Shelving, Plain and Simple

Strong, versatile and easy to make, these shelf units use inexpensive materials

by M. Felix Marti

A versatile design for a variety of uses. *These shelves can be sized to fit any location.*

As unassuming as these shelves are, they have many of the features that I like most in furniture. They're lightweight, sturdy and use simple, effective joinery. The design I use evolved partly from childhood memories of shelves in our house and partly from the built-in storage-shelf system that I now install in houses. Plastic laminate glued to both sides of medium-density fiberboard (MDF) or particleboard makes the shelving stiff. Tight-fitting dado joints and front and rear uprights at right angles to each other make the assembly strong and resistant to racking.

Laminate shelf stock first, and then cut to size

I glue the plastic laminate to a sheet of ⅝-in. particleboard or MDF. Melamine could be a less-expensive and, perhaps, a less-stiff alternative, but I have not used it for my shelves. A cabinet-component manufacturer is a good source of laminated stock if you don't want to make it yourself.

With a new shopmade throat plate in my tablesaw, I cut the shelves to size using a Forrest Duraline HI-A/T blade made specifically for cutting double-sided laminated stock (Forrest Manufacturing Co., Inc., 461 River Road, Clifton, NJ 07014; 800-733-7111). There is virtually no chipping on the down side of the shelf stock.

Front and rear uprights, *oriented at right angles to each other, provide lateral stability.*

Dado material for corner uprights

I lay out the shelf spacing on a 9-in.-wide oak board. This width will yield four 2-in.-wide upright corner posts with allowance for kerfs and some cleanup. Using a ½-in. down-shear bit in my router and the jig shown in figure 1 on the facing page, I plow ¼-in.-deep dadoes across the full 9-in. width. The down-shear bit makes a clean cut, and careful jig construction yields a dado so tight I have to tap the uprights onto the shelf stock. Then I rip this board into pieces a little wider than 2 in., which I feed on edge through a planer to produce uniform finished widths. Finally, I round over the corners and edges.

Assemble shelves and uprights

I now fit the shelf into the dadoes of the upright pieces, so the shelf is flush with the edge of the upright. I drill through the corner uprights using a tapered bit and counterbore. I use a 2-in. particleboard (not drywall) screw to fasten the pieces together. The deeper thread of the particleboard screw makes a strong joint. An

Photo at left: author; photo at right: Alec Waters

oak plug glued into the counterbore finishes this simple connection.

For the shelf-nosing stock, I plane a wide board a hair thicker than the thickness of the shelves and cut it to length. On my router table, I round over the ends and edges of this board for the front nosing and rip the rounded edge to a ¼-in. thickness. I round over this fresh edge on the router table and rip the next ¼-in. piece, alternating between router table and tablesaw until I have enough nosing for the job.

I glue and staple the nosing to the shelf edges using a narrow-crown pneumatic stapler. The nosing is applied as shown in figure 2. To me, the effect is a fully nosed shelf let into the uprights. A scraper flushes the nosing to the shelf surface. Using dry stock for the nosing guarantees that it won't shrink away from flush later.

By maintaining sharp planer knives and feeding stock slowly on the router table, I've just about eliminated any sanding. To complete the job, I apply a penetrating oil finish and fill the small wounds left by the staples with a crayon-type putty stick.

Try different materials or knockdown construction

I could get very different results by using the same basic idea and unusual materials. Marble or glass could be epoxied into dadoes in wood or metal uprights, or different woods could be used for the shelves and uprights (although I'd be concerned about shrinkage in the shelf thickness, which would reduce the effectiveness of the dado joint). For a knockdown version, I'd use threaded inserts in the shelves and machine screws instead of particleboard screws. Buttons would conceal the screws.

I'm pleased with the low cost, appearance and strength of these units—happily, so is my wife, who has surrounded her weaving studio with them. □

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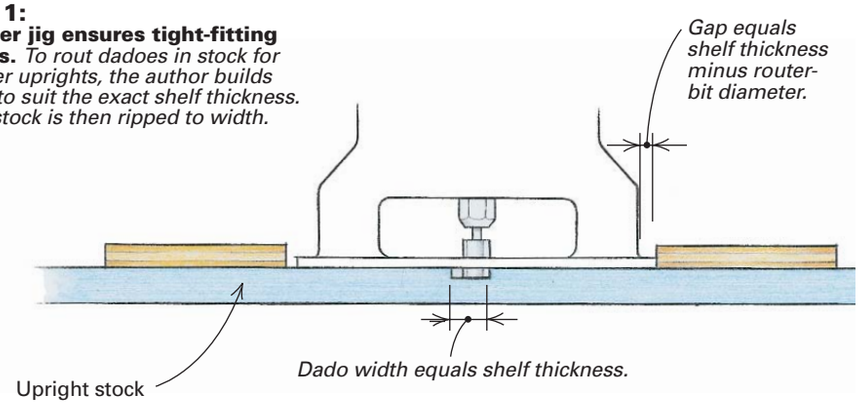
Fig. 1:
Router jig ensures tight-fitting joints. *To rout dadoes in stock for corner uprights, the author builds a jig to suit the exact shelf thickness. The stock is then ripped to width.*



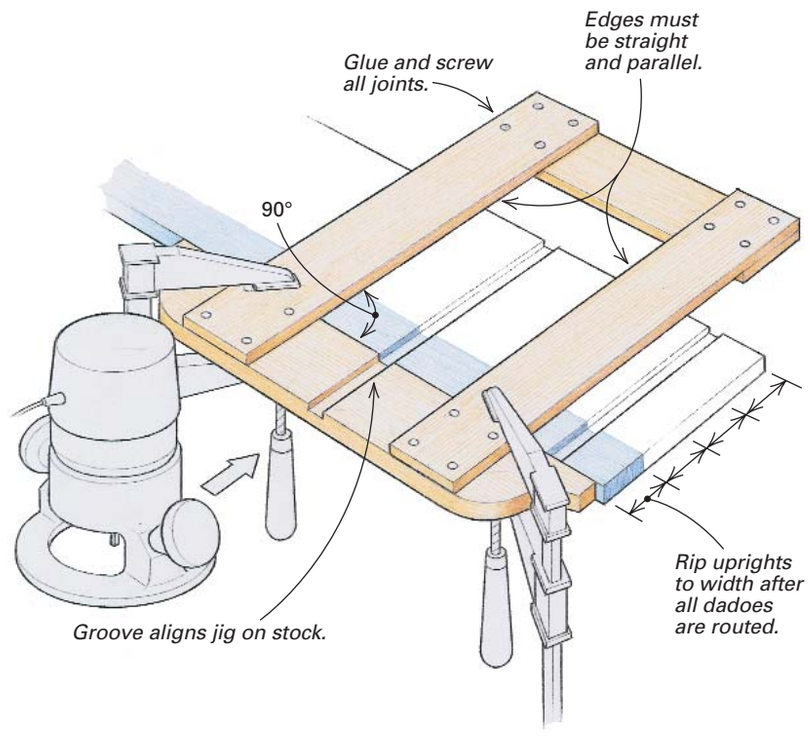
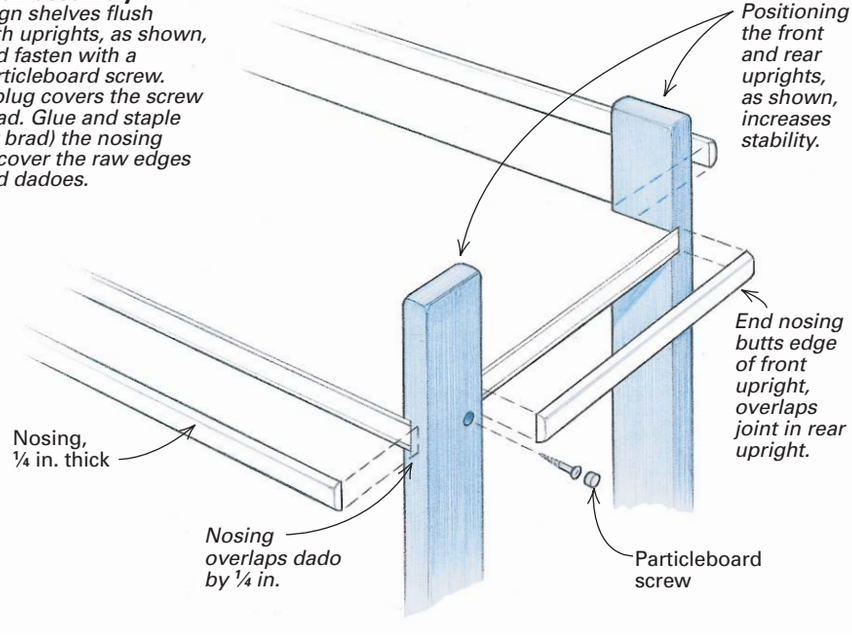


Fig. 2:
Shelf assembly.
Align shelves flush with uprights, as shown, and fasten with a particleboard screw. A plug covers the screw head. Glue and staple (or brad) the nosing to cover the raw edges and dadoes.



Drawings: Kathleen Rushton