PHOTOS BY BOBBY PARKS

Finishing Decks And Porches With Cellular PVC Trim

It won't rot, split, or swell due to moisture, making PVC a near-perfect exterior trim option for deck and porch builders

by Bobby Parks

We first began installing cellular PVC trim on our projects in 2005, using it for outer band trim, rail caps, bar tops, skirting, and amenity trim. When we began to focus on porches, we also used it for wrapped columns and beams, sill-plate wraps, and chair rail, along with traditional uses like fascia, soffits, and corner and frieze boards. Over the years, we've used it for a number of other applications, including built-in weatherproof benches and outdoor cabinets.

If you're not using PVC trim on your own projects, you're missing out. Not only is it a product that will reduce callbacks and warranty claims, it will also help you differentiate yourself from your competitors and increase your bottom line.

The Same but Different

Each company that offers cellular PVC trim manufactures it slightly differently, with different additives and processes. Sometimes these differences—in whiteness or texture, for instance—are noticeable simply by comparing boards. There are also less-visible variables: levels of UV protection, degrees of thermal expansion and contraction, and capacities for paint adhesion. And guaranteed exact measurement tolerances can vary from one manufacturer to another by 1/32 inch or more. All of these characteristics affect performance, so it pays to shop carefully.

Depending on the manufacturer, PVC trim is available in a wide range of sizes, including 4x8 sheets and 1x4 and 1x6 boards in 12- and 18-foot lengths; at least one manufacturer (Versatex) offers 4-foot-wide sheets up to 20 to 24 feet long in a number of thicknesses. Two-by material, a good option for arbors and even railings, is also available, in typical nominal sizes from 2x4 through 2x12. Numerous profiles are available too.

Figure 1. While plugged fastener systems add to the cost of PVC trim installation, they provide a sure grip and are the best option for concealing the fasteners when the trim will remain unpainted. Some kits are color-matched to specific brands of PVC, with plugs that have both smooth and textured faces.

Figure 2. The reverse thread near the head of GRK's RT composite trim-head screws is designed to prevent mushrooming.

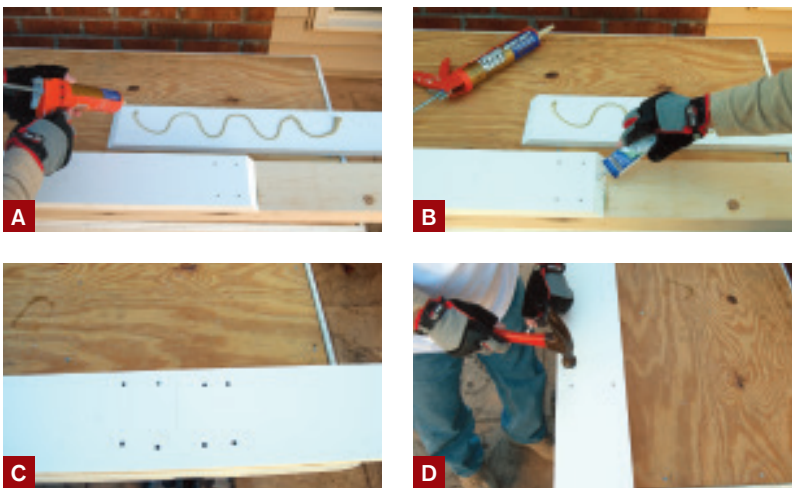

Figure 3. To lock a PVC joint in place, the author begins by gluing the trim to the substrate with construction adhesive (A). After locking the first length of trim in place with two pairs of countersunk trim screws, he applies PVC adhesive to one face of the lap joint, which he cuts at a 45-degree bevel (B). Four more fasteners are used to secure the second length to the substrate while the PVC adhesive in the lap joint cures (C). Once the joint is assembled, the fastener holes can be filled with plugs (D). Some precut plugs are available that are color-matched to specific brands of PVC trim. Alternatively, custom plugs can be cut from scrap trim.

When I first started using PVC trim, I unfortunately didn't pay too much attention to the manufacturer's installation instructions, and I had some callback issues. What I quickly found out is that PVC trim isn't installed or finished in exactly the same way as wood trim. For example, one of our biggest early mistakes was to install PVC rail caps with butt joints held in place with pairs of screws at the joints. Since PVC expands and contracts with changes in temperature, these joints would then open up and allow water to soak into the wood below, causing the wood to swell and the joint to open up even more. In a few cases, the movement stressed the joint enough to break the fasteners.

Read the Installation Instructions

For cutting, most manufacturers recommend using carbide-tipped blades with as few teeth as possible. That's because more teeth leads to more frictional heat buildup in the cut, which can melt or even possibly burn the PVC. We've found that blades with a 32- to 40-tooth count work fine. PVC trim flexes more than wood, so it's a good idea to have plenty of support on both sides of your cutting station.

Spraying static guard on our tools and even on ourselves helps to keep most of the PVC dust from clinging to and clogging tools. If you're working inside a shop, it's a good idea to hook up your cutting tools to some kind of dust collection system. When you're working outdoors, a little planning—such as using a drop cloth to catch the shavings—is helpful for job cleanup if you're not in an area that can be easily swept up.

PVC trim can be installed with nails, screws, or plug systems, typically with the fasteners spaced 16 inches on-center (**Figure 1**). As a general rule, we use two fasteners every 16 inches for 1x4s and 1x6s, three for 1x8s and 1x10s, and three to four for a 1x12, but it's always

best to refer to the trim manufacturer's installation guidelines.

We prefer to use stainless steel rather than galvanized fasteners, sized so that at least 1¼ inches of the fastener penetrates into the substrate. While thin-gauge staples are not recommended for use with PVC trim, we sometimes use stainless steel finish nails along with PVC glue to make the running edge connections when building custom column wraps. Of course, some manufacturers now offer prefabricated column-wrap kits that install easily without the labor needed for custom columns. In most cases, no nails are needed for the kits, since there is typically a single running joint that only requires glue.

For hand-nailing fascia and outer band trim that is going to be painted, we use 8d stainless steel ring-shank nails. Trim can also be installed with pneumatic finish nailers set to between 80 and 100 psi, depending on the thickness of the trim, the fastener gauge, and the type of gun. As a general guideline, if the fastener can be bent between your fingers, it's not recommended.

For trim that's not going to be painted, we use either trim screws with prepainted heads, such as GRK's RT Composite screws, or one of the plugged screw systems, such as FastenMaster's Cortex or Starborn's Pro Plug (**Figures 1, 2**). When installing PVC rail cap, we fasten it to the substrate with either prefinished stainless steel trim screws or 2½- to 3-inch stainless screws that are filled and painted over when trim paint is applied.

Thermal Expansion and Running Joints

When it's hot outside, PVC trim expands; when the temperature drops, it contracts. The rate of expansion or contraction is about 1/16 inch per 20°F change in temperature above or below the initial installation temperature. Any thermal movement that does occur will be along the length, rather than across the width, of the board and is more of a factor with longer lengths. PVC is not affected by moisture and does not swell like wood, as it doesn't absorb water.

To avoid problems with running joints, we've learned to allow and compensate for thermal movement during installation. For example, during the summer, we try to run trim early in the day, before it has had a chance to heat up. We also try to keep PVC stacked out of the sun prior to installation, rather than leaving the material out in the driveway all day.

When it's hot, all joints should be tight. In cool or cold weather near freezing, we leave 1/8- to ¼-inch gaps at joints to allow for the movement that will eventually occur when it warms up.

Three-Step Joints

It is possible to create a PVC joint that won't open up. To control movement at lapped butt joints—which I use when installing long runs of rail cap, outer band trim, or fascia—I employ a three-step process (**Figure 3**). First, I apply an outdoor construction adhesive (Versatex recommends Liquid Nails Heavy-Duty Construction Adhesive LN-903) to the back of both trim pieces, extending about 2 to 3 feet from each side of the butt joint. Then I fasten the first trim piece to the substrate with two pairs of fasteners, one pair an inch from the joint, and the other pair 2 inches behind the first.

Next, I apply PVC glue (Weld-On PVC 705 works well) to the end of one of the two pieces being butted together. (Applying glue to both ends will weaken the joint by not allowing the two pieces of PVC to fuse together properly). Finally, I install the second piece of trim like the first, with a double set of fasteners. With the joint locked together like this, any thermal movement will be forced to occur away from the joint.

With rail cap and outer bands on decks, it's not likely that there will be more than a couple of full lengths of run at a time.

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Figure 4. The chevron-shaped piece of decorative trim at the peak of this porch roof conceals the joint between the two pieces of PVC fascia trim, which will open and close with changes in temperature.

Figure 5. Longer lengths of PVC trim require a movement joint, which the author creates by first cutting a matching shiplap profile on the end of each board with a router (top). It's best to place a shiplap movement joint in an unobtrusive location, as the joint will be visible in cooler weather when the boards contract. Some builders fill the gap with sealant, but this step isn't necessary; the joint itself will block most moisture from penetrating to the substrate (above).

Figure 6. After cutting or routing PVC trim, the author gives the cut a light sanding with 320-grit paper (above left). After sanding, wiping the cut down with acetone (above right) causes a chemical reaction in the PVC that closes up the cells and prevents the cut edge from trapping dirt.

Even so, I like to make an allowance for expansion somewhere along the length of the trim, either at a corner or with a shiplap movement joint at one of the butt joints (explained below). If the run is fairly short (less than 14 feet), then I lock down any joints with the three-step process.

When fascia or outer band trim is being installed from a 90-degree corner, I like to begin with a 6- to 8-foot-long starter piece. I use PVC glue in the joint itself, glue the trim to the substrate with construction adhesive, and use double fasteners to lock the corner in place using the method described above. Then I use the same three-step attachment method with the next full length of trim, unless that's where I plan to place a movement joint. Since shorter lengths typically don't move much anyway, this approach helps ensure that the corner joint won't open up.

Where stair rail cap meets the flat rail, it's better to let the flat cap extend out and overlap the sloped stair rail cap, rather than use a mitered joint. This allows the angled stair piece to run underneath the upper cap, hiding any movement.

On gable fascia, I typically will install a chevron-shaped piece of decorative trim at the peak that hides the fascia joint and allows the two pieces of fascia to move (**Figure 4**).

Shiplap Movement Joints

When there are longer runs with three or more boards involved, I make sure that at least one of the joints is a movement joint, to handle thermal expansion and contraction. Instead of the three-step butt joint, I make a shiplap joint using a small router with a rabbeting bit. After making the initial cut into the middle of the board end, I let the router bite in and then use a layout square as a guide to keep the router from running around the corners (**Figure 5**).

To allow for movement, I omit any adhesives and fasten the boards with single pairs of fasteners about an inch from the end of each board. Some builders fill their movement joints with a flexible sealant, but my feeling is that even if there is movement, there will still be material in the gap to block moisture from penetrating beneath the trim into the underlying substrate when it opens up. When possible, I try to locate shiplap expansion joints in the least visible areas.

Closing Up the Cells

Routing and ripping PVC opens up cells in the material, which can then trap dirt and debris. The same thing occurs on end cuts that are left exposed. To address this problem, I lightly hand-sand all cut or routed edges with 320-grit sandpaper, and then wipe them with a cloth soaked with acetone. The acetone chemically reacts with the open cells, heating them and closing them up (**Figure 6**).

If a long rip cut is involved, a palm sander with 320-grit paper speeds up the process. But keep in mind that the goal is only to get the process started, not to sand the material until it's closed up. It's the acetone that does that work.

For normal cleanup (especially on trim that isn't going to be painted), we use CorteClean or even regular household

Figure 7. When you're working with cellular PVC, the right adhesives and sealants and a few specialty items will result in a better-looking job.

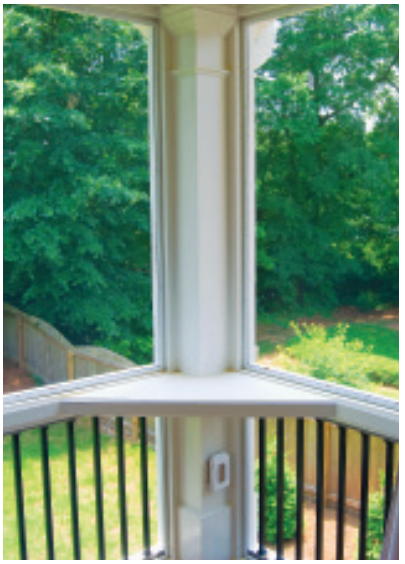

Figure 8. The beauty of PVC trim is its versatility; here it's used to create a maintenance-free corner nook on a porch.

cleaners like Soft Scrub or Spic and Span. If there are stubborn stains, a nylon scrubbing pad can be helpful; so can careful handling and keeping the material covered to protect it from dirt and debris in the first place.

For hammer marks, band strap marks, or areas where the board was crushed or pushed in and the original material still exists, a heat gun held about a foot away from the ding can often pull or bake it back out. If it's a deeper scratch or gouge where material has been removed, a structural adhesive filler such as two-part PVC TrimWelder will be required.

Caulking

Urethane caulk must be used with PVC trim; silicone will not adhere properly. If the caulk tube doesn't have a metal end cap, it's likely the wrong caulk. If we're using Versatex and aren't planning on doing any painting, we use NPC's Solar Seal 900 because it's color-matched to this particular product, and it has a lot of elasticity (**Figure 7**).

If we're painting the trim and aren't worried about the color, OSI's Quad and EP-1000 and Geocel 2300 work fine with all brands of PVC trim.

Painting

If the trim is going to be painted and we've used nails instead of plugged screws, I like to fill the nail holes. Versatex recommends DAP CrackShot, but pretty much any good vinyl spackling product will do.

Some PVC manufacturers claim that priming their trim isn't necessary; still, we always prime our trim prior to painting. And in some cases, PVC trim must be painted to prevent yellowing. In all cases, again, it's important to follow the manufacturer's recommendations.

100% acrylic latex paint is recommended for use with most brands of PVC. Standard paints—such as Sherwin-Williams' Duration or Benjamin Moore's Moorlife—are usually fine to use with PVC trim, as long as the paint is a lighter color with a reflective value of at least 55 (the light reflective value (LRV) can be found on the paint tabs in the paint store).

Dark paints can also be used with PVC trim, but they must be formulated specifically for this purpose. Specialty paints, such as Benjamin Moore's Vinyl Select and Sherwin-Williams' Vinyl Safe, that are made for vinyl siding are a little more expensive than standard paints because of their built-in reflective capacity, so plan on additional expense and consulting time with your paint-store rep.

An Upgrade That Improves Your Bottom Line

The value that PVC trim brings to a job is well worth the slight increase in cost, which will vary a lot depending on the project, the market, and local labor costs, especially if a screw-and-plug system is used (**Figure 8**). I've found that it has been easy to communicate that value to prospective customers, especially those who have dealt with repairs and maintenance issues in the past. ❖

Contributing editor Bobby Parks founded Peachtree Decks and Porches in Alpharetta, Ga., and is currently a consultant to the decking industry. He lives in Winston, N.C.