

by Chuck Green

Custom Built-In Cabinets



The vaulted top of the author's cabinet reflects the palladian windows at the opposite end of the room (right).



Accurate scribing, attention to design, and a well-equipped site shop are the keys to good-looking, functional built-ins

Built-in cabinets add character to new homes and remodels, as well as providing efficient storage and display space. A good built-in cabinet should be both attractive and useful, and seem a natural part of the room it's in. To fit in gracefully, a built-in should reflect the design elements of the rest of the house: Doors and drawer fronts should be similar to those found on existing cabinets in the house, and the unit's trim should reflect the moldings elsewhere in the room.

I recently completed a built-in cabinet job for some clients in the suburban Boston area. Although the customers' taste and budget didn't call for anything too elaborate, the job turned out to be a good example of the way a custom built-in can solve several problems at once. The completed cabinet helped make the family room a more comfortable, useful, and beautiful space. Building the cabinet on site allowed me to use simple construction details, which helped keep the project's cost down.

The customers' needs. As often happens, this cabinet had to meet several family needs. My clients, a young couple with a small child, wanted an entertainment center that would hold their 27-inch television and VCR, a stereo, and all the usual accessories — CDs, videotapes, and so on. The TV and stereo would hide behind doors when not in use, but there

would be open shelving for books, photos, and knickknacks. Finally, they wanted some cupboards for their child's toys.

Design elements. To help the unit blend with its surroundings, we drew on a number of existing design elements in the house. We chose to make the doors with raised panels — like the kitchen cabinets in the next room. We also decided that, like the kitchen cabinets, the unit would be mostly white, with a few oak accents such as the counter and the pulls to tie it to nearby oak furniture.

A dominant element in the living room was a pair of palladian windows, and the owners wanted to tie in the round top theme somehow (photo, above). So we ended up designing a barrel top on the right side of the unit, trimmed in front with a 2 1/2-inch-wide white face frame, like the casing around the windows. The round top would bring the unit up somewhat into the large, blank expanse of wall below the large cathedral ceiling.

Materials. We built most of the cabinet from 3/4-inch medium-density fiberboard (MDF). MDF usually comes in sheets measuring 49x97 inches, and is less expensive for painted surfaces than birch plywood. MDF is also stable and stays quite flat before and after installation (in contrast to plywood, which I've sometimes seen warp). MDF is homogeneous throughout, and has two sides that are very smooth,



Figure 1. The author cut the cabinet panels to rough size in his shop, then scribed each piece of the carcass to the wall (far left). The two-man crew assembled the tall carcass on the floor before setting it into place (left).

ready for painting. It machines like solid wood without grain.

We made the basic cuts on the MDF in the shop, cutting the panels we would need for the cabinet's bottom, sides, and shelves. We left each piece slightly oversized, to allow for scribing and fitting on site.

We even made the cabinet doors from MDF, using a new technique (see "Two-Piece Raised-Panel Doors"). As usual, we produced the doors in the shop, making only minor adjustments on site.

Assembly. After laying out the cabinet's location and cutting back the carpet in the room, we held each piece of the carcass to the wall and scribed it to fit (see Figure 1). It was then the work of little more than an hour to assemble the cabinet with biscuits and screws. We tipped the tall section of the cabinet up as one piece, then fit the remaining pieces to it one by one.

As we marked and fitted the pieces, I made sure to clearly label each piece, noting where it belonged and marking the top, bottom, back, and face. I call this "idiot-proofing." I've learned the hard way that it's better to be safe than sorry.

Doing most of our work on site made this project easier and cheaper to complete. The whole process of recording and transferring measurements is simpler this way. And when a cabinet doesn't have to be transported, simple butt or biscuit joints, reinforced with an occasional screw, can replace the usual

Two-Piece Raised-Panel Doors

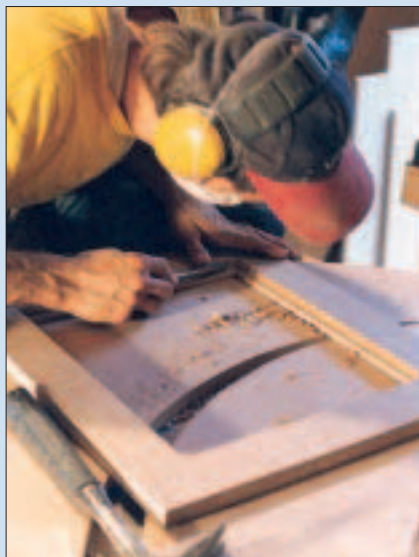
I usually build all-wood raised-panel doors, with cope-and-stick joinery for the stiles and rails and a glued-up solid wood panel. But this is more complicated than it needs to be for a cabinet that will be painted. It can also be less satisfactory, because raised-panel doors sometimes warp.

MDF is very stable, and because of its uniform composition, it allows a trick we used for the first time in fabricating the doors for this cabinet. We made the entire frame for the raised-panel doors out of a single piece of

MDF, with a raised MDF panel glued into a recess routed in the inside edge of the frame. The finished product is guaranteed to stay flat.

We made the doors in our shop, where it was easier to manage the table saw cuts, the router and chisel work, and the glue-up. We also drilled holes for the European-style door hinges on the shop's drill press. On site, we scribed each door blank and fit it to the opening before attaching hinges and hanging the doors.

— C.G.



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The author made the raised-panel doors from two pieces of MDF — one for the frame and one for the panel (above). The radiused corners left in the frame by the router were squared with a chisel (left). The panel profile was cut with a table-mounted router.



Figure 2. With the tall carcass in place, the rest of the panels were installed piece by piece. Unlike shop-built cabinets, which require a back panel for stability, a built-in can use the existing house wall for support.



Figure 3. The author cut the curved frame and face trim for the vaulted top of the cabinet with a jig-piloted router (left), then skinned the assembled vault with bending plywood (above). The finished vault mounted easily into place with screws.



Figure 4. The finished cabinet is rugged and attractive. All told, the unit took two men four days to build.

dovetail or mortise-and-tenon joints.

A shop-built cabinet usually needs a back panel to make it strong enough to be transported to the site. But our site-built cabinet relies on the existing house wall for stability and support (Figure 2). We screwed wood cleats to the walls just below the fixed shelves of the unit, then fastened the shelves to the cleats. This simple technique provided plenty of strength.

Doing most of the work on site, however, meant taking extra care to remember to bring everything we might need at our temporary job-site “shop.” Trips back home for forgotten tools or materials can quickly eat up your profit.

The vault. The most challenging part of this job was building the barrel-shaped top of the TV cabinet (Figure 3). There are different ways of doing this, but I decided to make a shell of plywood glued to a set of semicircular ribs. I scribed the curve of the ribs using a shop-rigged pivoting jig (just an oversized compass, really). Then we cut each rib carefully with a saber saw, and smoothed the curves with a router bolted to the same kind of pivoting jig.

I skinned these ribs with $\frac{3}{8}$ -inch bending plywood, which is available at lumberyards. For a finish layer, I covered the top of the barrel with $\frac{1}{8}$ -inch poplar plywood, and the inside with oak veneer. After applying a coat of white primer on the outside, and polyurethane on the inside, the component was ready to pop in place. Glue and screws driven in from below held the assembly together.

Face frame. Instead of thinking of the front of the cabinet as a structural frame that has to be assembled and then attached, we treated the cabinet’s face as an extension of the home’s interior trim. We used flat poplar to “trim out” the face of this cabinet (Figure 4). The owners were happy with this simple effect.

With the cabinet assembled, face trim applied, and doors installed, all that was needed was some sanding and painting. Start to finish, including both shop work and on-site assembly, the entire cabinet kept two men busy for four days. ■

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ADAM SHAPIRO

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