

Arts & Crafts Sofa Table

Designed by RJ Brown

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Instructions for building the Arts & Crafts Sofa Table

I used plain sawn red oak for this project. Quarter sawn white oak is the lumber of choice for a piece of this design but supplies were limited at the time I was building it. When digging through the stack of oak at the mill, I looked for boards that had relatively straight grain as well as a few boards with some nice figuring. The top and rails are all straight grain but, as the picture at the right shows, the cornices have some nice wavy grain patterns. I found some 36" long chunks of 10/4 red oak that had been left over from a huge fireplace mantle the mill had made for one of their customers. This stock was perfect for the legs.



It is especially important to use the straightest grain board you can find for the spindles. The first spindles I ripped came off the table saw looking like I could shoot arrows with them if I tied a string across the ends! There was some serious tension in the lumber that went its own way when cut into thin strips. I used a straighter looking board and had more success cutting the twelve $\frac{1}{2}$ " x $\frac{1}{2}$ " x $30\frac{1}{2}$ " spindles – six for each end. The boards I used for the spindles were planed to a $\frac{1}{2}$ " thickness and one edge squared on the jointer. I used a thin kerf ripping blade to cut the individual spindles, running the board on the jointer after each cut, and cutting the spindles $\frac{9}{16}$ " so a final pass on the jointer could clean up the blade marks and bring them down to the final dimensions. Take care when jointing thin, narrow stock like this. I have a 3" x 20" push pad that holds the spindles down on the jointer nicely while protecting my hands from the blades.



Mortise and Tenon joints were used for the lower end rails, but I chose to use biscuits to attach the upper side and end rails to the legs. With the addition of inside corner braces glued into dados on the insides of the rails, the biscuits are plenty strong enough to hold everything together. These corner braces serve two purposes: they help hold the whole

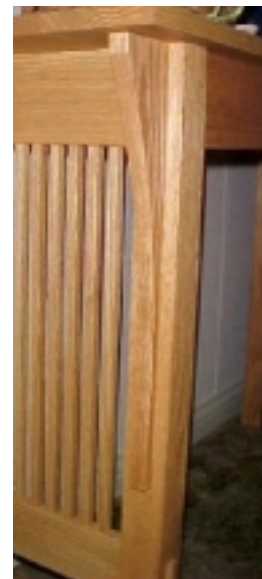
assembly together, and they provide an excellent way to hold the top to the frame. More on the braces later. Of course you could certainly modify the lengths of the top rails to incorporate tenons and cut mortices in the tops of the legs if you would prefer not to use biscuits, but I do not feel it is necessary to go through all the extra work unless you plan on dancing on the table.

The first thing I did after selecting the stock for all the individual pieces was plane down the 10/4 stock for the legs. After getting the desired thickness I ran one edge through the jointer to square it up then ripped a leg on the table saw 1/6" wider than the final dimension so I could clean up the saw marks on the jointer. I also ran the board across the jointer before cutting the next leg and repeated the process until I had all four 2" x 2" legs. I cut them to length with the power miter saw, paying special attention to cut out any snipe remaining from the planer.

I also planed the rest of the lumber for the table while I had the planer set up. I saved the boards for the spindles until I was ready for them however, since warping can occur if you leave the 1/2" thick boards lying around too long. Use your jointer and table saw to obtain the finished dimensions for all the pieces, making sure to always take a final pass on the jointer to clean up the blade marks. If you have a drum sander to run your stock through after planing, you're more fortunate than me!

Three boards are glued up for the table top, with #20 biscuits between each, set about six inches apart. I used boards that were a few inches longer than the finished length, and after the glue was set I trimmed and squared each end on my table saw with a very sharp cross-cutting blade and my homemade panel cutter. Some people like a breadboard edge to hide the end grain, but I prefer the look of the grain. The exposed end can provide one of the best views of the grain a piece of lumber has to offer as long as it doesn't suffer friction burns during cutting.

In order to layout the rather large radius for the cornices, I used a long, narrow piece of scrap to make a big compass. With a nail near one end, tacked into my workbench, and a hole drilled 27 5/16" from the nail to hold a pencil, I placed a piece of cardboard the same dimensions as the cornice blank in position so that the arc of the pencil meets the two end points of the radius (1/2" down from one end and 1/2" from the edge on the opposite corner). I drew the radius between these points with the pencil then cut the shape out with a pair of scissors. I then transferred this profile to the cornice blanks. Use a band saw if you have one to cut the radius. I do not have one so I had to use my saber saw. I clamp together and cut two at a time so I'm sure to have exact bookend copies on each end of the table. Make the cuts just outside the line so that it remains visible. Clean up the cuts to the line with a belt sander, or better yet, a small drum



sander mounted in the drill press. Biscuit slots will be cut in the back edge and in the corresponding locations on the table legs.

Although I would love to own a dedicated mortice cutter, I don't dare ask my wife if I can buy one! So I continue to make due with the morticing attachment for my drill press, which does a fine job after you struggle though the hassles of mounting it and setting it up. I cut the mortices in the legs before cutting the tenons on the rails because the mortices are a set width (3/8" for this project), and the tenons can then be cut for an exact fit. Mark the location of the mortices on both sides of the legs with a square and pencil or a marking gauge since you're going to have to cut from both sides. After cutting the mortices from both sides – whether you do it with a morticing drill or by hand with morticing chisels – clean up the inside faces with a rasp or chisel. The mortices in the rails that hold the spindles will be cut to a depth of a little over a 1/2".

One tool that I have found to be indispensable is a tenoning jig. Before I bought the Delta model I have, I used to cut tenons with a dado blade set, cutting across the grain from shoulder to end one pass at a time. This is not the ideal way to cut tenons but we all make do with the tools we have. The important thing though, is to first make the shoulder cuts all the way around the pieces. Use your best cross cutting blade for this and mount a short board to your table saw's miter gauge with a stop that will insure the four shoulder cuts will line up. Then use whatever method you can – tenoning jig, dado blade, router table, or band saw, to cut the tenon faces. If you do use a dado blade, clean up the face of the cuts with a rasp, chisel or scraper to smooth them out. Be sure to do the final planing of the spindle boards and rip them, clean them up, and cut to length before you set up for the tenon work so you can do all of them at once.



Of course the tiny 3/8" tenons of the spindles will not be difficult to cut and fit, but most of the time I test each tenon for fit as I cut them. I usually determine which piece will go where before I begin my joinery cuts - making the decisions based on grain and overall appearance of the wood. Knowing how everything will fit together gives you the

added advantage of being able to custom fit all your joints. Even with the finest tools and accurately constructed jigs, your cuts are going to have slight variances, so try to cut each tenon to fit its respective mortice. To complete the

bottom rails, cut a 1/8" bevel around the end of each tenon. Do the same to the bottom of all four legs too.

After all the joints are cut and tested for a good fit, do a final dry assembly of the table base, first assembling each end section by placing all six spindles into their mortises on the bottom rail, then carefully align the top of the spindles while positioning the top rail in place, and finally assembling the rails to the legs. Don't forget to make the biscuit cuts in the ends of the top rails and at the tops of the legs before the dry fit.

Before doing the final glue-up assembly you'll want to set your dado blade up on the table saw and run the four top rails through. These dados are for mounting the center and corner braces. As stated earlier, the braces serve two purposes: they help hold the whole base assembly together, and they provide an excellent means by which to secure the table top to the frame. This will also help to keep the top from warping or cupping over time.

As the picture of the braces shows, I have used fender washers and stainless steel deck screws to secure the top. Pre-drill the holes in the underside of the table top for the screws so it doesn't split. Be careful not to drill through all the way! The fender washers are needed because the holes in the braces are 1/2" diameter to allow for movement of the top with respect to the base. If you don't give it room to grow (and shrink) it is possible that either the top or the base will split. Remember that most of the movement will be across the grain with very little dimensional change along the length. This is because as the humidity increases and the lumber takes on the moisture from the air, the pores of the lumber swell, which causes the board to grow across its width. Conversely, as the humidity decreases, the pores will dry out and shrink in size causing the board to get narrower.

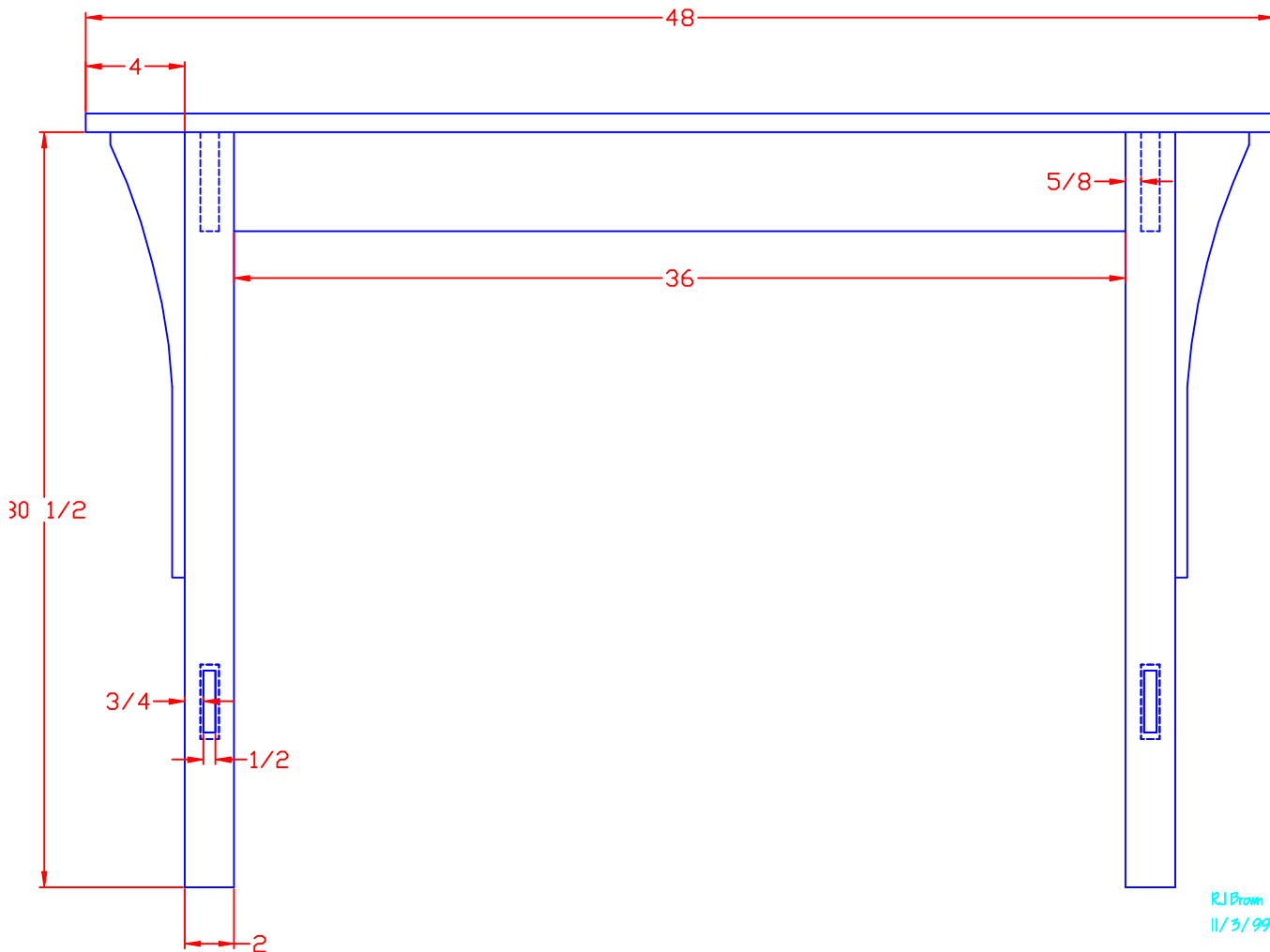
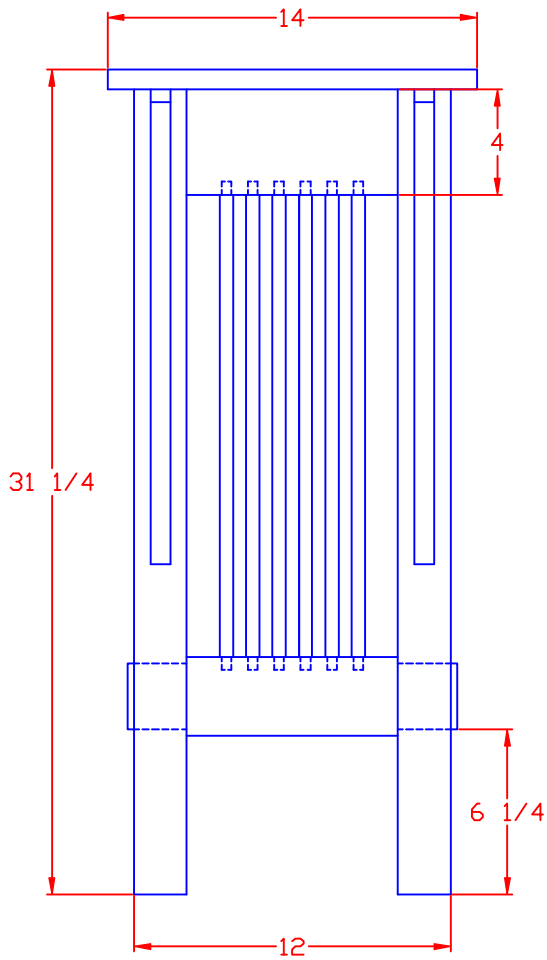
If you find it hard to believe that those tiny pores in the wood can take on so much water as to make a huge difference, remember that there are hundreds – even thousands - of individual pores, which when all swelled with water can change the width of a board by as much as 10% or even more! I've read and even seen evidence myself that a house will shrink by an average of 3/4" after the framing lumber dries. And since there is very little change in the length of the studs, this all comes from the top and bottom plates and the trusses or rafters! But of course framing lumber has much higher moisture content when purchased than what your hard wood should have. At any rate, it's always a good idea to acclimate your lumber to your shop's humidity level for a few days before you begin dimensioning.

I finished the table with Golden Oak Danish Oil, followed by a couple of coats of Satin Danish Oil Wax. A good buffing by hand with a soft cloth and the table was ready for its new resting place in our home. This is really a simple project to build and I hope while working on it you enjoy yourself!

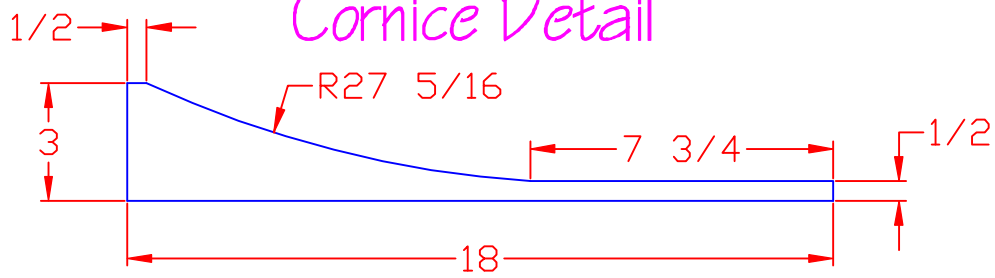
Craftsman Sofa Table

Parts List:

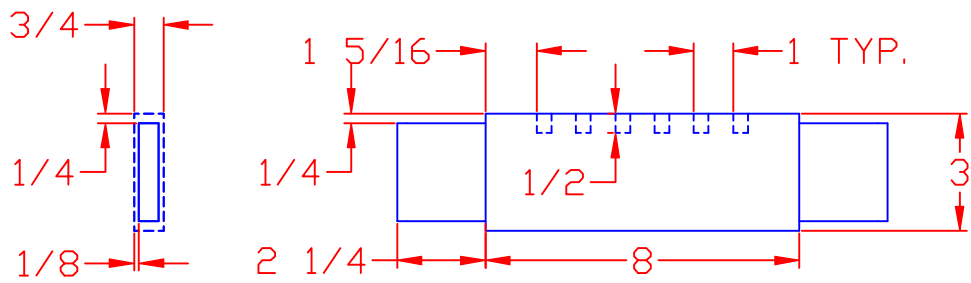
Top	1 - 14 x 48
Legs	4 - 2 x 2 x 30 1/2
End Rails (Top)	2 - 4 x 8
End Rails (Bottom)	2 - 3 x 12 1/2
Side Rails	2 - 4 x 36
Spindles	12 - 1/2 x 1/2 x 18 1/2
Cornices	4 - 3 x 18



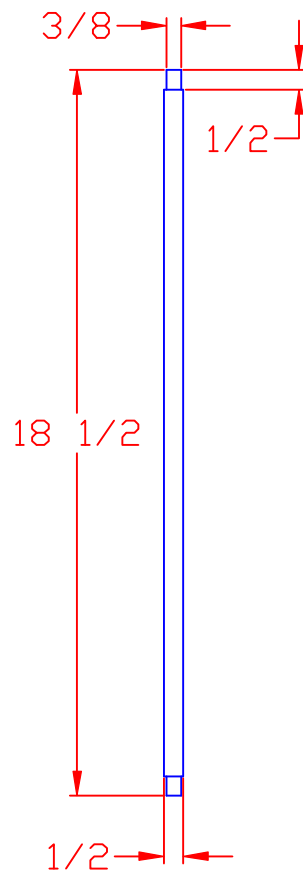
Cornice Detail



Bottom Rail Detail



Spindle Detail



RJ Brown
11/3/99