A Simple Approach to Frame-and-Panel Trim

Assemble the frames with pocket screws and trim plywood panels with molding for a traditional look

BY GARY STRIEGLER

With my partner, Dan Cobb, I build custom houses in Arkansas. Traditional detailing remains in demand here, and paneled walls are one way I accommodate clients. Because of the cost, I avoid raised panels, instead site-building flat panels from ¼-in. birch plywood and 4/4 poplar rails (horizontal members) and stiles (vertical members), trimmed with stock moldings.

Flat panels lend themselves to applications that range from wainscoting to full-height

START WITH LAYOUT AND STOCK PREPARATION

Drawing lines on the wall to represent the rails and stiles quickly identifies inconveniently located electrical boxes or out-of-plumb walls. Frequently, a small adjustment in panel size or spacing can sidestep these glitches. The author finds that stiles 2 in. to 2½ in. wide look good, but this dimension can be adjusted to fine-tune the panel's fit. Rails are frequently wider so that trim such as chair rail or base can be added. Rails and stiles are sometimes located and sized to match and align with an existing component, such as window mullions.

The author lays out panels on the wall, noting dimensions on paper. This step identifies places that require custom work and establishes uniform sizes that lend themselves to quick production.

walls, niches around windows (as the photos in this article illustrate) and even door jambs, columns and newel posts. For jambs, newels and other load-bearing applications, I replace the 1/4-in. plywood back with stiffer 3/4-in. plywood.

The first step in building wall panels is to pencil the outlines of the panels on the wall. I follow a few rough layout guidelines. For a floor-to-ceiling paneled wall, I put the rail between 32 in. and 36 in., standard chair-rail height, above the floor. To my eye, an odd number of panels looks best, and I try to limit their width to around 16 in.

Drawing the panels on the wall helps me to be sure that the proportions are right. It also identifies electrical boxes or HVAC grilles that fall in a rail or a stile, or in the molding. The electrical boxes, I move; the grilles, I panel around.

After drawing out the panels, I make a cutlist of all the frame material. Because most of my work will be painted, I substitute medium-density fiberboard (MDF) for poplar when I need wide members, say, those that are 6 in. or wider. MDF is more stable than solid lumber, and the joints stay tighter. I don't use MDF for everything because of its weight and because of the fine dust that cutting it creates. □

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Photos by Andy Engel, except where noted.

The respective widths of the rails and stiles should be consistent. The exception is in corners, where one panel laps another. Here, the author widens the lapped stile or rail by the thickness of the abutting panel. To guarantee uniform width, stock is ripped slightly oversize, then passed through a planer several pieces at a time.

PRODUCTION METHODS FOR SPEED AND ACCURACY

One of the tenets of trim carpentry is not to show end grain because it finishes differently from long grain. With this in mind, the stiles of vertical panels run floor to ceiling, hiding the end grain of the rails. With horizontal wainscot panels, the rails run through with their end grain hidden in corners or by butting to door or window trim. In that case, the stiles butt to the rails. Whether the butting member is a rail or a stile, the author sets a common component length to ease assembly-line production.

Using a square, the author will extend marks across all the stiles. The rails will butt these marks. Marking several members at once ensures consistent spacing.

A stop block makes for speedy accuracy. Because these rails' length will be uniform, the abutting moldings will also be quickly cut using the same stop block (American Design and Engineering; 800-441-1388).

POCKET SCREWS AND PLYWOOD MAKE A STABLE PANEL

After his nail gun and his electric miter box, the author claims a Kreg (800-447-8638) pocket-screw cutter as his best investment. Using this tool, he joins rail to stile solidly in about one minute. Once the frame of a panel is screwed together, the plywood back is glued and stapled in place, and the whole assembly is turned face up. A light random-orbit sanding is usually all that's needed to flush up the rail and stile faces.

Pocket-screw jig guides counterboring drill bit at a steep angle. This jig's clamp is powered by compressed air; similar jigs with toggle clamps are available.

Locking pliers clamp rail to stile. Because of their low angle, pocket screws pull the joint together tightly with little movement of the pieces.

Affixing the plywood back. After checking the frame for square, the author glues and staples the panel's back permanently in place.

Short pieces of molding are mitered to length using a stop block. This production technique is reliable because the stiles were also cut using a stop block.

Beveling the back of a miter eases a tight fit. Back-beveling reduces friction when fitting and helps to ensure that the miter's face is tight.

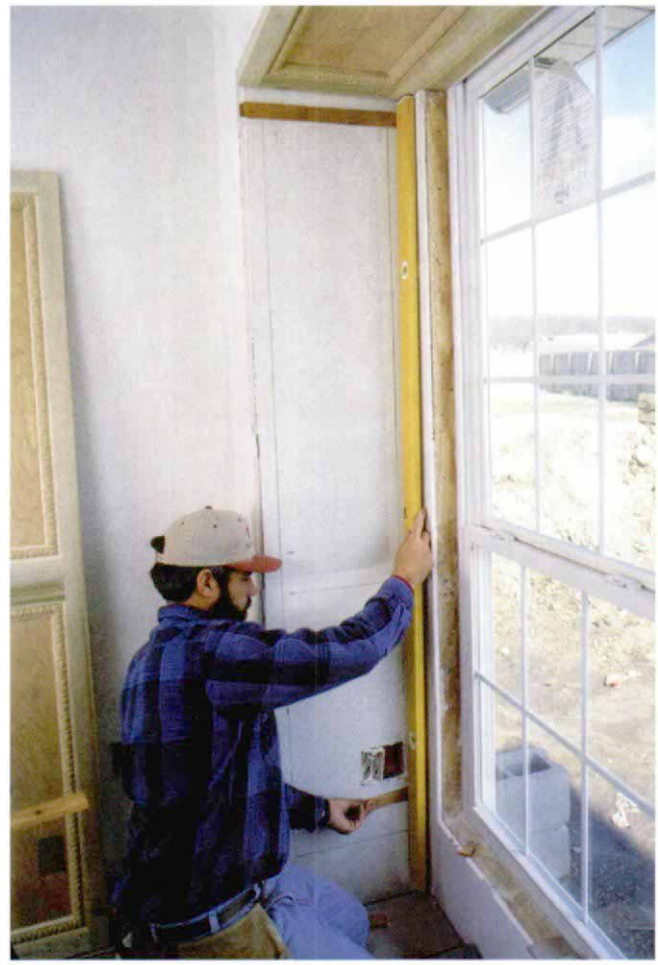
MOLDINGS ESTABLISH THE CHARACTER OF THE PANEL

For example, an Arts and Crafts-style panel might have no moldings added, while a cove would be appropriate for a simple colonial house. For a formal look, as this job called for, the author uses composite moldings from White River Hardwoods (800-558-0119). Pneumatically driven 1¼-in. brads and carpenter's glue hold the moldings in place. Because the panel back is thin ¼-in. plywood, the author angles the brads to catch the panel frame.

The short moldings are installed first. Then, because the longer pieces give more, the author cuts them a hair long and snaps them into place.

INSTALLATION IS THE EASY PART

If the layout and construction are done right, installation is simple: Cut the plywood portion of the panel for electrical boxes, and shim plumb.



It's a rare house that is perfectly plumb and level. Shims make for a plumb and square nailing surface, and to ease placement, the author builds the floor-to-ceiling panels slightly short, hiding the gap with base molding.

Trim work ties panels to the room. With the panels in place, the edges were cased and the window trimmed. Paneling this niche took about a day, a nice touch in a modest tract house.

Photo bottom right this page: Rick Green