

# Building a Mantel

A frame-and-panel base topped with a broad shelf dresses up a plain fireplace

BY DAVID GETTS

**W**henever I see a skimpy mantel shelf all by itself at the top of a fireplace, I think of Hans Christian Andersen's classic tale "The Emperor's New Clothes." The emperor, as you may remember, had been conned into thinking he had bought a handsome set of clothes when in fact all he got was embarrassed. When a builder trims out a fireplace with an under-size shelf and then calls it a mantel, I think it adds up to about the same thing.

Most fireplaces are in the living room or family room, parts of the house that typically get a lot of use. But many houses I see have only minimal millwork in these rooms, baseboard and crown molding. Add a mantel, whether simple or elaborate in design, and the room becomes far more interesting. Many mantels (such as this one) can be built and installed in just a few days, so the investment is minimal when compared with the value it adds to a house.

A first step is deciding whether the mantel will be painted or stained. If it is to be painted, there are a number of stock moldings available that will simplify the project and lower the cost. When I make a paint-grade mantel, I usually use medium-density fiberboard (MDF) for the box, the part of the assembly that wraps around the fireplace opening and supports the mantel shelf. Moldings can be MDF, softwood or a combination of both.

When you're considering a stain-grade mantel, remember that your selection of moldings will be reduced, and availability will depend on where you live. For example, the only stock stain-grade moldings that are readily available in my area are oak, hemlock and possibly Philippine mahogany, none of which I really like. When I need something else, I have it milled by a local



**A simple mantel hides some ugly brick.** With the stove relit, the author and his dog, Zoe, enjoy a newly installed Douglas-fir mantel. Simple in design and easy to build, the mantel makes an elegant centerpiece to this living room.

shop. The crown molding for this mantel was custom-milled.

In choosing materials for a fireplace mantel, I'm guided by what kinds of wood are used elsewhere in the house. This mantel is made from clear, vertical-grain Douglas fir, which has a simplicity and beauty that seems a good fit with its relatively rustic surroundings. Its simple frame-and-panel construction accentuates the charm of the wood. And

it does a wonderful job of hiding a lot of really ugly brick.

I usually make one trip to the job site for all the dimensions I need, then go back to my shop and build the mantel. In addition to all the dimensions I need for construction, there are two things I always check carefully. One is the wall where the mantel will be fastened. To install a mantel, I run screws through the two vertical pilasters and into blocking I've

## MAKING FRAME-AND-PANEL PARTS ON A TABLE SAW

This fireplace mantel starts with three frames built from  $\frac{3}{4}$ -in. solid stock, with flat panels of  $\frac{1}{4}$ -in. Douglas-fir plywood. Slots on the inside edges of the frame pieces are  $\frac{1}{4}$  in. wide and  $\frac{1}{2}$  in. deep and accommodate both the veneered panels and stub tenons on the rails. Check the panel thickness before cutting the slots. Veneer-core plywood usually runs about  $\frac{3}{16}$  in. thick while veneer laid up on a core of MDF often measures a full  $\frac{1}{4}$  in. thick. When setting up the cuts, use test pieces.



**1. Cut grooves in all frame pieces.** A stack dado blade makes it possible to cut grooves in the frame pieces in one pass. This groove is cut slightly off-center.

attached to the wall. I make a note of what type of fasteners I'll need later for the blocking. In addition, I check the wall for plumb. If the wall weaves like a snake, I'll know to make a generous scribe allowance on the short returns of the pilasters where they intersect the wall.

The second thing I check carefully is the proper clearance from the firebox (or fireplace insert) to any combustible materials. If

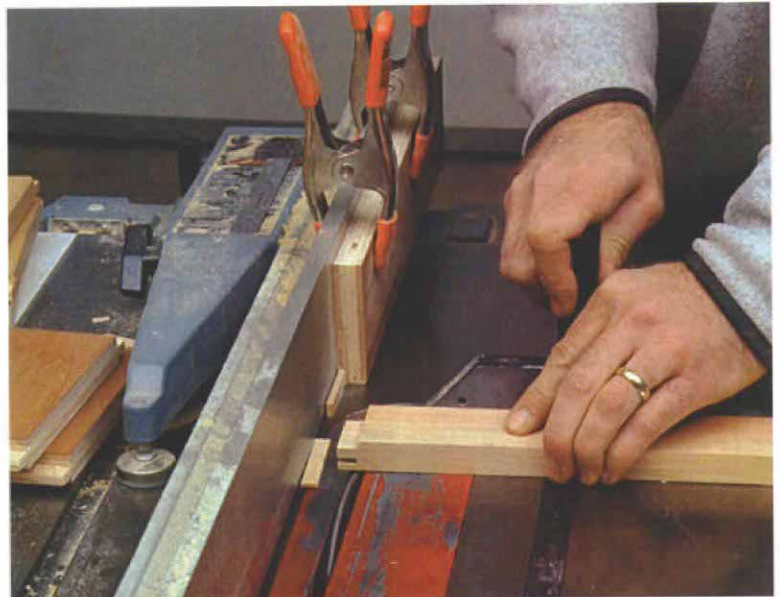
you have a zero-clearance stove, this dimension is less critical. Otherwise, check local codes before designing the mantel. The Uniform Building Code, for example, suggests a distance of 6 in. between the firebox opening and any combustible materials. Also, the UBC recommends that no combustible material within 12 in. of the fireplace opening should project more than  $\frac{1}{8}$  in. from the wall for each 1-in. clearance from the firebox.



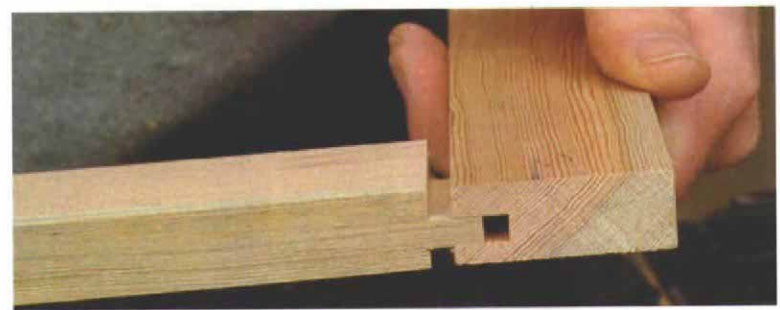
**2. Rails get stub tenons.** A tenoning jig ensures accurate cheek cuts for tenons on the ends of the rails.



**1. What it should look like.** Cheek cuts should line up with the groove in the stiles.



**4. Reset the blade for the shoulder cuts.** Two passes using an index block clamped to the fence and a miter gauge produce the tenon shoulders. The block prevents offcuts from getting jammed.



**5. The right fit.** When the tenon is sized correctly, it makes a snug but nonbinding fit in the groove. A tenon that's too fat may split the stile; a baggy fit makes a weak glue joint.

This mantel, like many I do, is built in two pieces—a three-sided surround and a separate top—and then moved to the site for installation. The more I can do in the shop, the better. But before I build anything, I make a set of shop drawings. Drawings help me to plan better and to reduce error. D

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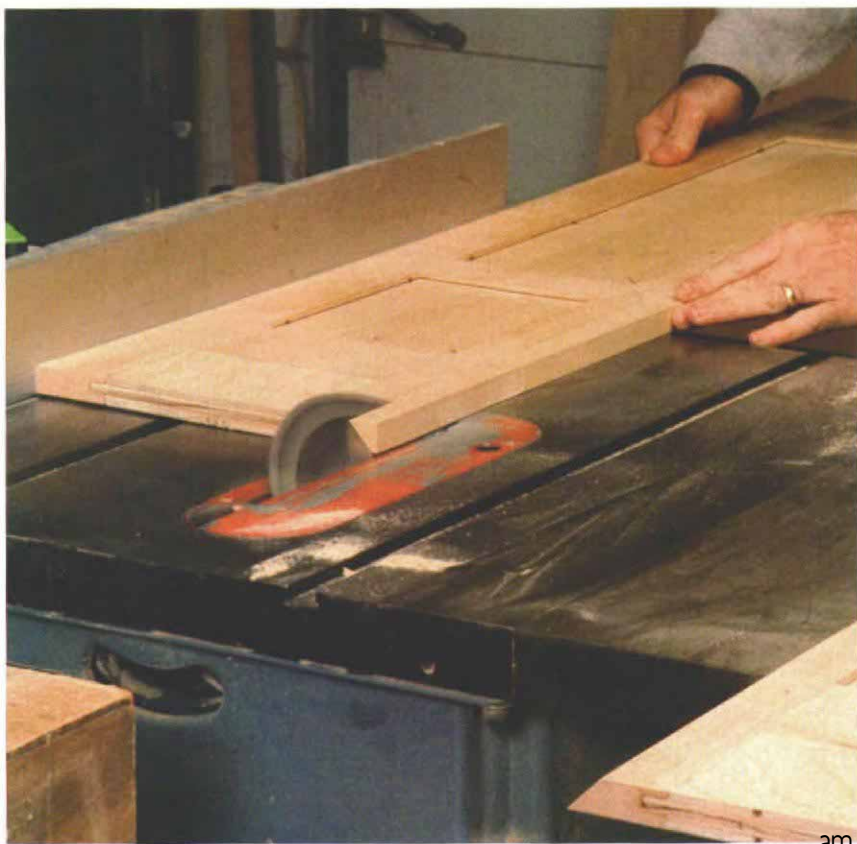


## MAKING A CENTER PANEL AND TWO VERTICAL PILASTERS

The author sizes plywood panels by dry-fitting rails to stiles and measuring the openings. Ideally, panels will be shy of the bottom of the groove by about  $\frac{1}{32}$  in., so he adds 1 in. to dimensions for each opening and then subtracts  $\frac{1}{16}$  in. After the three panels have been glued up, long edges are mitered and then joined with biscuits to short returns to give the pieces some depth.



**1. Don't skip the dry fit.** Nothing is worse than gluing up all the parts and then discovering that something doesn't fit. A dry fit gives the author a chance to make minor corrections.



**2. Miter the panel edges.** Both pilasters get short returns, and a mitered joint looks better than a butt joint. After panels have been glued up, the author cuts the miters on the table saw. Waste should be kept to the outside of the cut so that it doesn't bind between blade and fence.



**3. Be careful when cutting biscuit slots.** A biscuit joiner can easily plunge through to the finished side, so a test cut on scrap is a good idea.



**4. Low-tech clamp.** If stock is straight and miters have been cut accurately, masking tape should be enough to squeeze the joint closed while the glue cures. Light-duty bar clamps close any gaps.



## ASSEMBLING THE PIECES AND ADDING THE MOLDING

After glue up, the separate frame-and-panel pieces can be glued and screwed together to form the base of the mantel. Most of the molding can be added in the shop, but the short returns of both base molding and crown molding should wait until the finished mantel has been scribed to the wall and installed.



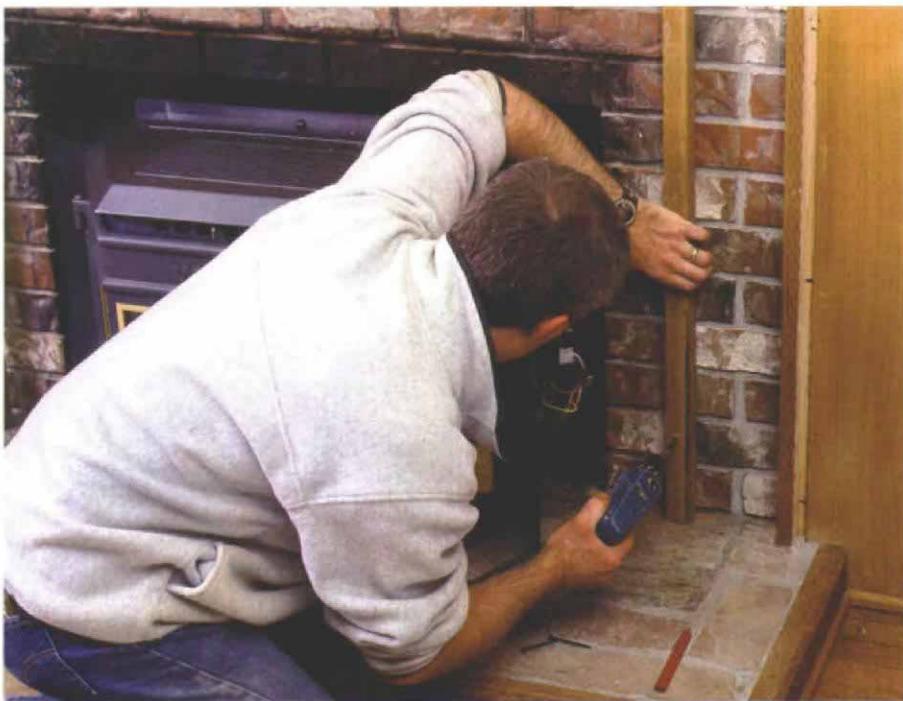
**1. Blocking makes a stronger joint.** With parts flipped on their backs, the author glues and screws a poplar block at each end of the center panel. Clamps hold the center panel to pilasters while parts are glued and screwed together.



**2. Turn it over and add the molding.** A narrow piece of 1/2-in. cove stock beneath the lower edge of the crown adds another shadowline. Triangular plywood glue blocks reinforce the top edge of the custom crown molding.

## INSTALLATION IS THE EASY PART

The author finishes the mantel and the remaining pieces of molding before moving it to the job site (this one has been finished in nitrocellulose lacquer). Working up to a perfect scribe fit is unnecessarily hard on the mantel, so the author leaves a 1/4-in. gap between pilaster and wall. It will be covered later with a narrow piece of trim.



**1. Vertical blocking for the pilasters.** Blocking should be positioned about 1/8 in. away from the inside edges of the box. For installations over masonry walls, such as this one, the author uses Tapcon screws. Pilot holes are made with a hammer drill. If the wall surface is wavy, add a bead of construction adhesive behind the blocking.



**2. A speedy, foolproof template.** The shelf wraps around a post on each side of the fireplace. For a perfect fit, the author hot-glues cardboard strips into a shelf template.



**3. Template guides the cut.** The author uses the template to mark the Douglas-fir plywood top.