



Rabbeted dovetails keep case square



Spacers simplify case dados



Clean moldings, no measuring

A Better-Built Cabinet

Learn clever construction techniques for case joinery and molding

BY STEVE LATTA

When selecting projects for my woodworking students, I look for pieces that will challenge them, and this wall cabinet fits the bill nicely. Many of its lessons revolve around the case joinery and molding, so

I'll focus on those two aspects of this build.

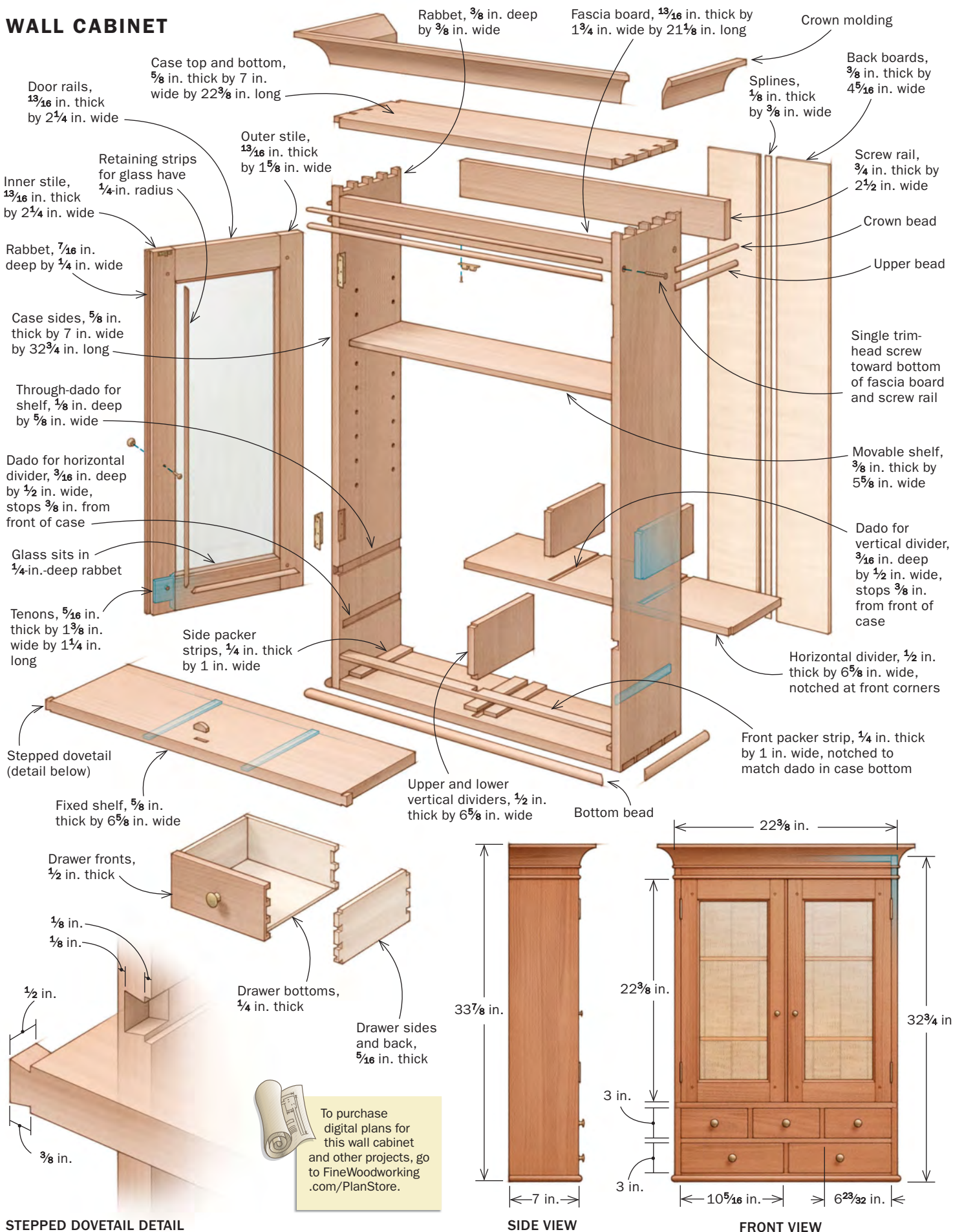
My methods, using spacer blocks and setup pieces, and sizing parts to my cutters, take many of the pitfalls out of building while also streamlining the process. For example,

a setup piece might take two minutes to make but save 30 minutes of fitting; or it might prevent a mistake requiring a lengthy repair. Taken together, the strategies here will have you building better, faster, and more efficiently.

Strategy starts at milling

Furniture making involves a lot of test-fitting. With power tools, this often means moving a fence or blade multiple times while making test cuts as you home in on the correct setup. But doing this kind of

WALL CABINET



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STEPPED DOVETAIL DETAIL

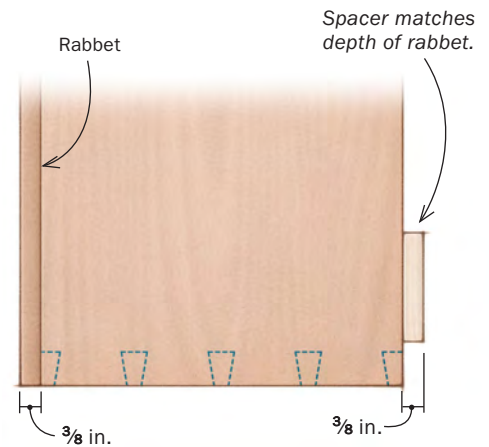
SIDE VIEW

FRONT VIEW

Case dovetails with rabbet



Rabbet at the back of the case calls for a spacer in the front. Cutting tablesawn dovetails is much more efficient if they're symmetrical, letting you register both edges of the board against the same stop block. To make the dovetails symmetrical on a rabbeted workpiece, Latta uses double-sided tape to attach spacer blocks to its front edge that match the depth of the rabbet.

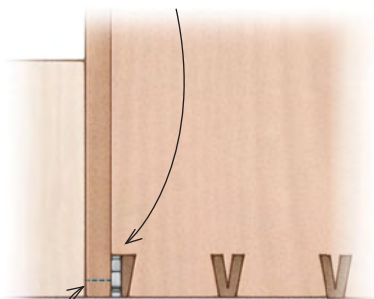


One stop, eight cuts. With the rabbeted edge of the tail board against the stop, Latta cuts one kerf with a specialty dovetail blade, then flips the board so the spacer is against the stop and cuts again. After repeating these cuts on the other end and board, he moves the stop for a new set of cuts (right).



Vertical cut next to the rabbet. Latta uses a standard rip blade set to 90° to clear the waste next to the rabbet, leaving him with a thin tab to trim to length later.

Blade at 90° to remove waste next to rabbet



Leftover tab will be trimmed to fill rabbet in pin board.

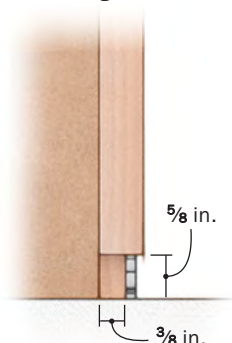


setup on actual furniture parts is asking for trouble. I never set up machines using the actual stock. It is too easy to make a mistake, leaving me to play catchup.

Instead, I make setup pieces. I mill them at the same time and at the same settings as my workpieces. They're invaluable, saving time and leading to cleaner results. For this cabinet, make setup pieces mirroring the length and thickness of the top and bottom and the upper shelf. A 5-in. offcut from the top or bottom works great for laying out the case dovetails.

Rabbet the dovetails.

After cutting the shoulder, Latta installs a high fence before cutting the cheek.



TIP

SETUP STICK

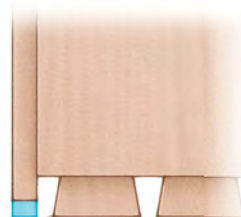
When you rabbet the tail boards, rabbet a setup stick too. This piece is the same length as the cabinet's top and bottom. By rabbeting it with the same settings as the dovetails, you'll have a stick with an equal distance between shoulders, helping you keep the inside of the cabinet square later.



Transfer the tails. Keeping the rabbet's shoulder tight to the pin board, Latta uses a knife to scribe the tails' shape onto the pin board.



Plane blade rides rabbet to mark length of tab. This tab needs to fill the rabbet. To scribe it accurately, Latta scores it by registering a plane blade off the bottom of the rabbet (left). After that, he saws it to length (below).



Size to your tooling as well. Don't just mill the 5/8-in.-thick main shelf to 0.625 in. on your dial indicator. Rather, because it fits in a dado that I rout, I thickness it to a sample groove cut with the actual 5/8-in. router bit. Do the same for the 1/2-in.-thick components.

Finally, build from the outside in using your actual case. Don't get caught up in some measured drawing. In the trade, we call this "verify in field," or VIF. It is a matter of accepting reality, not making excuses for sloppy work. For example, if you have to plane your sides slightly under 5/8 in.

to get rid of roughness, do it. Later, pull dimensions, like shoulder-to-shoulder lengths, from the case itself, not a drawing, to maintain accuracy. In other words, verify in the field.

Smarter dovetails on the tablesaw

Hand-cut dovetails are an essential skill, but for cutting them on the tablesaw, I use two miter gauges with an auxiliary fence combined with a specialty dovetail blade ground to 10°. When setting the height of the blade, I use an offcut with the dovetail baseline scribed onto it.



Spacers simplify case dadoes



Rout the dadoes for the shelf and divider. The upper dado is through, but the lower one is stopped. Latta clamps an MDF spacer square to the case to ride a short pattern bit against. A piece of scrap secured to the case's front edge prevents any blowout on the workpiece.

Setup stick ensures accurate measurement between dadoes. With the case dry-fitted, put the rabbeted setup stick between the dadoes (right). This will push out any cup, giving you an accurate measurement (below) for cutting shelves to length.



The most efficient option when cutting these tails is to lay them out symmetrically. This lets you lay out the tails on one end, set a movable stop, and flip the boards edge for edge and end for end for the other tails. The rabbet at the back of the case could interfere with this, but there's an easy workaround: a spacer.

To let me flip the stock, I attach a $\frac{3}{8}$ -in.-thick spacer to the case's front edge. This spacer matches the depth of the rabbet, thereby offsetting the case that amount to set the stage for easy symmetrical tails.

At the end, return the blade to 90° to cut the space next to the rabbet, leaving you with straight tabs that will fill the rabbets in the case sides.

Next, rabbet the tails. This will help with registration



Cut dovetails on the fixed shelf. The fixed shelf is installed using a stepped dovetail. After using a setup piece to set the correct bit height, Latta routs a dovetail across both ends of the shelf (top). Then he trims away all but the front inch of the dovetail at the scrollsaw (bottom).



Transfer the tail to the case. With the shelf dry-fitted in the case, Latta uses a sharp knife to outline the tail on the case sides. Make sure the shelf is seated tightly in the dados.



Saw and chisel out the waste. Remove most of the waste with angled sawcuts and rough chisel work. Then take light paring cuts to finish the housing.



Dry-fit the dovetails. Lightly tap the shelf into place, driving each end evenly to avoid racking.

when you transfer the tail layout to the pin board. Start with the rabbet's shoulder cut. It must be perfectly in line with the dovetail baseline. Rather than risk my actual case parts, I use the scrap that has the tails' baseline scribed onto it to position the rip fence. Rabbet the setup stick that matches the

top and bottom too. Finally, lay out and cut the pins, then trim the tabs to length.

Dadoes and dovetails

The fixed shelf and horizontal divider sit in dadoes, which I rout with a $\frac{5}{8}$ -in. bit and $\frac{1}{2}$ -in. bit, respectively. The upper dado runs the width of the

case side and has a dovetailed housing in front; the lower dado is stopped.

To rout these dadoes, I register a short pattern bit off MDF spacers. This type of bare-bones fence cuts down on errors due to measuring. Using a ruler to lay out the dadoes and then aligning a fence to each

line is inviting mistakes and inconsistency. Using a spacer, on the other hand, all but guarantees repeatability. Later, I use different spacers for the dadoes for the vertical dividers.

The fixed shelf is special. It is mounted via a stepped dovetail-and-dado joint. Although it's not difficult, it has certain



Dry-fit the horizontal divider before laying out dadoes for the vertical ones. Instead of measuring to lay out the dadoes, use MDF spacers referenced off the case sides, a more accurate and repeatable method.



Rout the dadoes in the shelf and horizontal divider. Remove the workpieces to rout them. As he did with the previous dadoes, Latta registers a pattern bit off a fence.

Build from the outside in

Glue the carcass together and check for square. With well-cut dovetails, you won't need clamps unless you have to square up the case. To check, measure opposing corner-to-corner distances. If they're equal, the case is square.



nuances. Done incorrectly, it can distort the case, causing headaches later on. So just as with the rest of the build, accuracy is key, and setup pieces are the way to get there.

Assemble the case and check for square. Insert the rabbeted setup stick between the pairs of shelf dados to guarantee the case sides are spaced properly for measurement. Each dovetail is $\frac{3}{8}$ in. long, so take the distance between the bottoms of the dados and add $\frac{3}{4}$ in. to get the length of the shelf. Cut the shelf to length, leaving it overwide at this point, and cut a setup strip to the same length. To cut the tails, I use a router table with a large dovetail bit buried into a tall zero-clearance fence. The setup strip helps me dial in the router table's settings. You want as wide a tail as possible, and the shoulder-to-shoulder distance should match the dado-to-dado distance on the case.

When the setup is correct, rout a dovetail on each end of the shelf and then crosscut off all but the front inch. Insert the shelf into the dados,



Install and flush the shelf. After cutting the stepped dovetails, rip the shelf just slightly over width and glue it in place. Then carefully plane it flush.



Mark and cut the divider's notch. The horizontal divider fits in a stopped dado and gets notched at the front. To mark for the notch, Latta slides the divider in place and scribes it with a chisel flush to the case.



Add the packer strips. Thin strips glued to the bottom act as runners for the lower drawers, elevating them and preventing contact with the applied bead below. Notch the front packer to match the case dado.



Mark the vertical dividers' lengths before gluing them in. The horizontal and vertical dividers, still overwide here, get ripped to the same size, so you need to mark only one. Be sure to notch these dividers too.

check for square, and transfer the dovetail to the case. Form the dovetail housing only $\frac{1}{2}$ in. into the case so that when you insert the shelf, it sticks out $\frac{1}{2}$ in. Leaving it proud protects the tails from your hammer blows during test fitting. Rip it close to final width when you're ready to assemble the case.

Before gluing up the case, bore the shelf-pin holes for the movable shelves. I use dividers for layout. Finally, glue up the case, install the shelf, and plane it flush. Notch and install the dividers, put the packer strips in place, and attach the fascia board and screw rail.

Strategic moldings

The cabinet's moldings are fairly simple: two beads and a cove up top, and a single large bead at the bottom. Cutting and installing them correctly, however, takes finesse.

Tablesawing the cove molding is simple but slow. That's because you can take only light passes, raising the blade a slight amount after each cut. Adjust the angle of the auxiliary fence to dial in the shape.

The trick with the bead moldings is in how you handle them. Since they're too small to be machined safely or well one by one, keep the stock overlong and overwide for as long as you can. Also, because the beading bits trim the entire edge of the board, just like a jointer does, I use an offset fence at the router table. The outfeed side of the fence is proud of the infeed side by $\frac{1}{32}$ in. This way, the workpiece is supported on both sides of the cut.

When I hang moldings, I miter, fit, and mount the center piece first. Any tweaking will occur on the side pieces. This way, I'm futzing with fewer



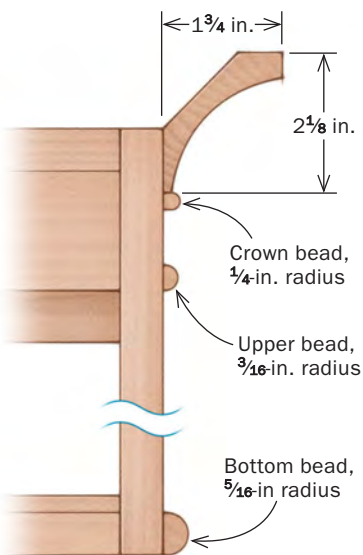
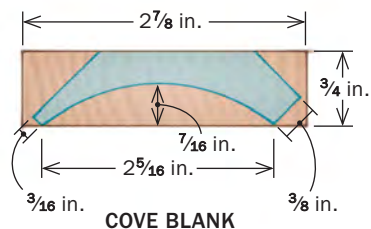
Glue in the fascia and screw rail.

The fascia at the front provides a place to attach the molding; the screw rail at the back lets you mount the cabinet to the wall.

Carefully positioned screws will be concealed.

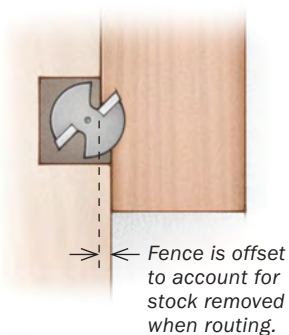
Screws add extra holding power for the fascia and screw rail. Place them so they'll be hidden by the cabinet's molding.

Clean moldings, no measuring



Cove the crown. Ride the workpiece against a fence clamped at an angle. Keep the stock pressed firmly to the table as well. With the blade at 90°, take light passes, raising the blade slightly each time.

Make an offset fence for routing the beads. Stepping back the infeed side $\frac{1}{32}$ in. ensures board is supported on both sides of cut.



Rout beads on wide stock, then rip them free. The wide blank allows you to work safely, keeping your fingers out of harm's way. Sand the beads before sawing them off.

miters. Once the miters are tight, I mark and trim the side pieces to length. I make these return cuts last because they're simple straight cuts.

I use spacers again when I am attaching the molding at the top of the case for easy, consistent results. After installing the bead in line with the bottom edge of the fascia board, I lay $\frac{15}{16}$ -in.-wide spac-

ers right above it. They guarantee the crown bead is parallel to the lower one. Install the coved piece directly above the crown bead. The bead on the bottom of the cabinet is simply flush with the bottom of the case.

Wrap up the case

Three tasks remain before I add finish: adding the back-

boards, and making the drawers and the doors.

The back consists of $\frac{3}{8}$ -in.-thick curly maple boards that have their edges beveled and a loose spline between them. These boards are simply nailed in place. Leave about $\frac{1}{16}$ in. between the boards to allow for a little movement. The drawers are dovetailed and planed to fit. When I can, I like to use

vintage glass in these doors. It adds a lot of subtle character.

I give everything a final sanding and finish the cabinet with General Finishes Arm-R-Seal. Four to five coats with plenty of time to dry in between should do it. □

Contributing editor Steve Latta teaches woodworking at Thaddeus Stevens College in Lancaster, Pa.

TIP



Bigger bead goes on first. The bottom of this bead sits flush with the bottom edge of the fascia board. Start with the front piece, mitering it to the proper length and pinning it in place, before attaching the two side pieces. Adjust the miters only on the side moldings.



SPACERS HELP WITH CROWN BEAD

By using a pair of plywood spacers ripped to the right width, Latta ensures the two beads are parallel.



Cut the crown in a cradle. The cradle, simply an L of wood, improves indexing and reduces tearout. It also works well for mitering the beads.



Crown molding is flush to crown bead. Brads hold the molding in place. As you did with the beads, miter and attach the front piece of crown before moving to the sides.

