

Building an Exterior Newel Post

Redwood boards and custom moldings decorate a pressure-treated post and anchor the front-porch steps

by Peter Carlson

I could hardly believe my good fortune when I landed a job at Preservation Park. This development in Oakland, California, is a collection of historically significant houses that were rescued from the wrecking ball. The dozen or so houses that make up the project were neglected, rundown and in the way of other projects. But instead of carting them off to the landfill, the local redevelopment agency had the foresight to move the houses to a new neighborhood where they could be rebuilt into offices that honor Oakland's diverse architectural heritage.

The houses, which ranged in style from Tudor to Victorian, needed rebuilding. I was to rebuild the porches and the stairs, which had been lost during the moves. The newel posts I built for Trobridge House (photo below) are good examples of the work I did at Preservation Park. And while Trobridge House is a Victorian of the Italianate style, the methods I used to build the newels certainly could be adapted to other styles.

Custom-milled moldings—The Italianate style enjoyed the height of its popularity in the 1870s.

The style drew heavily on massive, classical masonry motifs for inspiration, translated into wood by the ingenious millworking machines of the Industrial Revolution. The ubiquity of mills made highly finished materials readily available to the contractor for jobs both big and small.

Long gone is the vast selection of off-the-shelf Victorian house parts. But here in the San Francisco Bay area, there are still a few mills that can duplicate the old trim. Guided by bits of paint-encrusted molding from Trobridge House, the venerable El Cerrito Mill and Lumberyard in the nearby town of the same name ground shaper knives to mill crown, base, panel moldings and handrails for this job (left drawings, facing page).

Tied to the ground—As the primary anchorage for the handrail, the newel post must be firmly connected to the landing. The most typical method (and the one used on this job) is to build the newel around a pressure-treated post that is bolted to a steel post base. Set in concrete, the base keeps the bottom of the post from getting wet by elevating it slightly above the ground. As shown in the right drawing on the facing page, the base should be oriented so that the bolts are perpendicular to the line of the handrail with the prongs helping to stabilize the newel from the side. The steel post base requires careful layout because the location of the newel must be decided before the concrete is placed.

Start by drawing—The newel and the handrail are among the most visible of finish details, and the materials to make them are often complicated and expensive. Even if the working drawings look to be accurate and complete, I do a full-size elevation and section drawing of a newel post before I start cutting materials. In their reduced size, working drawings have a way of obscuring problems that show up at full scale.

The newel is square in plan and has panels framed by panel moldings, rails and stiles (the horizontal and vertical members, respectively, of a frame). The heart of the newel is a simple box, the sides of which ultimately become the faces of the panels. The dimensions of the panels govern all other parts, so I began by drawing them, which determined the size of the box. Once I made my drawing, I could take direct measurements for all the parts.

The elevation drawing also allows me to study the intersection of the rail with the newel. With it



Italianate Victorian stair. Massive shapes inspired by classical stonework distinguish the Italianate style. The newel posts, which support the handrail at the first tread, conceal pressure-treated posts anchored to the concrete landing. Because the house is now a commercial office, auxiliary handrails were required to meet contemporary codes.



Start with a box. A simple box is the core of this multilayered newel post. A piece of solid wood at the end helps keep the pieces square during assembly. Here the author aligns a stile assembly before nailing it to the box.



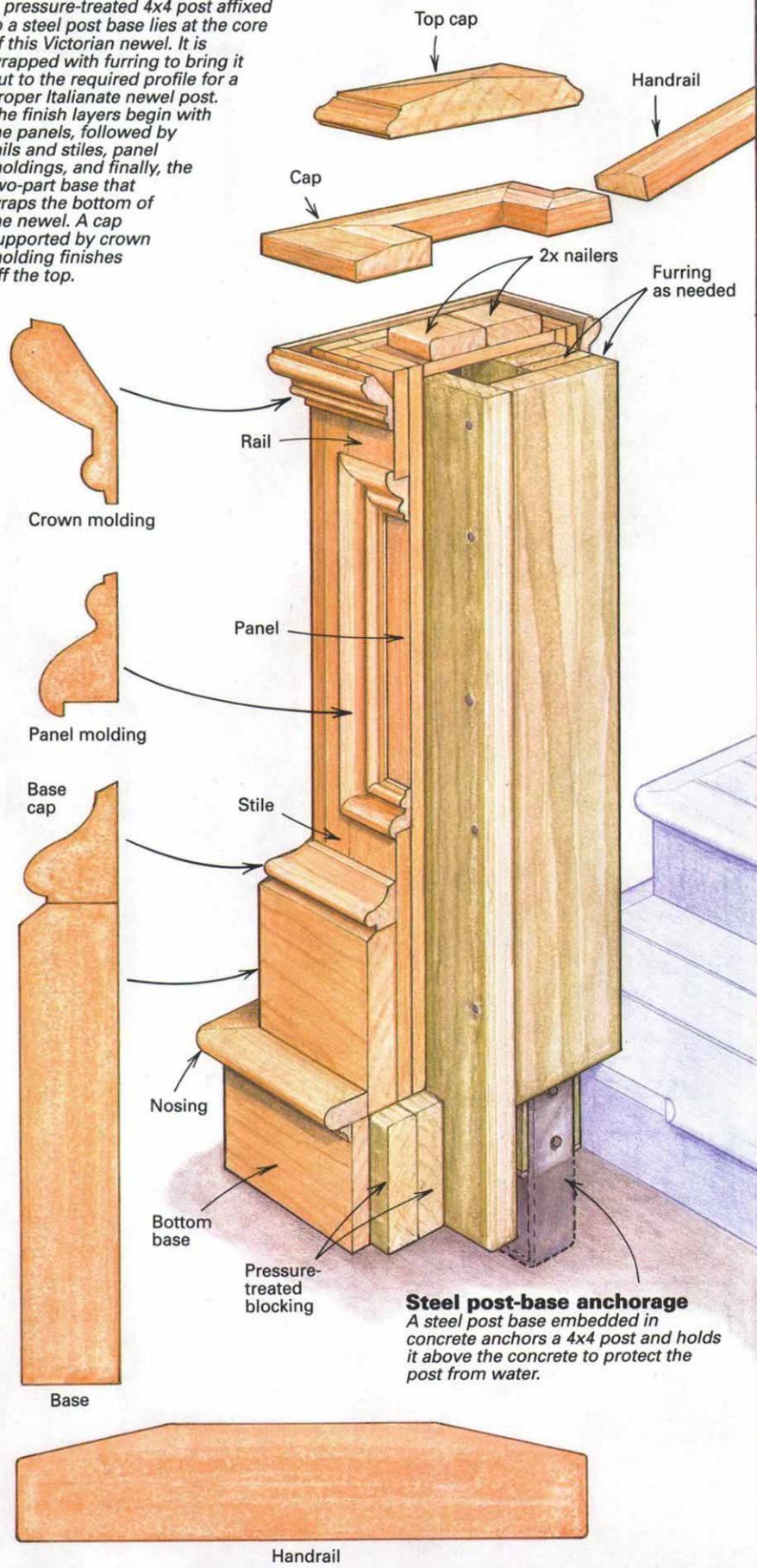
Clamp, then nail. Rails and stiles are held in position by pipe clamps while they are nailed. The rails should be about $\frac{1}{32}$ in. long to ensure no gaps between the rails and the stiles.



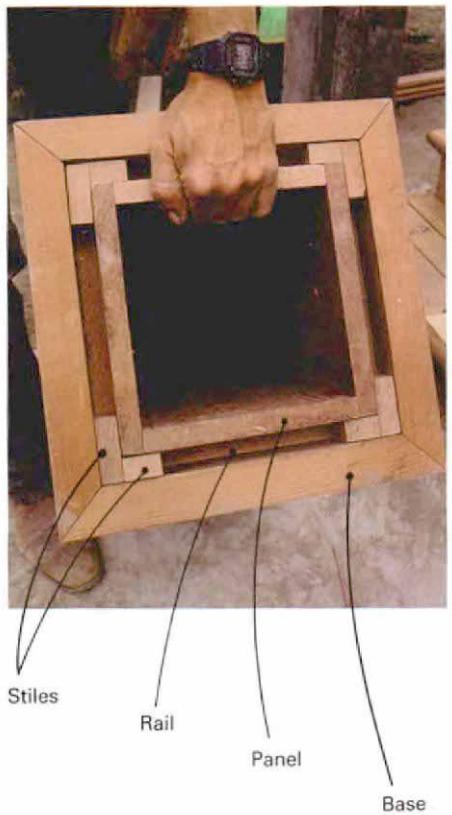
The trim carpenter's friend. The rabbeted edge of a panel molding allows the trim pieces to be loose-fitting while concealing any gaps between the trim and the frame.

A built-up newel post

A pressure-treated 4x4 post affixed to a steel post base lies at the core of this Victorian newel. It is wrapped with furring to bring it out to the required profile for a proper Italianate newel post. The finish layers begin with the panels, followed by rails and stiles, panel moldings, and finally, the two-part base that wraps the bottom of the newel. A cap supported by crown molding finishes off the top.



Base wrap. A mitered 2x frame forms the base of the newel post. Before attaching the frame to the newel, the author used a block plane to knock down any high spots at the butt joints between rails and stiles.



Far out the post. Pressure-treated lumber nailed to the post stabilizes the newel and provides backing for the newel. The 2x nailers atop the newel are for attaching the cap.



Headed home. The author slips the nearly completed newel over the built-up post. The post is about $\frac{1}{4}$ in. smaller than the inside of the newel, which allows some room for adjustment.

I can determine the post height, the angle of the handrail intersection and the true proportion of panels, crown and other trim. Superintendents often balk at the time I spend making these drawings. I remind them of the old chestnut, "The only time thinking is seen is when it is not there."

Decorating the basic box—I assemble the box around squares of solid wood or plywood (top photo, p. 61). Typically the lower square is left loose and used only for layout, and the top is permanently installed as backing for the trim pieces that cap the newel.

The stiles are affixed to the corners of the box core—like corner boards on a clapboard-sided house. They are long and narrow and run the full height of the newel. To develop a solid corner, I avoid miters—they always open up over time when they're outdoors. Accordingly, one stile must be $\frac{3}{4}$ in. (the thickness of the material) smaller than its mate to maintain symmetry. Here's a simple way to rip both pieces with just one table-saw setting: Set the fence and rip the wider stile, then place a piece of the stock you are using against the fence when you cut the second board. This will quickly and accurately give you the setting for the narrower stile.

Before attaching them to the box, I preassemble the pairs of stiles, using nails and an exterior-grade glue. I use Tightbond II, the waterproof yellow glue. I think it's adequate given the fact that the surfaces will be painted. When I start nailing the pieces to the box, I'm careful to place fasteners, wherever possible, in spots that will be concealed by subsequent layers of trim. And if the design calls for edge routing, I keep fasteners out of the line of the router's cut.

By the way, I've become a believer in back-priming (even though the superintendent claims we're doing the painter's job). Before I attach the various layers of material to the boxes, I squirt their backsides with a water-based acrylic sealer. This step helps keep the tannins in the redwood from leaching into the final paint job and mini-

mizes swelling and shrinking that result from changing weather conditions.

I cut the rails about $\frac{1}{32}$ in. long to make sure that the assembled frames weren't held apart by the underlying box (middle photo, p. 61). Once I had the rails and the stiles affixed to the boxes, I applied the panel molding. A true panel mold is designed to be the carpenter's friend. Along one edge it has a narrow rabbet the depth of the stiles and the rails. The lip of the rabbet covers the perimeter of the panel (bottom photo, p. 61). The rabbet allows the carpenter to fashion accurate miters quickly by slightly undersizing the molding. The rabbet lip hides gaps between the molding and the rails or stiles. You just cut the pieces to fit a little loosely, assemble them into a picture frame, pop the frame into place and nail it.

I attached the top half of the baseboards next (top left photo, facing page). On the finished newel, the nosing of the bottom tread wraps around the newel (photo p. 60), becoming a design element in its own right. I installed the nosing and the bottom half of the base after the newels were installed. That way I could scribe the bottom base to fit the concrete landing.

Installing post and cap—I added pressure-treated furring to the post for solid backing (bottom left photo, facing page). Each furring piece engages the concrete or the first tread, adding stability to the assembly. I left about $\frac{1}{4}$ -in. gap between the furring and the inside of the box to allow for adjustment. Then I slid the newel over the post (right photo, facing page). If the layout of the post base is off, you can make final adjustments at this point so that the newel will be plumb and square to the handrail. The post was shimmed solid and fastened with 3-in. long galvanized screws placed where they would be concealed by layers of trim (left photo, below).

There are two basic designs for newel caps used on the houses in Preservation Park: unconnected handrail and connected handrail. The first is the easy one because the handrail simply

dies into the side of the newel below the cap. The cap protects the interior of the newel. In addition to protecting the newel's interior, the second cap design has to include a mitered transition for the handrail (middle photo, below).

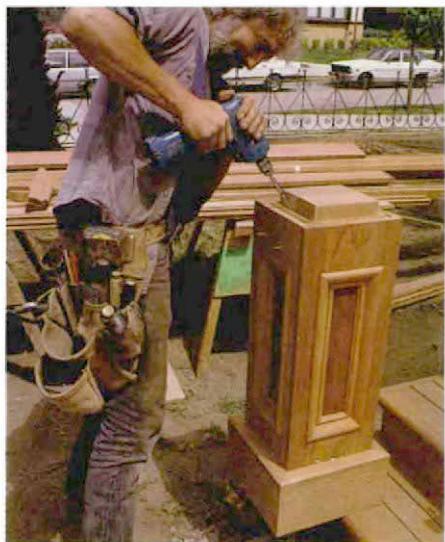
In the heyday of Victorian construction in Oakland, the simple cap seems to have been more common. I've found that working drawings for restoration projects often complicate the originals. This job, of course, called for the more complicated of the two. My full-size drawings were invaluable in figuring out the angle of the miter required to meet the rail.

I made the cap from pieces of the redwood handrail that I ripped in half. The miters around the newel cap get all the weather, so they must be crafted carefully. The stock should be kept dry and allowed to acclimate before assembly. I backprimed each piece, used plenty of glue in the joints and cross-nailed them with pneumatic fasteners. I bedded the cap in a layer of caulk around the perimeter of the newel.

A frame of crown molding supports the bottoms of the cap pieces (right photo, below). Like the rails, I cut the crown pieces a bit long to avoid fussing over the joints. I tacked finishing nails to the rails and the bottom of the cap to hold the crown moldings as I tested them for fit. For this kind of dry fitting, miter clamps are very useful. I use the West German ones made by Umlia (dist. in the U.S. by Robert Larsen, 33 Dorman Ave., San Francisco, Calif. 94124; 415-821-1021). Once I dry-fit the crown moldings, I fasten them with the pneumatic fasteners. The clamps are equally indispensable for the base cap.

A top cap made from a single piece of stock completes the top of this newel. Because it has some end grain exposed to the weather, I applied several coats of primer to it before bedding the top cap in a thick bead of caulk. □

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Screwed down tight. Trios of 3-in. long galvanized screws secure the newel to the post at top and bottom. The screws are driven in places where they will be concealed with trim.



Double-duty cap. Most newel caps simply keep the weather out of the newel. This one, however, includes a beveled piece of handrail for intersecting the handrail of the balustrade.



Clamping crown. A band of crown molding flares out the base of the cap while supporting it. Here the author dry-fits the pieces using miter clamps to hold the corners together.