

# PVC Roof Trim

A coastal builder's technique for durable and weathertight fascias and soffits is based on years of experience with plastic trim

BY JOHN SPIER

**JOHN SPIER** grew up on a farm in upstate New York. There he built boats, barns, and tree houses, and generally nailed stuff together from the time he was old enough to mess up his father's workshop. Since then, he's worked in the construction trades all over the country; for the past 27 years, though, he's been a general contractor on Block Island, R.I. In between jobs, he found the time to pick up a degree in architectural engineering and to circumnavigate the globe with his family on a 45-ft. sailing catamaran.



**Master Carpenter**



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**F**raming defines the bones of a building, but a well-executed trim job highlights its design for the world to admire. If done properly, the individual trim components blend together, their arrangement is smooth and harmonious, and the trim looks good for years to come. Trim installation is also a very satisfying part of the job that marks the transition from rough frame to fine finish.

For almost thirty years, I've been building and renovating on Block Island, R.I., a place where houses are routinely blasted by wind-driven salt, sand, debris, and precipitation, occasionally all at once. I've learned to

have my clients invest in quality materials to resist these forces of nature, and for the past decade, this has included PVC exterior trim. As with using any new material, installing PVC has a learning curve, but after working with it for a number of years, I feel like I've developed techniques that allow the material to perform at its highest potential.

Recently, I built the house shown here and trimmed it in PVC. The design includes an upper roof marked by almost rounded gables and a pair of A-style dormers. A lower roof shelters a porch encircling the first floor. With their longer lengths and variety of joints, the house's roof soffits and fascias pro-





## HOW TO HANDLE FLOPPY BOARDS

PVC trim stock arrives on-site in long lengths: 18 ft. for 3/4 stock and 20 ft. for 5/4 stock. It lacks the rigidity of wood unless it's carried on edge, which makes it hard to balance on a miter-saw stand.



**Smaller is good.** Keep a cordless saw near the stock pile, and cut pieces to rough length before carrying them to the miter saw and trimming to exact size.



vide good examples of the methods I use to work with the material.

### Good or bad, PVC isn't wood

Although PVC trim is weatherproof, its plasticity makes it harder to work with, especially if you're used to working with wood. First, because of its flexibility and long lengths, it's difficult for one carpenter to move efficiently. It took a couple of jobs for me to find an efficient method for carrying and cutting the floppy material.

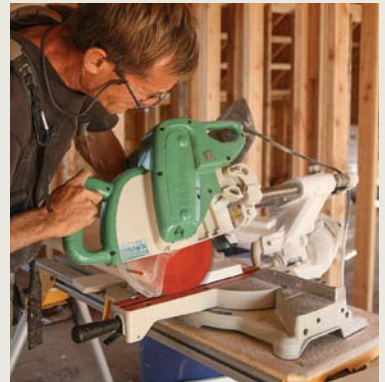
Its flexibility also means that PVC will telegraph every bump and ripple in the framing, rather than bridging and hiding them, so the

**Plan for support.** Enlist the help of another carpenter, or use a couple of tall folding sawhorses that you can move around as needed. You can also scab a board across an interior wall to support the stock in line with the saw table.

TOOL OF THE TRADE

### Laser assist on a miter saw

I've done a lot of trim work over the years with a Hitachi C10FSB sliding compound-miter saw, whose laser is especially useful for fine-tuning trim. It projects a well-defined, sharp line that makes shaving a degree from a cut much easier and faster.





# STRAIGHT SOFFITS SIMPLIFY ASSEMBLY

Align soffits with the outside edge of the 2x subfascia. Before installing them, make sure the subfascia is straight. If it's not, adjust the framing. In addition to creating an even substrate for installing the fascia, this makes for faster trim installations with tighter joints.

## Fix the framing



**Push it out.** Before the soffits are attached, use stringlines to check the straightness of longer runs of subfascia. Here, slightly longer blocking is hammered into place to push out the subfascia.



**Pull it in.** When the subfascia is too far out, cut back the rafter tails with a reciprocating saw.



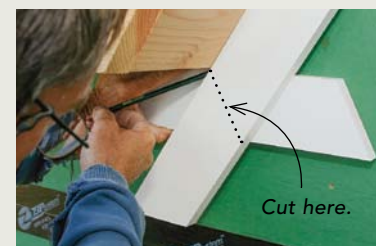
## Start with the rake

**Mark it in place.** Measure soffits by holding the first piece in place and marking its length, rather than using a tape to transfer measurements at the saw. Fasten soffits with pneumatic nails in every piece of blocking.

## TRICK OF THE TRADE

### Find and bisect an angle

The simplest way to get accurate miters and bevels without special tools is to hold a couple of scraps in position, mark where they overlap, and cut across the diagonal points using a miter saw. Fine-tune the angle until the scraps fit perfectly, and make note of the saw setting.



framing needs to be straight before I start to trim. I use shims, saws, a grinder, and an old power plane to smooth things out.

The other tricky aspect of PVC is its finish. PVC crosscuts, rips, and routs smoothly, but the exposed core doesn't have the same smooth surface as the factory faces and edges. When I look back at my earlier PVC-trim jobs, it's usually the ripped edges and cut ends that I notice first. In the early years, the material's porous interior structure tended to capture mold and dirt. Since then, manufacturers have refined the material's composi-

tion. Even so, I've learned to plan carefully so that only factory edges are exposed.

When that is not possible, I smooth ends and edges that will be visible with a slow pass of a sharp plane. I also use a block plane to ease sharp corners. Some professionals advocate wiping down cut edges with acetone to seal the material, but that's an additional level of toxicity that I prefer not to have on the job.

### Make PVC joinery stick

I've used the gamut of fastening systems for PVC trim. In the past, I hand-nailed

trim with stainless-steel nails, but the nail heads were visible and detracted from a clean appearance. I now use a combination of pneumatic nails and Cortex screws and plugs. I fasten soffits with stainless finish nails because the holes there aren't as noticeable. I hang fascias using just a few nails where they will be hidden by a second fascia layer, and then I finish fastening with screws and plugs.

On jobs that are to be painted, I nail everything pneumatically and fill the nail holes with a shrink-resistant and UV-resistant

## The right glue

I've done some comparative and destructive testing of PVC glues, and I've found that generic high-strength glues, typically used for plumbing or conduit work, are more affordable and work very well. On the other hand, purpose-formulated glues, such as Azek's proprietary brand, offer a longer working time. It's a good idea to buy the smallest cans available. Even though the unit cost is higher, I almost never get through an entire can before it gels and becomes useless.



**Assist the glue bond.** Keep a fresh glue joint tight with 23-ga. pin nails driven through the miter.



**Straighten as you go.** With the outside edge exposed, it's easy to straighten a wayward soffit with a well-placed shim.



## Finish at the eaves



**Begin at the corner.** Start at one end of the soffit with a miter, keeping the outside edge flush to the subfascia.

**Simple is best.** In the field, join soffits using butt joints without glue, and leave a space at the sheathing or beam for drainage. Fasten the board at each rafter tail with at least two nails.



vinyl or epoxy exterior filler made for PVC. If the dried filler is not painted afterward, its porous texture tends to attract dirt and can look shabby (see "Good reasons to paint PVC," p. 79).

I also keep in mind the ambient temperature when I'm installing PVC trim. I don't get scientific about it, but in hot weather, I fit pieces tighter; in cold weather, I leave some expansion room at the unglued butt joints between long soffit pieces. About 1/16 in. between boards seems to work well. At the corners, I cut miters a bit proud of the

framing, especially in hot weather, to allow the framing to move. When the temperature drops, the trim can shrink and still retain the integrity of the joint. I use 23-ga. pin nails to hold miters together while the glue sets, a holdover from the way I've always trimmed with wood. On return visits, I've found that those PVC miters stayed tight.

### Start with the soffits

Roof trim consists of two main components: soffits and fascias. It's possible and occasionally better to install fascias first and then

fill underneath later, but soffits generally are where you establish your initial straight lines. The outer edge of the soffit provides a straight fastening surface for the fascia, and without the fascia in the way, the soffit is easy to hold and shim straight as needed. Another consideration is that soffits should always ventilate and drain; I use butt joints in the field, and I don't fit the soffits tightly to the sheathing.

One of the secrets to efficient soffit work (or work on any roof trim, for that matter) is to make angled cuts on the smaller pieces



# FASCIA DEFINES THE ROOF

As the most visible part of the roof trim, the fascia needs to run straight and neat. Bumps and uneven joints in the framing can prevent the fascia from making even contact with the soffit, so sand or grind them flat. To minimize seasonal movement, secure the fascia joinery with glue and nails.

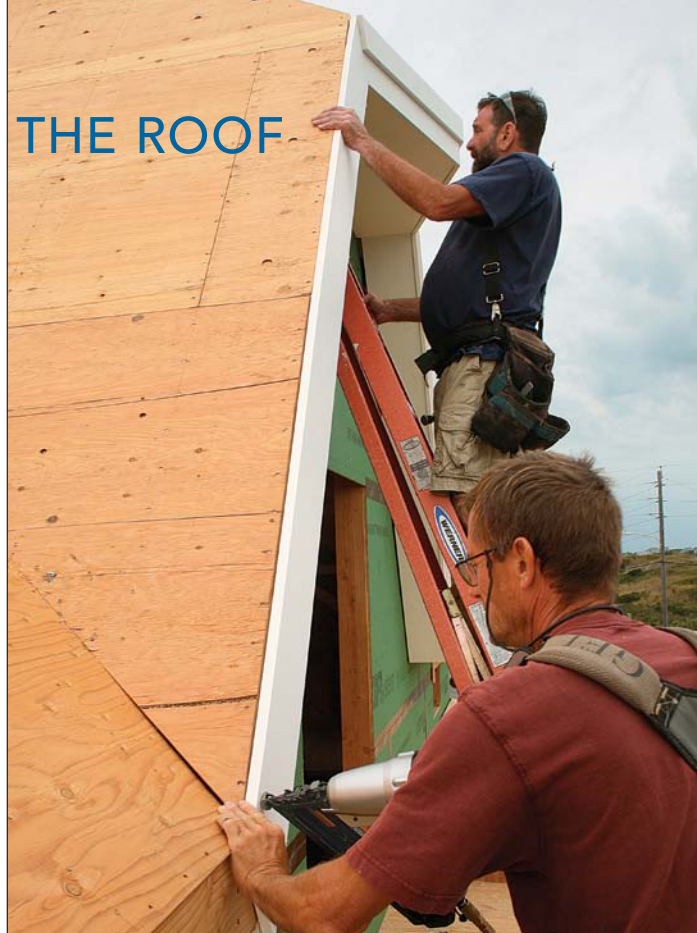
## Make a flat base



**Bevel the edge for a better fit.** Where the subsfascia can't be adjusted, use a right-angle grinder to remove material on the top edge of the soffit so that the fascia will install plumb and tight.



**Level the field.** The grinder comes in handy where adjoining lengths of subsfascia don't align.



## Secure the joints



**One nail helps.** After finding the correct angle, cut and glue the fascia pieces, making sure they stay even with the plane of the roof sheathing. A 16-ga. nail provides insurance.

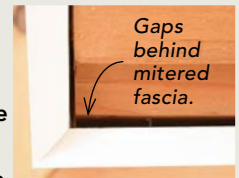


**Rake meets eave.** Miter and glue the rake's plumb cut, then mark and trim the bottom edge flush with the eave.

## TRICK OF THE TRADE

### Cut fascia miters long

Cutting stock about  $\frac{1}{16}$  in. longer and miters at about  $46^\circ$ , rather than  $45^\circ$ , keeps corners tight, even when the temperature drops and the PVC shrinks. The more acute angle also creates a small space at the back of the miter, so glue won't squeeze out in front. PVC glue doesn't structurally bridge gaps, however, so don't weaken the joint by overcutting more than a couple of degrees.



that are easier to handle and mark. I never try to fit a joint at both ends of a long length of trim, and I try to do as little measuring as possible. It's much faster and more accurate to scribe a piece than it is to measure once on the house and a second time at the saw. And if I can place joints well above eye level, they are much less likely to be noticeable. Finally, when I'm cutting trim, I have a mental overview of the lengths that I need and how they will best come out of the stock. I keep track of my cutoffs, I know where I will be able to use them, and I allocate lengths so that

soffit and fascia joints are staggered by a few rafter bays.

### Keep the fascias looking sharp

Fascias are the most obvious and visible trim component on most houses, the element that defines the shape of the roof and makes the visual transition from siding to roofing. They need to be straight and plumb. Because of PVC's flexibility, I have to ensure that the framing beneath the fascias also is straight.

I install the rake fascia first, starting with a plumb cut at the peak. If I know the exact

roof pitch, I can transfer the angle to the miter saw and make the plumb cut; alternatively, I can mark the board plumb with a short level and then cut to the line. Holding the board in place, I mark and cut the lower end where it transitions into the eave fascia.

Next, I cut the eave fascia. I use a mitered scrap to establish the first corner, and then I use scarf joints in the field. (During the framing stage, I add a 2x subsfascia for strength and stability, so when I'm trimming, I don't need to worry about aligning trim joints over rafter tails.) With a helper supporting the



## Miters start the eaves

**Begin with a guide.** To install the fascia at the eaves, use a mitered scrap to set the position of the first full-length piece's miter.



**Scarfs stay put.** At 45°, scarf joints offer more gluing surface than a butt joint. To keep a scarf from moving during installation, put a fastener at least a foot away from the joint, then glue and fasten the joint.



**Almost ready for the roof.** Installed with straight lines and tight joints, the finished soffits and fascias define the edges of the upper and lower roofs, as well as the lines of the house.

other end, I can usually hold the last piece of fascia in place and mark the cut.

Many houses have a second, narrower piece of fascia on the rakes called a *double rake*; I install this after the eave fascia is done by snapping a line, working from the peak, and cutting it flush at the eave corner. I often switch from the plumb cut I used on the rake peak to a butt joint on the double, which covers most of the plumb cut and helps to keep water from penetrating to the framing. □

Photos by Charles Bickford.

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## Good reasons to paint PVC

Although it's completely weatherproof, PVC looks better when it's painted. Cut edges have a rough texture if not smoothed with a hand plane or wiped with acetone. Left unpainted, they capture dirt and mold over time. The same is true with filling nail holes. The paint seals the porous texture of the recommended filler and prevents dirt from sticking to the surface.