Make an extra bedroom instantly available for a weekend guest.



Build a wall bed

A fold-up wall bed may remind you of a Laurel and Hardy movie mishap, but it's actually a perfect way to keep an extra bed tucked away and ready for guests. When not in use, it folds back into a 15-in. deep cabinet that's about 6 ft. wide and 5 ft. high. When it's needed, you can pull it down in about two seconds!



Sometimes called a Murphy bed, a finished model costs about $2,000. But with a $200 hardware kit, $400 to $500 worth of lumber and a new mattress, you can build a high-quality wall bed of your own.

In this article, we'll walk you through the bed assembly process. Complete instructions come with the hardware kit, so we won't repeat them all. Instead, we'll focus on the tougher steps and tell you how to get through them. In addition, we'll show you how to turn a fairly plain-looking cabinet into an attractive piece of furniture.

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NOT CHEAP, BUT A SATISFYING PROJECT

An ambitious novice with a bit of carpentry experience could tackle this project, but the manufacturer's instructions are sometimes vague, so read through this article first. You probably have most of the tools already: basic hand tools plus a drill/driver, a circular saw, a jigsaw, a router and a framing square. A table saw is helpful, although not absolutely necessary, for cutting long, narrow strips.

We built our bed from birch veneer plywood and knot-free pine because both provide a smooth surface for paint. Expect to pay about 15 percent more for oak veneer plywood and boards and other types of wood that look good stained and varnished.

We built the full-size bed, but kits for queen- and twin-size beds are also available for about the same price. (See Buyer's Guide, p. 78.) A new mattress will cost about $200.

Cutting List (Full-Size Bed)

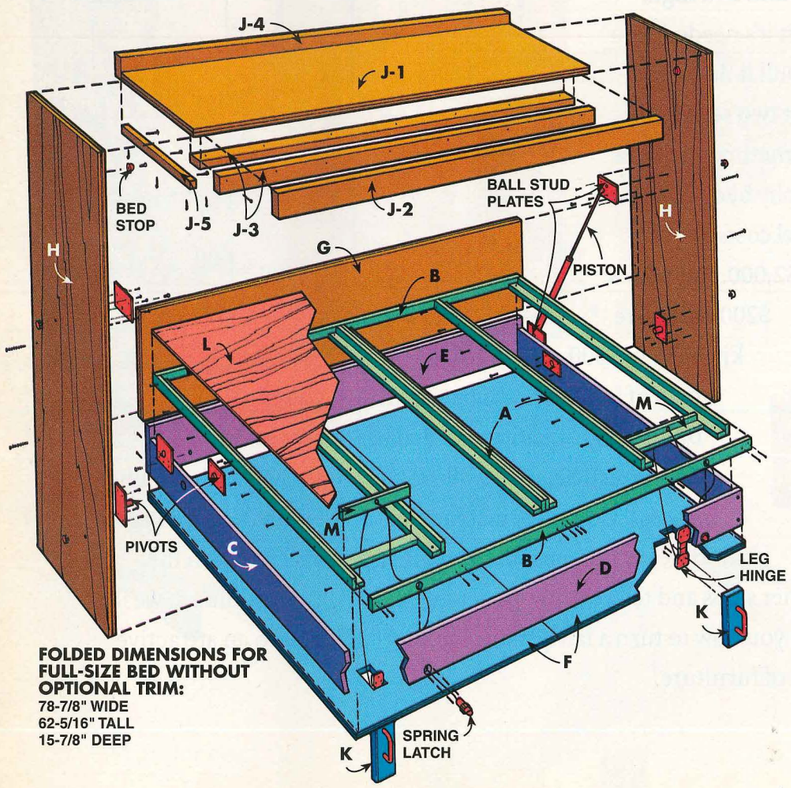
Key*	Pieces	Size & Description
A	12	3/4" x 1-1/2" x 52-1/2" pine (strut pieces)
B	2	3/4" x 1-1/2" x 75" pine (rails)
C	2	3/4" x 5-7/8" x 54" birch plywood (side rails)
D	1	3/4" x 5-7/8" x 76-1/2" plywood (footrail)
E	1	3/4" x 7-7/8" x 76-1/2" plywood (headrail)
F	2	3/4" x 38-1/2" x 55-3/4" plywood (bed face panels)
G	1	3/4" x 15-7/8" x 77-3/8" plywood (bed headboard)
H	2	3/4" x 15-7/8" x 60-5/16" plywood (bed vertical panels)
J		Bed header (built from J-1 through J-5)
J-1	1	3/4" x 15-1/8" x 78-7/8" plywood (header board)
J-2	1	3/4" x 2" x 77-3/8" plywood (front rail)
J-3	2	3/4" x 1-1/2" x 77-3/8" pine (front rail supports)
J-4	1	3/4" x 2" x 78-7/8" pine (rear rail)
J-5	2	3/4" x 1" x 12" pine (mounting cleats)
K	4	3/4" x 3" x 7" pine (bed legs)
L	2	1/4" x 27" x 75" birch plywood (bed liner panels)
M	1	3/4" x 1-1/2" x 60" pine (extra strut material)

*Our key is different than the manufacturer's key.

Miscellaneous

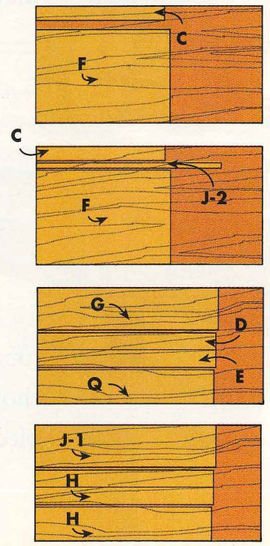
Handles/pulls (wood or metal)	4
Small bottle of wood glue	1
10-oz. tube of construction adhesive	1
4d finish nails (approx. 1/2 lb.)	50
3d finish nails (for trim)	50
1-1/4" drywall screws	40
1-5/8" drywall screws	25
2" drywall screws	30
Edge-banding material (optional)	

Fig. A Bed Assembly Guide



FOLDED DIMENSIONS FOR FULL-SIZE BED WITHOUT OPTIONAL TRIM:
78-7/8" WIDE
62-5/16" TALL
15-7/8" DEEP

Fig. B 3/4" Plywood Cutting Guide



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HOW TO GET GREAT RESULTS

You'll find the kit directions a bit too brief and somewhat confusing at times. Use our photos and tips to guide you through those spots.

This *is* a big project, even if you're an experienced woodworker (and I'm not!). Allow about two weekends to complete it. You'll spend the better part of a day just cutting all the pieces to size, following the Cutting List shown here and in the kit directions. (Remember, our list is for a full-size bed.) Take your time measuring and cutting, since you're working with full sheets of plywood, which are heavy and awkward. The bed will go together much more easily if the cuts are accurate, straight and clean. (See "Crosscutting Veneered Plywood," p. 80, for plywood-cutting tips.)

Allow a full day for assembling the components, plus time over several more days for painting or staining. If you decide to dress up the cabinet with trim, add another full day. Keep in mind that this is not a freestanding bed; you must fasten it to a wall so you can lower and raise it.

TIP: If possible, cover the floor and assemble and finish the project in the room where you intend to put it. When done, it'll weigh more than 200 lbs. It's a bear to move around!

You'll need a couple of accessories that you might not have in your toolbox:

- a 1-in. spade bit ($2)
- a 5/8-in. regular drill bit or brad point drill bit ($7)
- a 3/8-in. round-over router bit ($10)
- a 1/8-in. drill with countersink ($7)

Most home centers or well-stocked hardware stores carry these, but see the Buyer's Guide, p. 78, for a mail-order source if you can't find them.

Finally, we recommend that you check the parts in your kit against the list in the directions before you start, to make sure everything is there. Ours was missing a screw, which we added later. But missing a crucial part could bring the project to an awkward halt.

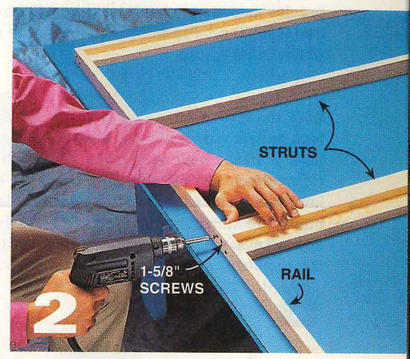
KEY ASSEMBLY TIPS

Photos 1 through 12 show you how the pieces go together. Here are additional tips and techniques that'll make the project easier.

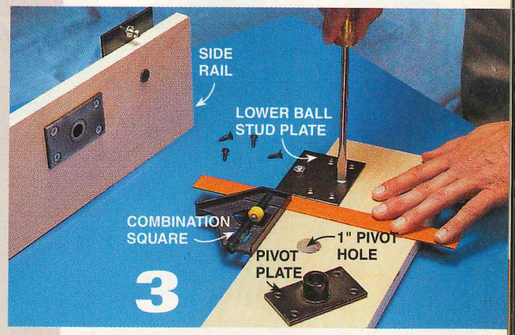
- Accurately measure all pieces and cut them precisely. The bed fits together like a jigsaw puzzle. If one piece is 1/16 in. off, another piece might not fit.
- The plywood dimensions specified in the Cutting List leave a lot of wasted plywood (**Fig. B**, p. 74). We don't have a good solution for this, but you might call a local cabinet shop to see if it has random sizes that would work. **TIP:** For about $100, a cabinet shop might cut out all the pieces for you and save you a day's work.
- Predrill and countersink holes for screws with the special drill/countersink tool noted above. You can work faster if you have two power drills, one with the drill bit and another with a screwdriver bit for driving the screws (**Photo 2**).
- Laying out the steel plates (**Photo 3**) is tricky. (I messed up here!)



NAIL and glue the 3/4-in. x 1-1/2 in. strut pieces. Drive 4d finish nails through the top piece, apply the glue, then drive the nails home.



ASSEMBLE the inner bed frame by screwing the struts to the side rails with 1-5/8 in. screws. Space the struts according to the directions, and predrill screw holes.



ATTACH the lower ball stud plate and pivot plate to the side rails with the screws supplied. Follow the instructions for the exact locations and hole-drilling procedures. Use a square to make sure the plates are square to the rail.

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SCREW the inner bed frame to the side rails, headrail and footrail with 1-1/4 in. screws. Make the outer rail joints as precise as possible because they will be visible when the bed is finished. Predrill the holes so the sides draw up tight to the inner frame.

CUT the rectangular openings for the leg hinges in the face panels with a jigsaw, then lay the panels on the floor with the best side down. Apply a bead of construction adhesive to the struts on the inner bed frame and lay the frame over the panels. Adjust the frame according to the instructions and drive 1-1/4 in. screws spaced every 8 in. through the struts into the panels to anchor them permanently.



Double-check your measurements against the instructions, and note that one side of the frame is the mirror image of the other.

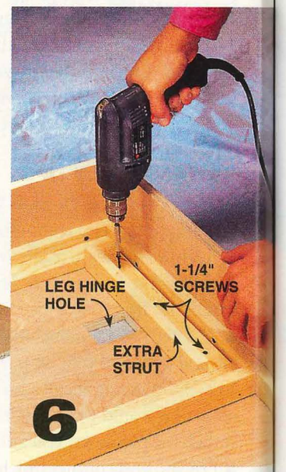
■ When assembling the sides (**Photo 4**), consider the appearance of the joints and edges on the outside. Space the screws evenly if they'll be exposed and set them to an exact depth. If staining, cover the exposed plywood edges with edge-banding tape (available at many home centers or from the source listed in our Buyer's Guide).

■ The face panels (**Photo 5**) should have perfectly square corners. They'll square up the entire assembly when you glue and screw the bed frame to them. Your precision cutting pays off here!

■ The two legs are on hinges so they can be folded back when not in use. However, they're also designed to operate locking latches. The bed can't open out until you fold out the legs. The instructions walk you through this step, but drilling the 1-in. hole for the latch is tricky because you have to bore partially through a strut (**Photo 7**). When drilling, use a sharp spade bit and hold the drill at a right angle to the frame.

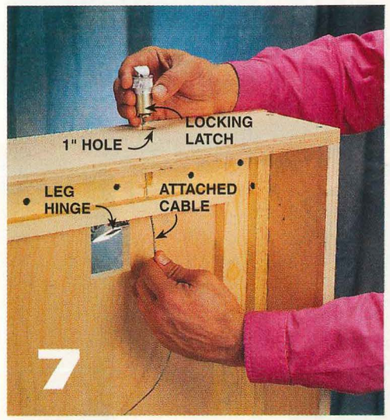
■ Installing the hardware on the cabinet vertical panels calls for drilling finesse (**Photo 8**). You have to bore several 1/4-in. and 5/8-in. holes partially through the 3/4-in. side. Use bits with short points for these holes, either regular twist drill bits or brad point bits, not spade bits. Wrap a piece of tape around the bit 1/2 in. from the end to serve as a depth gauge.

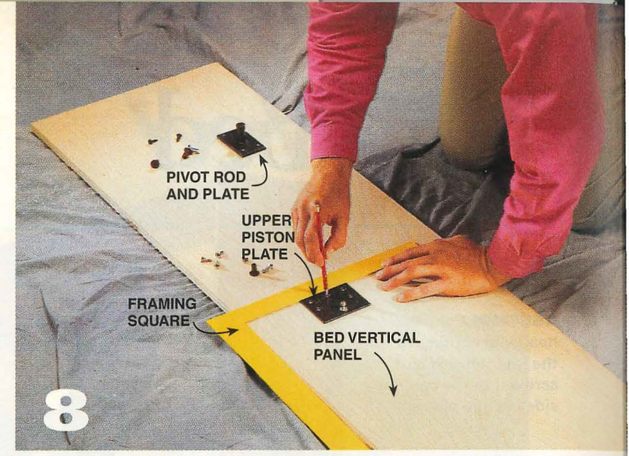
■ **Photo 12** ends the basic assembly. If you're not going to apply additional trim, slide the bed into position and screw it to the wall studs with 3-in. screws. Don't rely on hollow wall anchors. DO NOT try to



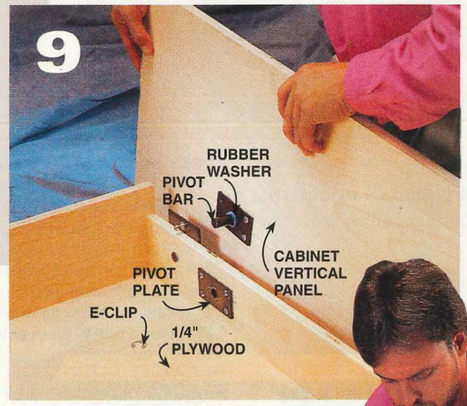
MAKE two additional struts from your extra strut material, and glue and screw them along the top edges of the leg hinge holes.

ATTACH the legs and their hinges to the cutout area. Then drill 1-in. holes for the locking latches. Install the latches and their cables according to the instructions. When all the latches work smoothly, cover the struts with 1/4-in. plywood, nailing it to the struts with 4d finish nails.





POSITION and screw the bed stops, upper piston plate, and pivot rod and plate to the cabinet vertical panels, positioning them according to the instructions. Use a framing square to keep the plates square on the panel. When drilling clearance holes and screw holes, be careful not to break through the opposite side.



SLIDE a rubber washer onto the pivot bar and slip the bar into the pivot plate hole. Secure it with the E-clip supplied.

FASTEN the headboard to the vertical panels using 2-in. screws. Use a 1x4 board clamped to the sides to hold the headboard while you screw it in place. Then tip the cabinet verticals upright.



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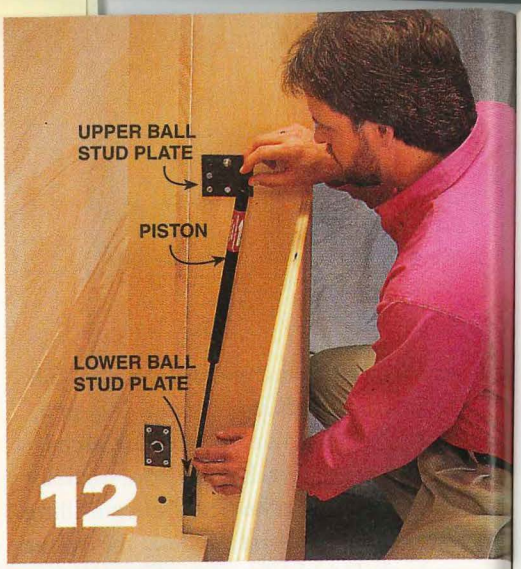
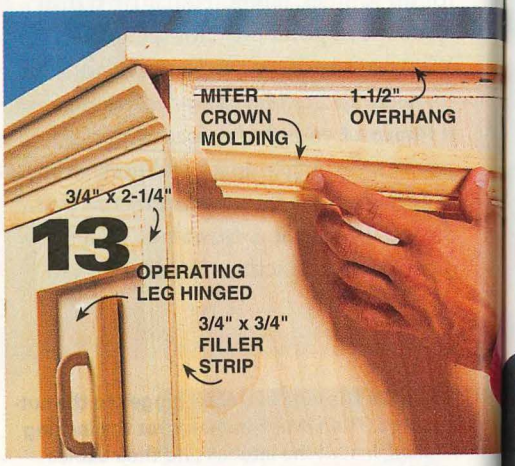
ASSEMBLE the bed header according to the instructions and screw it to the cabinet sides in one piece.



CONNECT the pistons to the lower ball stud plates first and then to the upper ball stud plates. The pistons must fit without being compressed or extended.



APPLY trim to the face panels to create a frame-and-panel look and assemble the top trim using the details in Fig. C and the Cutting List as a guide. Nail all the trim with 3d nails, set the nails, and fill the nail holes and other gaps with wood putty. Then paint.

open the bed completely until it's secured to the wall! After anchoring it, unfold it and add the mattress.

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Buyer's Guide

We ordered the hardware kit and plans from Rockler Woodworking and Hardware, Dept. TFH, 4365 Willow Drive, Medina, MN 55340; (800) 279-4441. Specialty drill bits and edge-banding tape are also available.

Molding List

Key	Qty.	Size & Description
N	1	3/4" x 3-1/2" x 10' pine
P	12'	Crown or cove molding (2-1/2" max.)
Q	1	3/4" x 13-7/8" x 74-7/8" birch veneer plywood
R	1	3/4" x 2-3/4" x 77-3/8" pine
S	2	3/4" x 3/4" x 61-1/16" pine
T	52'	3/4" x 2-1/4" pine (frame and panel)
U	1	3/4" x 3-1/2" x 6' pine

The above material is required for the special trim on our cabinet (Fig. C). These materials are not included in the supplied plans and cutting list.

Fig. C Decorative Molding Guide

