

A few months ago, I helped my neighbor assemble a set of “ladder shelves.” I had seen these shelves in stores and thought they looked nice, so I jumped at the chance to see how they went together. In a word, I’d say “poorly.”

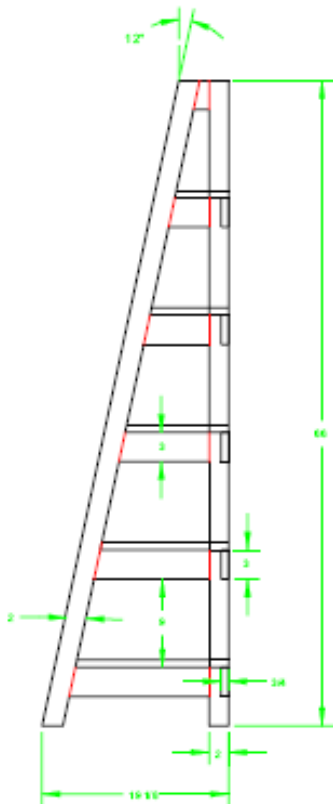
We followed the instructions to the word, but the assembly was quite wobbly when we finished. Since that unfortunate first impression, I’ve searched for a reasonably priced ladder shelf that wasn’t so rickety. I never did find one that I liked. So I decided to design one.

What makes my ladder shelf different is that I did away with all those joints between the legs (the narrow vertical parts) and the rungs (the slightly wider horizontal parts). Both of the “A” frames in this set of shelves are actually cut from a single piece of medium-density fiberboard (MDF). You can buy this at any home center or lumberyard in 4-ft x 8-ft sheets. Two sheets are plenty for a complete set of shelves.

Cut The “A” Frames

To get started, cut two rectangles (20" x 66") from a sheet of MDF. Each one of these rectangles will become an “A” frame with a few more cuts.

The first of those cuts is the angled front edge. You can lay out this cut based on the angle (12°), or by simply marking off the dimension as show in the project plan – below.



From there, you’ll need to cut the five openings in each “A” frame. This will take a little bit of time and requires equal amounts of careful layout and cutting.

Draw each of the openings precisely according to the dimensions on the plan before you make any cuts. Now take a look at what you’ve drawn. If any of the lines are in the wrong place, they will be easy to see at this point. And it’s better to find any mistakes before you cut!

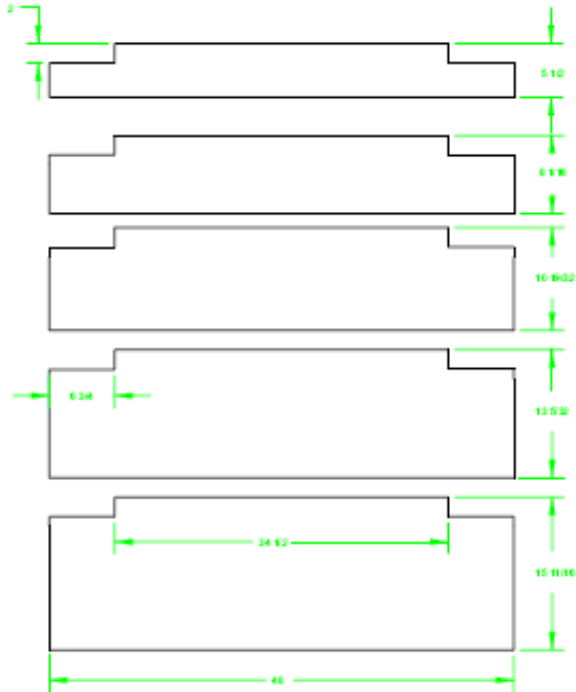
Once you’re satisfied with the layout, you can cut out the openings fairly easily with a jigsaw. Start by drilling 1/2"-diameter holes in the corners of each opening. These holes provide clearance for a jigsaw blade.

Frame Details

When you’ve cut all the openings in each frame, you need to do a little detail work on these pieces with your router. For this, you’ll need a v-groove bit. We’re going to use this bit to create something of an illusion.

The goal is to make this solid “A” frame look as though it was assembled from individual pieces (actual legs and rungs). To do this, you’ll rout a shallow v-groove where the legs and rungs meet (see the plan). The best way to do this is to attach a fence to your router and then align the center of the bit right in the corner of one of the openings.

Shelves & Cleats



The final pieces of this project are the shelves and support cleats. Rather than give you specific dimensions for the shelves, I'll just tell you to cut them to fit inside their respective openings. The important details of the shelves have to do with the front and rear edges.

The front edge of the shelves is beveled at 12° to match the angle of the front leg. You can certainly do this with your circular saw, but you'll get the best results on the table saw. As for the back edge, these are notched to go around the back legs. This is another place where your jig saw will come in handy. Use the same blade and setting as before to get smooth cuts.

Finally come the support cleats. These are simply 3"-wide by 36"-long rectangles of MDF that support the back edge of the shelf. These also help tie the "A" frames together and prevent any side-to-side racking. To make these, I cut long strips of MDF to width on the table saw.

Assembly

With all the pieces cut out, you're ready to assemble the shelf. I chose pocket-hole joinery to construct my shelf. There is really no simpler way to create strong joints, and it's easy to place these joints in inconspicuous places.

Painting the Shelves

The last order of business is to paint your shelves. The challenge here is to fill the porous edges of the MDF so they will take paint as well as the rest of the wood. I use drywall joint compound, thinned slightly with water to do this. I just rub it on the edges by hand, allow it to dry, and then sand it smooth. Wipe away the dust with a tack cloth, and the ladder shelf is ready to prime and paint.

