Strip Detail

MATERIAL LIST – *Shade Frames*

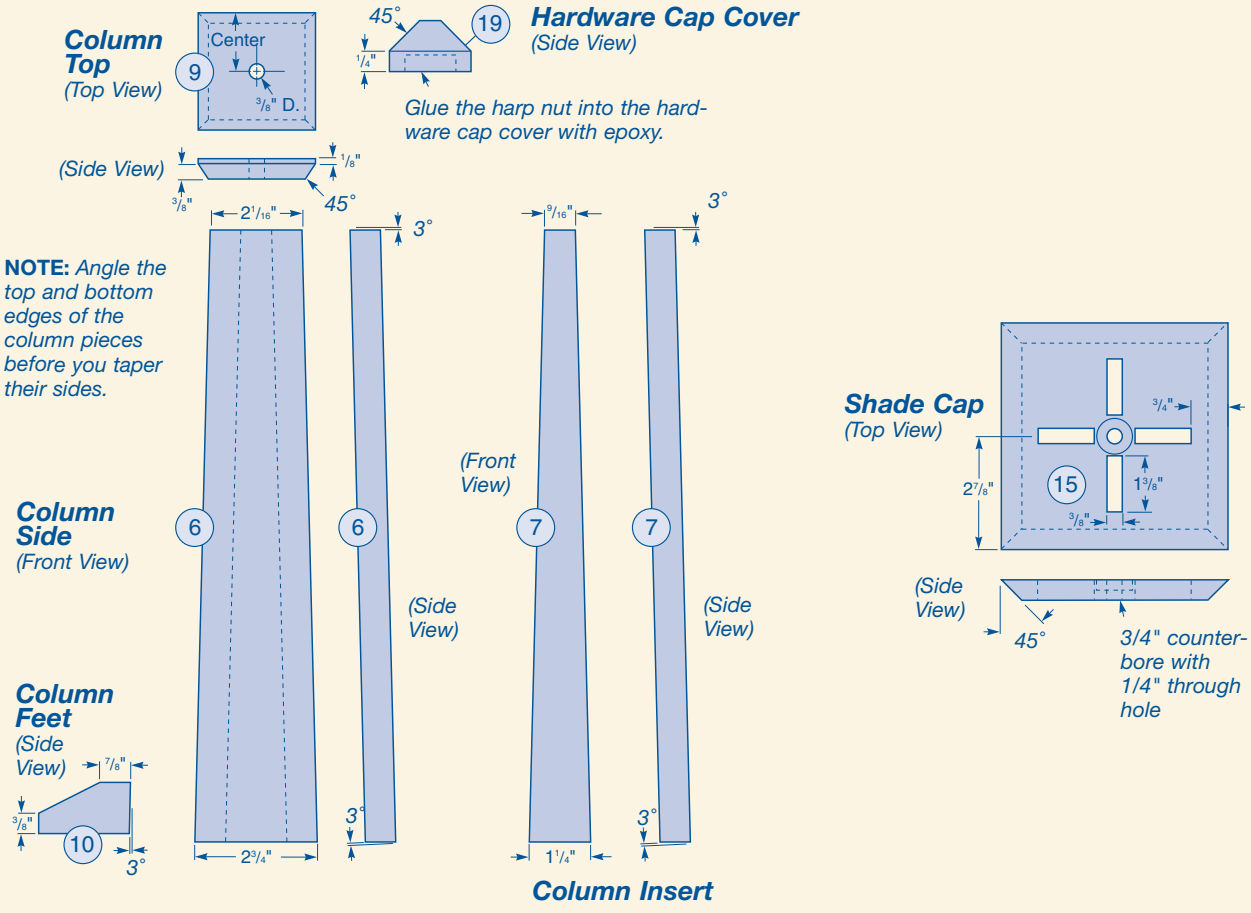
		T x W x L
12	Shade Frame Top Rails (4)	3/4" x 7/8" x 6⅞"
13	Shade Frame Bottom Rails (4)	3/4" x 7/8" x 20⅛"
14	Shade Frame Stiles (8)	3/4" x 7/8" x 13¼"
15	Shade Cap (1)	1/2" x 5¾" x 5¾"
16	Shade Frame Retainer Stripping (1)	1/4" x 44" Quarter round
17	Shade Glass (2)	Cut to fit. Kokomo brand
18	Lamp Hardware Kit (1)	Brass kit with 7½" harp
19	Hardware Cap Cover (1)	5/8" x 1" x 1"
20	Cork Feet (8)	1/16" x 5/8" Dia.

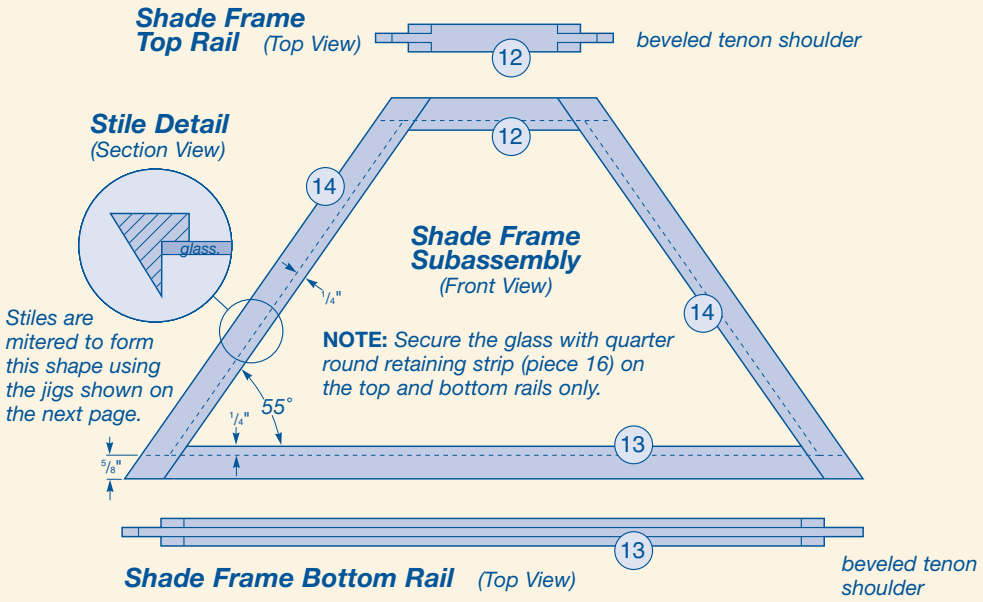
routed earlier. You'll need to buy supplies for holding the lamp socket in place and wire it for a wall plug. To enhance the appearance of the shade, create a pyramid-shaped hardware cap cover (piece 19) and epoxy it to the metal retaining nut that holds the shade on the lamp harp you buy. Mount the lamp hardware in the lamp. When it all fits correctly, take it back out until you are done finishing.

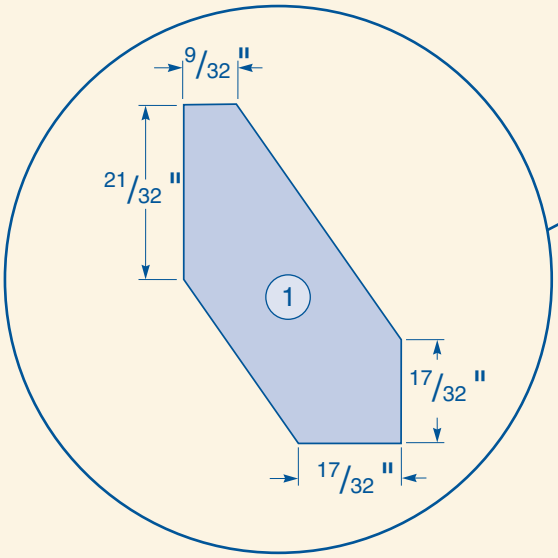
Just a note of caution: Do not order your glass until you have completed making the shade. Make a template for your glass from heavy card stock, and use it to have your art glass cut to final size and shape.

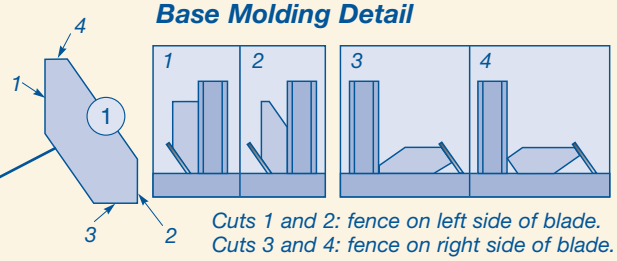
Finishing Up

Michael Dresdner recommended that Rick finish this lamp by fuming it with strong ammonia in a sealed plastic tent. Fuming was a common Stickley finishing technique. If you do the same, be sure to remove the metal lamp hardware first or you'll discolor the metal. You could also stain this project conventionally. Either way, follow up with a topcoat of satin varnish. Install the glass with the retaining strips and apply the self sticking cork feet (pieces 20). Reinstall the hardware, attach the electric wires and screw in a light bulb.



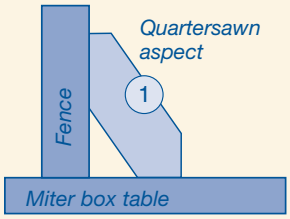






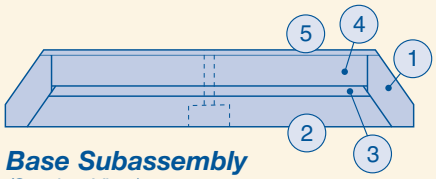
Base Molding Detail

Cuts 1 and 2: fence on left side of blade.
Cuts 3 and 4: fence on right side of blade.

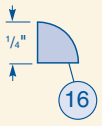


Mitering the Molding

NOTE: *Mitering the base molding around the base panel subassembly is best done with a miter box saw (power or not…your choice). Set the shaped stock against the fence as shown here, and miter away!*

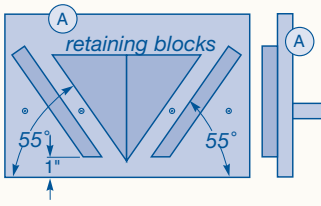


Base Subassembly
(Section View)



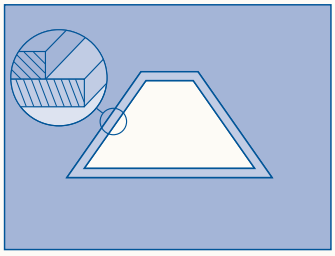
Shade Frame Retainer Strip
(End View)

Table Saw Mortise and Tenon Jig



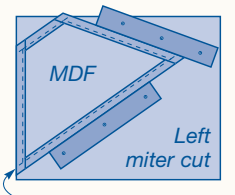
Length of mortise and tenon.

Mount retaining blocks and strips to hold the stiles and rails at the correct angle. Build an L shaped channel to ride along your fence.

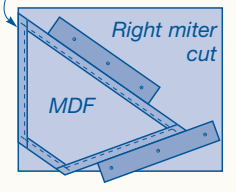


To build the frame routing jig, trace your shade frame onto two pieces of 3/4" sheet stock–the inside edge on one and the outside edge on the other. Cut out the shapes and stack the pieces as shown in the detail drawing.

Frame Routing Jig



Position the frames flush to the jig's edge.



Frame Mitering Jigs

(See sidebar on page 136)

To miter the shade frame stiles, build two jigs, one for the left side cut and one for the right. Use 3/4" MDF, positioning the frame flush to the edge. Mount retaining blocks to the sheet stock with screws. Test the miter angles on scrap 3/4" sheet stock cut to match the shade frame's shape. Make sure all your scrap pieces fit well before cutting the shade frames.