

# Restoring a Round Porch



**Rot-resistant materials and better details extend the life of this unique coastal porch**

by Ben Kelley

Recently we renovated a semicircular screened porch, one of the key features on a classic 1930s Martha's Vineyard home. Like a lot of coastal porches, this one had rot issues, particularly at the base of the sculpted fir posts. The posts had been repaired more than once, but the underlying problem had never been corrected. Our plan was to retain as much of the original woodworking as possible, replace what we had to, and incorporate details that would prevent future rot.

## Column Repair

Before pulling the supports, we documented the existing ceiling height, the distances between the posts, and the size of the openings for the screen panels. This would make it easier to replace everything in its original location and replicate the appearance of the original porch. The posts were held in place with 20d nails driven down through the top plate, a surprisingly strong connection that was difficult to disassemble. After seeing how durable this connection proved to be, we used a similar detail when we re-installed the posts, replacing the 20d

nails with 6-inch TimberLok structural screws (800/518-3569, fastenmaster.com), four per post.

### Epoxy to the Rescue

Back in the shop, we inspected each post carefully for rot — at least the portions that didn't disintegrate on removal. Because the bottoms had been resting directly on the sill plates or decking, most of the damage was within a couple of feet of the base. There was also some rot where horizontal sections of the scrolled profile had caught water. We cut off the rotted sections, but saved them to use as templates.

We assembled the replacement sections from four layers of 2x10 vertical-grain fir laminated together with West System two-part epoxy (**Figure 1**). We clamped the laminations together as the epoxy set, and also reinforced the assembly with torque screws and 1/2-inch-diameter through-bolts, countersinking the bolt holes and later filling them with fir plugs. To create a T&G profile that we could use to join the new and old column sections together, we offset the two outer laminations by 6 inches.

Using the removed column sections as templates, we scribed the appropriate profile onto each of the new blanks, then cut the profiles out on our band saw. We used a router with a 2-inch straight bit to give us a clean joint for the tongues on the old columns, then finished and fine-tuned the tenons with a chisel and belt-sanded the cuts smooth.

We joined the old and new column sections together with more epoxy, reinforcing the joints with 1/2-inch-diameter



**Figure 1.** The 2x10 fir laminations of the partial replacement posts are offset to create a slot for joining to the original post sections (top left). After scribing the original column patterns (bottom left) and cutting them out on a band saw, the author created a matching tongue profile with a router (bottom right).





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galvanized carriage bolts, which we drove through predrilled holes (**Figure 2**). We also countersunk these holes, and later filled them with wood plugs. Some of the old 6-inch-by-9 1/2-inch columns were warped, so we trued and cleaned them up with our 16-inch beam saw. We patched blemishes and minor areas of rot with epoxy thickened with epoxy filler, then smoothed the cut edges with a belt sander. To clean up the scroll work, we used a drill-mounted paddle-style sanding wheel and a Fein detail sander. Then we primed the columns and brought them back to the site.

### Deck Repair

Next, we stripped the remaining decking. The tops of the joists had been flashed with felt paper and many were in reasonable shape, but we ended up replacing the framing around the perimeter of the deck. Because the original framing sagged slightly toward the center, we wanted to pitch the new deck away from the house and provide positive drainage. The deck framing was freestanding, with the ledger beam at the house supported by the stem-wall foundation at the ends and by a pair of block piers midspan. It was a simple matter to raise the ledger by installing blocking on top of the piers, but unfortunately the doors limited the elevation change to about an inch. Still, one inch of pitch per 16 feet of deck is better than none at all.

After doubling the ledger with an additional PT 2x10, we reinforced the connection between the ledger and the pair of beams perpendicular to the ledger with Simpson ZMax right-angle hangers (800/999-5099, [strongtie.com](http://strongtie.com)). Each beam also had some rot damage out near the sill, but instead of replacing the beams, we cut off the rotted sections and replaced them with new PT framing. PVC Redi-footings (866/586-6082, [redifooting.com](http://redifooting.com)) installed underneath the splice joints support the framing.



**Figure 2.** The new and old column sections were joined together with galvanized through-bolts and epoxy (left). Once the columns were reassembled, a worker straightened them with a large-capacity beam saw (right).

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**Figure 3.** The author replaced the rotted joists with treated framing, then used a trammel arm (above) to scribe the deck's radius onto blocking installed on the flat around the perimeter of the deck (right).



Finally, to make sure the radiused sill and rim joist would provide fair and smooth backing for new fascia trim, we set up a large trammel at the centerpoint of the deck (**Figure 3**). Then we installed PT blocking on the flat around the perimeter of the deck, and used the trammel to scribe the radius on the blocking. After cutting the curved profile with a circular saw, we padded the framing below this cut to our new radius line.

### Reinstalling the Posts

To prevent the column bases from contacting the framing, we reinstalled the columns on top of Simpson CPS6 stand-off bases, which we had fastened to the bottoms of the columns with stainless steel screws. We secured the columns to the sill with Simpson angles and  $\frac{1}{2}$ -inch-diameter lag bolts, and secured them to the top plate with TimberLoks.

Afterward, we trimmed the rim joist with  $\frac{3}{4}$ -inch-by-10-inch Azek (877/275-2935, azek.com). PVC is not my first choice of trim material, but for locations like this where the deck is close to the ground and prone to rot, PVC makes a lot of sense, and it was easy to bend around the curved rim joist.



**Figure 4.** To cut the new decking to length after installation, the author made a plywood extension fitted with a curved fence for his Porter-Cable  $4\frac{1}{2}$ -inch trim saw (left). One person manned the saw while another crew member removed the off-cuts (above).

### Decking

We sent the new vertical-grain fir decking to a local painting contractor, who primed and applied the first coat of Pettit Easy-poxy (a one-part polyurethane topside paint) to all four sides. Even on Martha's Vineyard, marine paint isn't typically used on decks, but our client had previous experience with it and this particular brand had the color she was looking for. After the decking was installed, the painting contractor touched up the deck, primed again, and then applied the finish coat.

We installed the decking using the Camo hidden fastener system (800/968-6245, camofasteners.com). One advantage of this system is that it self-spaces the decking to  $\frac{3}{16}$  inch, which allowed us to eliminate the new foundation vents called



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**Figure 5.** Documenting the existing ceiling height and panel dimensions before deconstruction made it much easier to reproduce the original appearance of the porch when it came time to put everything back together (top). The new vertical-grain fir decking for the refurbished porch was pre-finished with a durable marine topside paint (above).

for in the original plans (the existing decking had been butted tightly together, and any gaps had long since been sealed up with paint). Another advantage is that the fasteners mostly eliminate predrilling, though we had a few problems with end-grain splitting at the butt joints. We solved this issue by driving stainless steel screws through the face of the boards at butt joints.

To cleanly cut the decking around the perimeter of the porch, we fashioned a simple jig for our circular saw consisting of a plywood table and a curved fence that matched the radius of the porch (**Figure 4**, page 46). With the saw clamped to the table, the jig was a little heavy but made it easy to safely and smoothly cut the radiused profile in the decking.

### Costs

It took about 14½ hours to remove each post and repair it, or 115 hours for eight posts. This included laminating and milling the new extensions, reassembling the posts, and prepping them for paint. Additional demo and structural work added almost 40 hours to the job. Repairing the deck framing took us almost 60 hours, while installing the decking on the 32-foot-diameter deck with the Camo system took about 66 hours (**Figure 5**). That included priming the end cuts and custom cutting the decking around the posts. ♦

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