

Building with Rabbets and Dadoes

Wall cabinet illustrates the power of simple joinery

BY MICHAEL PEKOVICH

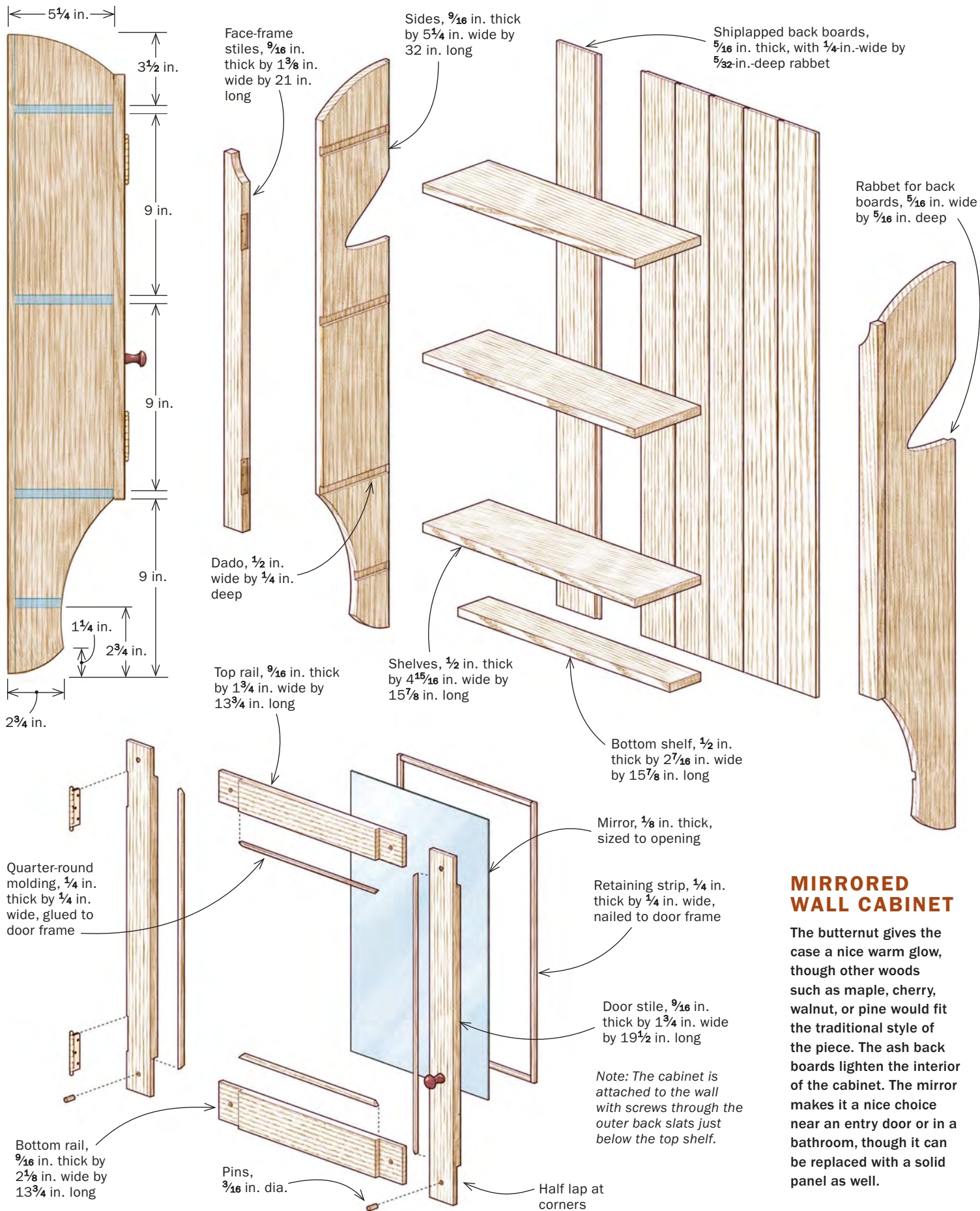


This quick project is a great example of how building with basic joinery doesn't mean limiting the design possibilities or the strength of the construction. Rabbets and dadoes are common to just about everything we make, but they are most often seen as a supporting cast to the more powerful mortise-and-tenons and sophisticated dovetail joinery. That said, used in combination, rabbets and dadoes are a fast and versatile way to build. They are also simple to cut, which makes them a good choice for both hand and machine work. If you told me that I could only use rabbets and dadoes in my work, I think I could build a lot of projects before running out of ideas.

On this cabinet the sides and back boards extend beyond the top and bottom shelves, allowing them to be profiled for a light, fun look. Along with a curve at the top, there's a cove at the bottom that creates a space for a narrow exposed shelf for odds and ends. This is my favorite detail of the piece.

Vertical stiles glued to the front of the case serve as a partial face frame. Visually they add mass to the piece by hiding the narrow front edge of the sides, and they conceal the through-dadoes for the shelves. They are also an important structural element, tying the sides to the shelves and adding strength to the dado joints. The door itself consists of pinned half-lap joints at the corners with applied edging to house the mirror. The back slats also help tie the sides to the shelves at the back of the case and are rabbeted or "shiplapped" where they meet to allow for seasonal movement without creating gaps between the boards. All of these represent smart building solutions that you can put to use on any project design.

Michael Pekovich is a furniture maker, woodworking teacher, and FWW's editor and creative director. His new book, Foundations of Woodworking, is coming in October 2021 from The Taunton Press.



MIRRORED WALL CABINET

The butternut gives the case a nice warm glow, though other woods such as maple, cherry, walnut, or pine would fit the traditional style of the piece. The ash back boards lighten the interior of the cabinet. The mirror makes it a nice choice near an entry door or in a bathroom, though it can be replaced with a solid panel as well.

FAST CASE CONSTRUCTION WITH RABBETS AND DADOES





It's important that the dados on the two case sides are aligned. One way to get consistent results is to use an end stop on a crosscut sled. Another solution, which works for narrower parts, is to cut both at once. That's what I did here. Place the parts side by side with their ends aligned and stretch tape across the joint in a few locations (1). This does a good job of keeping the sides in alignment during the cut. Using this method, all you need to do is mark the dado locations on the edge of one piece and align the pencil marks with the kerf in the crosscut sled (2). Because both parts are cut at once, the dados will line up even if you miss your mark. This is why a pencil mark is fine, and it lets you skip the stop blocks. When dadoing two pieces at once, it's important to keep the stock flat on the sled. I find that a push pad spanning both parts works well (3). The final joinery task on the case is to rabbet the sides for the back boards (4). To dial in the thickness of the shelves, use a test piece dadoed like the sides to gauge your progress at the planer (5). I aim for a fit that's a little too snug, which gives me a chance to plane the parts without creating a gap in the joint (6). Once the joinery is cut, you can saw and smooth the profiles at the top and bottom of the case (7).



A STRATEGY FOR ALIGNING PARTS DURING GLUE-UP



The challenge when gluing up a through-dadoed case is to make sure the shelves are aligned front to back. I use two different methods to ensure good results. At the back of the shelves where their edges need to be flush with the rabbet, I tape a strip of wood into the rabbet that I can use to register them against (1 & 2). To guarantee that the shelves align with the front of the case, I rip them slightly over width and flush them off after assembly. During glue-up, make sure the clamps are aligned over the dadoes, as it's easy to rack the case out of square if you're not paying attention (3). Once the clamps come off, flush the front of the shelves with the case sides (4). Finally, glue on the face-frame stiles (5). I cut the hinge mortises in them before assembly.

A QUICK LESSON IN MAKING A SHIPLAPPED BACK

A shiplapped back consists of slats tacked or screwed to the back of the case. To allow room for seasonal movement, each board is rabbeted to overlap the adjoining one. As simple as it is, here are a couple of tips that can help you end up with a nice case back. The first challenge is calculating the width of the boards. You'll need to account for the width of the opening, the number of boards, the amount of overlap between each board, and finally the desired gap between the boards. It's a lot to keep track of, so I make a full-size drawing to ensure the numbers add up. Even then, I leave the end slats a little wide and then trim them to fit. Next, arrange the slats and mark a triangle across their backs. Now you can mark the rabbet locations on the edges of the slats. You'll need a pair of rabbets at each joint, one on the front face of one piece and the other on the rear face of its mate. It can get a little confusing, so I mark an "O" on every edge that needs a rabbet, and an "X" on those that don't (1). This reduces the head scratching at the tablesaw. I use a pair of push pads to ensure a rabbet of even depth along the length of the slat (2). The end slats play an important role in strengthening the case by tying the sides to the shelves, so I glue them as well as nailing them in place. The center slats are nailed at each shelf, using shims between them to maintain even spacing (3). For larger cases, I'd opt for screws instead of nails.

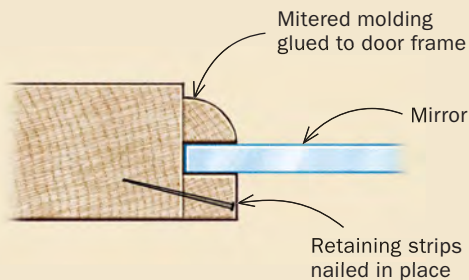


SIMPLE, STRONG DOOR FRAME

A half-lap may not seem like a joint suited for a door frame. Though not commonly used, the joint can handle the job quite well. The broad glue surface of the joint makes it very strong and it's quick to make. I use a miter gauge and dado blade at the tablesaw in the same way that I would cut a tenon, but in this case there's just a single cheek to cut on each piece (1). The half-lap's shortcoming as a frame joint is that it needs a lot of clamps to keep it aligned during glue-up. You'll need a pair of clamps oriented across the width of the frame and a pair along the length as well (2). In addition, you'll need to clamp the joint top to bottom (3). It's not absolutely necessary, but pinning the joint after glue-up adds mechanical strength and creates a nice visual detail.



MITERED EDGING CREATES A SEAT FOR THE MIRROR



Instead of rabbeting the frame for the mirror, you can create a rabbet by gluing mitered molding along the inside edge of the frame. On this piece, quarter-round molding creates a thumbnail profile when it's installed just below the frame surface. Start by routing a roundover on both edges of a wide piece of stock. Then rip a strip off of each edge to create the molding (1). I find the mitering and fitting of the molding is best done by hand. Saw a rough miter on each end leaving the piece overlong. Then use a handplane and shooting board to fine-tune the angle and take it to final length (2). Aim for a snug fit at the corners, but not so tight that the molding bows out at the center. For glue-up I place tape-covered MDF spacers in the opening to register the molding at the right height on the frame edge (3). The tight miters hold the parts in place allowing you to skip the clamps. To secure the mirror, I make square strips and nail them in place without glue. This allows the mirror to be removed later if necessary (4). Gluing rice paper to the back of the mirror offers a nice surprise when the door is opened.