Master Carpenter

How to Install Inset Cabinet Doors

Create the perfect fit by trimming one side at a time

BY SCOTT GIBSON

Making and fitting cabinet doors takes time, and it has its occasional frustrations. Still, installing doors correctly is one of the real pleasures of cabinetmaking. If everything isn't flat and square or if the hinges aren't installed properly, the doors won't work the way they should. For an overlay cabinet door, the process is more forgiving: The door simply closes against the cabinet or face frame. An inset door is another story. It has to be trimmed to fit the door opening exactly, with an even gap all around between the face frame and the door.

I like the appearance of inset doors because they don't look as clunky as overlay doors. When an inset door is fitted cor-

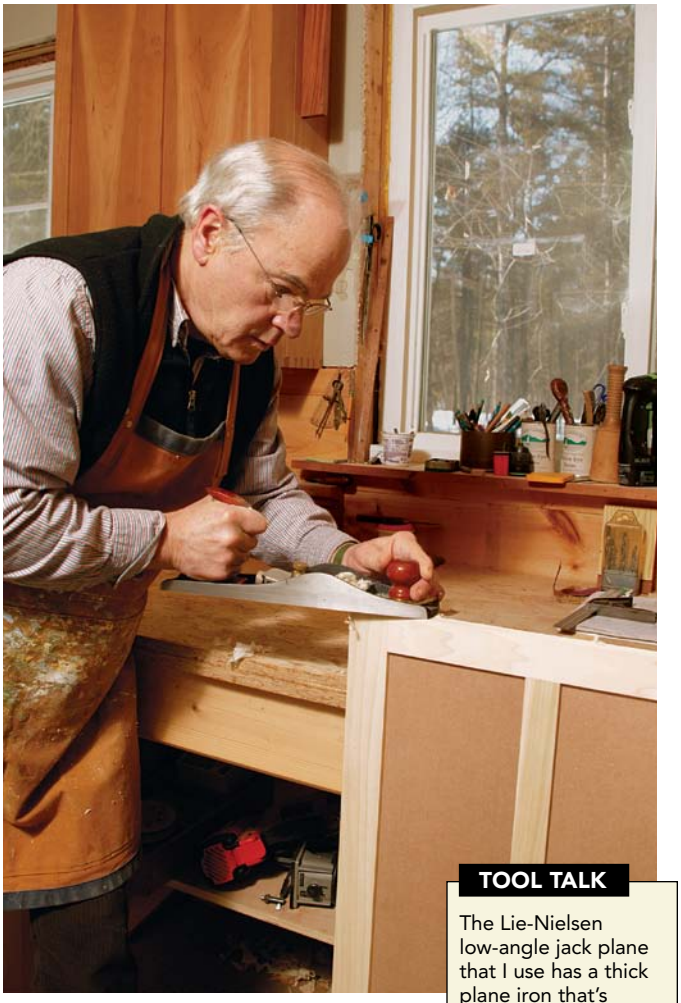
THE CRAFTSMAN

Woodworker and writer Scott Gibson lives in East Waterboro, Maine. A former newspaper reporter, Scott worked as an editor at *Fine Homebuilding* before becoming editor in chief of *Home Furniture* and then *Fine Woodworking*. In addition to being a journalist, he's had a lifelong passion for woodworking that's yielded a whole house full of furniture. Scott and his wife, Susan, moved back to Maine in 2001, and after his new house was finished, he built a good shop. When his son Ben renovated the kitchen in his own house, Scott pitched in for the cabinets, which is where we caught up with him.

Photos this page: Nat Rea

ESTABLISH THE BOTTOM REVEAL

Decide on the size of the reveal. *On a tablesaw, cut a shim equal in thickness to the reveal (⅛ in. on a side is typical for paint-grade work), and trim it to length so that it can sit inside the bottom of the door opening.*



Begin to trim the door. *Use a low-angle jack plane to flatten the bottom of the door. Because the stiles' end grain is exposed at the door's top and bottom, work inward from each edge to avoid tearout. Another method is to use a crosscut sled on a tablesaw and, referencing the door's hinge side against the fence, to trim the bottom of the door.*

TOOL TALK

The Lie-Nielsen low-angle jack plane that I use has a thick plane iron that's set at 12°, which slices easily through difficult end grain. It's pricey, but it's the kind of tool that makes the work much easier. I'm always dragging it out onto my bench.

DON'T CARE ABOUT SQUARE

The idea is to fit the door in the opening, not make a square door. *With the door in the opening atop the shim, press the hinge side against the stile. Ideally, there should be a consistently tight fit from top to bottom on that side. This gets a little awkward because the door won't go completely into the opening quite yet. (Just try not to drop the door, as the author did.)*

Adjust by shaving. *If necessary, use a jointer or similar plane to adjust the door's hinge side until it fits tightly against the face-frame stile while resting on the bottom shim.*

Hinge side
is next to be fitted

Bottom shim
creates a reference

rectly with a narrow, even reveal, the cabinet has a line of detail that is otherwise missing. This more finished look is associated both with traditional designs, such as Shaker, and with more modern styles. A cabinet built with inset doors also says something about the cabinetmaker. Although making inset cabinet doors takes time, the results are worth it to me, and the process goes surprisingly quickly once you've honed the technique.

For this kitchen project, I built the carcases first, then added the face frames. Typically, I use butt hinges (more on that later), so I mark and cut the hinge mortises on the face frames before I attach them to the carcases. I like to cut the hinge mortises on the stiles before the face frames are even glued up. I just pop a piece in the vise, I cut the mortises, and I'm done.

The doors are next. I start by building a door to the same dimensions as the opening. It's tempting to make it slightly smaller so that there's less trimming involved, but that move can backfire. When gluing up the door, make every effort to keep it flat. You can compensate for a slight amount of twist (sidebar p. 69), but if the door is too badly skewed, you'll have to make another one. If the door or the opening is out of square, fitting the door may result in a reveal that looks too big. Ideally, the door opening and the door itself will be square, but that's often not the case. Once the cabinet and the door are made, forget about square, and deal with what's there.

I trim one edge of the door at a time and then work my way around, beginning with the bottom of the door and ending at the strike-side stile. It's possible to do all of this work with hand tools alone, but it's faster

CUT THE TOP IN TWO STEPS

Don't remove too much material. *The top is trimmed in two steps to minimize the risk of taking off too much of the door. Begin by placing the door on the bottom shim and marking both sides of the top of the door so that it will fit just inside the opening. Trim off the excess on the tablesaw with a crosscut sled. Remember to reference the hinge side against the fence. If the amount to be removed isn't a 90° cut, insert shims between the sled fence and the door edge to adjust the angle of the cut. Check the fit, and then mark the reveal at both sides so that it equals the reveal at the bottom. Trim the reveal to the marks with the crosscut sled, using the same shims if necessary.*

TRICK OF THE TRADE

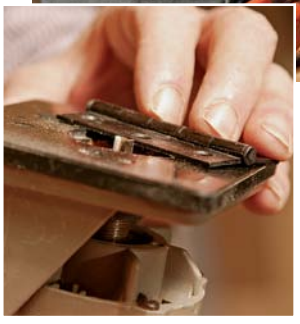
Use a board jack

It's difficult to secure a cabinet door in a bench vise so that the work is well supported and at a convenient height. The author made this support (historically called a board jack) from plywood scraps. He attached an appropriately sized leg to a block screwed to the benchtop, then reinforced the leg with a plywood gusset. For this job, he made one jack for working vertically and another for working horizontally.

GO FOR THE TIGHT FIT FIRST

Fit the door. *It's best to cut the hinge mortises on the face frame before it's assembled. If you haven't done so, though, now's the time. Mark and trim the strike edge of the door (photo far right), either with a pass on the tablesaw or with a hand plane. The door should squeeze into the opening so that there will be just enough space to install hinges. With the bottom of the door still resting on the shim, mark the hinge locations on the door.*

MOUNT THE HINGES AND DIAL IN THE STRIKE



Cut the mortises. *Move the door into a bench vise, and mark the mortise locations with a chisel. With a carbide straight spiral bit chucked into a laminate trimmer, use the hinge plate as a gauge to set the depth of the bit, and cut the mortises. A piece of ¾-in. scrap clamped to the back side of the door creates a more stable base for the trimmer.*

Keep your options open. *Remove the shim, hang the door with only one screw per hinge leaf, and check the fit. The strike side will probably need an adjustment or a back bevel. If not, and if the door closes evenly against the stop, put in the rest of the hinge screws.*

TOOL TALK

One of my favorite tools in my shop is a simple knife made from a short length of an old file. The handle isn't fancy, but the blade is superb. My dad gave me the knife when I first started making furniture. Now that he's gone, it's pretty special. Because it has a double bevel, it's not good as a marking knife, but it has many other uses.

Possibly my most important tool for projects such as cabinet doors is my Lie-Nielsen low-angle block plane. A standard block plane's blade is mounted at a 20° angle to the sole. A low-angle's blade is mounted at 12°, which makes it possible to plane end grain and cross grain without tearout. It's great for removing mill marks, adjusting the fit of a drawer or door, truing up mortise-and-tenon joints, and a hundred other things. Lie-Nielsen uses excellent steel that takes a good edge and stays sharp for a long time. The body is bronze and doesn't rust. I've had this plane for a long time and have dropped it on concrete floors more than once, so it's a little dinged. Still, it works beautifully. My son made the leather case for it.

Photo bottom left: Nat Rea

In a perfect world, doors are flat

When a door goes wrong. *A warped door won't land evenly on the strike side and may protrude beyond the face frame at the top or bottom.*

Theoretically, all doors and face frames are square and flat; in reality, they're often not. A door that's slightly twisted might hit the strike with one corner before the other and not close properly (photos left).

There's no perfect solution to this problem, but you can try adjusting the position of the hinges on either the door or the cabinet to compensate. Take out the single screw you've used, move the hinge in or out, and insert a screw through another hole to fix the hinge in its new position. You can glue a sliver of wood into the first hole and redrill it later.

It may take more than one try and adjustments in both hinges before you find the best compromise. You want the door to close evenly on the stop; a tiny lip at one corner of the opening won't be noticeable.

If you can't get all the way there by adjusting the hinge positions, plane the back side of the door where it first strikes the stop. Reducing the thickness of the door by a few passes of a plane shouldn't be visible to the casual eye.

Shift one hinge. *By moving the location of the hinge diagonally opposite the problem corner, it's possible to make the door land evenly on the strike. Mark the leaf location before moving it.*

Reduce the door. *The alternative is to plane the back side of the door where it hits the strike until the entire side hits evenly.*

and sometimes more accurate to do at least some of the cutting on a tablesaw and, if you have access to one, a jointer. The tool choice is yours.

When I've fitted the door, I place it in the opening and mark the hinge locations. I like to use good-quality brass butt hinges. To me, butt hinges look best on traditional cabinets. I see that classic hinge barrel paired with an even reveal and think, "That looks right." While I appreciate that European hinges are easy to adjust to get a door to hang properly, I have never gotten past how big and bulky they look when you open the door. I've also used some European hinges that will not hold their adjustment. Surface-mounted hinges look fine on some styles of cabinets, but I never seem to build those styles. Piano hinges are great for heavy, specialty doors, but they're not an everyday item. Ditto for concealed hinges. If I were building cabinets that have really contemporary, minimalist styles, I think that my choices might be somewhat different.

The correct reveal is consistent and not too thin

After you've built and installed a few doors, it's easy to see where the pitfalls lie. For the most part, it's all about the reveal. It's tempting to make a very narrow reveal (1/16 in. or less) because it looks so classy when it's done. Tolerances this small, though, lead to trouble. In the summer, even frame-and-panel doors swell slightly; at any time of year, the wood can twist or warp slightly, causing the doors to bind. This is much harder to judge on painted doors because you have to take into account the thickness of the paint when you fit them. Going back to refit a door that's painted is a nuisance.

Doors that are too loose just don't look like the builder cared enough to get it right. An uneven reveal is worse because your eye instantly picks up on it. It's obviously out of level or plumb, like a crooked picture frame on a wall. I think the best compromise is to err a little on the loose side and make the reveal even. □

Photos by Charles Bickford, except where noted.

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