



# Hanging Heavy Doors

by Peter Canavan

Follow this sequence for a hassle-free solo installation

As the punch-list guy for a high-end builder in Osterville, Mass., I end up installing plenty of top-quality solid-core doors. These doors are at least 1¾ inches thick and weigh 100 pounds or more, so I have to work smart. And because the door hardware is likely to be removed and re-installed by the painters and flooring installers after the initial hanging, I have to make sure they don't fall out of adjustment. Here's how I approach the job.

Typically, the doors are prehung units shipped in the jambs without any trim applied. When I remove the shipping cleats,

plastic straps, and protective cardboard, I pocket any small shipping screws. They'll come in handy later. The hinges are usually of the heavy-duty 4-by-4-inch variety with a drop-in pin and a decorative screw-down finial. To avoid accidental damage, I remove the finials and store them in a safe place, to be re-installed at final finish.

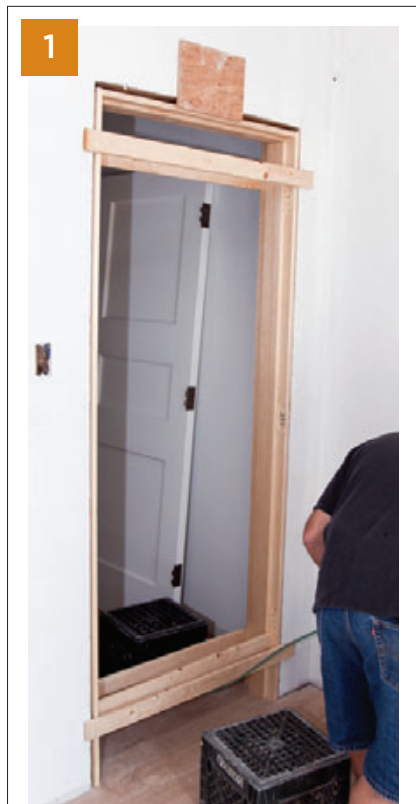
I pull the pins and remove the door from the jambs. I also remove the jamb hinges, because they can interfere when plumbing the jambs. To keep the jambs parallel, I install a temporary spreader just below the bottom hinge location ([1, next page](#)).

It's cut to the exact length of the head jamb and held in place with a couple of finish nails shot through the jambs from the back. It's easily knocked out later; I pull the nails all the way through the jambs from the finished side. To ensure a level head jamb, I first check the level of the floor and then mark and cut any difference from the jambs accordingly.

## Installing the Jambs

After determining the active side of the door swing, I shoot temporary retainers across the opposite side of the opening,

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The jamb assembly is held in the opening between scraps of strap-ping. A temporary spreader near the bottom maintains a uniform finish opening. The author first cuts the side jambs to compensate for an out-of-level floor.

making sure that they don't coincide with the top and bottom hinge locations. I place the jamb in the opening and capture it by nailing opposing pieces of strap-ping across the active side. This holds the jamb in the rough opening with its edges in plane with the finished wall. I also install a scrap of plywood on each side of the head jamb to keep it under control. I shim between the header and the tops of the side jambs to pin them firmly to the floor (2). Since I use shims in a variety of tasks, I cut them by the bucketload, from tapered cedar shingles. I rip them to a uniform 2 inches wide; that way, they're still adjustable when they're centered behind a 4-inch hinge with only the outermost screws installed.

I try to make sure that the door is in the best possible position. For example, a door in a hall end wall looks best centered, so that there's an equal margin for trim on either side. Once I've established the door's placement, I stabilize the head jamb with a finish nail into the header. Then I install a pair of opposing shims at the top of the hinge jamb and permanently secure it to the framing with a pair of screws.

Next, I use spring clamps to hold my 6-foot spirit level against the hinge jamb, covering the hinge mortises (3). This

leaves both my hands free to install shims and provides a constant straightedge for truing the jamb. When adjusting the shims, I make sure that the jamb is in continuous contact with the level, eliminating any high or low spots along its length. My primary shims are centered directly behind the hinge locations, with others added as needed to straighten the jamb (4). Since the hinges were removed, I don't have to worry about interference from ones that aren't flush or from a screwhead that stands out.

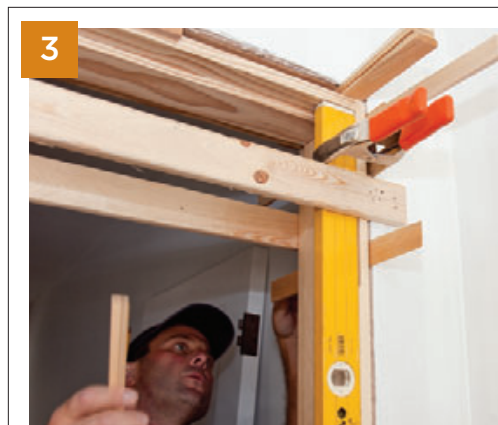
I'm careful when shimming not to "pigeon-toe" the jambs out of parallel. The top hinge carries the lion's share of the door load; one or more 3-inch screws typically ship with the door and are intended to secure it to the framing. I install these screws at the end of the job. I've often seen them omitted on others' installations, but they are crucial to preventing a door from sagging over time.

### Hanging the Door

Now I can pull the temporary retainers from the active side and hang the door. But first, to continue holding the latch jamb in alignment, I tack scraps of plywood to both sides of the wall at the top and bottom, just capturing the jamb leg (5).



With shims at the header pinning the side jambs to the floor, the author screws the top of the hinge jamb to the framing.



A door-length level clamped to the jamb provides a reference for both plumb and straight, leaving hands free to insert and adjust the shims.

4



The author shims the hinge jamb first, directly behind hinge locations and at top and bottom. A finish nail through the jamb prevents the shims from loosening. They'll split readily around the nail if further adjustment is needed.

5



Plywood clips keep the jamb from moving out of the wall plane when the retaining straps are pulled.

6



The author initially installs only the outlying screws so that he can adjust the tapered shims in or out when fine-tuning the jamb.

I reinstall the jamb hinges, omitting the center screws for the time being (6). I leave the screws in the lower hinges just slightly loose. This gives me a little play, making it easier to align all of the knuckles on installation. If I'm installing an 8-foot-tall four-hinge door, I also leave one of the intermediate hinges off until later. I lean the door against the head stop, then tip it away from the hinge jamb and insert a DoorJack under the center of the door bottom (7).

I invented this foot-operated lever a couple of years ago because I found that other door-hanging tools just didn't work very well. (If you're interested, you can find it on the Web.) It provides about 1½ inches of lift and lets you steer a heavy door right onto the hinge knuckles.

A word about those knuckles: There's a second reason I remove the hinges in the installation process, and it is that door manufacturers don't always seem to care which hinge leaf goes where. I like to have the three-knuckle leaf mounted on the

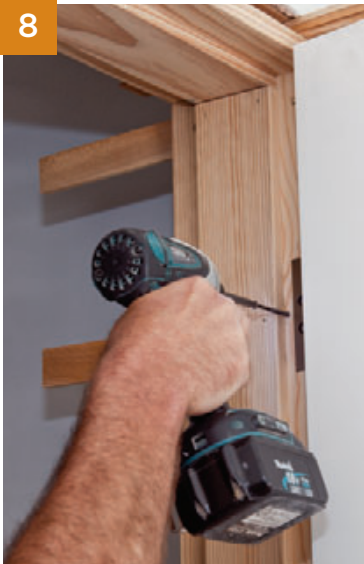
7



A foot-operated lever makes one-man door handling easier. With the lever inserted about mid-door, light pressure floats the door onto the hinges.

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8



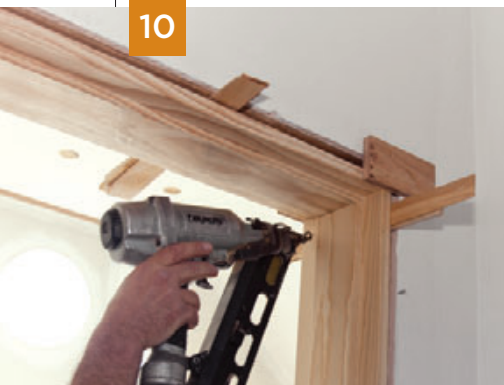
Three-inch-long finishing screws anchor the jamb to the framing. The author installs them on both sides of the door stop at all hinge locations.

9



Discrepancies in the reveal between door and jamb are addressed with additional shims, followed by jamb screws.

10



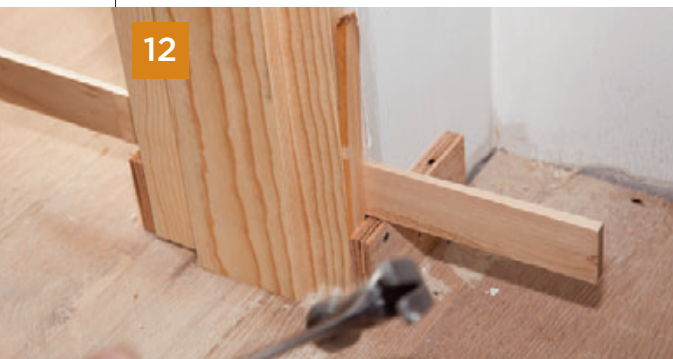
Once the hinge jamb is permanently installed, the top of the latch jamb is shimmed and pinned to the framing with a finish nail.

11



A shim behind the latch location provides stiffness for drilling and mortising the strike plate.

12



The author adjusts the latch jamb to the door, making sure that it makes contact with the stop along its entire length. Here, a shim behind the temporary retaining clip holds the jamb in position until the final screws are installed.

jamb and the two-knuckle leaf on the door. Although it probably isn't critical to hinge function, I find that this arrangement helps with alignment and support when setting the door.

With the door mounted, I tighten the loose screws. I add 3-inch finishing screws, through the jambs into the framing, on either side of the door stop, everywhere I've placed shims (8). I then check the reveal between door and jamb for uniformity. It's weird, but no matter how carefully you install the jamb, you can still end up with a squeeze in the reveal below the bottom hinge. I'm not certain why this happens, but I do fix it: I adjust the shims near the floor and send in a pair of 3-inch screws to pull the jamb over (9). Because I've shimmed directly behind the bottom hinge, the jamb only moves over from there down.

Now that the hinge jamb is perfectly aligned and screwed to the framing, I address the latch side. First, I shim at the top of the jamb and hold it with a finish nail (10). Then I open and close the door, shimming and checking the reveal for uniformity. The shim locations more or less reflect those on the hinge side. I always shim just below the strike location (11). This provides solid backing for drilling and chiseling out the latch box, without chewing through or shredding the shims in the process.

13



To adjust a hinge that's mortised too deep, the author installs small screws behind the leaf, backing them in or out until the hinge is flush in the jamb.

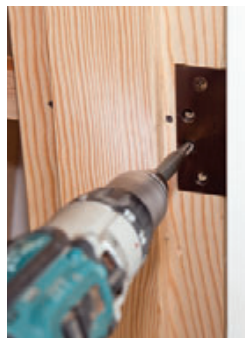
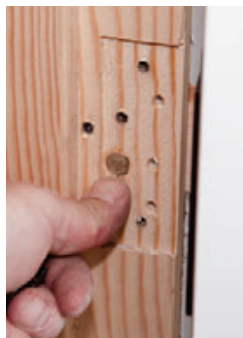
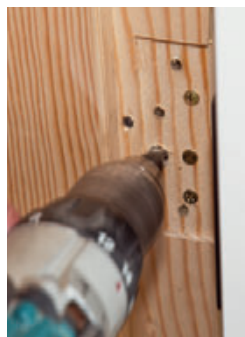
A door should always close with full contact against the stop. For this reason, out-of-plumb framing, bowed jambs, and warped doors are all unacceptable. I either correct the framing or replace the door. I'll make slight adjustments for alignment by shimming behind the temporary retaining blocks (12), holding the adjustment position with a finish nail or two, then following up with the 3-inch jamb screws.

### Adjusting the Hinges

A hinge that's mortised a little too deeply (or not deeply enough) will be slightly out of vertical alignment with the other hinges and affect both the reveal and a smooth swing. Shimming behind the leaf with thin cardboard works, but if the painters come along and pull the hinges, the shims tend to vanish along with your careful adjustments. This is where those small shipping screws I save come in. With the door open and wedged for stability, I pull the hinge screws, fold the hinge back, and install a few shipping screws in the mortise, adjusting the heads in or out until the leaf lies flush in the jamb (13). Maybe it should go without saying, but I predrill for every screw I install.

These days, hinge screws are generally the "self-drilling" type, and they're jammed in at the plant at top speed. Thus,

14



Misaligned screws can cause a hinge to bind. Supporting the open door on a wedge, the author folds back the hinge leaf, drills out the offending hole with a countersinking bit, and cuts a wood plug. Then he glues the plug in place with a fast-setting two-part adhesive and drills a new hole with a vix bit.

some of them are guaranteed to end up off-center with the head protruding slightly from the hinge (14). This can interfere with smooth hinge operation. It's simple to fix: You redrill a truly centered hole for the screw. But first the old hole has to be filled. I don't mess around with golf tees or whittled pegs and wood glue. I fold back the hinge leaf and drill a 1/2-inch-diameter hole with a countersinking bit. Then I cut

a matching plug and glue it in with 2P-10 (888/443-3748, fastcap.com), a two-part glue that bonds almost instantly. I chisel the plug flush with the surface, re-install the hinge, and then drill a new hole for the screw using a self-centering vix bit. It's fast and foolproof.

*Finish carpenter Peter Canavan lives in Brewster, Mass.*