Classical Style in a Porch Addition

Tips from a restoration expert on deck construction, column building and weatherproof design

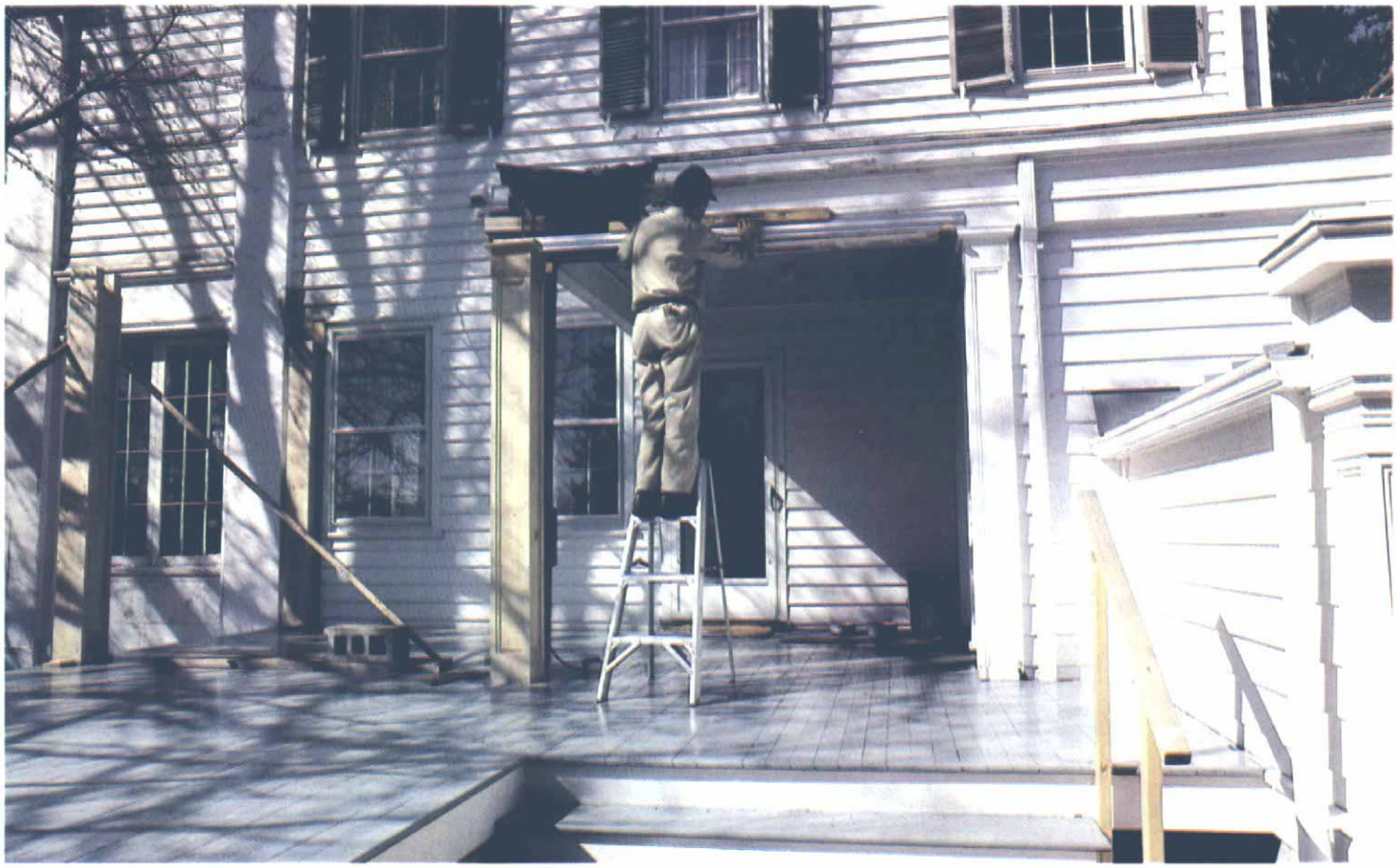
by Ted Ewen

Those who undertake exterior renovations on a Greek Revival house are faced with a touchy and challenging venture. Changes or additions must be compatible with the original design; they must also fit in with modern day-to-day activities. Even a small porch addition like the one I built recently must fulfill these two requirements. Of course another problem with porch construction is the weather: Porches won't last long if they are built without regard for weatherproofing. Fortunately I've been able to draw on quite a bit of boatbuilding experience, using materials and design details that have stood up to marine conditions.

The new porch was to replace a large laundry room that had been built onto the south side of a Greek Revival mansion in 1928. The main house, built between 1830 and 1840, overlooks the Hudson River from a high vantage point in Scarborough, New York. The old laundry room, like the kitchen it faced, was built at a time when cooking and cleaning were done by servants on sizable estates like this one. When the new owners of the house contacted me early in 1980, we decided to tear down the old laundry room. The new porch would expand the formerly viewless kitchen with its open deck and pleasant view. It would also give the kitchen a bit more formality as a main entry into the house. My job was to build something compatible with the main house. A repeated column and arch relief on the laundry room provided some important size and scale details. Having agreed with the owners on the design and drawn up plans, I set to work undoing the work of 50 years before.

A new deck—Tearing down the laundry room was a time-consuming job. It had been extremely well built—knit together by carpenters who loved nails and knew how and where to drive them. The foundation was 12-in. thick reinforced concrete; the interior walls and ceiling were 1¼-in. concrete and plaster over galvanized wire lath. Over the years I've dismantled quite a few buildings, but this one really took the cake, especially considering its diminutive size (about 12 ft. by 16 ft.).

Before taking the roof off the laundry room, I removed the wood floor and the old floor joists to expose the crawl space underneath. Enlisting the help of the owner and a friend, I regraded the crawl space, installed 6-in. diameter PVC pipe to drain it outside the walls, and then floated 2 in. of concrete over galvanized lath laid on the crawl-space floor. We also poured two new concrete piers at the center of the foundation to support the new floor joists. The old roof



Having torn down an old laundry room and built a new deck on the south side of a Greek Revival mansion, the author prepares to extend the existing girder. Once in place, this girder will carry the ceiling joists for the new porch.

was left in place to protect the foundation from rain until the concrete cured.

With its beautiful view of Haverstraw Bay and the Hudson River Valley, the new porch and its columns would be exposed to heavy weather. Since the exposed section of the old deck had suffered considerably from water damage, I knew I would have to make the new construction and surface finish as durable as possible. I used pressure-treated 2x6s for all floor joists and spaced them 12 in. on center. Hot-dipped galvanized nails and screws, liberal applications of Woodlife preservative to all lumber (especially to the end grain) and a 2½-in. pitch in the deck's 24-ft. length were some of the measures I took to improve the weather resistance of the new construction. I also selected my lumber board by board whenever I could. Not all lumberyards will allow you to pick and choose, but using only straight, clear-grained stock was an extra assurance that the porch columns and their framework would last a long time.

For the deck I used 4-in. wide, 5/4 tongue-and-groove fir, toenailing directly into the 2x6 joists with 10d common nails. I took the time to drill pilot holes in both planks and joists to avoid splitting the wood. After nailing down every three courses of planks, I allowed a space of nearly 1/16 in. between the third and fourth courses. This gives the deck room to expand when moisture swells the boards. If you've ever seen a beautifully laid plank floor buckle in humid weather, you can appreciate the need for expansion joints. The total expansion space for the width of this deck is 1½ in., and I ran a seam of butyl rubber in each joint, to keep dirt out.

Making the columns—To duplicate the relief on the square columns of the main house, I measured them and then scaled the new columns accordingly. Proportions and detailing had to be kept the same to ensure compatibility with the rest of the house. The columns on the west side of the deck would be built in three parts: a large square main column flanked by the two smaller columns on which the arches would rest (see the drawing, below right). As an aid in laying out the columns, I drew full-scale cross sections on a piece of plywood and protected these working drawings with a wash coat of varnish. This way, they can be used on another job or as a guide for replacing a damaged column at some future date.

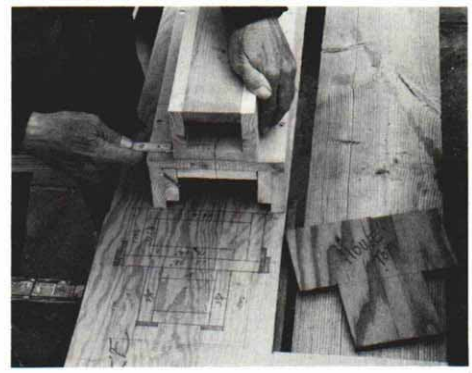
To build the columns, I used clear, No. 2 white pine boards, ¾ in. thick. As shown in the drawing at right, I built the main columns with an inner and outer shell for load-bearing rigidity and general durability. The edges of the inner planks clear each other and the outer shell by about ⅛ in. The gap will permit the outer shell to shrink—as it will over the years—without having its joints forced apart by bearing on the inner planks, which will shrink much less. I fastened the inner pieces to the outer shell before putting the outer shell together, using 1¼-in. and 1½-in. #10 flathead screws.

To build up the corners and ends of each column to create a relieved panel in the center, I used a combination of ¼-in. lattice (strips of pine in various widths), marine-grade mahogany plywood (¼ in. thick) and stock moldings. The lines created by these raised strips and panels give the otherwise flat columns an appearance of lightness and fine detail. It's easy to understand why they were incorporated into the column motif on the original house.

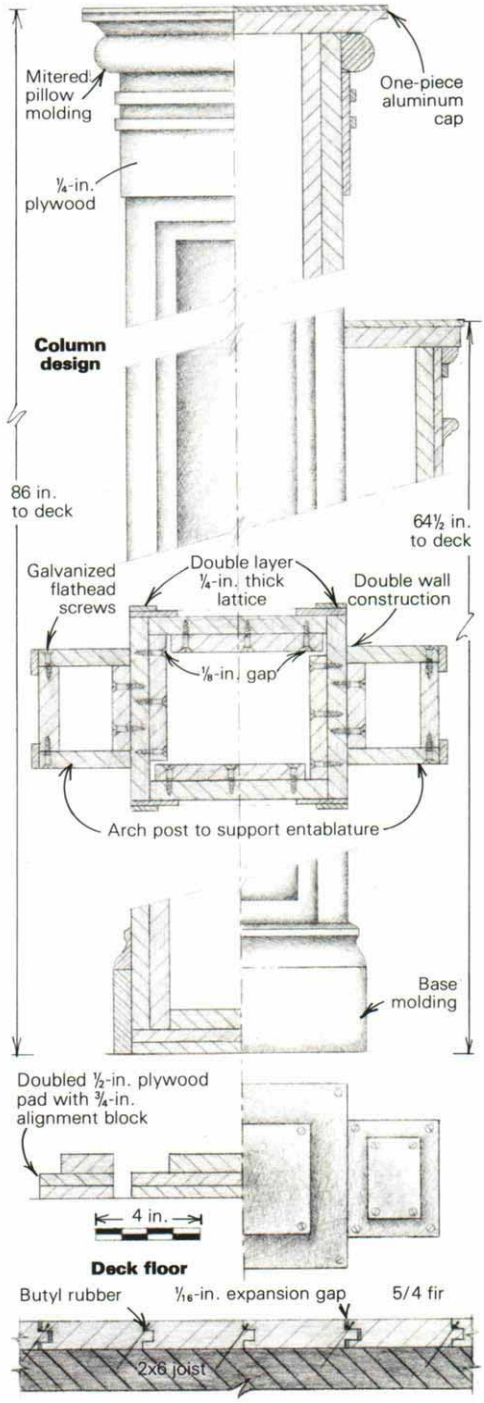
The trim was fastened to the columns with aluminum nails and Phenoseal adhesive caulking (made by Gloucester Co., Box 428, Franklin, Mass. 02038). The adhesive caulking is a new material I discovered through my boatbuilding contacts. The waterproof bond is flexible and mildew resistant, two useful qualities as the wood ages and is exposed to moisture.

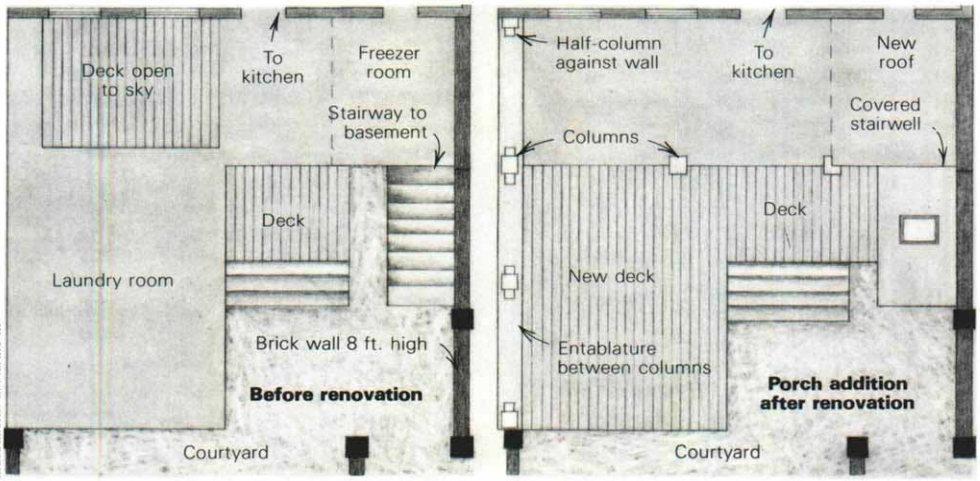
After planing and sanding the edges of the trim, I treated each column with Woodlife, waited several days for the preservative to penetrate and dry, and then brushed on a coat of Benjamin Moore white exterior alkyd primer. Then the columns were ready to go up, and construction could begin in earnest.

Column raising—Rather than rest the columns directly on the deck planks, I cut plywood pads conforming to the plan section of each column and screwed them to the deck where the columns would stand. The pads even out the downward pressure of the columns. More important, they elevate the vulnerable end grain of the column planks above the surface of the deck. Each



A full-scale template, drawn on ¼-in. plywood, serves as a guide during column construction. Here the arch post is test-fit on the half-column that will go against the side of the house.





Illustrations: E. Marino III

Test-fitting the soffit in the new roof. Joints between old and new soffit, fascia and frieze boards are staggered for lateral strength and to make the addition as inconspicuous as possible. One-by-three spacers build out the fascia to the full width of the column.

pad consists of two stacked pieces of ½-in. A/C plywood. Atop each pad I screwed a piece of ¾-in. plywood cut to match the interior dimensions of the column. This aligned the columns and also gave them extra resistance to horizontal pressures. Because of the pitch built into the deck, my square-bottomed columns would not rest plumb when raised into position. I had planned for this and constructed each column a bit longer than necessary. Using a large adjustable bevel, I transferred the pitch to the bottom of the column and then cut accordingly. The pad would be concealed by a base molding.

The procedure for column raising was as follows: I lifted the column into position on its pad, braced it temporarily with diagonal struts, installed an aluminum cap on the top of the column to prevent water infiltration, and then connected the top of the column to its neighbor with a new girder, soffit and fascia board. I had to run the girder (a 2x10 and 2x8 spiked together) all the way back to the corner of the freezer room because the existing beam had decayed badly. Then I nailed short lengths of 1x3s vertically along the outside face of the girder to extend the width of the soffit that would cover these spacers. As for the soffit, fascia and frieze board, the joints where these new boards met their old counterparts were staggered to increase the lateral strength of the new roof section and to make the meeting of new and old less conspicuous (photo above). I vented the soffit by drilling ¾-in. dia. holes and covering them with small squares of galvanized hardware cloth.

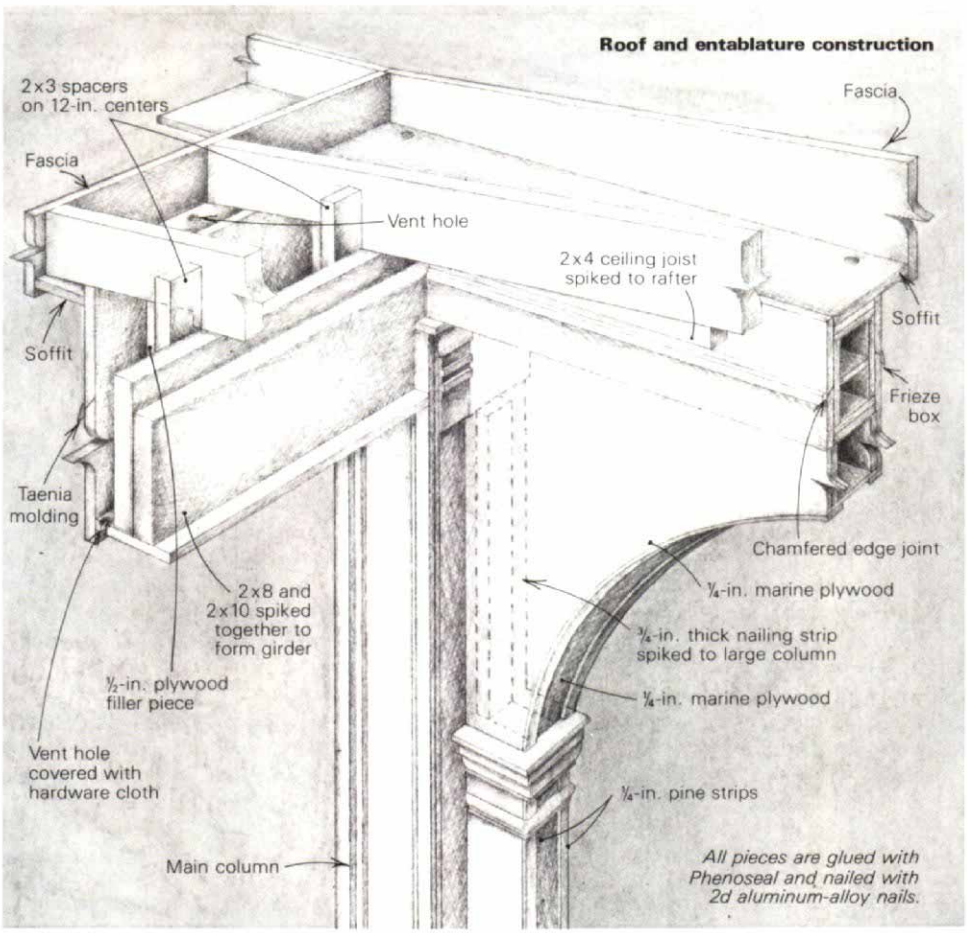
One detail of the frieze bears mentioning. At 13½ in. from top to bottom, the frieze board had to be made from two planks, joined along one edge. Rather than use a 90° edge joint, which would allow moisture to make its way in behind the board, I cut a beveled edge joint (the detail can be seen in the drawing on the facing page). The top edge of the bottom board slants upwards, discouraging water penetration. I covered the joint with a taenia molding, completing the frieze and further increasing its resistance to the weather.

The roof itself posed no problems—I simply had to continue the line and pitch of the existing roof that covered the freezer room. After lag-bolting a 2x10 header to the south wall, I anchored 2x6 rafters to the header with joist hangers. Each rafter had to be notched to fit the girder connecting the two columns (photo facing page, top right). Blocking (2x4s) followed between rafters for extra stability. Since the owners wanted a flat ceiling, the slanted rafters couldn't serve doubly as ceiling joists. I fastened 2x4 joists to the header and ran them level all the way across to the girder. Tapering the ends of the 2x4s allowed me to spike them directly to the rafters. I reinforced each joist-to-rafter connection by nailing plywood plates to both members. Then I nailed ⅝-in. plywood to the rafters and installed a triple-ply felt roof, with emulsion between layers and an aluminum/asphalt topcoat. The aluminum finish will reflect sunlight, thus preventing the heat build-up which shortens the life of dark-colored felt roofs.

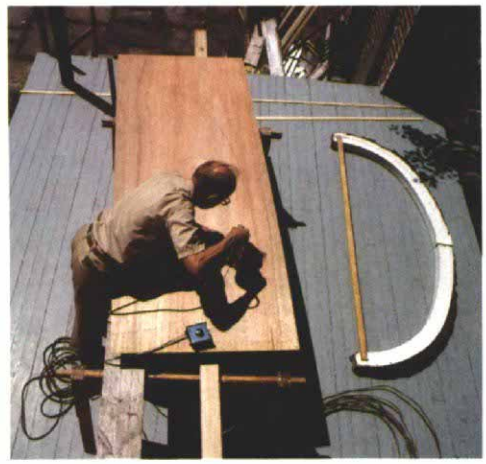
The entablature—An arch taken from the old laundry room served as the model for the new arched entablature that would complete the

classical detailing on the porch. I traced the arch on a 4x8 sheet of ¼-in. exterior-grade mahogany plywood, cut out the curve with a saber saw (photo below, center) and then cut the plywood to fit the space between columns. As shown in the drawing below, the entablature consists of two sheets of plywood held together by interior braces and a curved soffit (¼-in. plywood bent to the radius of the arch and glued to the interior braces). Once I had cut and trimmed the first piece to fit between the two columns, I used it as a template for cutting the next piece on the west side of the porch. Rather than assemble the entablature completely before installing it between the columns, I reinforced each sheet and then lifted it into position against nailing strips fastened to the large columns. With this arch glued and nailed in place, I installed its mate in the same manner (photo bottom left). Gluing and tacking the curved soffit between the twin arches was The next step. With the entablature in place, the porch was structurally complete. The arch and column motif will be repeated twice along the edge of the deck (photo, below right), creating a colonnade. The new addition is open and informal, yet very much part of the Greek Revival tradition of the rest of the house. □

Ted Ewen, of Scarsdale, N.Y., specializes in restoring and renovating historic buildings.



Rafters for the new roof are supported on one side by a 2x10 header bolted to the house, on the other by a girder between columns. Blocking between rafters adds rigidity.



Using an arch detail from the old laundry room as a model, the author cuts out the arch that will be fit between columns.

Nailing strips are fastened to the ceiling and new column sides (left) in preparation for attaching one plywood face of the entablature. Right, two identical plywood arches, fastened to nailing strips and joined with a curved soffit, complete the entablature between columns. Repeating this motif will connect the two additional columns on the finished porch, making a colonnade.