

Sliding Doors for Furniture

Build attractive doors that slide smoothly

BY SETH JANOFSKY

I like to use sliding doors in my work. If they are appropriate for a cabinet I'm making, I'll often choose them over hinged doors. Sliding doors can be either more or less sophisticated in their design and proportions, but making the tracks and fitting the doors are pretty straightforward.

A well-made sliding door is a pleasure to use. When built properly, even a large door will slide almost effortlessly. Although it involves wood sliding on wood, a good door might as well be running on ball bearings. And, speaking for myself, I appreciate not having to go through the tedious process of carefully mortising for hinges and fitting and refitting to get the doors just right. Another convenient attribute of sliding doors is that they are not attached to the cabinet but can be lifted in and out of their tracks at any time.

For practical reasons, however, sliding doors sometimes are inappropriate. Think about the ways the cabinet will be used. Sometimes it's desirable to have all of the doors on a cabinet open at once, in which case hinged doors are a better choice.

The proportion of the doors is another consideration. As a practical guideline, doors will slide well when their height is less than two and a half times their width. As with drawers, the longer the door's running surface relative to its height, the smoother the sliding action.

Doors run much more smoothly when they do not actually rest on the bottom of the grooves in the lower track, but rather on a small ledge. This is achieved by



adding a rabbet at the top and bottom of the door, leaving thick tongues at those locations, and then cutting the grooves to fit the tongues. I usually place this rabbet along the front edge of the door, though most Japanese cabinet doors have this ledge along the back. The tongue does not bottom out in the lower grooves, leaving a gap for crud to gather without derailing the door or scarring the wood.

Start with the tracks

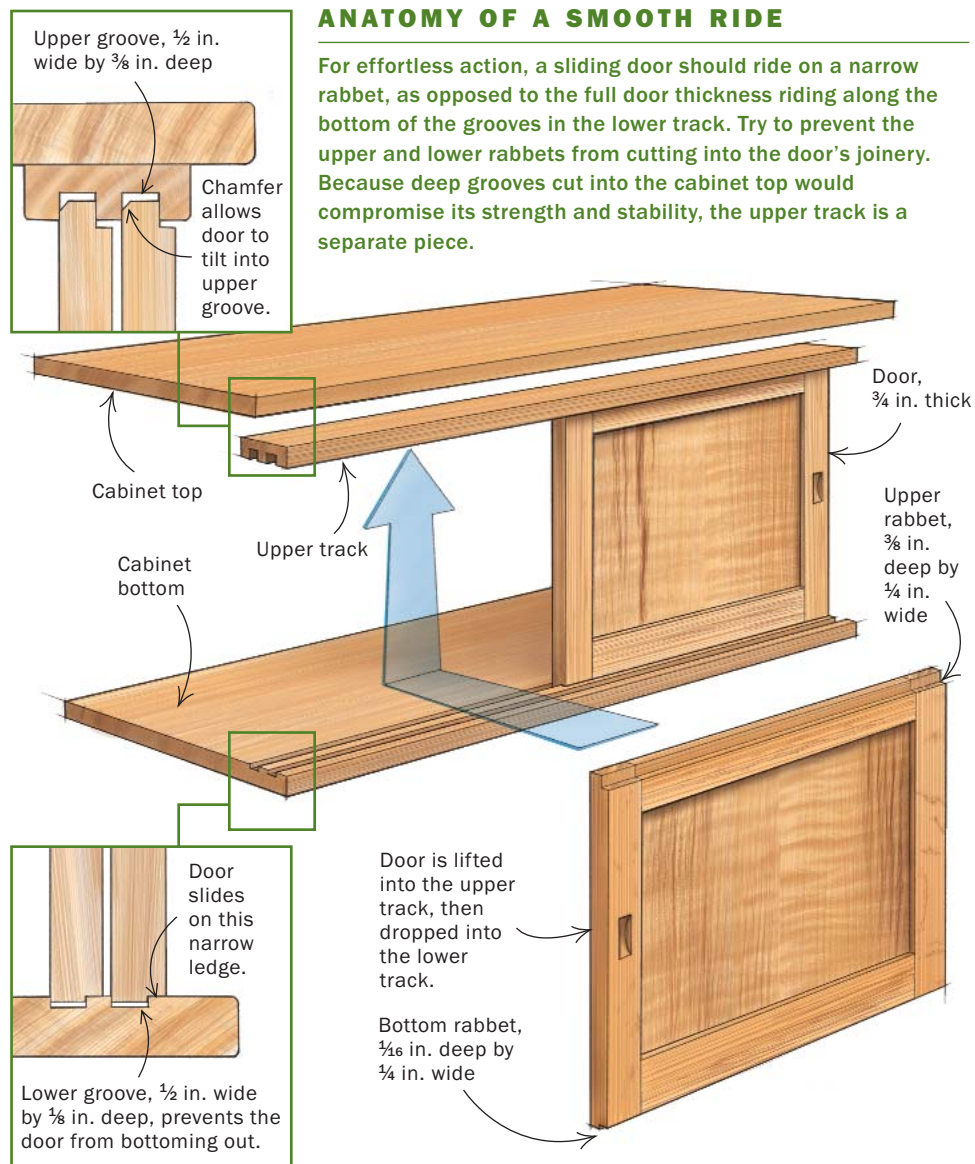
The first thing to note is that the grooves in the lower track can be quite shallow and still function well (in most furniture projects I make the grooves between $\frac{1}{16}$ in. and $\frac{1}{8}$ in. deep). But the grooves in the upper track need to be considerably deeper—not only to prevent the door from falling out of the cabinet but also to allow the door to be lifted off the lower track for installation and removal.

I usually make the upper grooves $\frac{3}{8}$ in. to $\frac{1}{2}$ in. deep. This allows for at least a full $\frac{1}{4}$ in. of penetration in the grooves when the door is in place. If you've never made this kind of door before, it can be helpful to draw the doors and tracks full-size in cross section to be sure that the grooves in the tracks will be aligned and to imagine how the doors will work when being lifted in and out of the tracks.

Generally, the shallow grooves of the lower track are cut into the cabinet bottom. Depending on your choice of cabinet joinery, this may require that you cut stopped

ANATOMY OF A SMOOTH RIDE

For effortless action, a sliding door should ride on a narrow rabbet, as opposed to the full door thickness riding along the bottom of the grooves in the lower track. Try to prevent the upper and lower rabbets from cutting into the door's joinery. Because deep grooves cut into the cabinet top would compromise its strength and stability, the upper track is a separate piece.



CUT GROOVES FOR THE TRACKS WITH A DADO SET



Cut grooves for the lower track. These shallow grooves can be cut directly into the cabinet bottom.



Cut grooves for the upper track. These are deeper than the lower ones and go in a separate piece so as not to weaken the cabinet top.



Install the upper track. Be sure that the grooves in the track are aligned with the corresponding grooves below.

RABBET THE DOORS AND TRIM THEM TO FIT

Rabbet the door to fit the grooves. The bottom and top rabbets are of different heights to match the corresponding grooves.

Fit the door to the grooves. Plane the edges and the rabbets so that the door slides smoothly and the bottom rides on its rabbet, not on its lower edge.

Install the doors. After waxing the track grooves, lift the door into the upper groove, then let it drop into the corresponding lower groove.



grooves, in which case the router is best. Make sure not to overshoot your mark. The ends of the grooves can be squared up even with the cabinet sides after assembly.

If the joinery on your cabinet is such that the side overlaps the bottom, you have it easier: You can just run the grooves straight through the bottom. A dado set is excellent for this.

The upper track is a separate piece—

A cabinet top above a set of sliding doors is by its nature a relatively long expanse of unsupported wood, even when there is a center divider behind the doors anchoring most of the top. Experience has taught me that the deeper upper grooves can destabilize the top. I've seen extreme cases in which moisture changes and a bowed top allowed the door to fall out as it was slid to the center. Making the upper track separately and gluing it to the underside of the cabinet top is a more sound approach.

That being said, in small cabinets or when the top is very thick, the upper track sometimes can be cut directly into the top, just as the lower track is cut into the bottom.

Last, you need to plan the right amount of space between the track grooves, allowing for the fact that the doors are thicker than the grooves. The doors shouldn't need more than $\frac{1}{16}$ in. of space between them, unless you are using the mortised-in type of pulls that protrude slightly from the door (see the bottom photo on the facing page).

Two options for doors

As with most doors, it is a good idea to set aside the wood for them and build the case first. Once you know the exact sizes of the opening and the grooves, you can build the sliding doors to fit.

Sliding doors usually are of two types of construction: plywood or veneered doors with solid edging or frame-and-panel doors. Solid-slab doors are to be avoided because they are prone to warping with moisture changes. If a hinged door cups a bit when the humidity changes, it still will swing well enough; but if a sliding door cups, it stops in its tracks. So make sure all of the parts are square, straight, and stable before cutting joinery and assembling the doors.

Hints for veneered doors and panels—

Although I often prefer the look of frame-and-panel doors, sometimes plywood or

veneered doors are the best choice. The first thing to do is to edge the core with solid wood, making the edgings wide enough to allow the rabbets to be cut away when the doors are fitted to their tracks. Also, consider carefully which type of finger pull to use.

For all veneered doors, but especially for sliding doors that ride in a snug track, make the front and back veneers of the same material and thickness. If you don't believe that different veneers can be a problem, try making a panel with a 1/16-in.-thick veneer of yew on one side and a 1/16-in.-thick veneer of Port Orford cedar on the other, as I once did, and then expose the panel to a change in humidity. Suffice it to say that a little warp can create big problems.

Frame-and-panel doors—Frame-and-panel construction is a little more complicated, because in determining the size of the rails and stiles, you must take into account how much of the rails will disappear into the upper and lower tracks. This obviously will affect the appearance of the door. Also, when using the overall cabinet opening to figure the width of the door panels, it's easy to forget that the center door stiles will overlap. The trick is in the initial figuring of the dimensions.

After checking and rechecking the dimensions, I make the doors about 1/16 in. oversize so that I can trim and square them perfectly during final fitting. Any more trimming than that, and the proportions of the rails and stiles will be noticeably off in the finished door, and the center stiles won't line up accurately, one behind the other.

Pulls should be flush or nearly so

Frame-and-panel sliding doors don't need finger pulls because they can be opened and closed with light finger pressure on the edge of the door frame. But I think pulls are a nice visual accent and make doors look like, well, doors. So I typically use them (see the photos and drawing at right).

I prefer the mortised-in pull, although it takes a bit more time to build. It gives me the opportunity to add a nicely harmonizing wood to the cabinet design. □

Seth Janofsky is a furniture maker and photographer in San Francisco.

Two ways to make sliding-door pulls

Because sliding doors look best when the clearance between them is minimal, a handle or pull shouldn't protrude very far from the door. Janofsky favors a simple finger pull, cut in one of two ways.



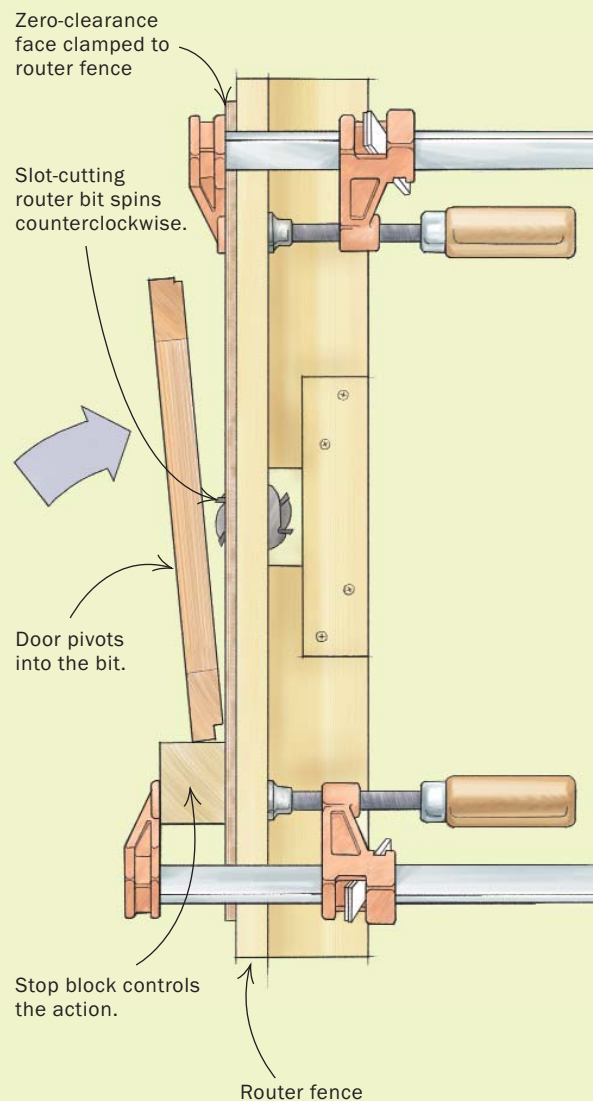
Pivot the door into the bit. The cutting force will want to send the door to the right, so clamp a block on the fence to anchor that end of the door. Test the setup on scrap before risking a finished door.



OPTION 1

Cut directly into the frame

This method is the quickest but involves the most risk to the finished door.



OPTION 2 Mortised into the frame

This method is more time-consuming but less risky because the pull is cut into a separate piece of wood, which in turn is mortised into the door frame. Tip: Cut the notch into a wider board, and then rip away and crosscut the desired block.