Shaker Storage Cabinet

Maximize storage space in any cabinet with a couple of simple tricks.

Photo by Al Parrish.

The Shakers always had a knack for packing a lot of storage into a small space and making it look good. The three-sided built-in in the Center family residence at Pleasant Hill, Ky., is a prime example. You've probably seen a photo of it. It's the impressive cherry unit that's in an attic with a skylight that illuminates all 45 drawers.

It is in that spirit that I designed this two-door cabinet for a client in Ohio. The family needed to store an enormous number of board games and toys in a small space. The doors had to hide everything.

How to Pack Lots of Stuff Into Small Spaces

Organizing clutter is an interesting problem that you also might face as you design storage in your home or case pieces. Here's what I did: Behind the left door I put a series of five ¾"-thick adjustable solid-wood shelves. These would handle the heavier games and books. Behind the right door is a series of ¼"-thick tempered Masonite shelves. These 10 shelves slide in and out of ¼" x ¼" dados.

The Masonite won't hold a lot of weight, but it's just right for storing lightweight objects. Think home office, and you'll know what I mean. Masonite (sometimes called "hardboard") shelves are perfect for storing letterhead, envelopes, CDs and any other paper goods in an office. The other challenge in this piece was getting the shelves, doors and face frame positioned so they didn't interfere with one another. As you'll see in the drawings, it took a few pieces of "blocking" to get everything to work in this cabinet.

Face Frame First

This seems backwards, I know, but begin construction by building the face frame. The size of the case and doors are determined by your face frame, so it's clearly the place to begin.

When ripping out the material for the face frame stiles, cut them each about 1/16" wider than the dimension called for in the cutting list. This will make your face frame hang over the edge of the case sides. Once the face frame is attached, you can trim it flush for a perfect fit.

I use mortise-and-tenon joinery to build both the face frames and doors. The tenons are ⅜" thick and 1" long, and I usually cut a ⅜" to ½" shoulder on the edges. Be sure to cut your mortises 1 1/16" deep so your tenons don't bottom out. When everything fits, put glue in the mortises, clamp the frame and allow the glue to cure.

Doors are Second

Next, build the doors. It's much easier to fit the doors into your face frame before it's attached to the case. Build the doors much like you did your face frame by using mortise-and-tenon joints. The only difference is that you need to cut a ⅜" x ⅜" groove in the rails and stiles to hold the door panels.

I cut my grooves along the entire length of the stiles; as a result, I cut my tenons with a "haunch" to fill in that extra space on the ends of the stiles. The panels are flat on the front, and beveled on the backside so they fit in the grooves in the rails and stiles. I cut that bevel by setting my table saw blade to 7° and slicing off a little of the backside of each door until the panels fit snug and without rattling.

Sand the panels up to your final grit (120 will be fine for a painted piece) and assemble the doors. Sand the assembled doors and face frame and then

by Troy Sexton

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SHAKER STORAGE CABINET

	NO.	LET.	ITEM	DIMENSIONS (INCHES) T	W	L	MATERIAL
Face Frame							
❑	2	A	Stiles	3/4	2 1/2	51 1/4	Poplar
❑	1	B	Top rail*	3/4	2	45	Poplar
❑	1	C	Bottom rail*	3/4	5 1/2	45	Poplar
Doors							
❑	4	D	Stiles	3/4	2 1/2	43 3/4	Poplar
❑	6	E	Rails*	3/4	2 1/2	18 1/2	Poplar
❑	4	F	Panels	5/8	17	18 5/8	Poplar
Carcase							
❑	1	G	Top	3/4	19	50	Maple
❑	2	H	Sides	3/4	17 1/4	51 1/4	Poplar
❑	1	I	Bottom	3/4	16 3/4	47	Poplar
❑	2	J	Dividers	3/4	16 1/4	45 1/2	Poplar
❑	1	K	Nailing strip	3/4	1 1/2	46 1/2	Poplar
❑	1	L	Blocking 1	3/4	2 1/4	45 1/2	Poplar
❑	1	M	Blocking 2	1/2	1 3/4	45 1/2	Poplar
❑	5	N	Adj. shelves	3/4	16 1/4	22 5/8	Poplar
❑	10	O	Masonite shelves	1/4	16 1/4	20 1/4	Masonite
❑	1	P	Back	1/2	47	51 1/4	Ply

*= 1" tenon on both ends

I'm not perfect, and neither are you. If your face frame is exactly the width of your case, it's going to be difficult to fasten it square. Make life easier by ripping your stiles 1/16" oversize in width. After you nail and glue the face frame to the case, use a flush-trimming bit in your router to trim the face frame flush with the side of the cabinet's case.

You can see the haunch on the tenons on the rail closest to the camera. When it comes to fitting your panels, remember to work tight in summer and loose in winter. Panels of this size will shrink and contract noticeably.

peg the tenons if you like. I used square pegs that I pounded into round holes.

Finally, the Case

The case goes together quickly thanks to my nail gun. Begin construction by cutting a 3/4"-wide by 1/4"-deep dado in the side pieces for the bottom of the cabinet. I like to use a dado stack in my table saw for this operation. Now cut a 1/2" x 1/2" rabbet on the back edges of the sides to hold the plywood back in place. Sand the inside of the case and get ready for the first bit of assembly.

Put the case together on its back. First put glue in the dados in the sides and fit the bottom in there. Nail the bottom in place from the outside of the case. I use a finish nailer for this task.

Now put the nailing strip in place at the top of the case. The diagrams show you where this needs to be, but essentially it's flush with both the rabbets in the sides and top of the case. Nail it home. Glue and nail the face frame to the case using brads. Trim the face frame flush to the case.

All the Insides

There's nothing complicated about the insides once you have a plan. Begin by cutting the 1/4" x 1/4" dados in the dividers. These are spaced 2" apart, and there are 21 of them. I used a dado stack in my table saw and simply moved the fence 1 3/4" after each pass.

Now it's time to add the dividers to the case. Turn the case on its head. Cut a notch in each divider so it will fit around the nailing strip. Get the divider right where it needs to be and nail it in place through the bottom and the nailing strip. Now nail the two blocking pieces shown on the diagram in place. The blocking does a couple things. First, it allows the Masonite shelves to be slid in and out without having to swing the doors wide open. Second, the thinner piece of blocking fills in the gap between the divider and face frame and leaves room for the hinges.

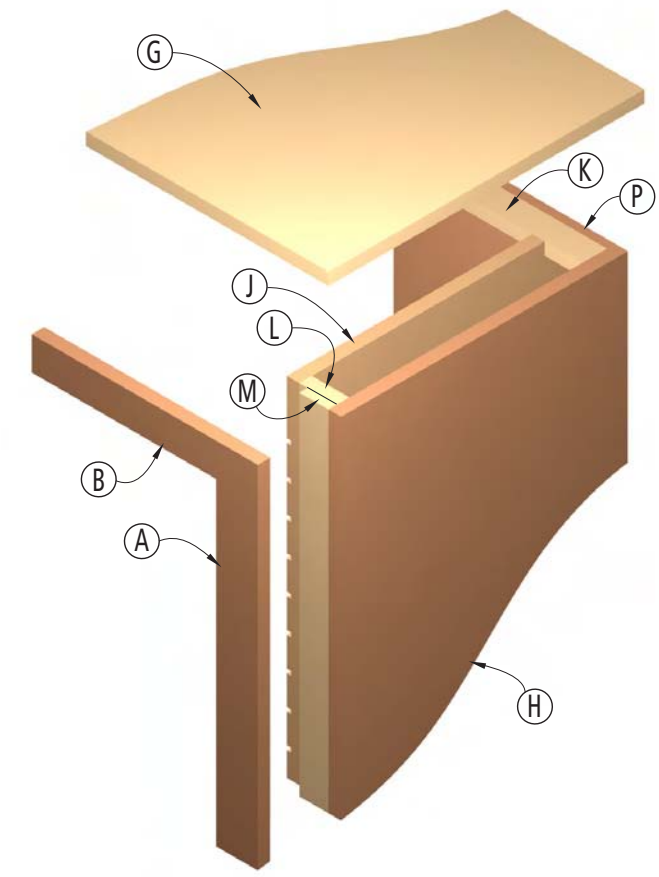
Now drill the holes in the left side of the case and the center divider for the adjustable solid-wood shelves. I'm partial to 5 mm holes spaced 1 3/8" on center.

You could use a router and a straight bit to make this cut as long as you had a reliable way of guiding the router (such as an edge guide). I find a table saw is much faster for this operation.

In addition to cutting this detail on the sides and front (above), I also cut it on the bottom of the plywood back, which gives it a finished look when the cabinet is viewed from down low or from a distance.

Once you nail the dividers in place through the bottom piece, turn the case over on its feet and nail through the nailing strip into the dividers (left).

Top right corner - exploded



Mark the base cutouts on the sides, front and plywood back of the case using the diagrams as a guide. Use a jigsaw to make these cuts and clean up your work with sandpaper.

Cut your top to size. I used a piece of bird's-eye maple. You have a couple options for attaching the top. You could use pocket holes, figure-8 fasteners or wooden cleats. No matter which way you go, prepare the case for the top but don't attach it. I like to glue the top to the front edge of the case after finishing.

Finishing

On the knobs, top and all the inside pieces (except the Masonite), I wiped on a light honey-colored stain. Then I painted the case a dark red and added a topcoat of lacquer to protect the paint. Hang the doors, nail in the back and add the knobs.

I have no idea how the Shakers would feel about seeing one of their cabinets filled with "Parcheesi," "Connect Four" and "Uncle Wiggly" games. But I'm sure at least they would approve of the efficient use of space. **PW**

SUPPLIES

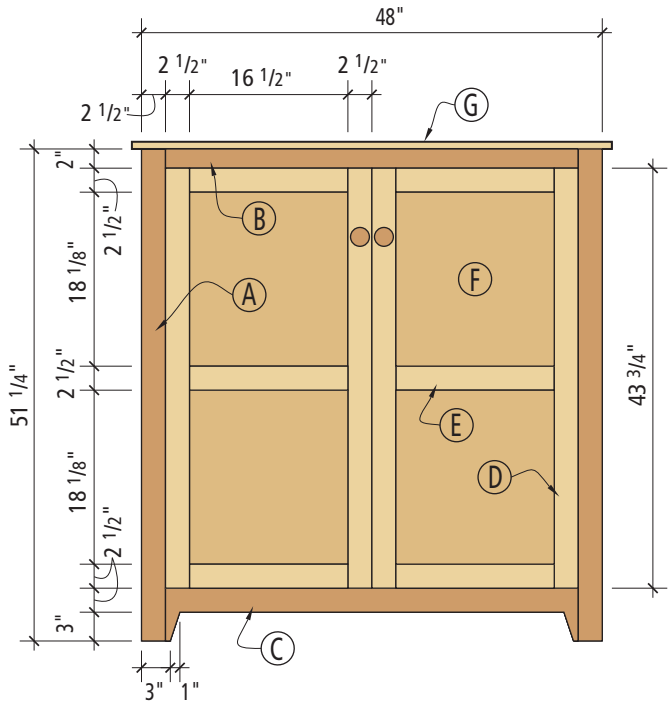
Woodworker's Supply
800-645-9292

Amerock non-mortising hinges, #891-749, $2.95 each

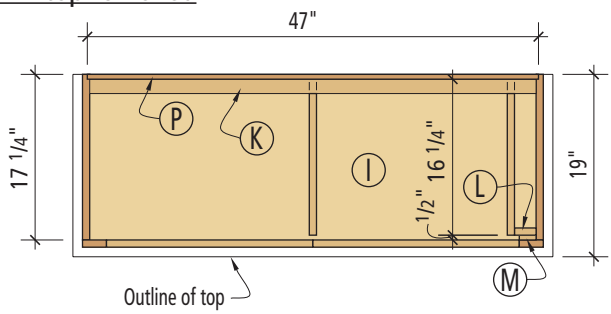
Horton Brasses
800-754-9127

Maple knobs, #WK-3, 1½" diameter, call for pricing

Elevation



Plan - top removed



Elevation - face frame & doors removed