



# Classic Porch Revival

A mix of original and new materials refreshes an old porch

by Emanuel Silva

A few years ago, a client for whom I had previously done some basement repair work asked me to evaluate the porch on his mid-18th-century coastal New England carriage house. Built in the late 1990s, the porch wasn't nearly as old as the house, but the wood decking was starting to rot, and the treads on the two sets of stairs leading up to the porch were showing similar signs of decay and suggesting trouble underneath in the framing. The owner wanted to refresh the porch and had some specific—and often conflicting—ideas about what needed to be done to fix it, and the materials he wanted to use.

The original porch decking was square-edged 1x4 painted wood, probably fir, and the owner complained about

the annual cleaning and refinishing ritual required to maintain it. Composite decking would have been a good solution, but the owner wanted wood, so I priced out several options including mahogany and ipe.

Meanwhile, the owner conducted his own research and discovered a product called Perennial Wood, an acetylated wood decking product first introduced to the market in 2012. I'd never even heard of it, much less had any experience with it, and suggested that the owner get some samples and stick them in a bucket of water. If he was satisfied with the decking after this water test, I agreed to install it, but only if he bought it and assumed responsibility if its performance didn't match his expectations.

## Demo and Repair Strategy

Though the porch framing was 18 years old, it was in excellent condition thanks to the CCA-treated lumber that had been used to build it. Even the ledger was well-flashed and securely fastened to the house framing. I would have preferred to replace the railings, which had been assembled from a prefabricated composite kit, but they were still serviceable, and the owner wanted to retain them.

The porch had a pergola supported by PermaCast columns. Because the tops of the columns hadn't been capped when they were originally installed, water had gotten inside them, causing damage to the decking underneath. Otherwise, the composite columns were in good shape, although the pergola they supported was





**Figure 1.** While the original porch framing was sound, the worn and weathered decking needed replacement (A). Part of the repair strategy was to retain the stringers for one set of stairs but pour a new landing pad to support them (B).



**Figure 2.** The author reframed the front stairs, cutting new stringers and installing a new dropped header to help support them (A). New 5/4x6 deck boards were face-screwed to the framing after the PVC skirts and risers were installed (B).

not. Built with common framing-grade material, the beams and rafters were overdue for replacement.

### Fixing a Pair of Stairs

Stairs are often a red flag on a porch renovation project. Sometimes, there's a code-related issue, such as when the risers vary too much or are too tall, or the treads aren't wide enough; other times, the problem is structural, such as when rot has developed or when the guard posts are

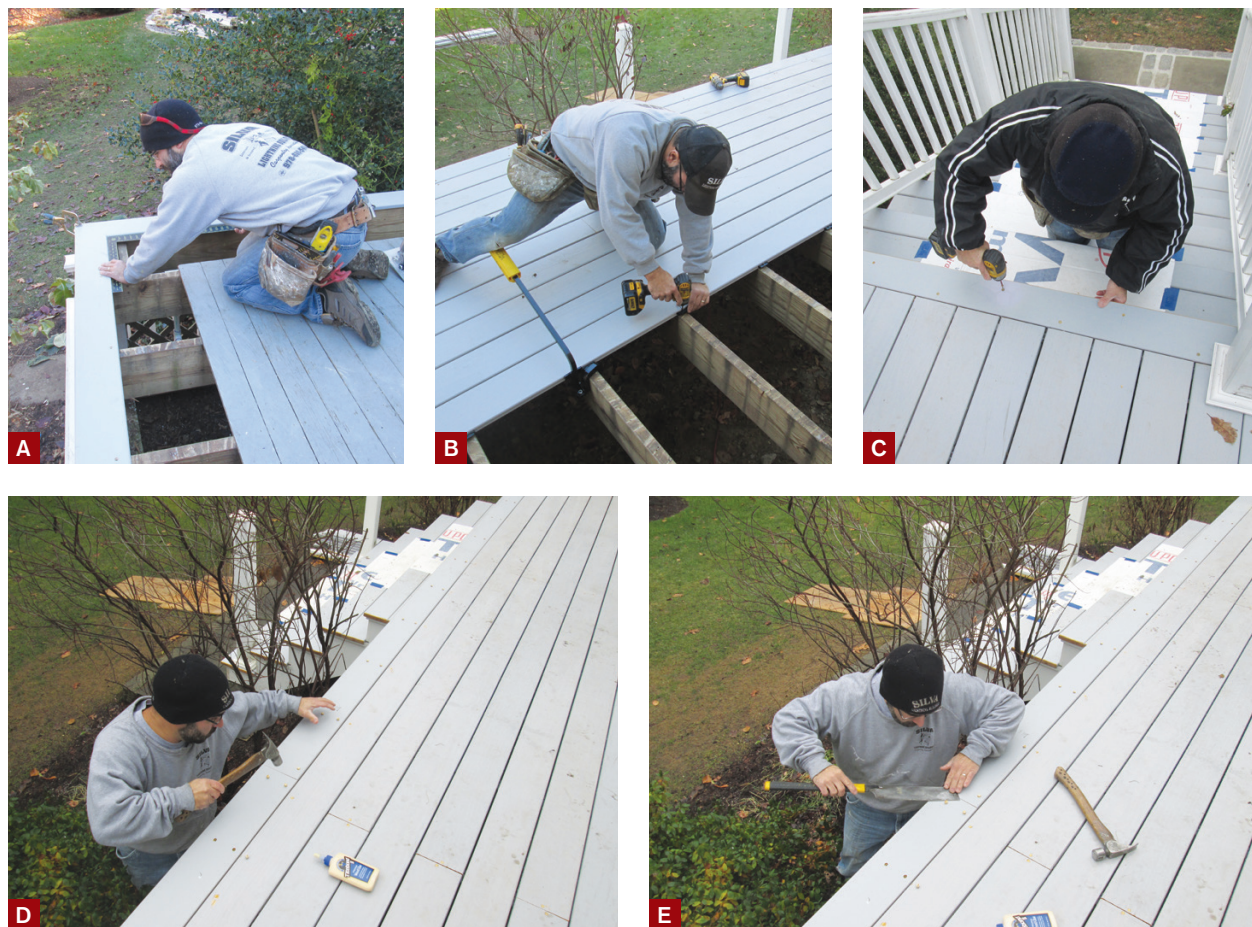
too weak. In either case, it often comes down to the stringers—should they be kept or replaced? In this case, the answer was both; the owner agreed with me that the stringers for the shorter, front flight of stairs should be replaced, while the stringers for the longer, side flight could be retained (**Figure 1**).

After removing their treads and risers, I discovered that the key element missing from both sets of stairs was adequate support at ground level.

The stringers for the long flight of stairs off the side of the porch were simply bearing on a 2x12 that was on the edge of—but not fully bearing on—a small concrete slab landing topped with stone pavers. After temporarily supporting the stringers midspan, I formed and poured a new steel-reinforced concrete landing pad. With solid support, the old stringers simply needed new treads and risers.

The front stairs were another matter; not only was each stringer cut to a slightly





**Figure 3.** Working from the old decking, the author installed the picture-frame border using  $\frac{5}{4} \times 6$  square-edged decking (A). The field decking was grooved for hidden fasteners (B). After face-screwing the border and treads to the framing (C), the author filled the countersunk holes with plugs cut from the same material (D). Then he flush-cut the plugs (E), sanded them smooth, and used a touch-up paint to color-match the plugs to the rest of the decking.

different length to account for the uneven stone paver landing, but there were only five stringers, while the span table for this particular type of  $\frac{5}{4}$  decking on this width of stairs called for six. I also wanted to improve the header detail so that the tops of the stringers would have a better connection to the deck framing.

Finally, when I removed the posts underneath the composite post sleeves that formed part of the railing system, I discovered substantial rot where the posts connected to the stringers. The owner agreed with my assessment that the stair framing should be replaced prior to installing new treads and risers (Figure 2).

### Decking

It was clear that the Perennial Wood decking was a premium product—comparable in cost to the best ipe and composite products—when it was delivered to the jobsite. Each board was individually wrapped and blemish-free when removed from its wrapping.

For the treads and picture-frame border, I had specified square-edge  $\frac{5}{4} \times 6$  boards, while the field decking was grooved for hidden fasteners, which were supplied with the decking (Figure 3). Because the wood was prefinished, the manufacturer also supplied a quart of matching sealer/finish.

Perennial Wood was produced from southern yellow pine but not the same SYP that you find at the lumberyard. This material was cut from long, clear lengths of lumber that had been subjected to a combination of heat, pressure, and a dose of acetic anhydride. This process replaces the water-loving (hydrophilic) free hydroxyls within the wood with water-hating (hydrophobic) acetyl groups, basically transforming the wood's cellular structure. While Perennial Wood is no longer available, another company, called Accoya, produces modified radiata pine decking using a similar process.





**Figure 4.** The author cut PVC plugs sized to fit inside the bases of the columns and screwed them to the decking (A). This ensured that the columns would be reinstalled in their original locations (B) and that the railings could be reused.



**Figure 5.** After pattern routing the rafter tail profiles (A), the author primed and painted the 2x6 red-cedar rafters and fastened them to the house ledger and 4x6 beam with structural pocket screws (B).

The decking was straight, flat, and free of defects, and installing it was a treat. In the field, I used hidden fasteners, while I face-fastened the picture-frame border and treads. I counter-bored the  $\frac{3}{8}$ -inch-diameter holes for the stainless-steel screws I used to fasten the decking to the framing, and I filled the holes with custom-cut plugs.

The only hiccup that I encountered with the decking was trying to color-match the cut ends and plugs to the decking. The manufacturer-supplied touch-up coating was supposed to be opaque, but it applied like a translucent stain, even after vigorous mixing and multiple coats.

### Columns, Railings, and Rafters

Because the owner wanted to reuse the railings, I carefully mapped out the loca-

tions of the columns as I removed them prior to replacing the decking. Then, to ensure that the railings would fit snugly when I reinstalled them, I had to make sure to place the columns back in exactly the right places.

My solution was to cut round plugs out of 2-by PVC stock that could be inserted into the base of each column. I screwed the plugs in place on top of the decking according to my map, and then slid each column into place over a plug for a perfect fit. A few screws driven through the sides of the columns into the plugs secured them to the decking as I reinstalled each rail section (**Figure 4**).

I wanted to keep water out of the columns, so I also cut round PVC plugs for their tops. I capped the columns with the plugs and a bead of sealant before installing the 4x6 red-cedar beam,

which is spliced with a lap joint over one of the columns.

To duplicate the profile that had been cut on the tails of the original rafters, I made a pattern to clamp to the ends of the new 2x6 red-cedar rafters and use as a template. I cut the rafter tails with a bearing-guided flush bit, and then I primed and painted the rafters. Prior to installation, I used a Kreg jig to cut pocket holes at the house ends of the rafters and in the faces of the rafters where they bear on the beam. Installation was simply a matter of driving coated structural screws through the holes into the ledger at the house and into the beam (**Figure 5**). ♦

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