

# Media Center Woodworking Plans



by

**Our Home from Scratch**

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This procedure contains affiliate links.

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# Introduction

The plans for this media center were developed from the same media center that is currently in our home, which was featured in our blog post series on [How to Build a Custom TV Stand](#). Unlike the details found in the blog, these plans contain a complete material list, dimensions for lumber as well as step-by-step instructions. It can be built mostly from material found at your local hardware store and painted to match the trim in your home for a truly custom look. There are also links provided for those items, which aren't as easy to find. Please note those links are affiliate links and if you purchase that item, I get a small percentage of the sale. However, feel free to source those items wherever you get the best deal.

The TV stand was sized specifically for *our* needs. The center section width was actually dimensioned for my PS3. Be sure to check that your electronic devices will fit in the appropriate spaces before you build it. Additionally, this project features 3-1/4" high baseboard molding. If your home has bigger molding, you'll need to modify the plans. If you need any dimensional changes made, I can provide an updated parts list for a small fee.

If you get stuck on any particular part of these woodworking plans, feel free to email me at [John@ourhomefromscratch.com](mailto:John@ourhomefromscratch.com) with any questions you may have. You may also find our blog post on [How to Build a Custom TV Stand](#) helpful since most of the work described in this procedure is identical to that post. You can also ask a question on [our blog's Forum section](#).

Please note that the blog posts that these plans are based on were aimed at teaching people how to design and build their own furniture. These plans, however, are designed purely to help you build this particular project.

I hope you enjoy the challenge of building your own media cabinet.

R,

John

## **Overall Dimensions:**

Height: 27"

Width: 50"

Depth: 18"

## **Storage Area Dimensions:**

Left Width: 13.75"

Center Width: 14.5"

Right Width: 13.75"

## **Getting Started**

These woodworking plans will take you step by step through the build of this cabinet from start to finish. The first thing you should do is read through these procedures to familiarize yourself with the materials, tools and skill requirements necessary to complete them. The process described in these plans is presented in the same manner in which I built my own cabinet.

## **Tools**

The tools I used for this project include the following:

1. [Table Saw with 60 tooth saw blade](#) and [Dado Blade Set](#)
2. [Miter Saw](#) (also with 60 tooth saw blade)
3. [Circular Saw](#)
4. [Cordless Drill](#)
5. [Router with 3/4" cutting bit](#)
6. [Pneumatic Brad Nailer](#)
7. [Kreg Pocket Hole Jig](#) with [clamp](#)
8. [Biscuit Joiner](#) (optional)
9. [K Body Clamps](#)
10. [Random Orbital Sander](#)

## **Materials List:**

Listed below is a table with all the parts necessary to build this media cabinet. I was able to purchase all of the lumber at my local large hardware store (Lowe's, Home Depot, etc.). The cabinet hardware including the hinges and door stops were purchased on Amazon.com. You will need to pick out your own door pulls.

Since this is a paint grade project, the hardwood I chose was Poplar. You can also use Maple or Pine for paint grade work. Although, Pine tends to be much softer than Maple or Poplar and it may show more wear over time compared to Poplar and Maple. If you would like to build a stained wood built-in, simply replace the Poplar and the Birch plywood on the material list with the wood and plywood of your choice (Oak, Cherry, Pine, etc.)

**TABLE 1: Material List**

	<b><u>Required Items</u></b>	<b><u>Quantity</u></b>
1	1x2x8 Poplar Boards (Actual 3/4"x1.5"x8')	6
3	3/4" Thick 4'x8' Birch Plywood Sheets	1
4	3/4" Thick 2'x4' Birch Plywood Sheets	1
5	1/2" Thick 2'x2' Birch Plywood Sheet	1
6	<a href="#"><u>Inset Cabinet Door Hinges</u></a>	4
7	<a href="#"><u>Inset Cabinet Door Stops</u></a>	2
9	3-1/4" High Baseboard Molding	8'
10	1-1/4" Long Pocket Screws	~20
11	Wood Glue	
12	Small Brad Nails	
13	<a href="#"><u>Shelf Pins</u></a>	24
	<b><u>Optional Items</u></b>	
14	<a href="#"><u>Rockler JIG IT Shelving Jig and 1/4" Bit Set</u></a>	1

The "Optional Items" section includes a shelf pin jig, which is also available from Amazon.com. This particular jig comes with a special drill bit that allows you

to use a standard cordless drill to add shelf pin holes. If you do not own one, I highly recommend you purchase one as you can use them on this cabinet and nearly every cabinet project in the future. You will need to add shelf pins for the shelves or the shelves won't have anything to rest on.

## **Material Preparation:**

### *Plywood*

With all of the material purchased from the “Materials” section, it's time to cut all of the wood to the required dimensions. We'll start with the plywood. The individual plywood parts are called out in Table 2. In this procedure, I'm going to refer to them by their assigned name, rather than by a letter or a number. Please note that the Door Panels are cut from ½” thick plywood, where the rest is ¾”.

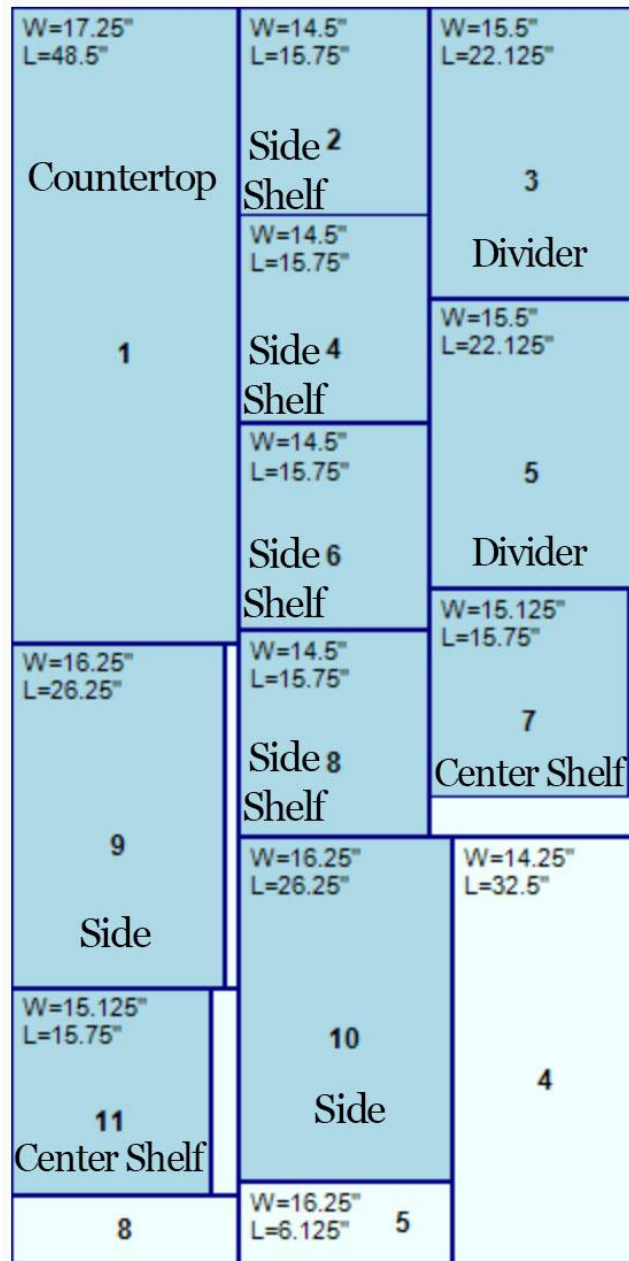
**Table 2: Plywood Parts**

<b>Item</b>	<b>Description</b>	<b>Width (in)</b>	<b>Length (in)</b>	<b>Thickness (in)</b>	<b>Qty</b>	<b>Species</b>
1	Sides	16.25	26.25	0.75	2	Birch or MDF
2	Bottom	16.25	46.75	0.75	1	Birch or MDF
3	Dividers	15.5	22.125	0.75	2	Birch or MDF
4	Countertop	17.25	48.5	0.75	1	Birch or MDF
5	Back Brace	4	46	0.75	1	Birch or MDF
6	Center Shelves	15.125	15.75	0.75	2	Birch or MDF
7	Side Shelves	14.5	15.75	0.75	4	Birch or MDF
8	Door Panels	11.5	16.75	0.5	2	Birch or MDF

I always recommend you use “cut sheets” to assist with cutting the plywood parts from the sheet goods. A cut sheet is just a map of where each plywood piece can be cut out. It's designed to assist with the process and is also critical to minimize the amount of wasted wood. Figure 1 is the cut sheet for the 4' x 8' x ¾” thick plywood. Figure 2 is the cut sheet for the 2' x 4' x ¾” thick

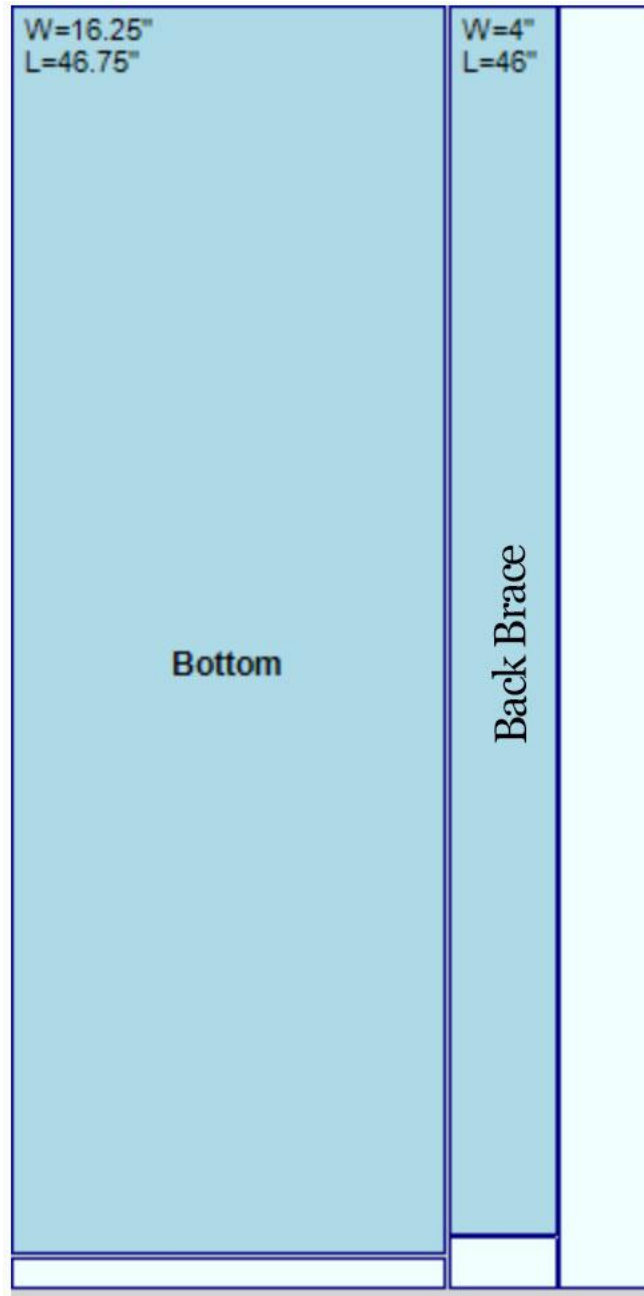
plywood. Figure 3 is the cut sheet for the 2' x 2' x ½" thick plywood. I was able to generate these cut sheets by using [Optimalon.com's free cut sheet generator](http://Optimalon.com).

**Please note that the numbers in Table 1 do not correspond to the numbers on the cut sheets.** Each piece is labeled with its description. The light colored areas are unused and can be saved for future projects or discarded.

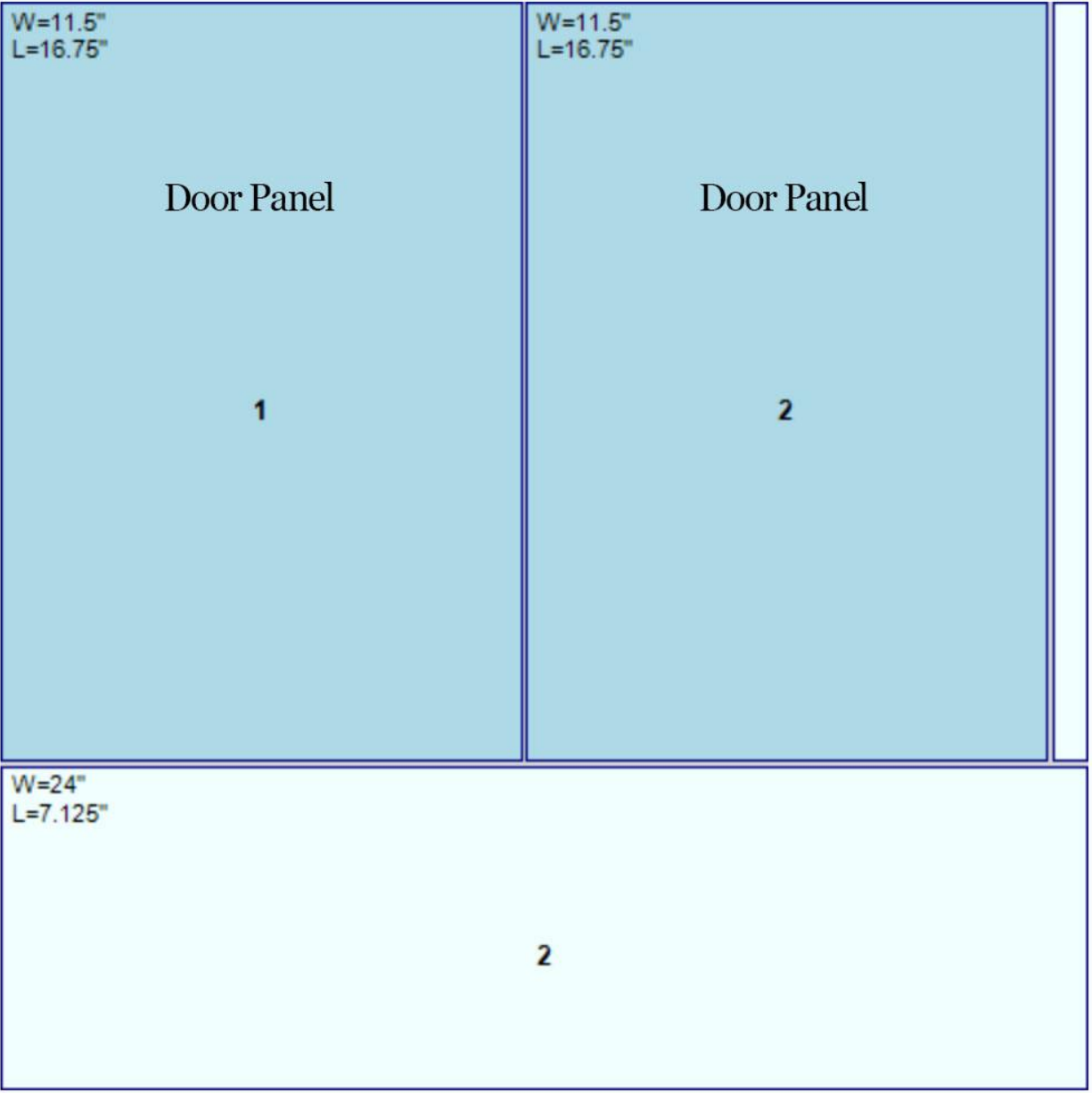


**Figure 1: 4' x 8' x ¾" Thick Plywood Cut Sheet**





**Figure 2: 2' x 4' x 3/4" Thick Plywood Cut Sheet**



**Figure 3: 2' x 2' x 1/2" Thick Plywood Cut Sheet**

To cut the plywood pieces out, I used a table saw with a sharp blade and high teeth count (60 or more). I also used a handheld circular saw for the cuts that are not as safe on the table saw. To achieve a straight, even cut with a circular saw, I clamped a straight edge (a level or a board) to the work and ran the circular saw against the straight edge.

### *Hardwood*

Once the plywood has been all cut out of the sheets, it's time to cut the hardwood to their final dimension. The individual hardwood components are called out in Table 3. For the sake of clarity, the letters "A", "B" and "C" will also refer to the face frame parts.

To cut the boards to their length, I used the miter saw with a high tooth count blade (60+).

**Table 3: Hardwood Parts**

<b>Item</b>	<b>Description</b>	<b>Width</b>	<b>Length</b>	<b>Thickness</b>	<b>Qty</b>	<b>Species</b>
1	Rails "B"	1.5	45	0.75	2	Poplar
2	Stiles "A"	1.5	26.25	0.75	2	Poplar
3	Dividers "C"	1.5	20.5	0.75	2	Poplar
4	Door Stiles	1.5	20.5	0.75	4	Poplar
5	Door Rails	1.5	11.5	0.75	4	Poplar
6	Countertop Wrap	1	86	0.75	1	Poplar
7	Center Shelf Wrap	1	15.125	0.75	2	Poplar
8	Side Shelf Wrap	1	14.5	0.75	4	Poplar

Instead of cut sheets for the hardwood, here is a cut list for each board. It's similar to the plywood cut sheet, except it's not in graphical form.

*Board 1 & 2*

Rail  
Stile  
Door Rail  
Door Rail

*Board 3*

Door Stile  
Door Stile  
Center Shelf Wrap  
Center Shelf Wrap

*Board 4*

Dividers  
Dividers  
Door Stiles  
Side Shelf Wrap  
Side Shelf Wrap

*Board 5*

Countertop Wrap

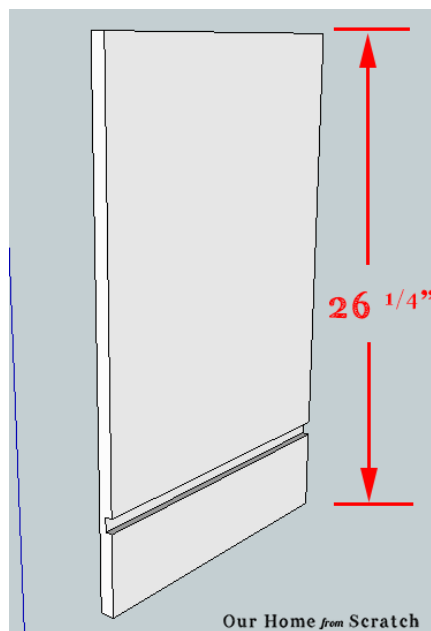
*Board 6*

Side Shelf Wrap  
Side Shelf Wrap

## *Machining Grooves*

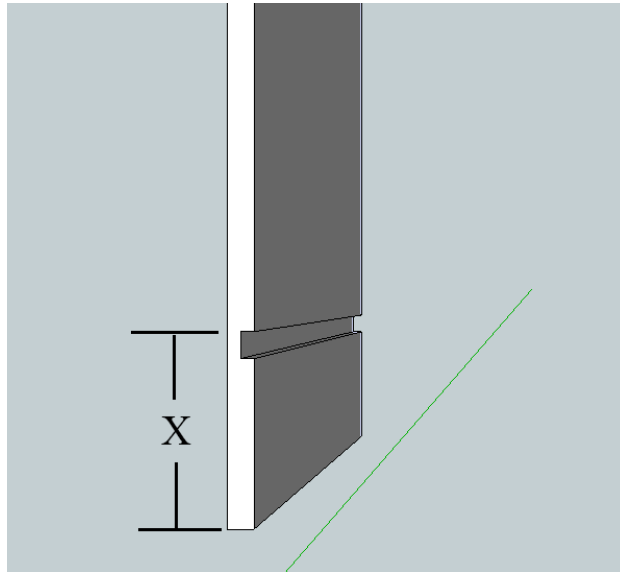
Once all the plywood and hardwood has been sized and cut to their final dimensions (See Tables 2 and 3), it's time to add grooves into certain plywood parts. These grooves are absolutely necessary to hold the cabinets together and will help align entire sections during assembly. The grooves can either be added at the table saw using dado blades or with a router and a 3/4" cutting bit. All grooves will be 3/4" wide and 3/8" deep.

There will be two sets of grooves. The Sides will each receive a groove and the Bottom piece will receive two. We'll start the grooving process with the Sides. Figure 4 shows a Side piece with the groove cut.



**Figure 4: Bottom Cabinet Sides with Two Grooves**

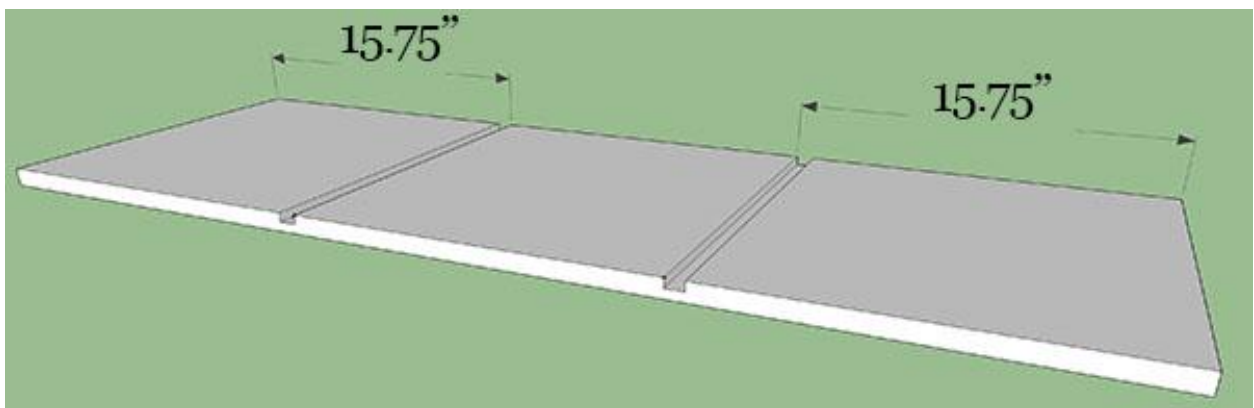
The first groove is along the bottom of the Side. Figure 5 shows a close up of the first groove.



**Figure 5: Bottom Cabinet Side; Bottom Groove**

The “x” mark indicates the distance from the bottom edge of the board to the top edge of the groove. In this case, “x” is equal to 5”. You can also measure 4-5/8” to the center of the groove.

For the Bottom plywood board, the two grooves will be located 15-3/4” to the far side of the groove as measured from each end. You can also measure 15-3/8” to the center of the groove if you prefer.

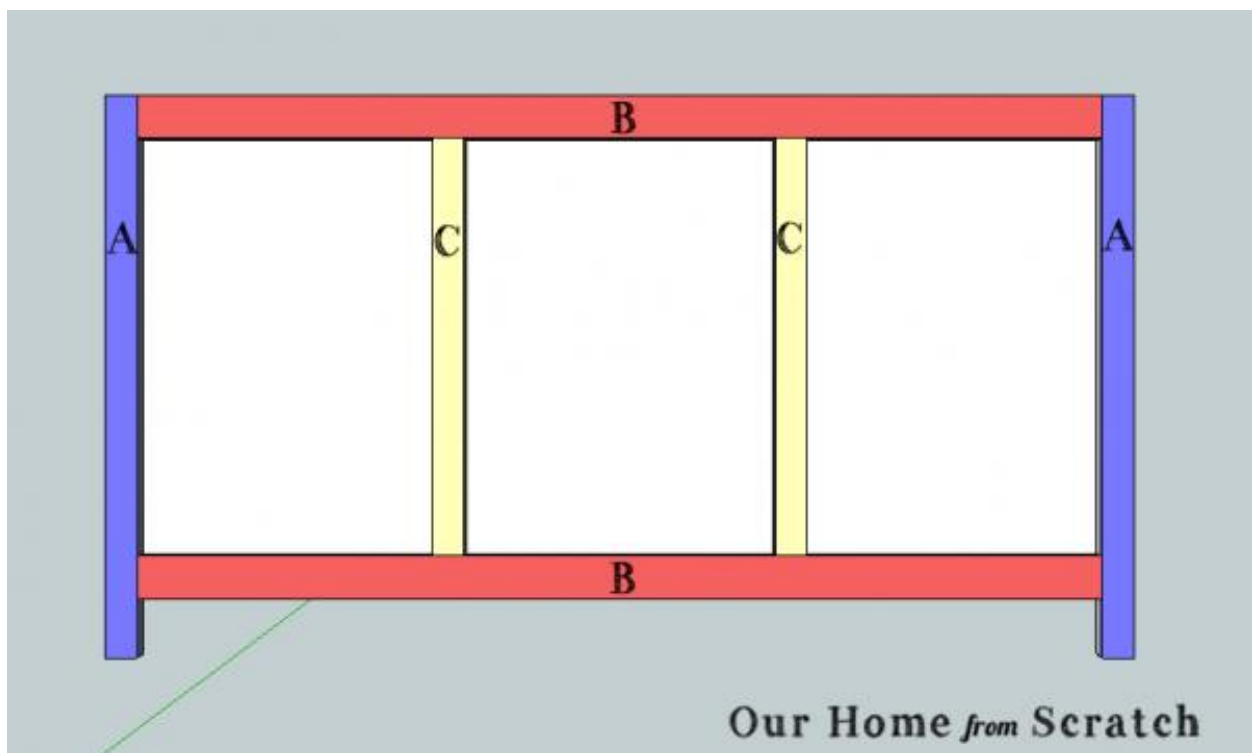


**Figure 6: Bottom with Two Grooves**

## Assembly:

### *Face Frame Construction*

The face frame will be constructed using pocket screws and wood glue. Before drilling the pocket screw holes, inspect face frame boards (A, A, B, B, C, C) for dings and defects. The board sides with any imperfections should be marked and positioned so that the pocket holes are drilled on the damaged face. Mark the location of the pocket holes with a pencil. The B boards get four pocket screw holes each (two per end) and the C boards receive two each with one at each end.



**Figure 7: Face Frame Arrangement**

When all the holes have been drilled, join the pieces together using a dab of wood glue in the joint and then the pocket screws once the openings have been checked verified as square. To check for square, use a measuring tape and

measure the diagonals of each door opening. All four measurements should be within 1/16" of each other.

### *Door Construction*

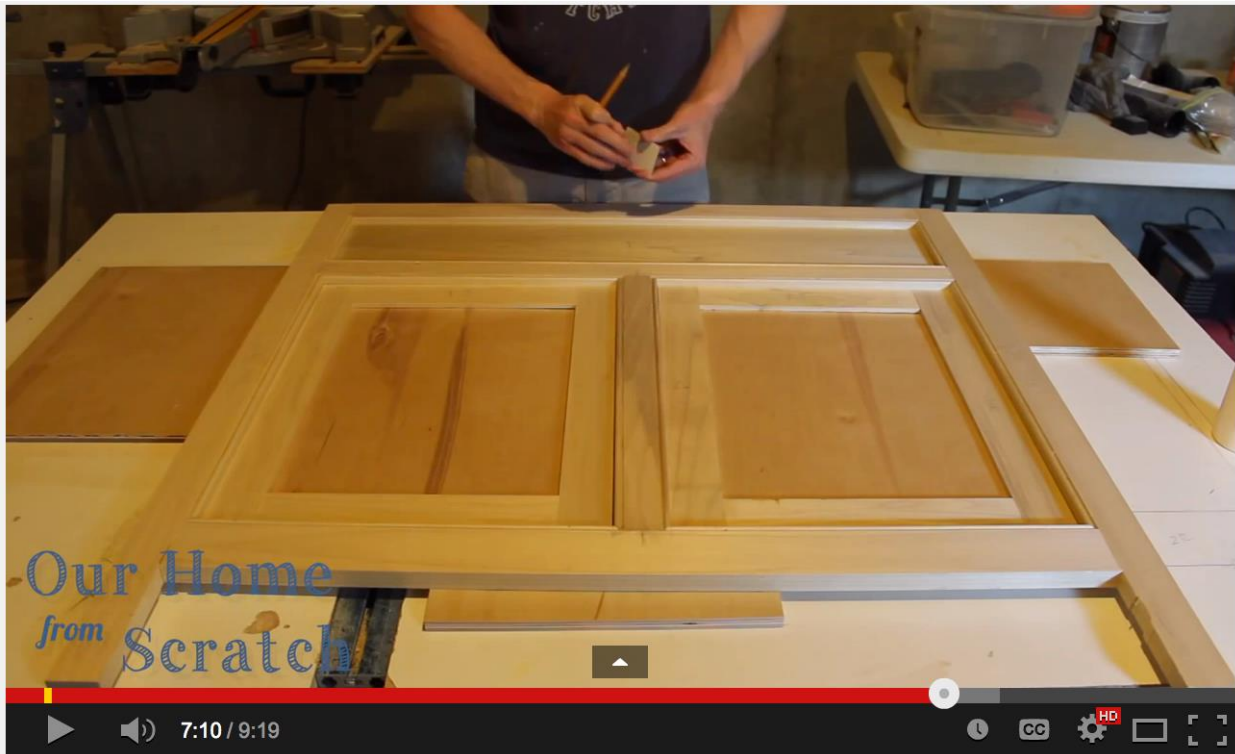
The doors for this built-in cabinet are shaker style and are inset into the cabinet. Inset doors are less common and more difficult to make than regular overlay doors. However, inset doors are more indicative of a custom built cabinet and therefore can be more desirable. If you prefer the look of an overlay door, just add 1-1/2" to the lengths of the door stiles and rails as well as to the length AND width of the door panels. You'll also need different hinges for overlay doors.

Building the doors is probably the hardest part of this procedure. The dimensions provided in the hardwood dimension table will give you a door that is the exact same size as the opening. You'll need to then trim the door size down to an acceptable gap. Ideally, the doors should have a small gap all the way around them equal to roughly 1/16" to just shy of 1/8". There are a couple ways to size and fit the doors into the face frame. In any case, I recommend you delay gluing the door together until you know the door fits in the face frame opening appropriately.

I'd also recommend you watch my video on building shaker style inset cabinet doors. Use the procedure in the video and you'll get a tight, uniform fit. You can use either a router table OR a table saw to machine the doors. Use whatever power tool you feel comfortable using.



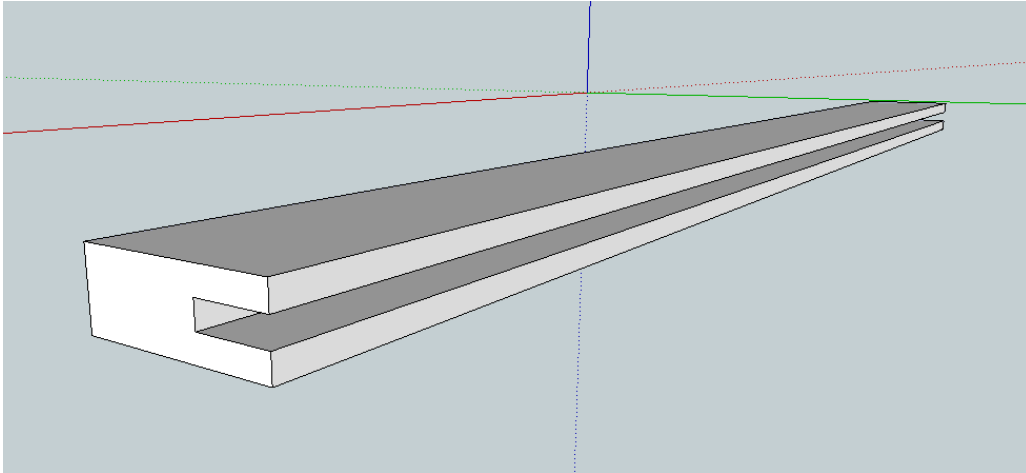
Here's a link to that video:



Click [the link here](#) to be re-directed to the video.

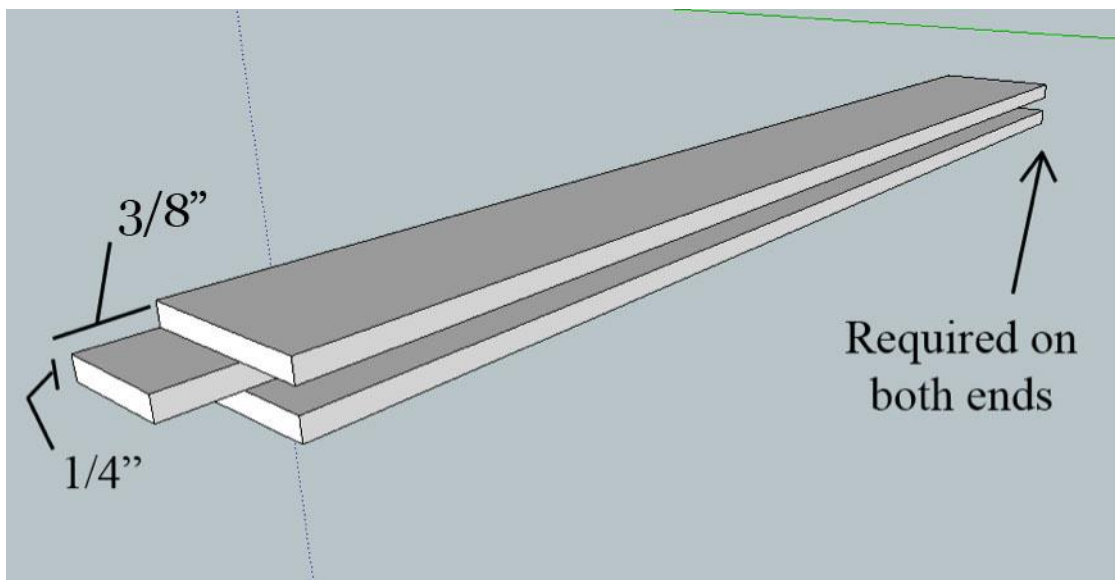
Now that you've watched the video, let's recap the basic machining steps for the door parts.

1. Add a  $3/8$ " deep groove in the center of the edge on **both** the door rail and stiles as seen in Figure 8.



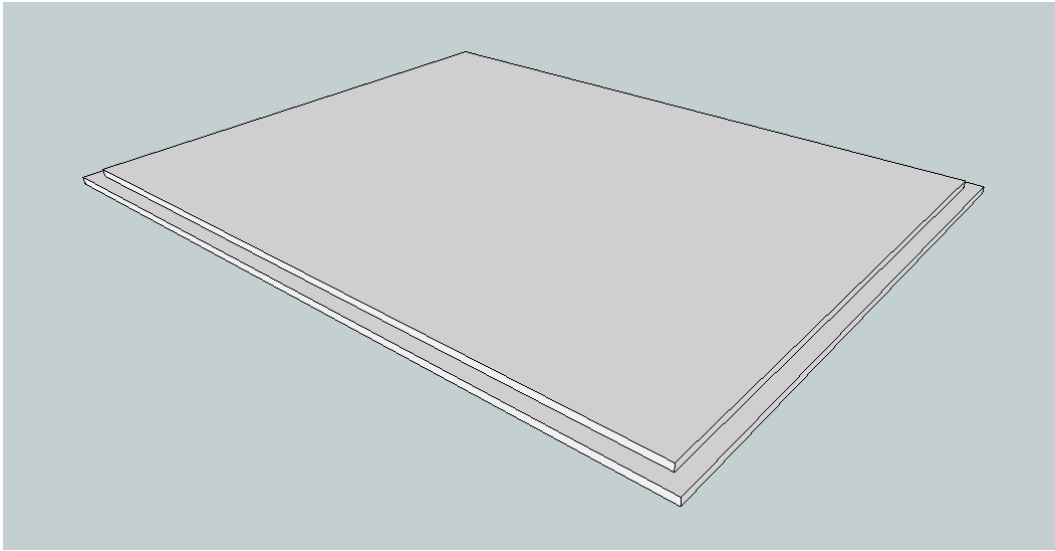
**Figure 8: Door Stile with Groove**

2. On each end of the rail boards, remove material to expose a  $1/4$ " thick tongue centered on the edge that is  $3/8$ " long similar to the illustration in Figure 9. The tongue should fit snugly into the groove on the stiles.



**Figure 9: Door Rail with Tongue and Groove**

3. Remove a 3/8" wide, 1/4" thick ring around the door panels. This will allow the panel to fit into the groove on the rails and stiles. This cut is referred to as a rebate or a rabbet cut. See Figure 10.



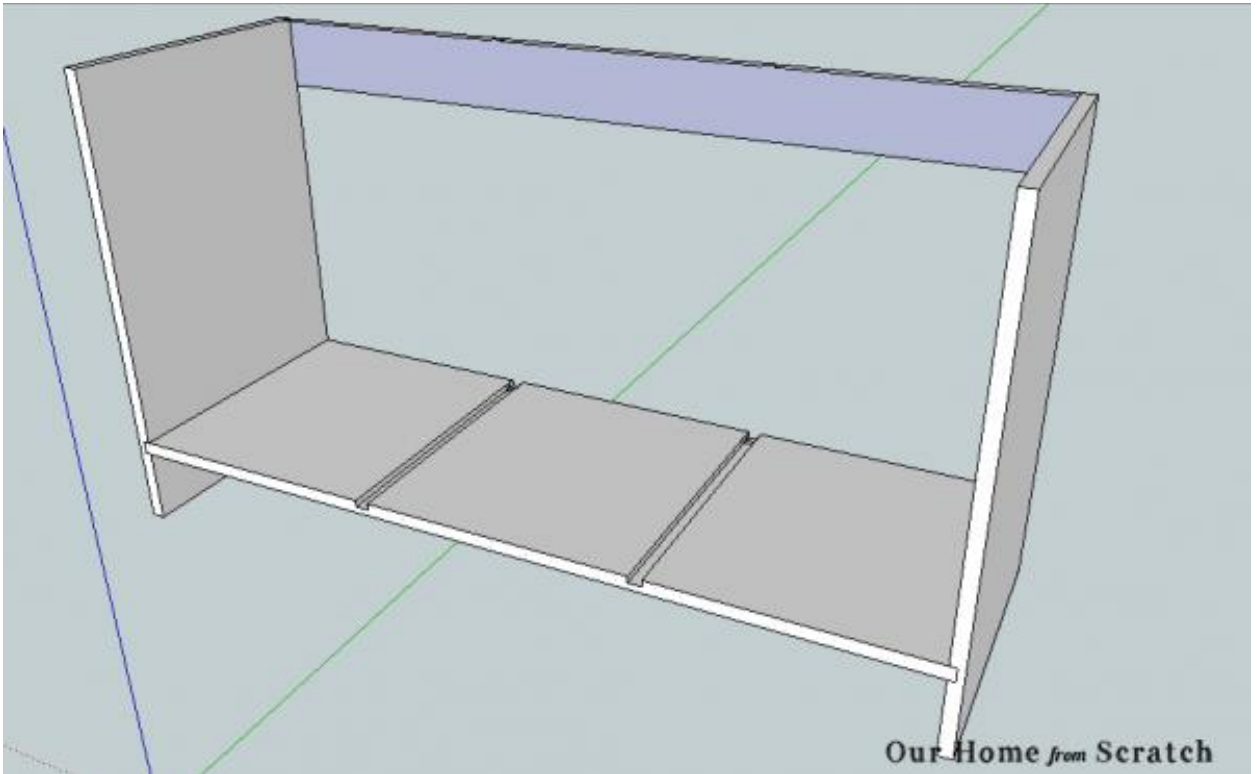
**Figure 10: Door Panel with Rabbet Cut**

4. Assemble the door panel without glue by inserting the door panel into the rail groove and then the door and rails into the stiles. The face of the door panel with the rabbet should be facing the back of the door. All joints should be tight. Test fit the dry door assembly into the door opening. It helps if the hinge is inserted into the door gap to allow for a true test fit. Adjust the fit of the door by removing material with a jointer, table saw or hand plane. The door should have a consistent gap all the way around. Make adjustments as necessary.
5. Disassemble the door. Apply a liberal amount of wood glue to the rail tongues only. Reassemble the door and clamp together with the clamps placed against the stiles to squeeze the rail-stile joint together. Wipe off any excess glue with a moist paper rag. Allow the glue to set overnight before releasing from the clamps.

### *Cabinet Box Assembly*

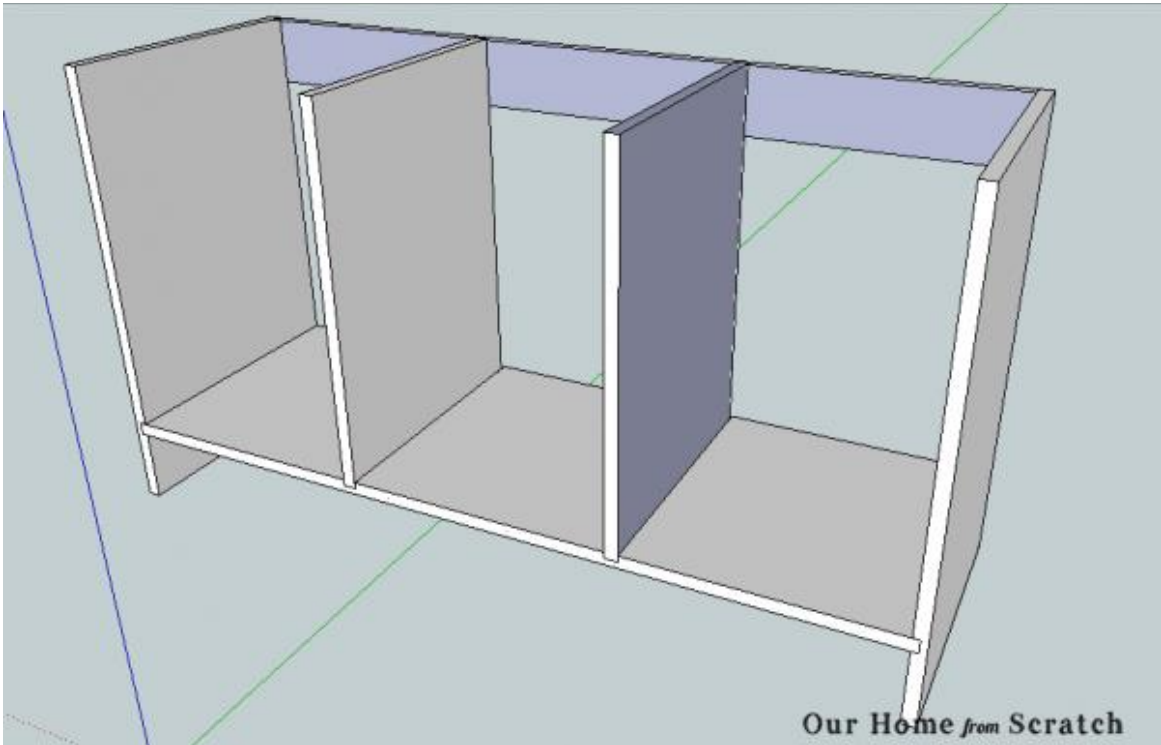
With the face frame and doors built, the boxes can now be assembled.

1. Apply a liberal amount of wood glue into groove in one of the Sides. Insert the Bottom into that groove. These two pieces can be held together for easier handling by toe-nailing a couple of short brand nails into the joint area or from the outside of the Side piece into the groove. Repeat this glue and assembly process with the other Side piece. Any excess glue should be wiped off with a moist rag or paper towel.



**Figure 11: Cabinet with Sides and Back Brace Installed**

2. Install the Back Brace across the back opening of the cabinet with pocket screws and wood glue. The Back Brace should receive two pocket screw holes on each end. The pocket screw holes should not face the inside of the cabinet. The brace should be flush to the edge of the Side once installed. See Figure 11.



**Figure 12: Cabinet with Dividers**

3. The Dividers can be inserted into the grooves in the Bottom board and installed with wood glue and screws from below. The Dividers should be flush to the front edge of the Bottom board. Also install additional screws or nails through the Back Brace into the dividers. Use a square to ensure the Dividers are square to the Bottom board and the Back Brace before securing with fasteners. See Figure 12.
  
4. The face frame can now be attached to the cabinet assembly using either brad nails through the front of the face frame, inconspicuously located pocket hole screws or biscuits. If you choose to use pocket screws, they can be located on the Side pieces at two locations: a) the very bottom of the Side below the Bottom piece and b) near the top of the Side. Both locations should be pretty out of the way.

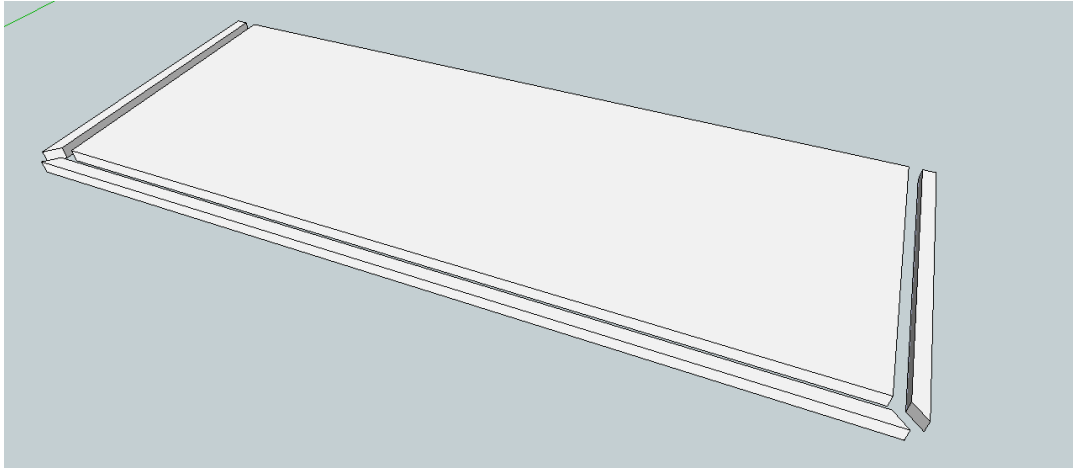


**Figure 13: Bottom Board Extends Above the Top of the Face Frame**

The face frame is designed to be 1/2" longer than the box so it will overhang each side by 1/4". The top of the face frame should be flush with the top of the cabinet box. The Bottom board will sit 1/4" higher than the top of the bottom face frame rail. See Figure 13.

The entire front edge of the plywood should get a coating of wood glue before applying the face frame. The face frame should be clamped to the cabinet overnight to allow the glue to set. The doors DO NOT need to be added until after painting. Recommend you leave them off until that time.

5. The countertop can now be assembled. The plywood countertop section simply gets trimmed out with the Countertop Edging boards. The ends are cut at 45 degrees and get attached to the plywood with glue and brad nails. See Figure 14.



**Figure 14: Countertop**

6. The countertop gets attached to the cabinet by using pocket screws. The pocket screw holes can be located on the back of the cabinet as well as on the interior of the face frame. Apply a liberal bead of glue to the top of the cabinet box. Rest the countertop onto the box. The back of the countertop should be flush with the back of the box. It should over hang the front and Sides by 1”.

This step pretty much completes the construction of the cabinet. The doors can stay off until after the cabinet is painted and mounted to the wall.

7. The shelves can now be made. Glue and nail the shelf fronts to their matching plywood boards. I prefer to have the shelf front sit about  $\frac{1}{4}$ ” higher than the top of the shelf so as to provide a catch for objects on the shelf.
8. Now would be a good time to add the shelf pin holes using the Rockler jig or your own homemade jig. You can watch a [quick video here](#) on how to use the Rocker jig.



## *Finishing*

Before painting or staining, every surface that will receive a finish should be sanded. I used a 120 grit sandpaper on my random orbital sander and followed up with 220 grit.

This cabinet can be finished with a variety of primers and paints depending upon your requirements. For this particular cabinet, I sprayed on two coats of primer and brushed on two coats of regular latex paint to match the trim work in my home. Higher quality cabinet paint, like acrylic enamel, is preferred since it provides better adhesion, leveling and finish quality. Lacquer is also a solid option. If using normal latex paint, allow the cabinet to dry for several days to a couple of weeks for maximum adhesion. Otherwise, objects you place on the cabinet may disturb the paint when they are moved.

## *Installation*

If you plan on adding baseboard molding to the cabinet, either remove the molding from the wall first or notch the cabinet to slip over the wall molding. If the wall is uneven, the cabinet may be scribed to allow for a flush mount. The cabinet should be secured to the wall studs using the proper length screws and finish washers inside the cabinet. Use proper judgment to determine if the cabinet is adequately secured to the wall. Give it a solid couple of yanks away from the wall to make sure it doesn't pull away easily. The cabinet must be installed into wall studs.

With the cabinets mounted, you can install the doors adjusting the hinge screw location to properly center the doors. I typically locate my hinges around 2" down from the top and bottom of the frame. Feel free to also add the door stops and any knob hardware you prefer.

The baseboard molding can next be installed. I used 3-1/4" high baseboard molding. If your home has bigger molding and you would like the cabinet to match it, contact me for custom dimension resizing if available. There is a small fee for any alterations you request. Email me for info.

The cabinet should be caulked to the wall for a more built-in look. Throw in your shelf pins and add your shelving and you should be done.

## *Resources*

These plans were based on a series of blog posts that appeared on Our Home from Scratch. There are a number of posts on Our Home from Scratch that contain similar content to the work described in these plans. If something you've read here is unclear, you may want to refer to those posts for clarification. The [How to Build a Custom TV Stand](#) contains links to nearly all of the work done on our blog for this project. If at any time, you get stuck on something or have a question, you can email me at [John@ourhomefromscratch.com](mailto:John@ourhomefromscratch.com).

There are also a number of videos done by our blog that corresponded to this particular project. Those videos may be helpful if you've never done some of the techniques described in these plans.

1. [Face Frame Construction](#)
2. [How to Cut Grooves and Dados](#)
3. [How to Assemble a Cabinet](#)

That's it. If you find any errors or have any suggestions for improvement, drop us a line at [John@ourhomefromscratch.com](mailto:John@ourhomefromscratch.com)

Thanks!!