

# Cupboard Construction for Wilma

*By Malcolm N Beasley, Sr. - Feb 2011*



My #1 Common African Mahogany lumber was purchased from Peach State Lumber Products in Kennesaw, Georgia which is North west of Atlanta with assistance from my friend, Bubba Woodham. After picking out the lumber, I had them surface two sides from 4X4 stock to 13/16" thick and rip one edge square. S2SR1E. \$869



After transporting the material home, I reviewed each board carefully and picked out and labeled each piece that would be appropriate (best grain, length & width) to cut up for each piece of the cupboard.



I then prepared a cut sheet for each board as shown to the right.

Malcolm's Workshop - Cut Sheet	
Designer: MALMS	Date: Dec 2019
Checker:	Job No: 1 of 2
Description: Malcolm's Cupboard	
	A 12"
	B 13 1/2"
	C 15 1/2"
	D 13 1/4"
Front Stiles plus 1 Extra	E 10 1/4"
Door Stiles	F 12 1/4"
Side Stiles	G 11 1/2"
	Borel #
	Borel width

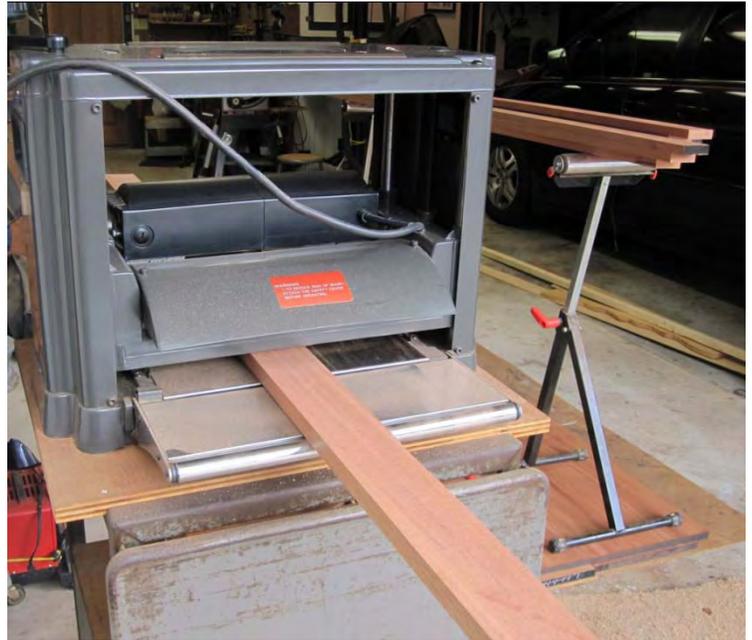
I reviewed the good edge of each board to make sure it was satisfactory to use as is, and if not I ran that edge through the joiner first. Next, I ripped down the 2-1/2" rails and stiles that makes up the cupboard case. I positioned the good edge along rip fence of the table saw and cut the stiles 1/8" wider than the 2-1/2" required.



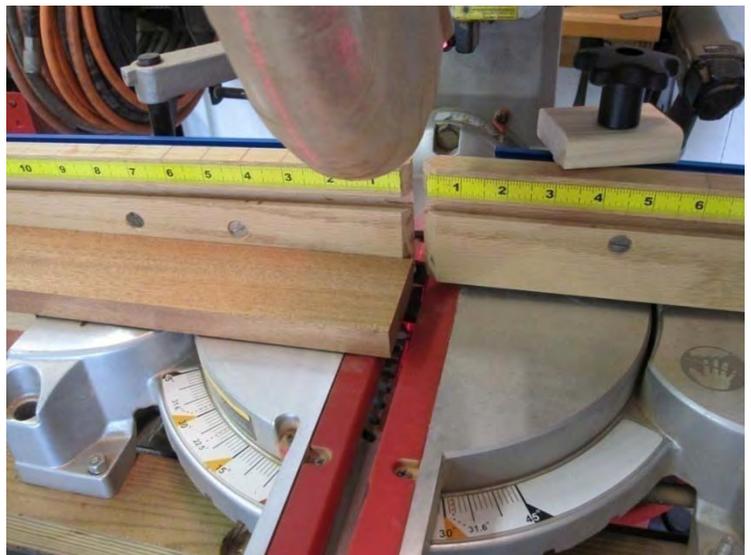
Next, I trimmed 1/16" off each side with the joiner to make the finish stiles 2-1/2" wide.



Next, I used the thickness planer to planed the boards down to exactly 3/4" thick.



Then, I squared up one end of the stiles.



I prepared a temporary extension support, so that I could easily cut all 6 stiles down to same length.



With the left over stiles, I cut the rails to the proper length which included the tongue length, on each end.



I was careful to keep each board together for grain and color pattern.

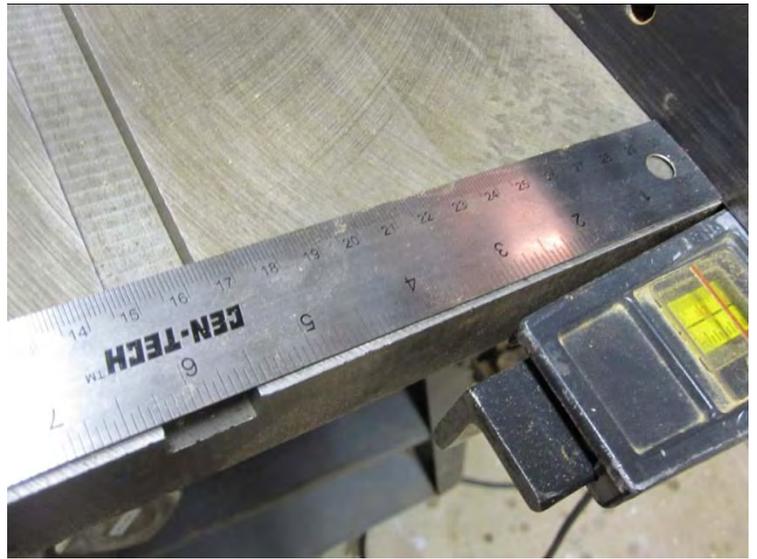


Next, I set up my dado blade with feeler blocks by measuring with my finger in lieu of eyes.

Height 1/2", Offset 1/4".



I made sure my Rip Fence was parallel by measuring at both ends of the miter slot.



After making a check cut, with a scrap block of wood of same material and size, I cut the grooves in the stiles.



Then, I cut the grooves in the side rails, shown from left to right, (bottom, middle and top rail) respectively.



Next, I cross cut the stub tenons in the rails on the table saw using a dado blade.



Next, I started to work on the 1/4" mahogany plywood (good on two sides) interior panels by cutting them down to width.



Then I cut the interior panels to length using my handsaw.



Finally, I glued the side panels together keeping matching interior panels aligned.



For some reason I did not use as many clamps as I generally do, perhaps since there were not as many clamping locations available. No glue was put on the interior plywood panels. Hold down clamps made sure the panel was flat.



Next, the sanding begun with all type of sanders and grits, 120, 150, 220 etc. to produce a smooth surface. The hand sanding provided the best satisfaction when completed, which included some soreness the next day.



Next, I marked shelving locations on a scrap board shown below and utilized it as a story stick to transfer the location to each of the side panels. For the one moveable shelf shown below, I drilled shelf pin holes using a drill press.



Next, I cut the 3/4" mahogany plywood (good on two sides) shelves to oversize length and width.



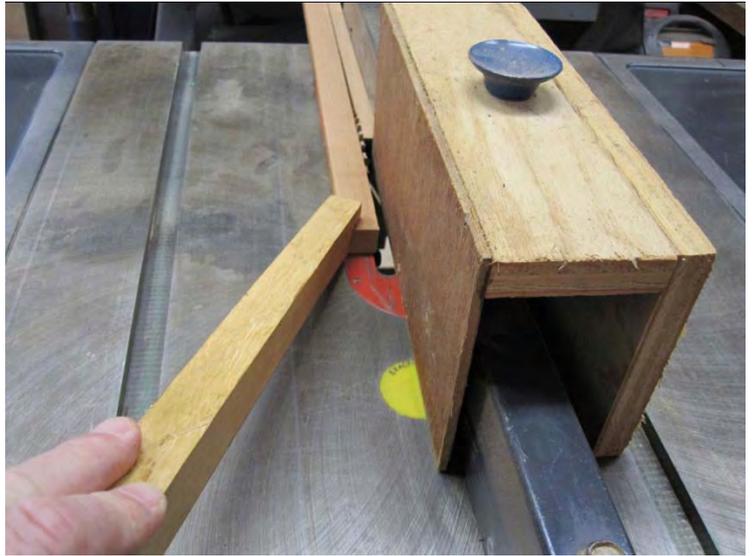
I then ran one edge of each shelf through the joiner.



I planed a strip of stock mahogany to be used as edging material to thickness slightly greater than the thickness of the plywood shelves with the thickness planer and then jointed one edge of the edging material with the joiner.



I then cut 1/2" trim strips to use as edging to cover the plywood front face. No one likes to cut thin stock, but I made it safer by using both a push block and a thin wall push block.

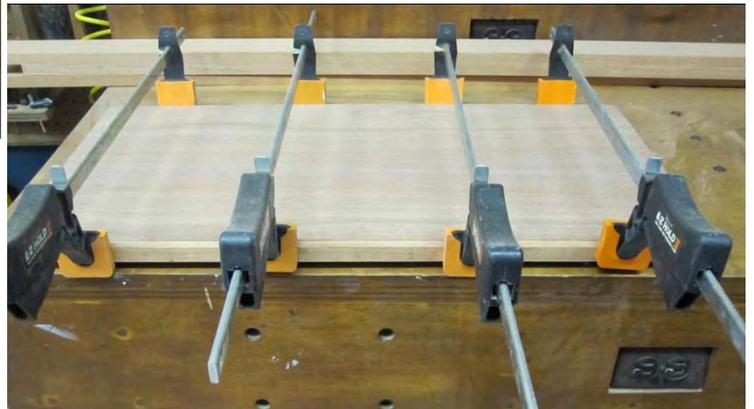


I then put glue on both the trim edging and the front face of the plywood shelf and taped them together.

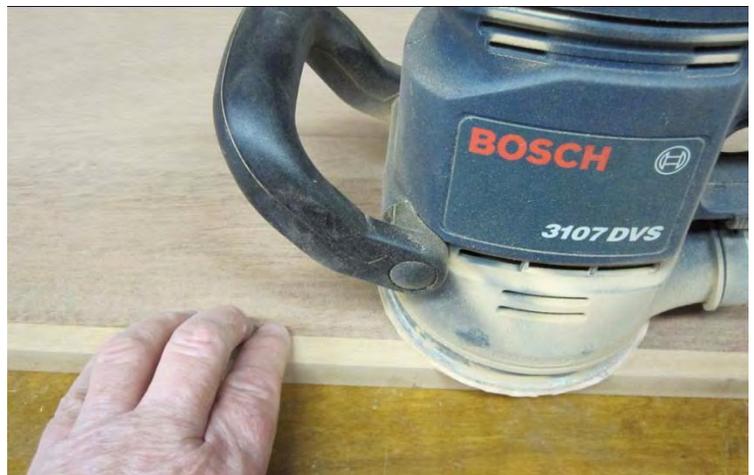


I prefer to use tape as a temporary hold and then clamp them together. While waiting for the glue to dry, I added to my list of waiting on .....

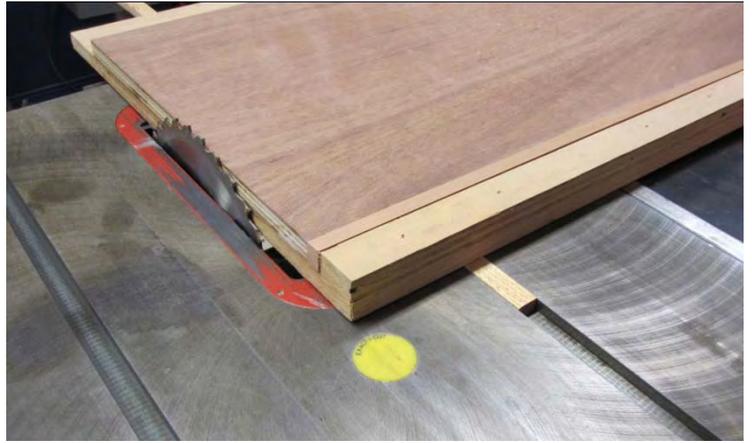
- Waiting on a Woman
- Waiting on the Bread
- ***Waiting on the Glue to Dry***



Then, I sanded the edge flush with the side. I using my fingers to determine when the lip was gone.



Next, I cut the left edge of shelf square using a panel cutting jig. Then I cut the right edge square and to proper shelf width.



Then, I ripped the shelves to finish shelf depth.



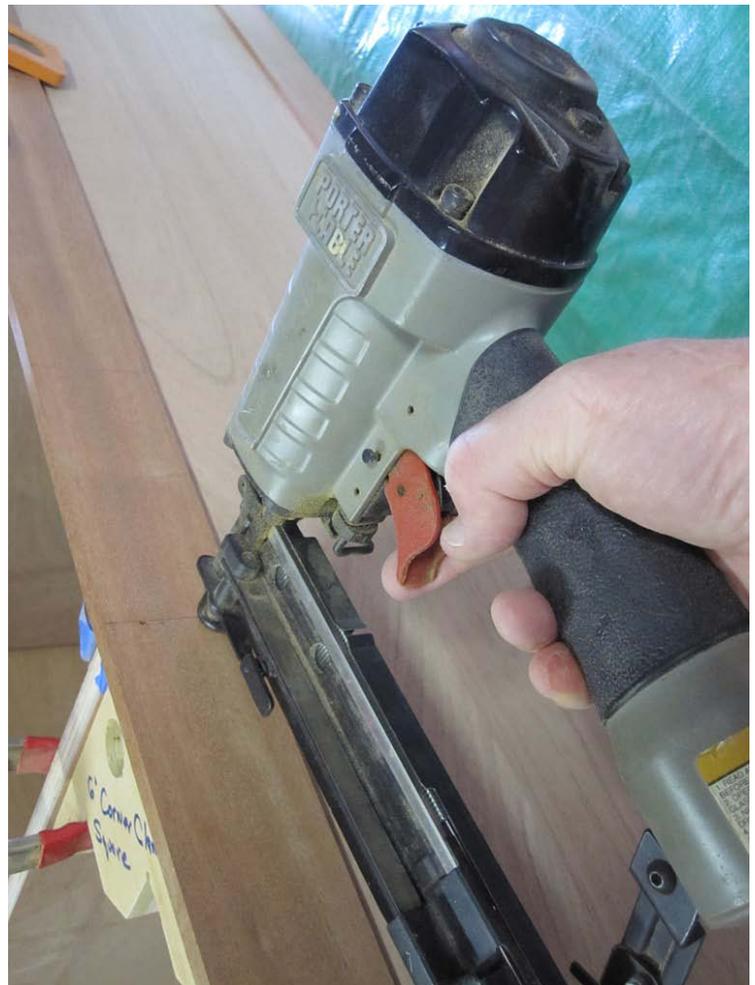
At this point, it was time for a dry fit of the shell unit. This view is shown from the back side of the unit with the bottom of cupboard at the bottom of the page. To keep square, I utilized temporary squares at the corners and used temporary pegboard to offset the interior shelves 1/2 " from the front.



On the glue up, I used blue tape on one side but not on the other side. While, the tape did help reduce the glue clean up, it made it harder to see the shelf location that I had spent so much time carefully marking.



On past projects, I have used biscuits to assemble a case, but this time, I used a finish nailer, glue, and clamps which made a much quicker process.



Now that the case is all clamped up, the glue needs to dry before I can proceed.



Side view (above)

Front view (at left)

With any project, no matter how you plan, mistakes like this happen, cutting the trim board to short for the top, but I got it right the second time.



For the front space frame, I drilled holes using a pocket hole jig. The holes will be on the inside of the case and will not be visible.



Then, I assembled the front space frame with glue and pocket hole screws.



Finish front space frame assembled on my workbench.



The space frame was glued and nailed to the front of the case.



Space frame installed on the case.





The top installed with oversize holes and screws to allow for movement.



Top edges routed and attached.

Drawer supports shown below.



Drawer supports were held in place with glue and pocket hole screws held in place at the exact width and parallel to each other.



Main unit completed except for drawer, doors, back and finish.



1/4" mahogany plywood back cut to size and dry fitted. This will be installed after unit is finished to make painting easier.



Next, I cut all of the drawer parts down to size, including an extra piece for a test cut.

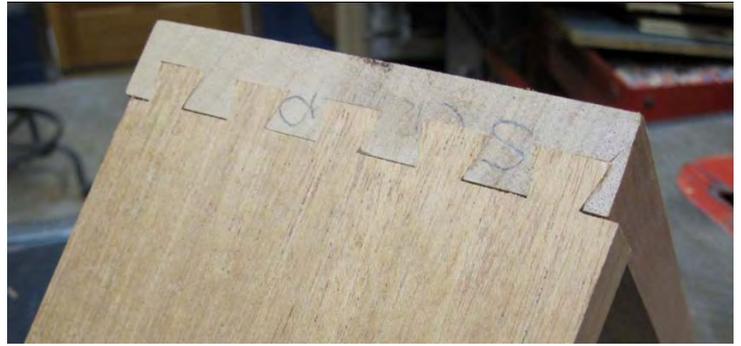


Then, I set up dovetail jig for a test cut.

To reduce chip out, I cut a scoring cut



The sample cut appeared to be satisfactory.



All parts were labeled from the inside viewpoint, including all joints, in this case A, B, C & D.



Then I inserted the parts into Jig.



3.8

Again to reduce chip out, I cut a scoring cut.



Then I routed both pieces at the same time.



If joints are not perfect, sand and shape them NOW. Do not try to force a joint later, it will not work.



Next I cut bottom groove on the inside of the drawers. Note: If labels are still on the parts, it helps to make sure the groove is cut correctly on the bottom inside of the drawer.



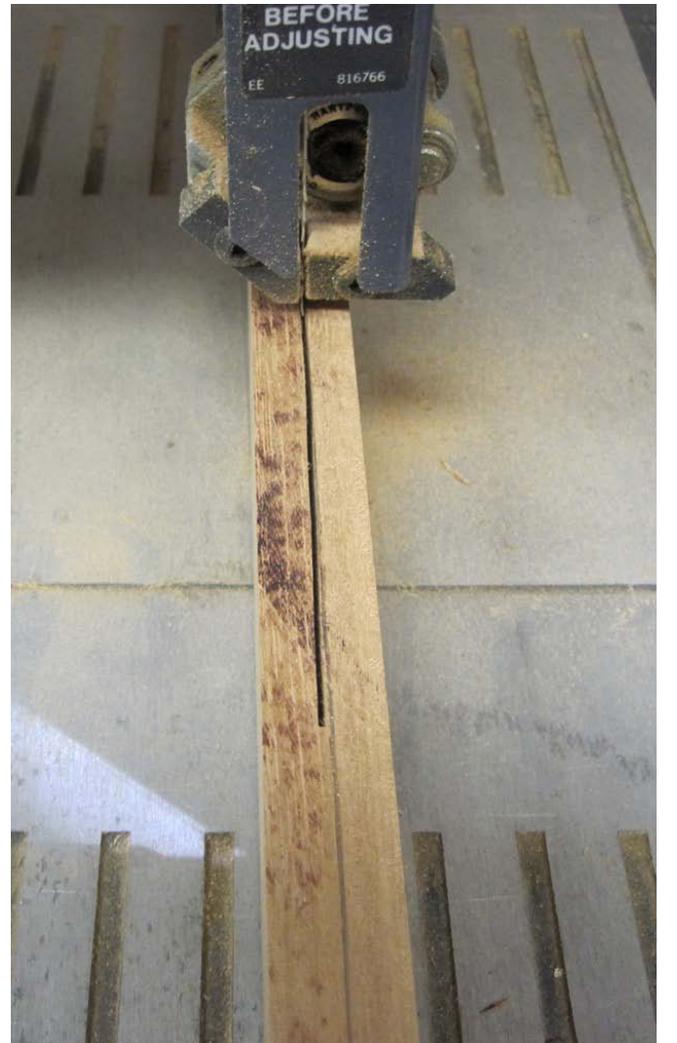
Assemble drawer.



I used a bandsaw to cut the handhold on the drawer front.



Next, I ripped the 3/4" stock in half to be used as drawer dividers.



The dividers were planned to a thickness of 1/4"



Drawer temporary installed.



Then I cut, all the interior divider supports at one time and installed them in the drawer.



Shown at right is the sliding drawer.



Sliding drawer, slid to the left.



Sliding drawer, slid to the right.



The door stiles, were cut to the same length. Note door rails and stiles were cut to width when the rails and stiles were made for the case above.



Utilizing the jig shown below, I cut raised panel on ends of door insert first then I cut the sides.

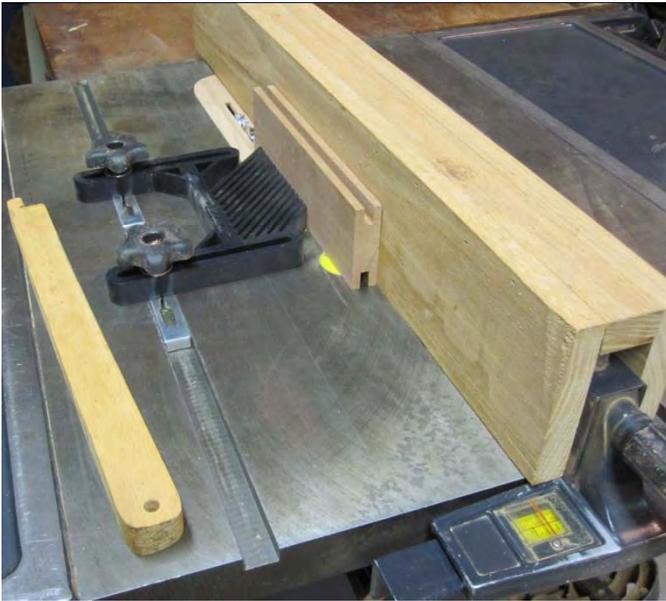


The saw blade is set to 1-1/2" high and set to 6 degrees. This leaves a 1/2" panel (1/4" tongue & 1/4" groove). Do not try to cut the full 1-1/2" depth at one time. I used three passes, 1/2", 1", and then the final 1-1/2" cut.

The joint are shown below from left to right, (No sanding, a little sanding and then a little bit more sanding). Not bad.



Next, I Cut the groove for the doors in the stiles and rails.



And then, I cut the tongue for the rails and the interior door panels.



After sanding the door parts, I made a dry fit, too see if I was ready for glue up.



Next, I glued up the doors one at a time.



And then, I cut both doors to the exact length at one time with a skill saw and a straight edge.



Returning my attention to the case, I filled the brad holes with wood filler that I was not pleased with. Therefore, I did not fill the pores of the grain in the mahogany with this material, but I did like the way the grain was exposed in the mahogany.



I temporarily installed the doors temporary to make sure everything fit.



I wet everything down with a clean wash cloth, to raise the grain. After the water dried, I sanded the surfaces with 220 grit sandpaper at least 3 times.



While waiting on the wood to dry, I cut the shelf covers and drawer inserts down to size.



Finally, I was ready to begin finishing. I used nail supports, to support the doors so that I could paint or finish both sides at the same time.



Prior to each coat of finish, I wiped all surfaces with a clean damp cloth, and let it dry, and then wiped all surfaces down with a tack cloth.



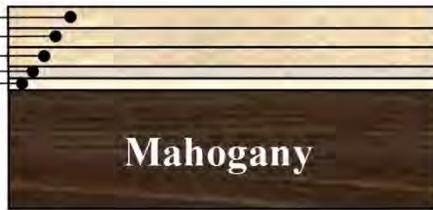
I used 2 coats of sanding sealer and 3 coats of Polyurethane clear satin as shown, with a light sanding with sandpaper between each coat as shown in the blow-up detail below.



This detail finishing procedure could be called old fashion, but I have been using this procedure since 1973 on all of the prior seven pieces of furniture in this series and wanted it to match as much as possible.

**Note:** In lieu of the Sanding Sealer & Polyurethane, I actually prefer to use Shellac and Varnish, but at the time, I could not find Satin Varnish. I prefer a Satin Finish.

Polyurethane  
 Polvurethane  
 Polyurethane  
 Sanding Sealer  
 Sanding Sealer with  
 25% Mineral Sprits



Wet Sand with 400/420 Sandpaper, and lightly rub router cuts with 0000 steel wool all with the grain. Then Rub down with Pumic Stone & water, and then with Rottenstone and Linseed Oil again all with the grain. Final buffing with a dry clean cloth.

Wet Sand with 300/320 Sandpaper, and lightly rub router cuts with 0000 steel wool all with the grain.

Sand with 220 Sandpaper  
 Sand with 220 Sandpaper  
 Sand with 220 Sandpaper  
 Sand with 100, 120 & 180 Sandpaper

**Blow-Up - Detail Finishing Procedure - Satin Finish**

I need to add a caution from a bad past experience, linseed oil rags, will cause fire by spontaneous combustion so lay them out separately on a flat surface to dry prior to discarding in a trash can.

Malcolm Beasley Sr. Feb 2011

Finished Cupboard shown in place below.



The Cupboard above is the eighth mahogany item I have built for our living/dinning room area since 1973. The prior seven items are shown below in order of construction at the original location each item was designed for. *Note photo's taken in 2011, held up pretty good with two kids and 2 grandkids over the last 30+ years.*



Room Divider, Right Side - 1973



Room Divider, Left Side - 1973



Two - End Tables and Lamps - 1974



Magazine Rack - 1974



Stereo Cabinet/Entertainment Center - 1981



TV Cabinet - 1985 (Note built prior to the Big Screen era, but it stills works for Wilma mid-size TV, my big screen is upstairs)