Bookcases Transform an Unused Wall

















A bedroom wall with two closets gets a boost in utility with custom cabinets

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like books, the kind with paper pages and dust jackets, and I hope they survive the rise in popularity of electronic books. But then, I spend my days building cabinets, not computers. And lucky for me, although e-books might be diminishing the need for bookshelves, there always will be a demand for attractive, efficient storage spaces and quality construction.

This project started when my clients realized that they needed more storage space for books in their Manhattan apartment. The target area was a wall in the bedroom that had two closet doors. The challenge was designing the bookcases around the

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MEASURE TWICE, CUT ONCE

Accurate on-site measurements prevent mistakes in the shop



MEASURE ON SITE

Use a story pole to determine the exact horizontal and vertical size of a space. It's more accurate than using a measuring tape. Take two long pieces of 1x2 and extend them to each side, then mark where they cross. Chases, door frames, and other obstacles can be marked right on the poles. Although it's tempting to measure only at the plane of the wall, it's best also to measure the walls, top and bottom, where the face frames will intersect. Take the poles back to the shop, and use the measurements to build the drawing.



DESIGN ON SITE, VIRTUALLY

Google SketchUp has received lots of notice lately as a user-friendly application that makes designing projects easier, especially if you don't have a pricier CAD program (SketchUp is free). Start a design by taking a photo of the intended space and importing it into the program; then scale the drawing over the photo. This helps the client to see what the finished bookcase will look like and ensures that everyone is on the same page before the first piece of wood is cut.



BUILD BOXES IN THE SHOP



Start by ripping the plywood to width and cutting rabbets for the corners and back with a dado stack. After marking the dado positions for the shelves, use a T-square dado jig to guide a router through the dadoes. Use a ²³/₃₂-in. straight plywood bit so that the shelves fit snugly.



Glue the rabbeted corners together, and apply bar clamps. To keep the sides from distorting, lay a piece of plywood that's cut to the overall width of the box across the sides to act as a gauge.





After cutting the shelves and nosing to length, biscuit and glue them together. It's faster to clamp them in pairs, using scrap as cauls to spread out the clamping pressure.



Bead the face-frame stock on a router table, and then cut it to length. Miter the beads, then assemble the rails and stiles with pocket screws. After the shelves are glued and tacked into their dadoes, biscuit, glue, and clamp the face frame onto the box.

steel door jambs and between mechanical chases and irregular plaster walls. Because I would build everything in my shop, I had to have accurate site measurements. I figured that making both horizontal and vertical story poles was the best way to avoid mistakes. I marked on the story poles the door locations, plumbing chases, and spaces needed so that I would have room to scribe the bookcases to the walls.

In general, it's a really good idea to measure the walls where a cabinet's face frames will intersect, not back at the corner. (This was especially true here because the walls in this apartment were concrete, out of square, and not parallel.) Back in the shop, I based all my measurements on the pole, which meant there was a lot less chance of a transcription or math error.

To visualize the project and solve design issues, after measuring the space I also took a couple of photos of the location and then drafted a design with the help of Google SketchUp (sidebar and photo, facing page).

The idea was to use the available space, so I drew a big cabinet between the doors, and a narrow cabinet on one side. A short cabinet would sit above each of the doors and tie the unit together. All told, the cabinets would create about 35 cu. ft. of book space.

Building a strong cabinet is time well spent

Bookcases are simple to build and a great project for woodworkers of all skill levels. I built the cases and shelves with ³/₄-in. cabinet-grade plywood and the face frames with ³/₄-in. poplar. To make the boxes stiff and avoid the bother of nailing cleats, I used ¹/₂-in. cabinet-grade plywood for the backs. After ripping the box sides to width, I made a story pole to lay out the shelf spacing and then used it to mark the sides. Although I often make adjustable shelves, for this project I used fixed shelves that were fitted into dadoes on the cabinet sides. This arrangement gave the cabinet more rigidity. I glued and clamped the box sides and shelves together, and tacked them with a couple of finish nails per joint. Once the basic box was assembled, I cut the plywood to fit the back, then stapled and glued it into place.

Next, I attached the poplar face frame. To give the project a custom look, I milled the stock to size and then added a bead detail that was mitered at the corners. (For more on my technique, see "Master Carpenter,"

INSTALLATION CALLS FOR ORDER

After the bases are in and cabinets are scribed, fit them all together



After cutting the existing trim back with a multitool or reciprocating saw, place and level the cabinet bases. Made slightly smaller than the cabinets, the bases can be adjusted so that they're flush to the cabinets' faces while avoiding discrepancies in the corners or intersections of walls and floors. Once shimmed level, they can be screwed to the floor.

Scribe to fit, then set aside





With the cabinet positioned plumb and level, the scribe is set to the amount of overhang on the right. (The author uses FastCap's AccuScribe, but any compass will work.) Follow the contour of the wall, and mark the cabinet's left side. Cut to the line with a jigsaw set to a 15° angle. The back cut makes it easier to make any adjustments to the scribe with a hand plane and/or sandpaper.

Fit the cases in order







Photos facing page: Rob Yagid

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Tricks for trim

On this job, the concrete walls and ceiling were somewhat uneven, and the crown would need plenty of nailing to make it conform to the ceiling and to match the existing crown. I glued triangular blocks with construction adhesive so that there would be backing on 16-in. centers. The crown was installed left to right, the bottom reveal was kept constant, and the top of the profile was adjusted as needed. After I roughed out the basic cope with a miter saw and a jigsaw, I used an air-powered narrow-profile sander to fine-tune the cut.



The baseboard was also installed left to right. To make tight miter joints, I cut both halves of the outside miter a little long and pinned them together before scribing them into their final positions. A shoe molding covers any discrepancies between the floor and the baseboard.

"Dress up cabinet face frames with a mitered integral bead," *FHB* #200). I joined the faceframe sections together with pocket screws and then fastened the entire frame to the case with glue and biscuits. I also primed and finish-painted everything before installation to save time, although the clients eventually settled on another color.

Make the boxes fit

To support a bookcase, I usually build a separate base from 3-in.-wide strips of ³/4-in. plywood that resembles a shipping pallet. Because each base is separate, it can be leveled and aligned prior to positioning the bookcases. As these tall bookcases extended from the floor to the ceiling, I also could stand them upright and then place them on the base without hitting the ceiling.

Once the bases are in position, I like to start on one side and fit each cabinet, then set it aside. After the scribes are complete, I assemble the cabinets. At this job, I started with the short left-hand cabinet. Next, the large middle cabinet had to be fit between two doorways. The thin right-hand cabinet had to be scribed around a horizontal chase and along an unplumb wall. On complicated scribes like this, it's best to remove stock in stages and test the fit as you go, rather than try to scribe and cut all in one pass. The walls were also a problem. Working with conventionally framed stud walls, I screw the cabinets to the framing, hiding the screws if possible. At this job, the walls were concrete, and I used concrete screws that required pilot holes to secure the bookcase. It was easy enough to fasten the baseboard to the cabinet bases, but I had to glue triangular blocking to the ceiling so that I could nail up the crown molding.

The last component of this job was the trim. I had to match the existing profiles, but instead of having a custom profile made, I found an online molding catalog (www .gardenstatelumber.com) and ordered what I needed. I coped the new stock to the old with a coping foot made for a jigsaw. I also made use of my narrow-profile air-powered sander to adjust the fit of the copes. Finally, a shoe molding obscured any discrepancies between the baseboard and the flooring.

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