Installing Two-Piece Crown

A method for running wide, paint-grade crown moldings

by Dale F. Mosher

I work as a finish carpenter on the San Francisco Peninsula, where there is a resurgent interest in formal houses that have a Renaissance European flavor. The houses often have a full complement of related molding profiles for base, casings and crown, and to be in scale with the rest of the building, these profiles can be quite wide. In the case of the crowns, I'm talking 10 in. to 12 in. wide. In fact, the crown moldings that I sometimes install are so wide they come in two pieces (photo at right).

There are several reasons for making crown in two sections. First, the machines that cut the moldings typically have an 8-in. maximum capacity. There is a lot of waste when wide moldings are carved out of a single piece of stock. For example, I'd need a 3x12 to mill a 10-in. wide piece of crown—an expensive, inefficient use of the resource. Two-piece crowns are also a little more forgiving during installation. The type I used on the job shown here can be overlapped in and out a bit, allowing the width of the crown to grow and shrink as needed to account for dips and wows in the walls and ceilings.

Joined at the shadowline. **Wide crowns, which appear to be made of a single molding, can be made by running related profiles adjacent to one another. Any gaps between the two are caulked prior to painting.**

All the two-piece crown moldings I've encountered have been custom-made. The designer or architect comes up with section drawings; then the mill shop has the molding-cutter knives cut accordingly. Here, an average set of custom knives costs $35 per in., plus there is a $75 setup charge for each profile. So before the wood starts to pass over the cutters you've already spent a fair amount of money. But to create a certain look, it can be money well spent.

Stain-grade or paint-grade trim—If you've got one, your architect or designer will decide what grade the trim should be. If you don't, your checkbook will decide. At the mill, stain-grade means the stock is clear and virtually free of knots. On the wall, stain-grade means no opaque finishes will be applied. The moldings are individually scribe-fitted, and that means no caulks or putties to fill any gaps that may occur at miters and along uneven walls. Paint-grade material, on the other hand, will have some sapwood and uneven grain. On the wall, it can have caulkable gaps. Obviously, the stain-grade material will cost more—how much more depends on the species of wood. And it costs a *lot* more to install. Where I work, we figure four to five times more labor is needed to put up stain-grade crown as opposed to paint-grade.

The most commonly used paint-grade materials in these parts are alder, poplar and pine. I see more poplar than anything else because it's relatively inexpensive and easy to mill. Even paint-grade moldings, however, don't come cheap, and they should be handled with care. I have them primed on both sides as soon as they are delivered, and I store them on racks with supports no farther apart than 3 ft.

Test fit. **After affixing the top portion of the crown to its backing blocks, Mosher checks the fit of its corresponding bottom half.**

Miter-box station—I've used the new sliding compound-miter saws to cut crown, and I've decided to stick with my 15-in. Hitachi chopsaw. Here's why: When you're running crown, you've got to make both back cuts and bevel cuts. It takes time to adjust the saw back and forth, and the constant changes multiply the chances for error. Also, the crown has to lie flat on the table with a sliding saw, which makes it harder to see the path of the blade and the cut line. None of these is a problem when using a chopsaw.

The key to cutting crown accurately is having a good station for the miter box (top photo, next page). Mine has a pair of wing tables that flank the saw, connected by a ¾-in. MDF (medium density fiberboard) drop table that supports the saw. Each wing table is 6 ft. long and 2 ft. wide. They can easily be stood on end and carried through a standard doorway. I can also put a 2-ft. deep table against a wall and have enough clearance behind the saw to swing it through its settings.

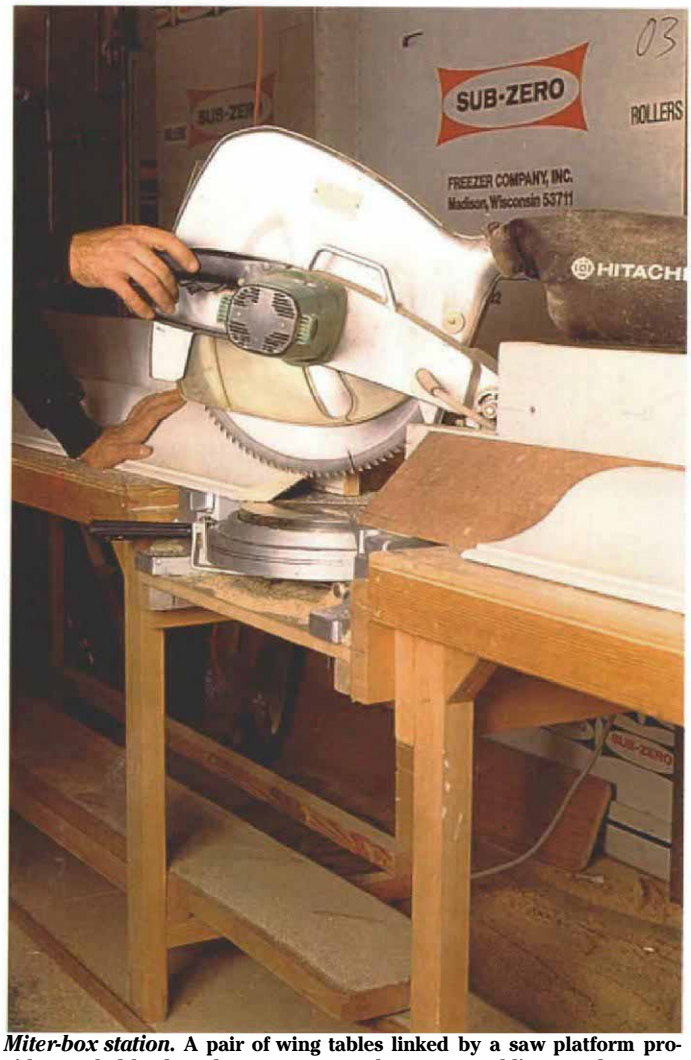
The wing tables have fences that support backer plates for the crown during a cut. To

install them, I begin by snapping a line on the floor where the assembled station will sit. Then I put the outside legs of the tables on the line, and anchor each leg to the subfloor. Next I put the miter box in the drop section of the table. I removed the stock fences from the miter box, allowing me to bring the arbor slightly forward of the original fence line, thereby increasing the width of the cut. The wider of these two crowns was 7¼ in.—just about the limit of what my saw can handle.

I make sure the saw's turntable can swing freely from side to side, and that its blade is square with the tables when set at 0°. I secure the saw to the drop table with four drywall screws run through holes that I've drilled in the saw's base. Each wing table has an 8-in. high fence that's square to the blade. I align the fences with a string to make sure they're straight.

During a cut, the crown bears against ¾-in. MDF backer plates that are screwed to the tables and the fences. The backer plates should be ½ in. wider than the widest crown section. The crown moldings for this job meet the wall and ceiling at 45°, so I ripped the backer-plate edges at 45°. Other crowns meet the wall and ceiling at different angles, and the backer-plate edges should be beveled accordingly.

It took me about a day to build this setup, and another half day to fine-tune everything. But the time it takes to build one will be returned tenfold in a single good-sized installation job.



Miter-box station. **A pair of wing tables linked by a saw platform provides angled backer plates to support the crown moldings as they are cut. The plates are screwed to the table and fences.**

Backing blocks—A two-piece crown needs a solid base for nailing and a flat surface to rest against to ensure correct alignment for the pieces. Backing blocks serve this purpose (top left photo, facing page). To find the width of the backing block, I assemble a couple of short sections of crown, as they would appear when installed, and measure the backside from the point the assembly hits the ceiling to the point it engages the wall. The backing blocks should be 1/16 in. less than this measurement to ensure that the crown will go together without leaving gaps between the pieces, at the ceiling, or at the wall. Backing blocks can be made of solid wood, but I prefer ¾-in. plywood because it's affordable, doesn't split and it holds nails well. After ripping a stack of backing-block stock, I cut the blanks into 6-in. to 8-in. lengths.

I prefer to place backing blocks on 16-in. centers, and no farther apart than 24 in. They should be affixed to the framing, so if the painting crew is about ready to prime the walls, I mark stud and joist locations with a keel (a carpenter's crayon) along the ceiling/wall intersection. A keel will bleed through most primers. Omission of this step gets you a one-way ticket to the planet of frustration, where you poke nails into the walls and ceilings, looking for the lumber.

Dropped platform. **The wing tables are joined by a saw platform lowered far enough to bring the saw's table flush with the wings. The fences are braced from behind with triangular blocks on 1-ft. centers.**

Backing blocks are installed on layout lines snapped on the ceiling and wall. Using a torpedo level with a 45° bubble, I position a block at one end of the wall so the bubble reads level. The block should be about 2 ft. from the corner to avoid joint-compound buildup. I mark its edges on the ceiling and wall, and repeat the process at the opposite corner. These points are the registration marks for the chalkline. I use the raised chalkline as a straightedge to locate dips or bumps in the ceiling and walls. These problems are usually due to framing irregularities, and the backing blocks should be kept away from these places. I wish the framing crew could be around during this part of the job. If they only knew the trouble *we* go through to make *them* look good, they'd be taking trim carpenters to lunch a lot.

To attach the backing blocks I use a 2¼-in. finish nailer because finish-nail heads are small enough to be consistently set below the face of the block. Nail heads that stand proud interfere with the crown. When I've got framing on one end of the block for nailing, but none on the other, I put a bead of glue on the backing block to help anchor it to the wall.

At inside corners, I run one block into the corner, and then scribe the adjoining one to it. The backing blocks are typically a little too wide to fit between the lines in the corners because of joint compound on the wall, and they need to be trimmed a bit to fit. Outside corners are sometimes mitered as though crown molding, and secured to the wall, ceiling and to each other through their mitered edges.

When the backing blocks are up, I cut my "tester blocks." These are typically 16-in. to 24-in. long pieces of the crown molding. They need to be long enough to reach from an inside corner to the closest midspan backing block. I cut three pairs of tester blocks with inside miters at both ends, and three pairs with outside miters. One set has 44° miters at each end, one has 45° miters and the third has 46° miters. You may ask, "why not cope the inside corners?" For one, the curved profile of the widest molding in this job meant that a coped corner would be very fragile. I've found that a glued inside miter on a paint-grade job—if the pieces are carefully fitted—yields first-rate results.

Backing blocks. **Crowns this wide need substantial backing to provide a consistent plane for aligning the two pieces and for adequate nailing. In the corner, one block extends to the wall while the other is scribe-fitted to it. Here, a test piece of crown is held in place. The pencil line along its point intersects the corner formed by the two blocks, marking the point from which the overall measurement for the crown will be taken.**

Prybar tweaking. **As the moldings are nailed home, a small prybar is useful for aligning the adjoining sections.**

Unit assembly. **Short sections of crown are best preassembled into a single piece. The pencil marks on the ceiling show the points from which the crown-length measurements were taken. On the right you can see a fully assembled run of crown.**

Running crown—Installing crown is not a solo operation. The job will go a lot faster and with greater accuracy if you've got a good helper. Working on the theory that a piece of trim can always be made shorter, we begin with the longest run in the room by tucking the pair of 45° test blocks into one of the corners, just the way the finished crown will fit. If the fit isn't acceptable, we try a 44° and a 46° block until the right combination turns up. It might be a pair of 44s. It doesn't matter. It is very important, however, that the line of the miter line up with the corner, whether it's an inside or outside miter.

Once we find the best fit, we make a pencil mark along the bottom of the block into the corner (photos above). This marks the point from which the overall measurement is taken.

I don't bother to cut the piece a little long and then shorten it by degrees to ease into the fit. My helper and I can measure it accurately, so I cut it to that length. Period. This saves a lot of climbing up and down the A-frame scaffolds we typically erect as work platforms.

We also use tester blocks at outside miters to determine the best angles. To get our measuring points for an outside-to-outside miter, we make pencil marks on the ceiling to note the long points. For an outside-to-inside miter, we mark the long point of the outside miter, and the heel cut at the inside miter.

I'll typically put four 1½-in. finish nails into each backing block. The nails should be placed where the painter can easily putty the nailheads. I don't put nails in a tight radius or too close to an inside corner. A small prybar can be useful for aligning the crowns during nailing (photo above left). I prefer the ones used by auto mechanics.

Back-beveling the miters can be useful on recalcitrant fits. A good tool for this is a 1⅛-in. belt sander. Its protruding belt makes it very maneuverable. If I need shims, I use pieces of manila folder. At each miter, I run a bead of yellow glue to ensure a sturdy joint.

Sometimes the crown has to work its way in short sections around a wing wall. In this case, I usually preassemble the pieces if they're shorter than about 12 in. I put the parts together with glue and a pneumatic brad nailer, let the glue set for 20 minutes and then place it as a unit (photo above right).

As we run the upper crown, we make notes in the corners that describe any special angles or back-beveling that it took to get a good fit. Nine times out of ten, the same cuts will work on the lower section of crown.

After the crown is up, the drywallers can float on any necessary topping compound to hide the bumps and bows in the ceiling and wall. If the walls are to be textured, this should be done after the crown is installed. Our painters use oil-base putty to fill the nail holes, and latex-based paintable caulk to make the joint between the two pieces of crown disappear. □

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