Bookshelves in a Day

BY STEVE LATTA

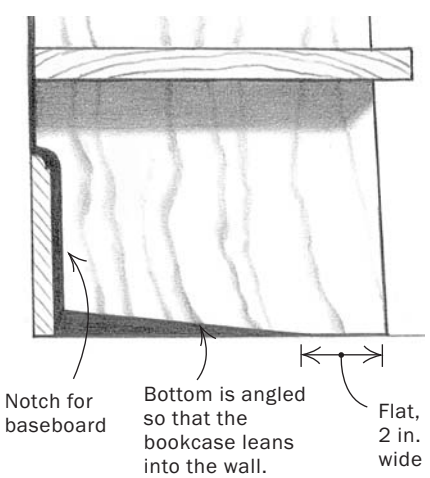
I get the most pure enjoyment from reproducing 18th-century furniture, but every now and then it's nice to break out of that mode and dive into a project that I can knock out in a day or two. This set of bookshelves is just such a beast, and it will cover a lot of wall in the little amount of time required to build it. I've made three versions of this design since I built the first one about 10 years ago. The first has lived in three separate homes, but now it fits the dining room in our new home.

There are some nice features about this design. When you combine the simplicity of the joinery with the absence of hardware, you have a bookcase that can be taken apart and reassembled in minutes. The angle on the bottom of each vertical makes the case lean toward the wall, so the more weight that you put on it, the more secure it is. In most cases, there is no need to tie it to the wall. Although, if you have kids, you may want to add a few fasteners as a precaution. A couple of corner braces attached under the bottom shelf and along the top shelf should do the trick.

Choose your wood and size the joints

This is a great project for using up old scraps. For these units, I used some less than perfectly clear leftovers of walnut for the verticals and dimensioned #2 white pine 1x12s for the shelves. If you don't have boards wide enough to make the verticals (mine are 10 in. wide at the bottom), you can glue them up from smaller boards, but make sure the front piece is wide enough that you won't expose a glueline when you cut the taper on the front edge. For the pine shelves, I bought more width than I needed so that I could cut around knots and defects to end up with clear front edges on all of them.

BOTTOM DETAIL



The shelves and the verticals lock together with what I call a housed lap joint (see the drawing on p. 34). The shelves are notched wherever they meet a vertical, and the verticals are notched and dadoed on both sides so that the shelves sit firmly on the shoulders of the dadoes. I cut the dadoes slightly wider (1/32 in. or so) than the shelf material is thick. That way, the pieces slide together fairly easily, even after a finish has been applied to them. Don't be obsessive about getting a microfine fit. The joy of this design is lost if you end up having to put together the unit by beating it with a block of wood and a hammer.

In figuring sizes and spacing for the shelves, I kept it simple. The bottom shelf

Knockdown unit is engineered for stability and speedy assembly

sits high enough off the floor (7 in.) to clear the tallest baseboard in an old house where we used to live. The spacing between shelves decreases in 1-in. increments from the bottom to the top.

Cut the dadoes before tapering the verticals

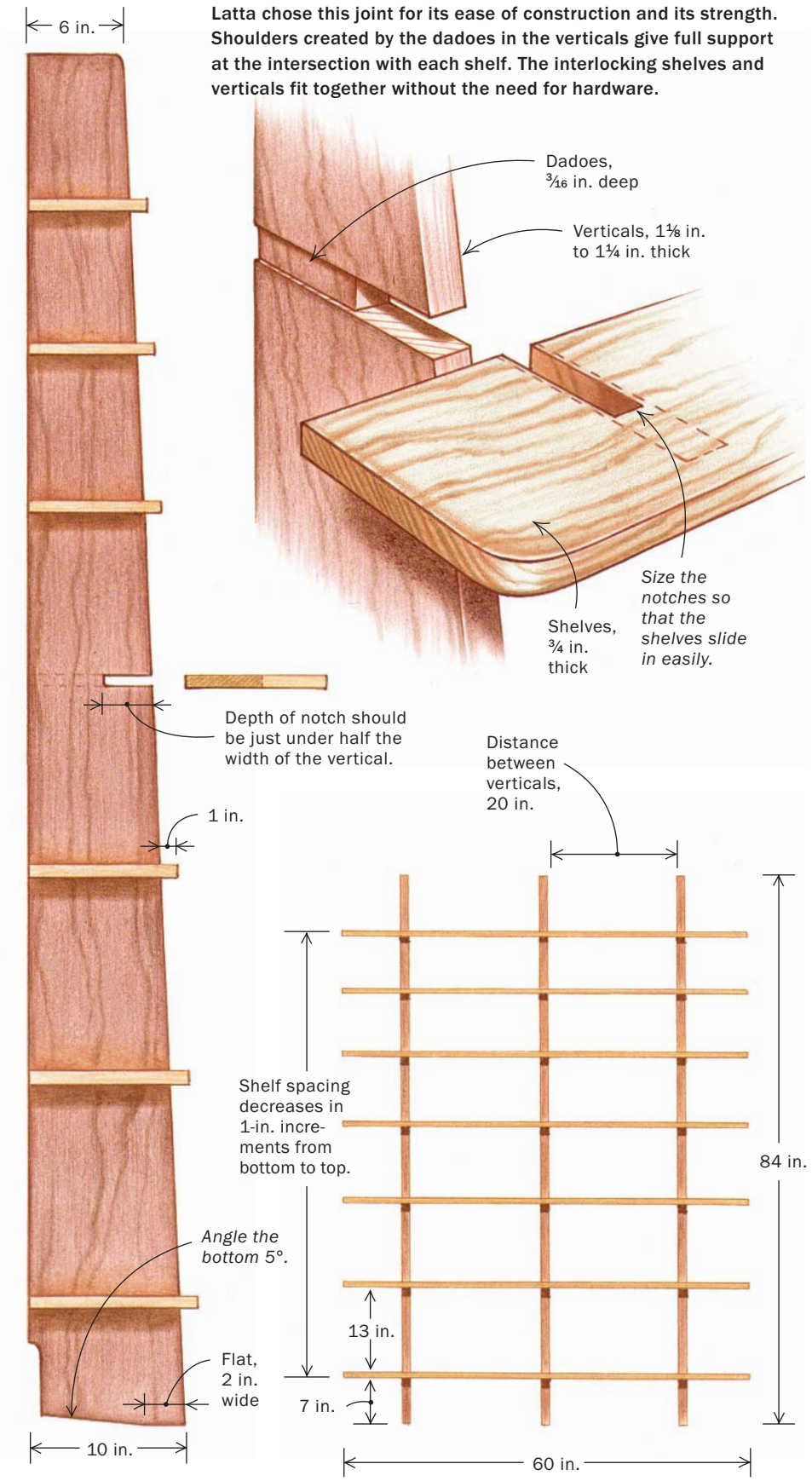
Shoot for a thickness on the verticals of around 1⅛ in. to 1¼ in. (Make sure you leave some extra scrap pieces to use in setting up the joinery cuts.) You can cut the joinery using a router, a radial-arm saw or a tablesaw with a carriage jig like the one I used (see the photos on pp. 34-35). If you use a tablesaw, you'll need a long auxiliary fence to keep the stock steady. You'll also need to support the weight of the stock that hangs out over the end of the saw table.

Before cutting the joints in the verticals, make a practice cut halfway through a scrap piece of shelf stock. Use this sample to set the depth of the dadoes in the verticals. To be sure all of the verticals are dadoed correctly, first cut them all to length and then use a story stick to mark the loca-

Photos: William Duckworth

A HOUSED LAP JOINT CONNECTS THE PARTS

Latta chose this joint for its ease of construction and its strength. Shoulders created by the dadoes in the verticals give full support at the intersection with each shelf. The interlocking shelves and verticals fit together without the need for hardware.



Dado one side at a time. *After setting the blades to the right height, make all of the dado cuts on one side of the verticals. Transfer the cut lines for the dadoes on the second side with a square and a sharp pencil.*

tions of the dadoes on the front edges of the verticals. A pencil line provides a reference to cut to, and a blue chalkline indicates on which side of the line to cut.

To set the depth of the dadoes, take a scrap from one of the verticals and set it against a stop block on the carriage. Raise the dado blades, make a cut, flip over the scrap and make another cut opposite the first. Adjust the height of the dado blades until the notched shelf sample slides easily onto the dadoed sample without excessive play. Now begin making the dadoes on only one side of each vertical. Then use a small square and a sharp pencil to mark the dado cuts across the front edges of all the verticals. Flip over the verticals and, lining up the pencil lines with the kerf in the carriage, cut the dadoes on the other sides of the verticals. Hold-down clamps keep the boards from sliding out of position.

After cutting the dadoes, lay out the taper on one of the verticals and mark each dado for where a chunk of waste needs to be taken out to receive the shelf. Use a sabersaw to cut away most of the waste. Stay about 1/16 in. from the edges of the dado and clean up using a router with a bearing-guided, flush-trimming bit.

Cut the taper on one vertical using the bandsaw and then, with a jointer or a handplane, clean up that edge. Use the first ver-

Drawings: Michael Gellatly

Cut away the wood you don't need. *Housed lap joints require you to remove some wood from all of the pieces being joined. In the verticals, remove most of the waste with a sabersaw.*

Clean up the sabersaw cut. *Use a router equipped with a bearing-guided, flush-trimming bit.*

tical as a pattern to mark and cut the others. The radius on the top front corners of the verticals (and on the ends of the shelves) can be cut a number of ways. If I'm doing lots of shelves and supports, I make a template out of medium-density fiberboard (MDF) and flush-cut the pieces using a router. Once the verticals have been cut to shape, soften the outside edges with a ⅛-in. roundover bit. Finally, notch the bottom back edge of each of the verticals to clear any baseboard on the wall where they will live. Now use a sliding compound-miter saw to make a 5° angled cut on the back edge of the bottom of each vertical, leaving a 2-in.-wide flat at the front.

Notch the shelves to fit

After ripping the shelves to width, mark out the notches from the back edge. Cut the notches for the shelves using the same dado setup you used for the verticals, and set up the carriage with a stop block. Use the hold-down clamps on blocks to grip the shelves firmly. Raise the dado blades as high as possible to get the flattest cut on the downward arc. Setting the dado blades at full height is dangerous, so keep your hands completely away from the cut. After cutting all of the shelves at one setting, reset the stop block and repeat the process until all of the notches have been cut. Make any necessary adjustments in the length of the notches so that the shelves line up with the back edge of the verticals. When you are done notching, radius the ends of the shelves and round over the front top and bottom edges. If your layout and machining have been accurate, all of the pieces should slide together easily. At this point they're ready for a final sanding and finish.

You can assemble this bookcase by yourself, but it never hurts to have a second pair of hands to help out. Lean the verticals against the wall and slide the bottom shelf into place. One by one, work your way up to the top. This process should take only a few minutes. Use small shims with double-sided carpet tape to level the case. If the unit is installed on a slippery wood or tile floor, you can mount a few small metal corner braces beneath the bottom shelf. □

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Notch cuts require clamps. *While plowing out the notches for all of the shelves, Latta clamps the workpiece in place for each cut, being careful to keep his hands well clear of the exposed dado blades.*