

Mission-Style Table Lamp

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The January issue of *Creative Woodworks & Crafts* presented an article that described my approach to making an “Arts & Crafts Lampshade.” In this article I address the construction of the Mission-Style table lamp that accompanied that lampshade project. The dimensions of this lamp were chosen for my own purposes but the techniques used to make it are fairly generic. Readers who would like to make such a project are encouraged to alter my design and its dimensions to their own liking.

Figure 1 shows a photo of the completed lamp. A cut list and supplies are given in the inset. Glue is used only for making the stem of the lamp. The base and cap are joined to the stem only by screws because a glued end-grain to long-grain joint will not hold, especially with small surface areas. Electrical parts and supporting components are readily available at hardware and home supply stores. The wood that I used was cherry but white oak is also traditional for the Mission style.



Figure 1 Mission-Style Table Lamp

CUT LIST AND ELECTRICAL PARTS	
Part (Qty.)	Finished Dimensions
Base (1)	7/8 x 7 1/2 x 7 1/2
Stem (1)	1 1/2 x 1 1/2 x 13 3/4
Stave (4)	5/8 x 1 1/2 x 7
Cap (1)	3/4 x 2 x 2
Lamp Socket (1)	With threaded mount
Harp (1)	Approximately 7 1/2
Threaded Nipple (1)	3/8 dia. x 15 3/4
Nut (2)	3/8 to fit nipple
Washer (2)	3/8 to fit nipple
Lamp chord	10 ft. #18 gauge
Plug	Two prong polarized

Making the stem

The first step is to select material for the stem and cut a slot up the middle to accommodate the nipple. I began by milling a piece of 8/4 straight grained cherry to a oversized cross-section of 1 7/8" square and about two inches longer than the final dimension. If you are concerned about planer snipe, increase the length accordingly. The oversized cross-section allows for material lost in the ripping and planing operations needed to make the slot in the center of the stem. The completed stem blank must have a square cross-section and the slot must be centered.

To start, I ripped the workpiece down the middle, parallel to the face grain. Since the two halves would later be glued back together I marked them on the ends to show the proper orientation. The sawn faces were jointed lightly to remove saw marks on the surfaces to be glued. The outer surfaces were then planed to achieve a common thickness of 3/4 inch plus an additional 1/32-inch to allow for final planing. After jointing one edge of each piece, I measured the combined thickness and ripped them to that width. The resulting blank should have a square cross-section.

To make the slot, I set up a dado blade on the table saw to cut a 3/8" wide by 3/16" deep dado down the center of the inside surfaces of the two pieces. Center the cut as closely as possible and run each piece through the dado cutter in both directions to ensure that the slot is centered. Check the depth of the cut by placing the two pieces together over the nipple to see that it slides easily through the slot. If necessary, raise the blade a hair and recut the slots.

When satisfied with the fit, I glued the inner surfaces together, being careful to align the slots and orienting the edge grain to match. I used the glue sparingly on both surfaces to avoid excessive squeeze-out. It also helped to put the nipple in place during glue-up and pull it out a few minutes after clamping. This aided in the alignment and also cleared the hole of squeeze-out. When the glue was dry I made one pass through the jointer on each side of the piece to achieve a final cross-section dimension of 1½". If some saw marks remain, they are not important because they will be cut away when the piece is tapered.

Before tapering the stem, I routed ¼" wide, ¼" deep, 6 1/8" long stopped dados from the bottom end, and centered on each face to accommodate tongues on the staves. I then tapered the stem on four sides to yield a 1" square cross-section at the top. These tapers can be cut on the table saw using an adjustable tapering jig that can be made or bought through most woodworking catalogs. However, I found it easier to use a pair of fixed jigs made of ¾" MDF as illustrated in Figure 2. The jigs were made by squaring up pieces of MDF about three inches wide and cutting tapers along one edge as shown in the

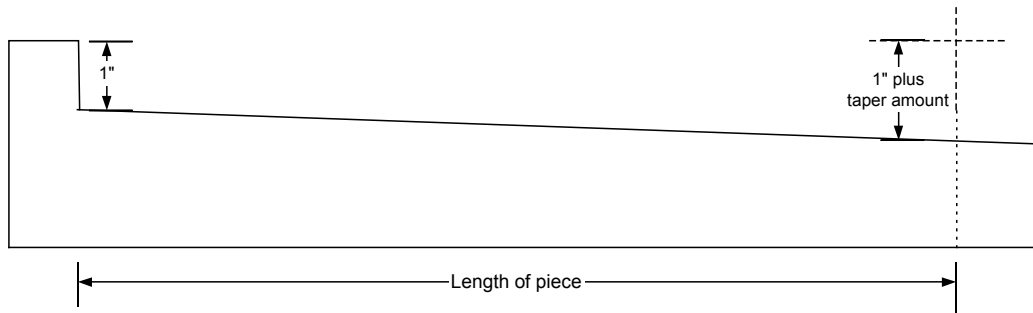


Figure 2 MDF Jig for Tapering Small Pieces

figure. The depth at the stem length, measured relative to a 1" notch, was 1 ¼" for the first jig. The second jig was made the same way but with a depth, 1 ½". The required cuts can be made with a band saw or a circular saw.

Making the Staves

I began by making a full-scale layout of the contoured stave shape on graph paper. The shape that most appealed to me was made with an exponential curve but you can experiment with other curves or use mine, reproduced in Figure 3-a. A full sized drawing is given in Figure 3-b.

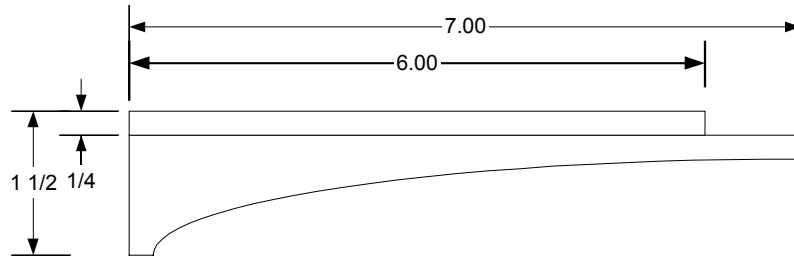


Figure 3-a Stave design

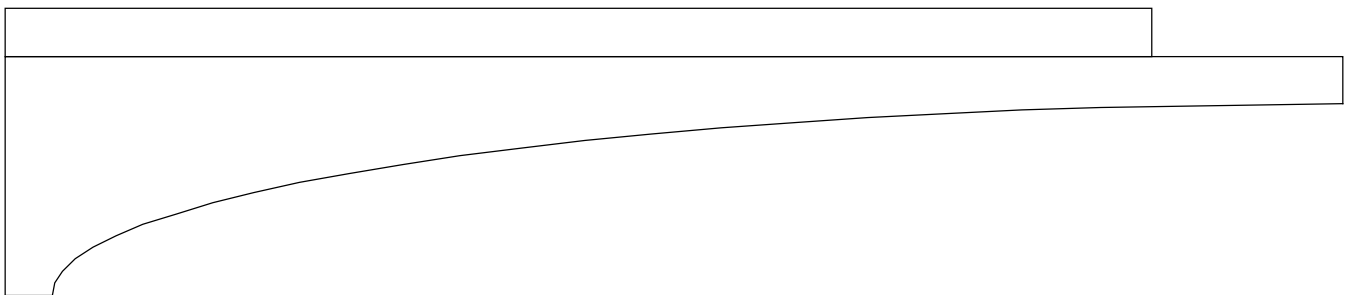


Figure 3-b Stave Template (full size)

The staves were made by squaring up a 30-inch board, milled to a thickness of 5/8". I then cut a 1/4 inch tongue on one edge of the board to fit the slots in the stem. With a dado cutter on the table saw I cut rabbets on both sides on the board, testing the fit and adjusting as needed to achieve a snug but unforced fit to the slot. When completed, I cut the board into four equal length pieces. Because the stems are tapered, an obtuse angle between the stave bottoms and one long edge must be cut to make them sit flat on the lamp base. With an MDF extension on the miter gauge and with the miter gauge in the left hand slot of the table saw, I set this angle with a sliding bevel that copied the angle between the tapered stem and its base. I then cut the stave bottoms with the outside edge of the staves against the miter gauge.

To cut the contoured edges of a stave, I glued the template to one stave blank, aligning the template with the shoulder of the tongue. I then cut the profile to 1/32 inch of the line using the bandsaw and then used a sanding drum, mounted on the drill press, to sand to the line. When the profile was finished I used the first stave to mark the others and repeated the contouring process on the remaining stave blanks. When finished, I rounded over the edges by hand using 150 grit sandpaper. Any temptation to use a round-over bit on the router table for this purpose should be suppressed as unsafe. The piece can be easily be stripped from your hand and the cross-grain end of the stave shattered.

When the staves were finished, I cut off the top 1" of their tongues flush with the shoulders and tapered the tongues with a block plane as necessary to allow the stave shoulders to fit flush with the stem. Chamfering the tongue edges slightly makes assembly easier.

Making the Base and Cap

I cut the materials for the lamp base and cap to their final dimensions and marked the centers of all holes on the bottom of the base and the top of the cap at locations shown in Figures 4a and 4-b. Drill the 7/8" diameter counterbore in the base using a Forstner bit and all remaining counterbores using a bradpoint bit. Use a 3/8" Forstner bit to drill 1/8" deep holes in the base for the button plugs. When the counterbores are made, drill through shank holes for the screws and a 3/8" clearance hole in the base for the nipple.

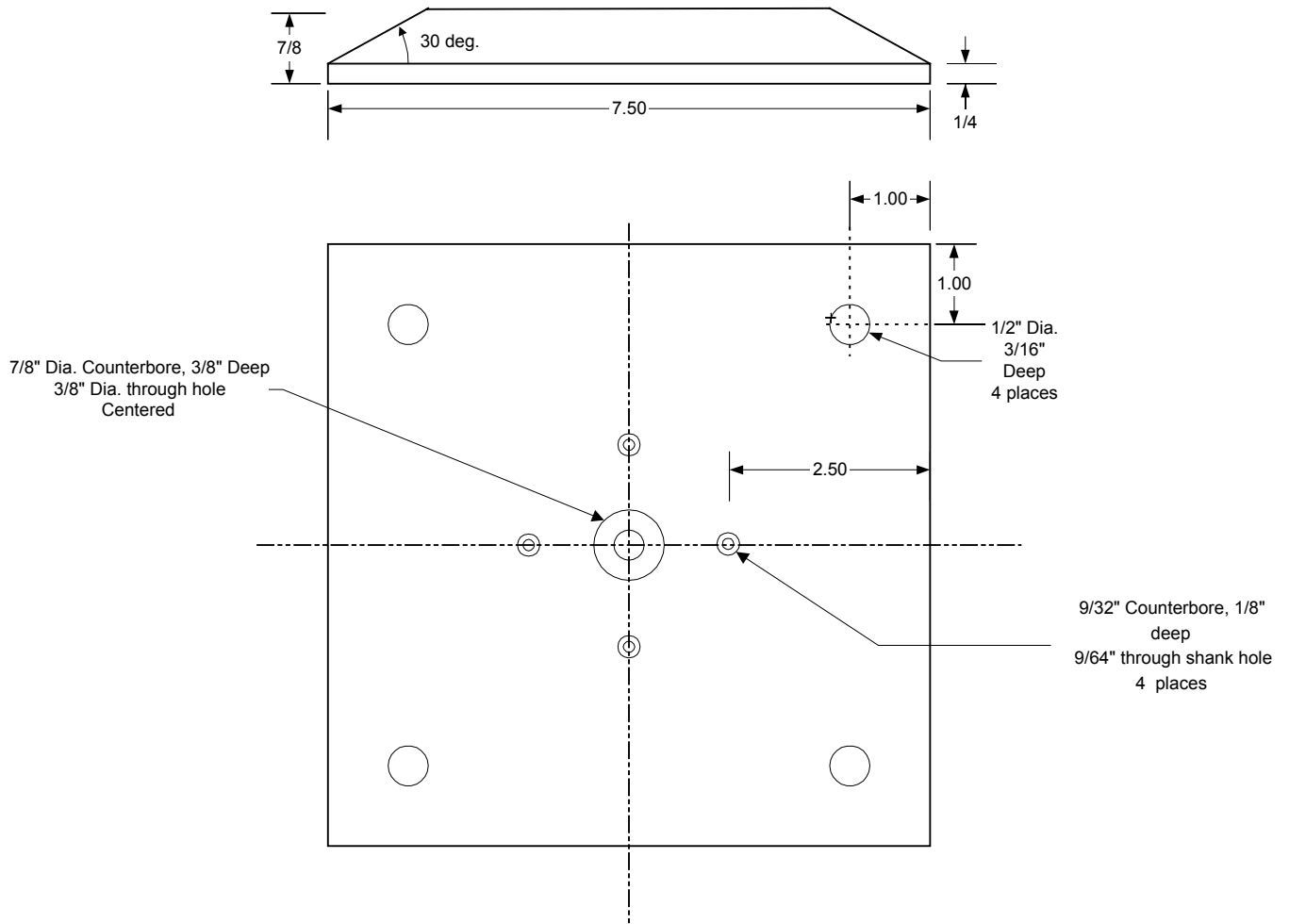


Figure 4-a Drilling Layout for Base

The chamfers should be cut on the table saw. Since my saw arbor tilts to the right, I attached an auxiliary fence to the right side of my regular fence and moved it to the left side of the blade. The auxiliary fence should be high enough to stabilize the base during the cut. Check it for vertical and use shims as needed to make the surface perpendicular to the saw table. Set the blade tilt to 30° and cut chamfers on the base, starting with the end-grain edges first to minimize tear-out. Then set the blade tilt to 45° to chamfer the cap.

The cap is too small to safely cut the chamfers pushing it through the saw by hand. My approach was to place the cap top face down on the saw table and attach a hand screw (laid flat against the fence) to the sides, leaving enough space above the edge to be cut to avoid cutting the hand screw. Holding the hand screw with my left hand, I made the cut using a push stick to force the piece past the saw blade.

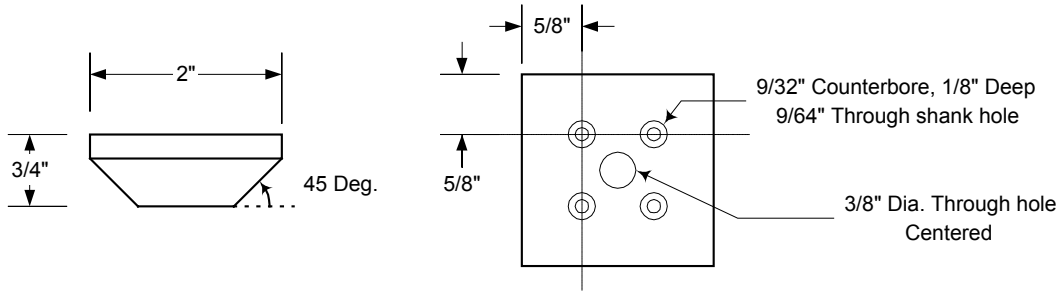


Figure 4-b Drilling Layout for Top

Assembly

I used the following procedure to assemble the wooden lamp components:

1. Finish sand the components to 180 grit.
2. Glue the staves to the stem, aligning the bottoms on a flat surface. Apply the glue sparingly to the slot surfaces to avoid squeeze-out and align each stave as it is pressed into place. When the staves are all in place, attach two spring clamps to apply pressure between opposing staves.
3. Glue 3/8" button plugs into four holes in the base. Sand flats on the surface of these plugs by rubbing the base on a sheet of 150 grit sandpaper. When the lamp was finished, I applied 1/4" felt tabs to these flats.
4. After the glue has dried, insert the 16" nipple through the base and up through the stem and cap. Attach a washer and nut to the base end and temporarily attach a washer and nut to the cap end. Snug down one of the nuts to hold the assembly together and rotate the base and cap into alignment with respect to the stem. To aid in this alignment I drew light pencil lines on the diagonals of the base and cap and aligned the corners of the stem with these lines. For best appearance, when making this alignment be sure to orient the long grain of the base and cap with the face grain of the stem.
5. Tighten a nut on the nipple to prevent the cap and base from moving and drill 5/64 diameter pilot holes into the stem from both ends through the counterbores (total of eight places). Then install 1 1/2" #6 wood screws in eight locations.
6. When satisfied with the assembly, erase any alignment marks from the base and cap and remove the nipple.

7. Apply the finish of choice. Depending on the finish used, it may prove convenient to disassemble the parts to be finished separately. If this is done, mark the orientation of these pieces so they can be reassembled properly. The finish I used at the time was Danish oil followed by paste wax. My preference now would be to use super blond shellac followed by three coats of Tried & True original finish.

Electrical Assembly

The electrical assembly procedure is as follows:

1. Insert the nipple into the assembly and install a washer and nut on the bottom end so that both nut and washer are recessed into the counterbore.
2. Put the harp in place and screw on the threaded base of the lamp socket to hold it in place. If you have a lampshade, place it on the harp with a finial to see how it looks. If the harp is too high it can be adjusted by removing it from the lamp and bending the supports outward. When satisfied with the harp height, orient the switch, if any, to the desired position and tighten the nut on the bottom to lock it in place.
3. Push the lamp chord up through the nipple and make the electrical connections to the lamp socket. By convention, the wire whose insulation has stripes is connected to the common (silver colored screw).
4. Assemble a polarized plug on the other end of the line, connecting the striped wire to the broad prong of the plug.
5. On my lamps, I installed a rotary switch on the lamp chord about twelve inches from the lamp.

This project is provided by



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