

DOUBLE DUTY

Steel hinges, legs, and desk pivots made by Hiddenbed USA are the secret to the desk-to-bed transformation. Hardware, direct from the manufacturer and from several online sources, is available for twin and double beds in both vertical and horizontal arrangements, and for queen beds in vertical only. You can cut the plywood parts yourself using provided shop drawings, or you can buy them precut in several wood species from the hardware manufacturer. You can also have the parts cut at a local cabinet shop with CNC toolpath files provided by the hardware manufacturer.

BY THE NUMBERS

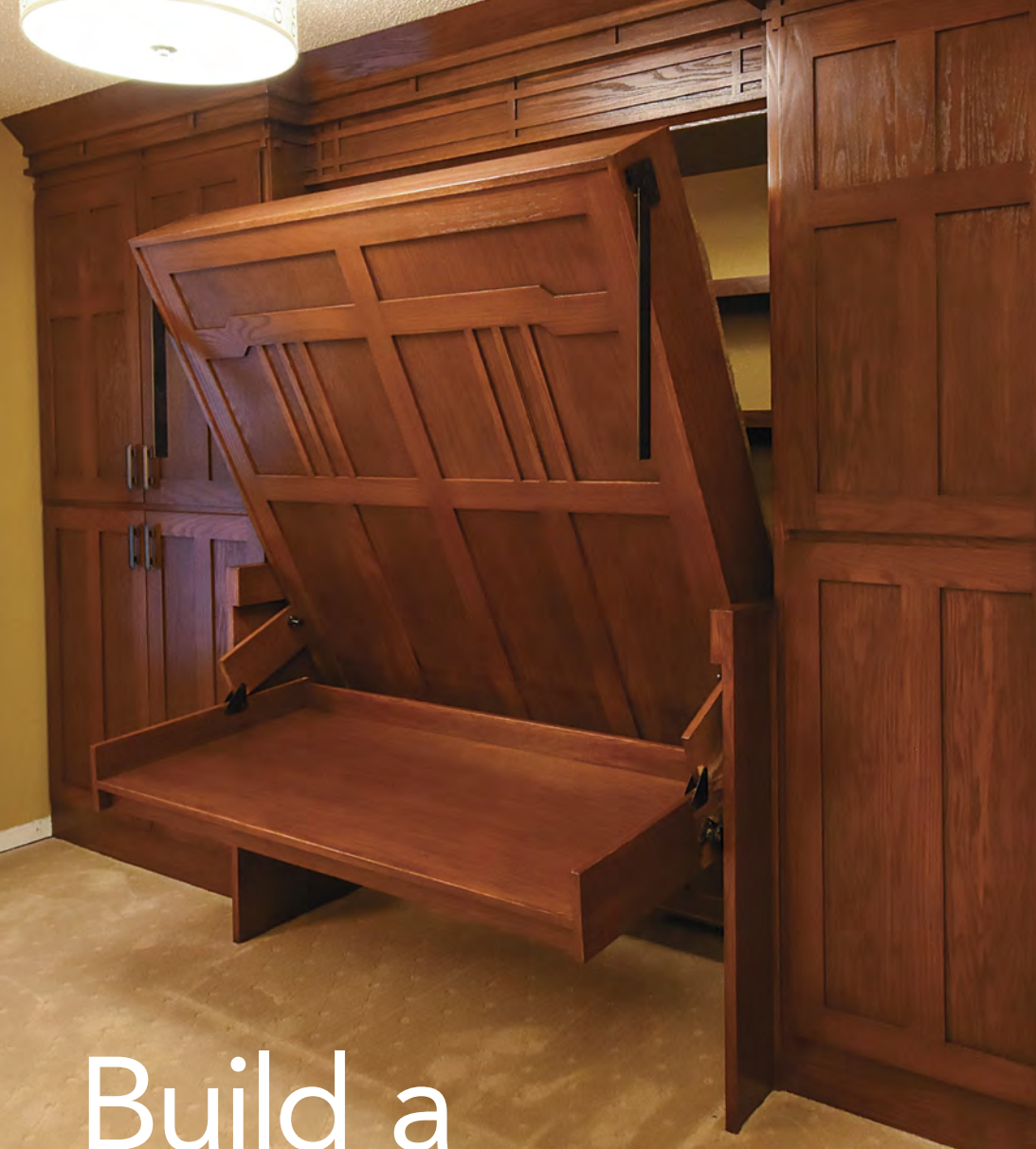
Lumber and hardware

5 sheets of 3/4-in. red-oak plywood	\$265
1 sheet of 3/8-in. red-oak plywood	\$50
4-ft. length of 5/4-in. by 4-in. red oak	\$14
24-ft. length of 3/4-in. by 3-in. red oak	\$45
Hiddenbed hardware kit and screw pack	\$360
5-ft. length of 1-in.-sq. metal tubing	\$25
4-ft. length of 1 1/4-in. punched angle	\$10
TOTAL:	\$769

Labor

Cutting and edgebanding 47 parts	24 to 30 hrs.
Assembly	24 hrs.
Installation	12 hrs.

TOTAL: 60 to 66 hrs.



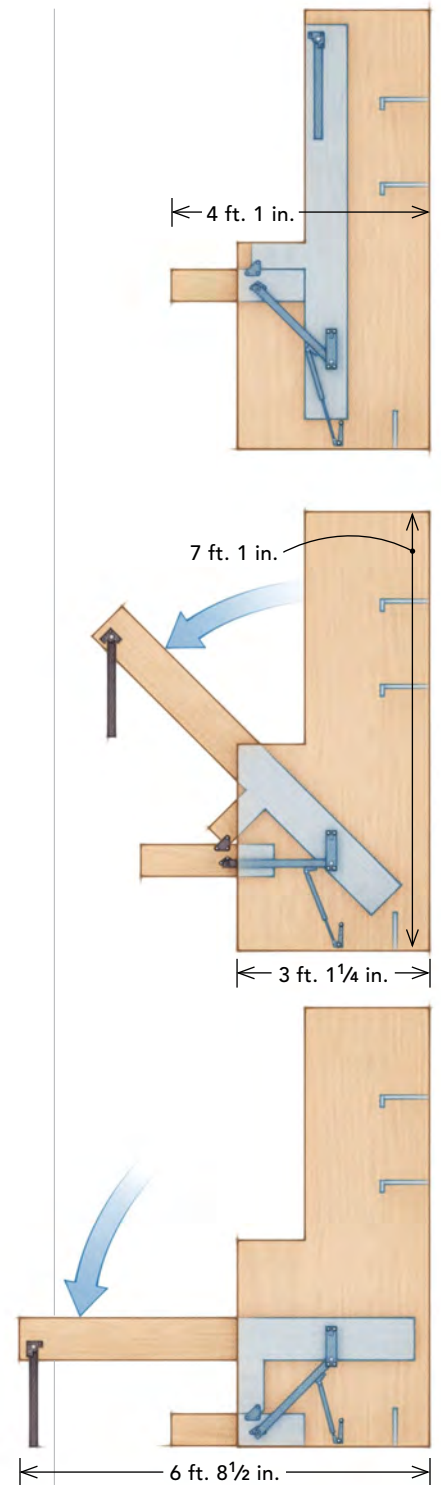
Build a Desk Bed

This practical built-in allows you to quickly convert your home office into a bedroom

BY NATHAN RINNE

The home office has always seemed like a luxury to me. Unwilling to give up a spare bedroom, I've settled for a small desk in a corner of my living room for years. I'm sure this is a dilemma for many people. The first time I saw a desk bed by Hiddenbed USA, I was blown away. It's similar to the Murphy-bed concept, but in addition to the foldaway bed, there is an attached desk. Not only that, but the desk remains parallel to the floor as the bed is opened and closed, so you can leave everything on it.

After viewing a web video of a desk bed (see one at FineHomebuilding.com/magazine), I knew I had to build one. I pitched the idea to prospective clients for years before I finally got a call from



HIDING IN PLAIN SIGHT

A counterbalanced lift mechanism, rotating desk hardware, and folding steel legs allow the desk to convert to a bed in seconds. The desk, which can hold up to 45 lb., stays parallel to the floor as the bed is lowered, so you can leave everything on it.

CUT AND PREP THE PARTS

The casework is made from 3/4-in. plywood with appearance-grade veneers on both sides.

Exposed edges are covered with solid stock or edgebanding.

Prepping the parts is labor intensive.



Metric measurements. The 31-page collection of shop drawings included with the hardware kit shows how to cut and drill every part for the bed, desk, and case. The measurements are metric and must be followed precisely or the bed won't open and close correctly.



Make space. Cutting the plywood and handling the uncut sheets is physically taxing and takes up a surprising amount of room. An empty one-car garage is about the smallest space that will accommodate the cutting and assembly of a double- or queen-size desk bed.



Band the edges. You can conceal plywood edges with solid stock, or you can use edgebanding tape with hot-melt glue on the back. The glue is heated with a clothes iron, and then the edgeband is rolled with a laminate roller.

a couple looking for a conventional hidden bed with closets on both sides. After I offered them a ridiculously good deal, they agreed to incorporate the desk into the design, and I had my chance to give this project a go.

It turned out to be a fun, if slightly grueling, undertaking. As with every new project in the carpentry business, I learned a lot, including how I would do some things differently the next time around. Here are some of the lessons I learned.

Multiple kit options

These beds come in vertical and horizontal configurations in twin, double, and queen sizes. My clients wanted closets on both sides of the bed, but I had only a 13-ft. wall to work with. They opted for a vertical full bed (4 ft. 5 in. wide), which is the smallest size

that will sleep two people. This decision is important not just for overall design but also because the gas pistons that lift and lower the bed are matched to the anticipated size and weight of the mattress. Although you can order these beds as kits with the plywood parts already cut, I decided to cut the parts myself so that I could scribe the casework to better fit the bowed wall on which it was being built.

I ordered the hardware kit and bought the oak plywood and 1x face-frame stock from a local supplier. Somehow during the hardware ordering process I was never told that there's also a kit with all of the nuts, bolts, screws, and fasteners to assemble the bed and the desk. Fortunately, my local home center had most of what I needed and substitutes for the rest, but it was an unanticipated has-

ple. (My advice: make sure to specify both kits [\$360] when you place an order.)

Based on my experience, the total cost of materials for this project starts at around \$800 when using the most basic stain-grade, rotary-cut red-oak plywood and matching solid stock. Depending on the species and the cut of the plywood, the prices can climb much higher.

All the small details, all the big parts

Building the bed using the 31-page instruction manual was challenging. For example, the dimensions are metric, and converting those dimensions to fractions leaves you with numbers that are too fine to use easily. (Ever mark 1/64 of an inch?) For someone like me who has never thought outside of the imperial-system box, this took some getting

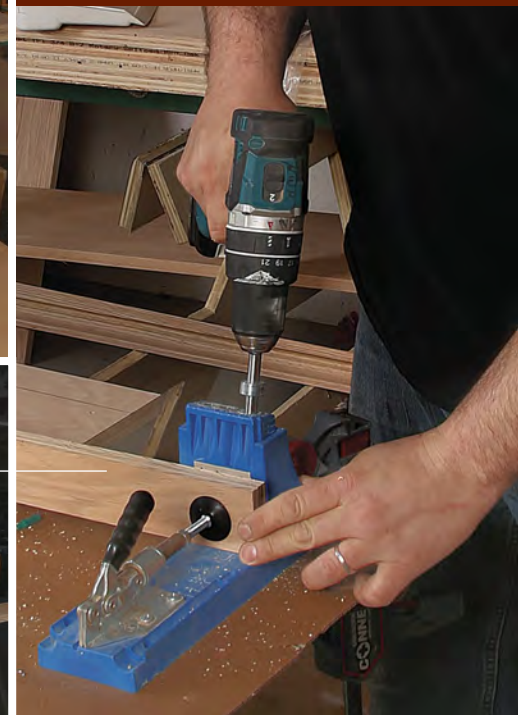
BUILD THE DESK

Steel reinforcement.

The desk, which is almost 5 ft. wide, requires a piece of steel tubing to prevent it from sagging. The 1-in.-sq. tube is cut to length, drilled, and then fastened with 1½-in. screws to the underside of the plywood desktop.

Swiveling desk sides.

The sides of the desk are edgebanded and screwed to the desktop. Pivots, included in the hardware kit, are secured through the sides into the top with screws and through bolts. A clamp and a wood spacer ensure that the sides overhang the top evenly.



Pockets for the apron. A 2-in.-wide plywood apron hides the desk's steel reinforcement. It's fastened to the bottom of the desktop with screws in closely spaced pocket holes drilled using a pocket-hole jig.



Strong, swiveling connection. Color-matched machine screws and matching T-nuts fasten the desktop's top pivot in place. The through-bolted connection allows the desk to remain parallel to the floor as the bed is raised and lowered, and it can support up to 45 lb. on the desktop.

BUILD THE BED



Center seam. The double- and queen-size versions of a desk bed are wider than a single sheet of plywood. A seam in the center of the panel looks better than if it were offset. The two roughly 2-ft. 4-in. panels are joined in the center with wood glue and biscuits, and the seam is hidden with 1/4-in.-thick flat stock.

Site-built bed springs. Slats made from 4 3/4-in.-wide pieces of plywood consume the offcuts from larger pieces, support the mattress, and allow air circulation underneath. The completed bed box is unwieldy and weighs 120 lb., so you'll need help getting it to its final location.



used to. My solution was to run out and buy a metric tape measure.

I should also mention that there are nearly four dozen pieces to cut and a substantial amount of holes to drill in precise locations. If you are not proficient at reading diagrams or are just looking to save time, you can get the plywood parts precut from Hiddenbed USA. You can also get toolpath files from the company and have the parts cut locally by a CNC shop, which is what I would do in the future.

Having the parts cut by a CNC shop has advantages when space is a concern, because cutting and organizing the parts for these huge boxes takes a lot of time and space. Also worth noting is that the cabinet that holds the bed is too big to fit through a 36-in. door and must be assembled in the room where it will reside.

Although the parts are big, the joinery is straightforward. The plans call for Confrimat screws to assemble the cases, but I used high-quality construction screws and wood glue. I concealed the screws on the bed cabinet with the 24-in.-deep wardrobe cabinets on both sides of the bed cabinet.

Once the bed cabinet is assembled and in place, you have to attach the bed frame. It's heavy and awkward, so you will definitely need a helper. You also have to create a sturdy cabinet-to-wall connection so that the massive bed box won't tip as the bed is raised and lowered. I used a 4-ft. piece of punched steel angle (like what you would use to hang a garage door) that I screwed to the top of the bed cabinet and into the studs with structural screws.

Making a massive box look good

After the cases for this project were in place, it became obvious that the panel concealing the bottom of the bed was simply too plain. Taking cues from the homeowners' Craftsman-style decorating, I decided to add some applied wood strips. Using 1/4-in.-thick solid oak, I tested the layout of the applied molding until I thought it looked right.

One good thing about the expansive bed cabinet is that you have a good amount of space to create on. My advice is to step back and look while experimenting until the arrangement looks right to you. □

Nathan Rinne is a finish carpenter in Roach, Mo. Photos by Patrick McCombe, except where noted.

ASSEMBLE IN PLACE

The case for the bed is too large to fit through a 36-in. door, so you'll need to assemble it in the space where it will reside. Once the parts are screwed together, the case is plumbed and fastened to the floor and wall framing with structural screws.



Double drilling. The hinge and lift mechanisms require identical holes for through bolts on both sides of the cabinets. It's faster and more accurate to drill both sides at once. Triple-check their locations so that the mechanisms work correctly when the desk bed is complete.

Mount the hardware. The hinges and lift supports are bolted to the bed cabinet's sides using locking nuts and through bolts. Gas pistons help balance the weight of the bed box and the mattress. The pistons are matched to the bed size.



Connect the bed to its cabinet. The bed box is connected to the hinges with large-shouldered through bolts (included with the kit) that are tightened with a 10-mm hex wrench. Most hex-key assortments don't include a wrench that big, but you can find them at auto-parts stores.



Install the locks. A pair of sliding pins keep the bed in the upright position, even when the desk is fully loaded. The pins attach to the desk assembly with three screws and line up with matching holes that are drilled into the bed case.



Cover the edges. Exposed edges on the case are covered with 1/4-in.-wide solid stock, which also hides the gap between the folding bed box and the bed cabinet. The stock is fastened with 18-ga. brads and wood glue. Miters hide the stock's end grain.