Simple American Mah Jongg Tile Box Construction

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Hi again. After making a custom tile set, I needed a box to put them in. At first, I was going to try to make a fancy box but decided to start simple. I designed and built a single box holding all 152 tiles. This report shows what I did in case someone else wants to try. I used scrap material from other projects. Wood craft frames and pieces of acrylic. Figure 1 shows two boxes I made.

Figure 1. *Two Example Finished Boxes (top – Golden Pecan stain, bottom – Early American stain)*

The box pieces with dimensions are shown in Figure 2. These dimensions assume a hinged top. I plan to try an alternate design with a top that slides on. The wood side pieces I had were too small to use a top that slides on.

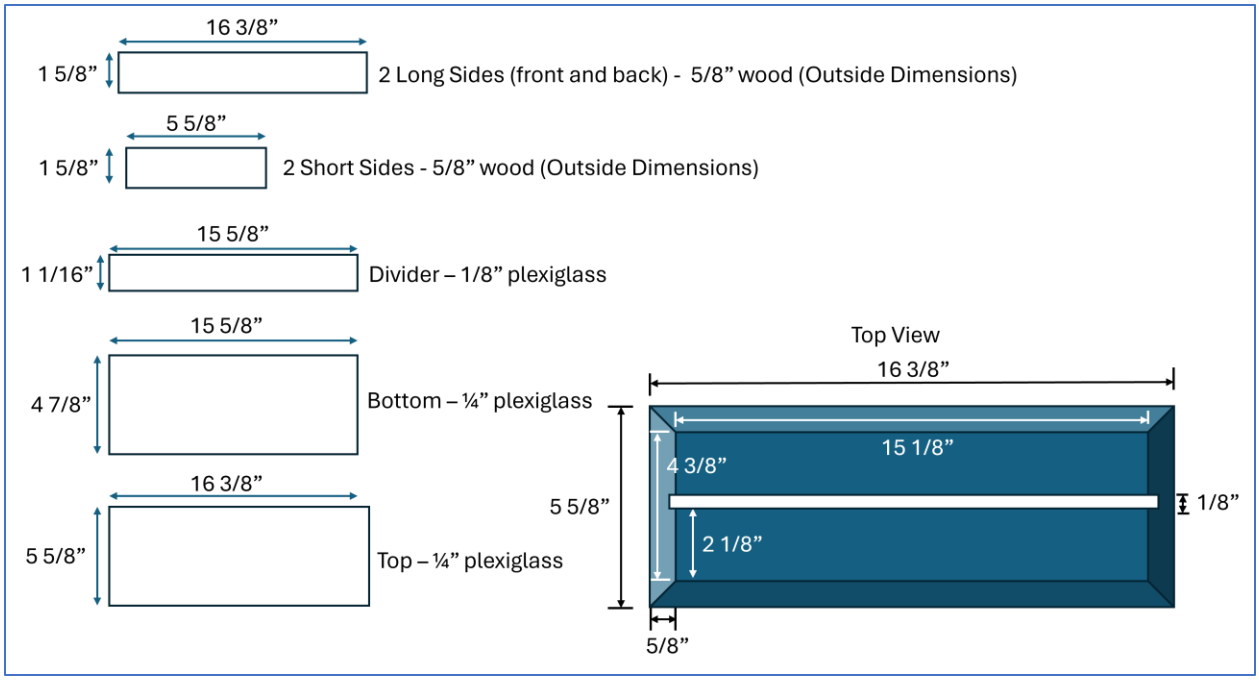

Figure 2. *Box Pieces with Dimensions and Top View*

Steps for making a box are listed below.

1. **Make Wood Sides**

Cut wood strips that are between 6” and 17” or longer to a thickness of 5/8” and a height of 1 5/8”. Use a miter box set at 45 degrees to cut the four side pieces from the wood strips. You can use straight cuts, but the box looks cleaner if the seams are at the edges. The dimensions to use are shown in Figure 2. The long sides are 16 3/8” long and the short sides are 5 5/8” long. Use a clamp to hold the strips to the miter box when cutting to get a straight cut. Example miter box, clamp and router table are shown in Figure 3. My father designed and built the router table. He would be happy that I’m using it.

Figure 3. *Miter Box with Hand Saw and Clamp (L) and Router Table (R)*

Use a router table and ¼" straight bit to cut a groove that is 1 1/8" from the edge and ¼" deep in each strip. Also cut a 1/8" groove that is ¼" deep centered in each of the two short sides. Make the groove from the top down to the ¼" groove. This 1/8" groove is for the divider. Examples of the resulting sides are shown in Figure 4. Not that I used old craft frame pieces that were not rectangular but had been routed from 5/8" at the top to ¾" near the bottom. If you can't shape like this, a simple rectangular cross section that is 5/8" by 1 5/8" will still work.

Figure 4. *Cut and Routed Side Pieces*

2. **Make Top, Bottom, and Divider**

I made the other 3 pieces out of plexiglass because I had some scrap pieces available and couldn't find my thin wood sheets (I found them later but would still recommend using plexiglass if you have it). The plexiglass top is nice because you can see the tiles with the top closed. You can use wood or some other material instead of plexiglass. You will need a straightedge and a plastic cutter to cut plexiglass to the correct size. A plastic cutter is shown in Figure 5 with other useful cutting tools. To cut the plexiglass: cut a straight cut (use a straight edge) to about ½ way through the plexiglass. Place the cut along the edge of a straight table and use a straight object to apply a sharp downward force along the cut. If you are lucky and skilled, it will break along the cut. Difficulty depends on the thickness and hardness of the plexiglass. It also depends on the depth and straightness of the cut.

Figure 5. More *Cutting Tools – Craft Saw, Wood Chisel, Plastic Cutter (L to R)*

3. Assemble Box Sides and Bottom

If you cut the sides and bottom accurately (better than I did), the sides and bottom should fit together. I fasten the sides together (with the bottom in place) using four #8 stainless steel wood screws. Using a "Screw Mate" to drill pilot holes for the screws makes it easier. A screw and its screw mate are shown in Figure 6. You can put the screws in either the front and back or the sides of the box.

Figure 6. *Screw and Screw Mate*

There is probably a better way to connect the pieces, but this is the easiest I could think of. The recommended position of the screw is shown in Figure 7. I am showing this because I first tried to put the screws in straight, but this did not work well. It was hard to keep the joined pieces at the desired position and because the screw was too close to the edge, the pieces broke apart.

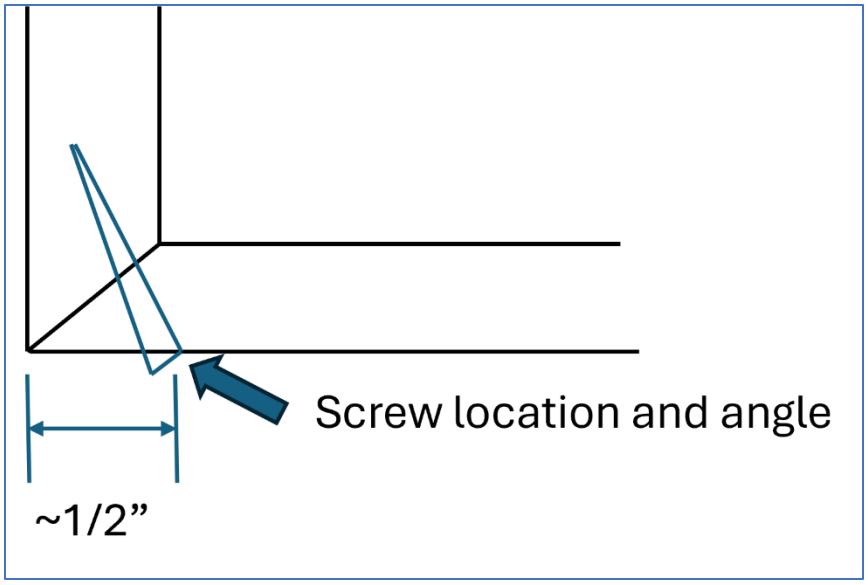

Figure 7. *Approximate Screw Location and Angle*

Attach all four corners with screws and you will have the bottom of the box. Slide the divider in the groove you made in the sides.

4. **Attach the Top**

I expect a top that slides on will be easier and more practical. However, it requires higher sides to make room for grooves to hold the top. I will try a sliding top after I find or buy large enough wood pieces to make the higher sides.

For these initial boxes I used small brass hinges to attach the top. Using a craft saw (Figure TBD), cut 1/8” deep cuts where the edges of the hinges go. Use a chisel or other sharp blade to chisel out a location for the hinges so the top can attach level on the top. Carefully drill small pilot holes for the hinge screws. I tried both 3/8” and ¼” long screws. The 3/8” screws seem to work better but stuck through the plexiglass; however, they could be easily cut off with the craft saw.

Attach the hinges to the plexiglass with the screws. The result should look something like Figure 8. You can stain and finish the wood at this point, if desired.

Figure 8. *Top with Hinges Attached and Box with Hinge Grooves Cut*

Attach the top to the box with four screws and the final box should look like Figure 9. I plan to add a hasp or latch to hold the top shut when I find appropriate hardware and figure out how to attach it.

Figure 9. Fin*ished Box without and with Tiles*