BY GARY STRIEGLER





Photos by Gary Striegler

# Hiding a Bed in the Wall

**Wall beds (also called Murphy beds)** have always been a big hit with clients. They make a lot of sense, freeing up floor space and letting a room serve multiple functions.

Recently, a client decided that an office/guest bedroom would be a better use of space than the existing formal dining room, which was cramped at best. We started by putting French doors with a transom in the door opening. With a window on the opposite wall, one of the remaining walls in the room was long enough to fit a wall bed with a small bookcase on either side for office stuff. To leave enough space for the bookcases, we decided on a full-size (double) bed instead of stepping up to a queen.

### START WITH THE MATTRESS

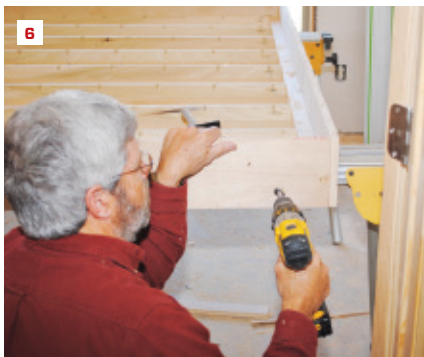The wall beds I build have three basic components: an outer cabinet, an inner platform for the bed, and a hardware kit. In the past, I've had good luck with Hafele hardware, so I went with it again. It's a simple system to install and comes with good instructions (although I do wish that the measurements were in inches instead of metric units). And the finished bed always operates well.

To build the bed, start with the mattress size (width and length). I like to make the inside dimension of the bed platform 1 inch bigger than the mattress to allow room for bedding. For the standard full-size mattress I planned to use, I made the inside of the bed platform 55 inches by 76 inches.

### THE OUTER CABINET

I usually build the platform first, but space was a little crowded on this job, so I started with the outer cabinet. To find the inside measurement for the cabinet, I added

the combined thickness of the hardware (around 2 ⅝ inches for the Hafele system) to the total width of the platform. To match the height of the planned bookcases, I made the bed cabinet taller than it needed to be and then added horizontal trim at the end to make up the difference.

The cabinet was a three-sided box (a top and two sides) that I pocket-screwed together **(1)**. For racking strength, I added a piece of ¾-inch plywood for the upper back, and ripped a narrower width of ¾-inch plywood and installed it at the bottom. Then I stood the cabinet up, centered it on the wall, and screwed it into place **(2)**.

## BUILDING THE BOX
The bed platform starts with a 6 ⅜-inch-deep plywood box. When building the box, I joined the sides to the head and foot to cover the plywood edges so the only time the edges are visible is when the bed is down **(3)**.

For strength, I built the box with a ¾-inch-plywood bottom, which I made in two-pieces. (A single piece of plywood can be used for a twin-size bed). The plywood pieces fit inside the sides and I pocket-screwed them in place **(4)**. (Later, I add a frame-and-panel detail to finish the bottom of the platform, as described on page 24. This covers the plywood edges, as well as the joint between the two back pieces of plywood.)

## THE BED GROWS FEET
For the fold-down feet that support the bed, I used the Hafele system. The feet store out of sight when the bed is in the raised position, and the hardware for the feet hides inside the platform in a grid of slats that add rigidity to the platform.

To make this grid, I nailed 1 ½-inch by 1 ½-inch strips along the inside edges of the platform, and then I screwed the slats to the bottom between the edge strips on 10-inch centers **(5)**. The mattress actually sits above the slats on ⅜-inch plywood that screws to the slats and edge strips. But I waited to install this plywood so I had access to mount

the handles used to pull the bed down.

To install the feet, I located and drilled holes in the outside end of the bed according to the manufacturer's instructions **(6)**. The hardware that holds the feet attaches to the bottom of the platform inside the box **(7)**.

Because the edges of the platform are exposed when the bed is folded down, I covered them with ¾-inch by ¾-inch-thick pieces of solid-wood trim **(8)**. I made a ⅛-inch rabbet along the edges of the trim to add interest and to avoid having to make a perfect joint between the plywood and the trim.

## INSTALLING THE HARDWARE
With the main components built, I turned my attention to the hinge hardware. I don't always read instructions, but with folding-bed hardware, it's critical to do so. It's also important to use the paper template provided by the manufacturer as a guide for mounting the harware.

I started by drilling holes and attaching the bracket to the platform **(9)**. Then I

clamped the paper template to the sides of the cabinet **(10)**, and I drilled the holes, taking care not to blow out the plywood veneer on the outside. Because I was working by myself, I clamped temporary legs to the platform to support it while I lined up the bolts to join the platform to the cabinet **(11)**.

Next, I installed the pistons that help drop and lift the bed. This is really a two-person job. The pistons are held with a metal band in just the right position to fit on the bracket with the bed partially open. It helps to have one person hold the bed in position while the other attaches the pistons **(12)**. Once both pistons are attached, opening the bed slightly compresses the pistons so the bands can be removed. Don't discard the bands in case the pistons need to be removed for some reason in the future.

The pistons come in several strengths depending on the size of the bed and, in my case, how much extra weight I add with the trim. I usually buy the strongest ones. Once the bed was operational, I added a stop at the top of each side to keep the bed lined up with the cabinet when it's in the closed position.

**Finishing it out.** The final step was the trim. I always like to add frame-and-panel molding to the bottom of the platform, which will be exposed when the bed is folded up. I checked a couple of things before making my frame. First, the frame needs to be taller than the platform to hide the feet when the bed is closed, but if it's too tall the feet can't pivot to their down position. Second, the frame also needs to extend below the bottom of the platform, but if it's too low, it hits the floor as the bed opens. Keeping in mind the thickness of the finished floor, I screwed a test piece onto the platform and opened the bed to check the clearance. I also gave the frame ¼ inch of clearance along the sides.

I pre-assembled the frame using pocket-hole joinery and nailed it to the platform **(13)**. I added panel molding inside the frame for a decorative touch. A two-piece crown detail across the bed cabinet and the two flanking bookcases finished the top, and I added a filler piece between the top of the bed platform and the top of the cabinet.

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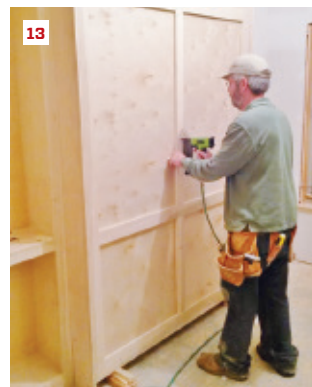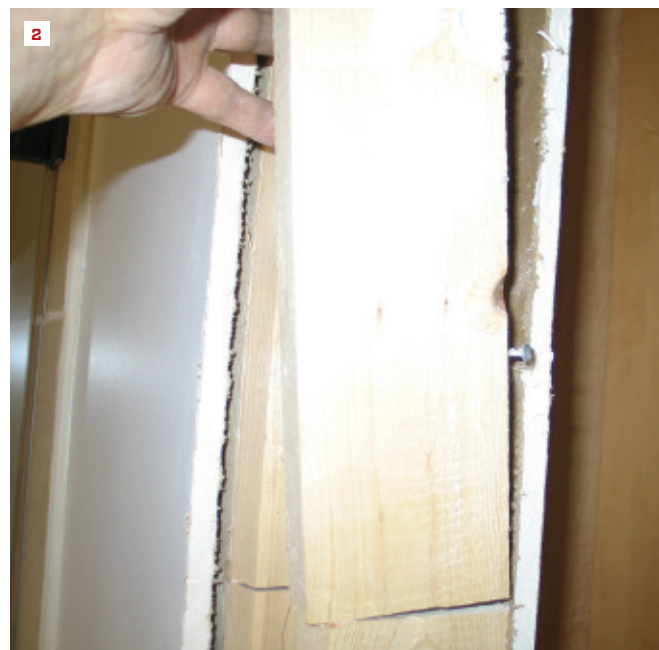
# Sewing in a New Pocket

BY JOHN CARROLL

**Pocket doors can be challenging** on any project, but when you're retrofitting a pocket door in a remodel—with minimal disturbance to the existing walls—the challenge is even greater. On the job shown here, the pocket door replaced a swinging door connecting a master bedroom and master bath. Inside the bathroom, there was plenty of wall space for the pocket door, but on the opposite side, a perpendicular wall between the bedroom and the kitchen ended about 5 inches inside the proposed pocket. In addition, there were base and wall cabinets on the kitchen side, and between the cabinets—in the area where the pocket was planned—was a ceramic-tile backsplash. To top things off, an electrical outlet needed to be moved.

The kitchen had been upgraded recently and was in pristine condition. Any thoughts of tearing into that side of the wall were out of the question. The pocket door would need to be installed entirely from the bathroom side. Fortunately, I had done this a couple of times before, so I was confident it was possible.

## DELICATE DEMOLITION

After removing the existing door, I opened up the wall on the bathroom side and was pleasantly surprised to find that the wall cavity was a full 4 inches deep. Apparently, the bathroom was located in a space that had originally been a covered porch, and the wall I was working on had once been an exterior wall.

I removed the drywall an extra stud bay beyond what I'd need for the pocket, with the anticipation of relocating the kitchen outlet **(1)**. Then I began the nerve-racking task of removing the framing material from the pocket cavity without damaging drywall or finishes on the kitchen side of the wall. I caught a lucky break in that the cabinets hadn't been screwed to the frame in the pocket area, which was behind an inside-corner dead space for both the upper and lower cabinets.

On the down side, a lot of wood needed to be removed, including the jacks for the existing door and the framing that tied the perpendicular wall to the pocket-door wall. Farther down the wall was framing for a window that had been covered over when the porch was converted to a bathroom. To remove the framing without damaging the drywall on the other side, I first cut each 2-by into small pieces **(2)**. I made cuts as deep as I could with a circular saw, then finished them with a Bosch oscillating multi-tool. As I pulled out the pieces of 2-by framing, the drywall screws pulled through,

leaving the kitchen drywall—and more importantly, the backsplash tile on the drywall—intact. For once I was glad a drywall installer had used screws sparingly.

When I removed the original jacks, I was left with nails sticking out of the adjacent stud. I cut these off with a grinder fitted with a metal-cutting blade.

Removing the intersection stud left the edges of the drywall on both sides of the perpendicular wall unsupported, so I added a 5/4 by 6-inch backer board. I spread construction adhesive on the entire area **(3)** and screwed the board to the end stud of the perpendicular wall **(4)**.
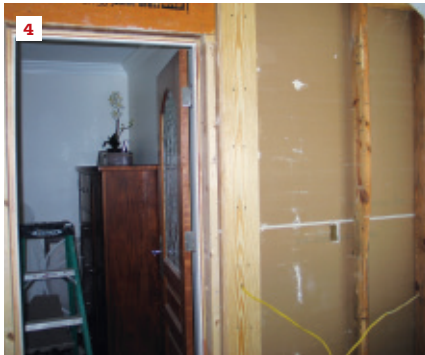
Before installing the backer board, I beveled both edges so it would be less likely to interfere with the pocket door as it slid in and out of the pocket. The 4-inch-deep cavity meant we would have ¼ inch of clearance between the door and backer board inside the pocket. I also drilled a hole in the backer for the outlet wire, which I tied into the circuit via a temporary box to keep the kitchen functioning. The electrician would come in later and reroute the supply.

### FRAMING IN A WIDE OPENING

The rough-opening width for a pocket door needs to be twice the width of the door plus 1 inch. Because the door I was installing was 30 inches wide, I framed the rough-opening width at 61 inches. To prevent damage to the tile floor or threshold in the bathroom, I figured out the exact location for the finished opening and located the rough opening to accommodate that layout. This foresight paid off when I finished the trim at the end of the project, and there was no need to repair the floor.

The rough-opening height for a pocket door must be at least 84 ½ inches above the finished floor, but I try to make the rough opening as tall as possible so that the framed header is well above the header/track for the pocket door and completely independent of it. This strategy prevents problems in the track should the header ever settle or deflect down. For this opening, I installed a double 2x8 header tight to the top plate of the wall, which made the rough opening several inches higher than the required minimum.

To fill the entire width of the 4-inch cav-

ity, I first padded out the header with a piece of 5/4 material, leaving a gap to accommodate the vertical 5/4 backer board that I had installed earlier **(5)**. (I planned to install the pocket-door kit snug to the bathroom side of the wall cavity. This would allow that critical ¼ inch between the backer board and the door, described earlier.)

I made the header long enough for the 61-inch rough opening plus the double jack studs at both ends. Before installing the header, I put construction adhesive on the back of the drywall where the header would bear against it **(6)**. I also spread adhesive on the drywall before installing the jacks. When the opening was framed, I gave the pocket-door track a dry fit.

### INSTALLING THE POCKET-DOOR KIT

The pocket-door kit I installed was made by Johnson. The header/track in the kit can be modified for doors of various widths. After reading the directions carefully, I made the necessary changes for a 30-inch door.

To position the track at the proper height, I drove 12d sinker nails into the jack studs at 80¾ inches up from the finished floor on both sides of the rough opening, and 1¾ inches in from the edge of the studs on the bathroom side. I left the nail heads about ⅛ inch proud of the surface. Slots in the end brackets of the header track slipped over these nails so I could set the track tight against the bathroom side of the cavity.

The header track for the pocket door is supported by special split studs—thin strips of wood lined with metal. After making sure that the header track fit properly over the nails, I laid out the positions of the two split studs, marking their positions on the header track and on the floor **(7)**. Then I attached the split studs for the far side of the opening to the header track.

Because this wall cavity was ½ inch wider than the normal 3½-inch cavity, we screwed strips of ½-inch plywood to the outer faces of the split studs. After slipping the floor-plate brackets onto the bottoms of the split studs, I held the assembly in place while my helper ran a bead of construction adhesive on the drywall behind each stud position **(8)**. We lifted the whole assembly and slid the brackets down over the positioning nails in

the jack studs. When we were satisfied with the placement of the track and the split studs, we drove several pan-head screws through other holes in the end brackets to permanently attach the assembly in the pocket.

We then screwed the floor brackets into place. Finally, to install the other halves of the two split studs that faced the bathroom side of the pocket, we slipped the studs into the floor brackets, positioned them against the header, and drove two screws through each stud to anchor them in place **(9)**.

**FINISHING THE INSTALL**

With the pocket-door frame installed, the electrician rerouted the wires through the floor. We moved the outlet box to the bay next to the pocket **(10)**. With the new electrical box going through the tiled backsplash, I carefully cut the hole with a tiny diamond blade mounted on a Dremel tool, not trusting this delicate task to anyone else. We covered the hole left by the old outlet box with a blank plate screwed into a special bracket.

I was just about ready to hang drywall in the bathroom, but one very quick yet very important task remained—something I had regretted overlooking in the past: installing the small rubber bumper at the end of the pocket. This bumper keeps the door from banging into the end of the pocket, but more importantly, makes the door open flush with the finished door jamb. I screwed the bumper to the jack stud about 36 inches above the floor.

Then I hung the drywall on the bathroom side, attaching it to the split studs with 1-inch screws to make sure no sharp points penetrated into the door cavity and interfered with the smooth operation of the door, or worse, damaged the finish of the door. Because of my careful demolition work, I didn't need to touch the walls on the kitchen side of the pocket. I finished the new drywall in the bathroom in the normal manner and was now ready for the actual door.

Before hanging the door, I painted all four edges and the first few inches of both faces along the top and the side that would go into the pocket. These areas would be hard to reach after the door was trimmed out.
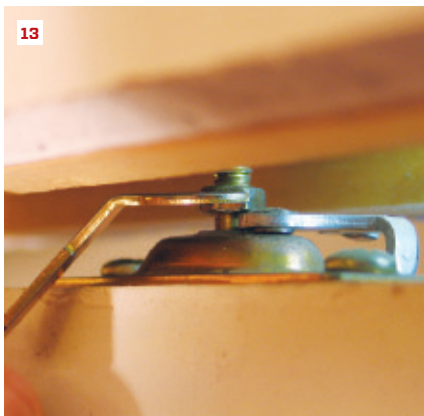
When the paint was dry, I hung the door. I mounted the two supplied door plates on the top of the door, 2 inches from each end **(11)**. Then I set the wheeled hangers in the track **(12)**. These hangers have two wheels on one side and one wheel on the other, and you need to alternate the wheel positions as you slide them onto the track. To hang the door, I just snapped the hangers into the plates. Suspended on the track, the door rolled smoothly into and out of the pocket. Final adjustment would happen when I installed part of the trim around the door opening.

**TRIMMING AROUND THE DOOR**

The trim around a pocket door is a bit different from that around a standard door. The vertical jambs are installed first and extend up to the header/track. I started with the full-width jamb on the latch side of the door, which I made sure was absolutely plumb. Then, using a special wrench sup-plied with the hardware kit, I raised or lowered the hangers until the edge of the door fit perfectly against the jamb **(13)**.

The vertical jamb on the pocket side of the opening is split into two pieces, as is the horizontal jamb along the header. Because I had mounted the door off-center, one side of the split jamb was 1 ¾ inches wide, while the other (the bathroom side) was 1 ¼ inches wide.

As I had on the latch side, I cut and fit the split jambs next to the opening, letting them extend all the way up to the header/track. Then I screwed in the horizontal split-jamb pieces between the vertical jambs **(14)**. This trim configuration allows the head pieces to drop down easily if the door needs to be adjusted or removed in the future.

The directions recommend using screws just for attaching the horizontal jamb pieces, but I use them for the vertical split jambs as well. I leave these screws exposed so that the jambs can be removed in the future to access the door. The next person who has to remove that door will thank me.

**FINAL STEPS**

Casing the door opening, installing the baseboards, and installing door pulls were the final steps. To avoid penetrating the pocket, I installed the casing and baseboards with 18-gauge 1 ½-inch finish nails. These nails went through the trim and the drywall and bit into the split studs, with ¼ inch to spare. I didn't nail the casing to the split jambs, to make the jambs easy to remove **(15)**.

This door kit came with two types of pulls: finger pulls for the faces of the door and an edge pull. The edge pull required a 2-inch-deep mortise, so I made sure to keep it away from the finger pulls.

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