Durable Trim
FOR COASTAL CONSTRUCTION

by Jim Blahut

PVC trim holds paint well, resists rot, and looks just like wood

My company, Perennial Homes, works exclusively in the affluent community of Beach Haven, N.J., which is known for its attractive Victorian-era homes. As a design-build firm, our niche is building new homes with attractive exterior details like flat casing, window and door pediments, and wide corner boards. My customers value these exterior details, and we take pride in creating exteriors that retain a historic look. Our biggest problem in the past has been that the elaborate wood trim that gives our homes their Queen Anne style simply rots away on New Jersey's weatherbeaten coast. When composite and plastic trim became available several years ago, I thought it might be a good solution for the hardship of coastal weather and the limitations of wood trim. I hoped to find a trim product that wouldn't change the aesthetics of our popular homes and wouldn't require as much homeowner maintenance as painted pine or cedar.

In our first attempt to find a long-lasting and good-looking exterior trim, we tried a hardboard-type composition product that

Figure 1. This hardboard product started showing signs of swelling after a year, even though the manufacturer's installation instructions were carefully followed (left). The Azek's PVC composition has held up better and still looks good three years after installation (right).

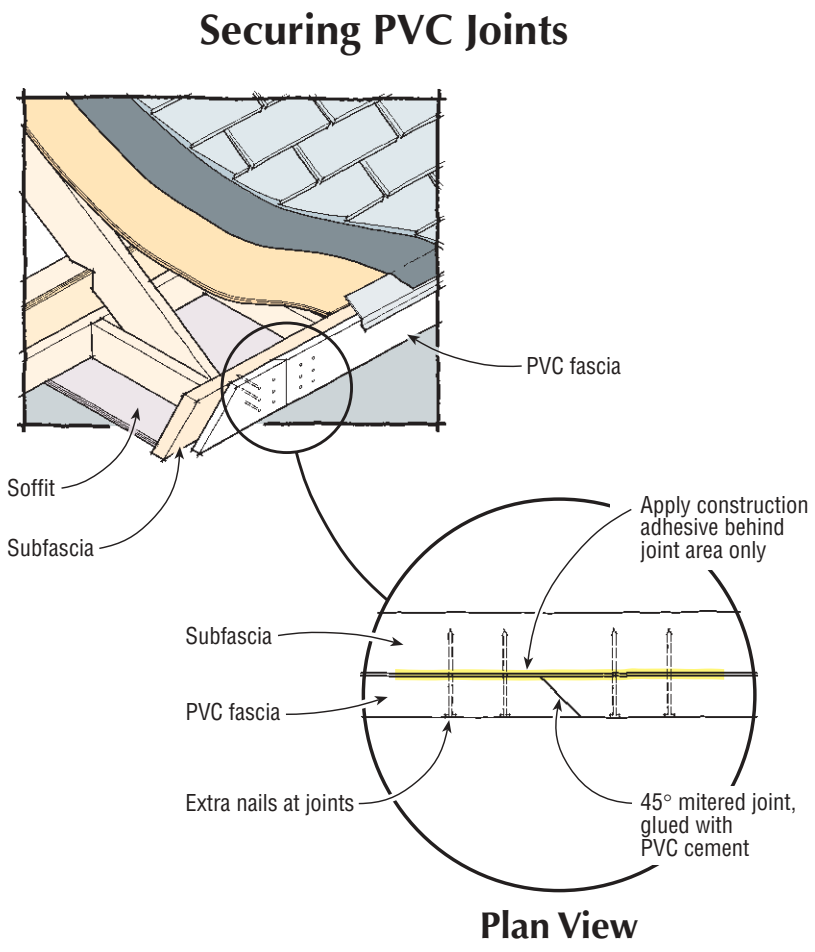

Figure 2. Because of PVC's tendency to expand and contract, the author uses extra nails and construction adhesive at joints so the gap will stay closed as the material moves.

promised lifetime durability and low maintenance. But it became apparent shortly after installation that the product had some limitations. Where the factory surface was disturbed from cutting or fastening, the material would swell, resulting in extra surface preparation by our painter. The hardboard's dimensional changes from wet weather and high humidity also made paint adhesion difficult (see Figure 1).

The next leg of our search led us to urethane, which has excellent dimensional stability and because of its composition should last a lifetime. But it wasn't right for us because it relies on its outer skin for an attractive appearance, and the exterior details on our homes require frequent ripping and machining of trim. When exposed, urethane's soft core looks a little spongy and inconsistent.

For almost three years now, we've been using Azek (Vycom, Moosic, Pa.; 866/549-6900, www.azek.com), which has held up well and retains the look of wood that our customers value. The PVC-based trim material is impervious to salt spray; it machines, cuts, and fastens like wood; and it's the only synthetic trim material we've found that can be machine sanded. We've been happy with Azek's performance so far, but it requires some special installation techniques to take full advantage of its durability and good looks. This is because its plastic composition behaves a little differently than wood.

Special Techniques

One of the drawbacks of plastic trim like Azek is its greater expansion and contraction compared to wood. On cold days, gaps can develop at unglued butt joints and miters. On long lengths of trim like corner boards or fascia, those gaps can be obvious, so we overlap joints with opposing 45-degree bevels, glue them with PVC cement, and put some construction adhesive on the back side (Figure 2). The adhesive securely attaches the joint to the house, and some extra nails at joints

and board ends actually force the material to stretch in the center, preventing unsightly voids as the material shrinks. Intersecting trim (corner boards terminating in a frieze, for example) should have a gap of 1/4 inch for every 20 feet of length, so we leave 1/8 inch at each end to make the gap less noticeable. Gaps aren't a big deal high up on the house, but in more visible areas, like the bottom of corner boards, we back cut the bottom edge to further hide the gap (Figure 3). Without a little room to move, warm temperatures can cause the trim to expand and buckle.

Plastic materials also get brittle in cold weather, so poorly placed fasteners might create a crack, especially if temperatures are close to freezing. We keep nails 3/4 inch away from board edges and stagger them slightly. Staggering fasteners also reduces the likelihood of a crack along the line of fasteners as the material contracts and tension increases.

Azek claims that its product won't yellow with age and doesn't require painting. Nevertheless, we always paint it because the brush strokes make it nearly indistinguishable from painted wood, and a couple of coats of acrylic-latex paint offer some additional protection from the elements. We use only 100% acrylic paints because they really stick to the material, and we prefer light colors rather than dark. Dark colors absorb more heat, resulting in greater expansion and softening of the material. Although we've experimented with darker colors and had good results so far, in climates warmer than ours they could result in saggy or bulging trim. It's best to stick with light shades or try dark shades before committing.

Casing Windows

We always preassemble our window casing in a four-sided frame in the shop and then install it on site in one piece over the window's nailing fin. Framing up the casing in this way has several key advantages. Using windows with a

Figure 3. Gluing corner boards with PVC cement keeps joints tight and makes installation easier. The author's crew hides expansion gaps with a slight back-cut on the bottom of corner boards where ordinary gaps would be more obvious.

Figure 4. PVC cement actually fuses corners together. This keeps corners tight and eliminates a possible source of water infiltration. Joints must be held together tightly with nails or screws while the glue sets, because the cement can't bridge gaps like other adhesives.

Figure 5. The author predrills at an angle and runs in some galvanized screws to hold the assembly while the glue dries. A scrap of 2-by makes for a true 90-degree angle and provides backup for drilling and fastening. To make several frames of the same size, cut the 2-by to the same dimension as the casing's inside length.

Figure 6. The drip cap used here is meant to reproduce a traditional wood cap and is ripped from a larger piece of Azek. One of Azek's strengths is that it allows you to sand out saw marks and other imperfections; other products "fuzzed," melted, or created extra work for the painter.

Figure 7. The author relies on the cement to bond Azek to itself. The fasteners simply keep everything tight while the glue sets. Here the author's crew places a few brads, keeping the cap in place while the cement sets up.

nailing fin creates a surface that isn't perfectly flat for trim. Because the fin is proud of the sheathing, casings tend to roll back toward their outside edge. Some builders put a thin rabbet on the back of the casing or shim the outside edge to match the thickness of the nailing flange. Both methods work, but preassembling the casing into a frame eliminates the additional step. Our method literally fuses the corners together with cement, which eliminates a source of water infiltration as well as gaps caused by cooler temperatures. Finally, cutting and assembling the casing gives us a foul-weather project when coastal storms prevent us from working outside.

We start our casing process by making a cut schedule when the windows show up on site. I measure the frame and add about $^{3}/_{16}$ inch to allow for caulking and contraction in cold weather. Large picture units get a little larger gap, and on twin and triple mulled units I add $^{1}/_{16}$ inch for each additional window on top of the $^{3}/_{16}$. I keep a file of measurements for future jobs; sometimes I have all the dimensions I need to make the frame assemblies without taking any new measurements.

The assembly process is straightforward. I start with a scrap of 2-by screwed to my workbench, which helps me get a true right angle and provides backup for predrilling and running in screws. If I'm making a few frames of the same size, it's easier if the 2-by is cut to the same length as the inside width of the casing frame. I make certain that both ends of my scrap are cut square, and I build the casing around it, starting at the bottom. I glue all joints with Gorilla's low-odor PVC cement (Gorilla Glue, Hollywood, Fla.; 866/782-4583, www.gorillapvc.com), which cleans up with water. The cement works the same as plumber's PVC cement and keeps everything nice and tight during changes in temperature. But just like plastic plumbing fittings, the pieces need to be held tight, because the PVC cement won't bridge even small gaps (Figure 4, previous

page). Then, I predrill at an angle and fasten the pieces with galvanized deck screws to hold while the glue sets (Figure 5, previous page).

After both bottom corners are fastened, I move on to the top. Our typical detail includes a 4-inch side casing with a 6-inch head casing to better reproduce older architectural styles. I fasten the top in the same manner, running it over the cut end of the side casing. The head casing gets a small piece of 1-by stock mounted on top, meant to replicate a traditional wood drip cap (Figure 6). I rip this out of a larger piece of Azek and fasten it on the flat with some PVC cement and a brad nailer (Figure 7, previous page).

We typically use preformed $1^1/_4$-inch copper drip cap, which adds a decorative touch, lasts forever, and helps to weatherproof the assembly. I cut the cap about 1 inch longer than the head casing and put a $^1/_2$-inch bend on both ends. I just use my framing hammer (not a waffle face!) and a block of wood to make the bends. When we install the casing frame, we make certain to slip the copper drip cap behind the housewrap so any water that gets behind the siding will run out when it reaches the top of the window (Figure 8).

We fasten the completed assembly to the wall with a pair of nails every 12 to 16 inches using a 15-gauge finish gun. The pneumatic finish nail's small wire size allows the material to move around with changes in temperature and reduces splitting. It also makes nail holes easy to fill and finish. After caulking and painting, the casing is indistinguishable from traditional wood trim, even under close inspection (Figure 9).

As with any new material, there is a learning curve with Azek, and some different techniques must be developed. But we've found the effort to be worth it, and our customers are happy with the results.

***Jim Blahut**, along with his brothers Don and Mike, owns Perennial Homes and builds in the Beach Haven community on New Jersey's Long Beach Island.*

Figure 8. Copper drip cap adds a nice touch to the completed homes. It's cut about an inch longer than the head casing and bent over the ends with a hammer on a block of scrap wood (above). The completed cap is slid up behind the housewrap when the frame is installed (left).

Figure 9. After the preassembled casing is nailed in place over the window fin, the narrow expansion gap between trim and window is caulked. Although the manufacturer claims that the material can be left unpainted, two coats of acrylic latex leave subtle brush marks, for a thoroughly convincing "woodlike" appearance.