

Flashing and Trimming a Window

This methodical approach speeds the work and guarantees a durable, weathertight installation



by Emanuel Silva

Because window flashing disappears from sight once the window itself is in place, it's easy to rush through that part of the job and move on to something else. Windows are sometimes installed with no flashing at all, and in my work as a remodeler I often see windows that are installed right over the housewrap, with the adhesive membrane applied over both the housewrap and the window flange. That's better than nothing, but not by much — it can't stop any water that gets behind the

housewrap above the level of the window, since by then water will already have gotten behind the flashing as well.

To prevent window leaks — along with the mold growth, rot, and callbacks from irate clients that go with them — I've developed a bombproof method of keeping my windows reliably watertight. It includes several tips and tricks I've learned from other builders, and I'll probably continue to tweak and improve it in the years to come. The key is to take accu-

rate measurements and work methodically; cutting flashing by eye and sticking it in place freehand won't give you consistently good results.

Flashing the Rough Opening

Assuming that the housewrap has been properly lapped and fastened to the sheathing, my first move is to cut it back from the sides and bottom of the opening by the width of my level, using the level itself as a straightedge. I leave it flush with

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Figure 1. Once the housewrap has been cut back from the sides and bottom of the rough opening by the width of a level (left), a flap along its upper edge is temporarily tucked out of the way (right).

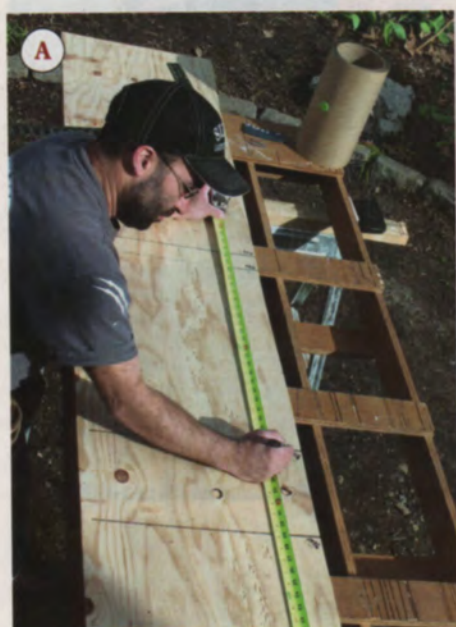


Figure 2. Transferring the dimensions of the flashing pieces to a plywood story board makes it easier to cut them accurately to length (A). Each piece is then folded lengthwise twice (B) so it's short enough to cut against a standard framing square (C). Corner pieces, or bow ties — measuring about 1½ inches by 8 inches overall — are cut from scrap material (D, E).





Figure 3. After the sill flashing has been adhered to the sheathing and housewrap (A), a vertical cut at the corner forms a flap that is folded against the sill (B). A partial cut at the far end is snipped through when the flap has been folded down halfway along its length (C).

the edge of the opening at the top (see **Figure 1**). I then make a 6-inch cut at each of the top corners, angled back from the opening at 45 degrees, and temporarily tuck the resulting flap under itself to get it out of the way.

To make it easier to put the flashing on straight, I use my level again to draw plumb and level lines at the sides and bottom of the opening. The distance the lines are from the opening depends on the width of the trim, since the flashing needs to extend far enough to protect the joint between the casings and siding — but 6 inches is usually fine.

Cutting the flashing membrane. There are two separate sets of flashing pieces: the inner pieces that are applied to the sheathing and fold back over the framing, and the outer pieces that cover the window flanges. I cut both sets at the same time, determining their lengths by measuring directly from my markings on the housewrap. To calculate the width of the inner pieces, I add the distance the lines are set back from the opening to the depth



Figure 4. One end of a bow tie is adhered to the flashing membrane outside the opening, the other half folded to the inside (left). When applied correctly, the narrow center section will turn neatly up the corner of the opening (right).

of the framing, plus the thickness of the sheathing. For the 2x4 framing shown here, that came to 6 inches plus 3½ inches plus ½ inch, or 10 inches even. The outer flashings are 3 inches or so wider than the window flanges themselves.

For accurate cutting, I transfer those measurements to a story board — fashioned from a piece of plywood about a

foot and a half wide by 8 feet long — that I attach to my work table (**Figure 2**). I prefer Grace Vycor flashing because it's pre-marked at 6- and 12-inch intervals, which simplifies measuring. I ordinarily buy it in the 12-inch width. Once I've cut the main flashing pieces to length and width, I cut a couple of "bow ties" to seal around the corners of the opening.

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Figure 5. Side flashing is applied from the top; the backing paper is peeled away as the material is aligned with the pencil line on the housewrap (A). A pre-cut slit at the bottom creates a flap that's folded into the opening and pressed into the corner (B, C). Head flashing is applied flush with the edge of the opening (D).



Figure 6. A bead of caulk on the top and sides of the flashed opening provides a bed for the window's nailing flanges (left). Once pressed into the caulk, the window is plumbed, leveled, and fastened in place (above).

Flashing the sill and sides. The sill piece is applied first. If the rough openings have been sized to allow it, I'll tack a full-length piece of clapboard to the rough sill before applying the membrane, creating an outward slope that will cause any water that somehow makes its way past the window to drain to the outside. In practice, though, this isn't always possible — I had to omit the clapboard from the job photographed here because including it would have left insufficient clearance at the window head.

To apply the membrane, I first peel back enough of the backing to accurately position one end, then peel off the rest, keeping the bottom edge aligned with the pencil line on the housewrap. Next, I cut most of the way through one end of the



Figure 7. Outer flashing goes on over the window's side and top flanges (A, B). The flap of housewrap above the window head is then pulled down and taped in place over the head flashing (C, D).

flap that extends above the opening — starting from the corner but leaving a narrow connecting piece at the top — before completely cutting the other end free and folding it down against the sill (Figure 3, page 33). Once I've worked my way halfway down the sill, I cut through the last bit at the far corner with a quick jab of my utility knife and fold down the rest of the flap. This two-stage approach makes the material easier to control and helps prevent the formation of wrinkles and air bubbles.

Finally, I apply a bow tie to each bottom corner, which serves to seal the small pinhole where the side flashing will later fold over the sill flashing. Although this area is often ignored, it's a common source of leaks. When properly applied, the bow

tie catches the end of the horizontal flap stuck to the sill, and turns the corner to extend a fraction of an inch up the trimmer stud (Figure 4, page 33).

Side and head flashing. The side pieces are applied in much the same way as the sill piece, except that I start at the top and work down. But one important preliminary step comes first: When the side pieces are still on the story board, I cut a vertical slit through the bottom of each to create the flap that will be turned up and stuck to the horizontal sill flashing (Figure 5).

Once I've pressed the membrane against the sheathing and housewrap, I carefully fold the side flap into the opening and stick the slitted section flat against the sill, using a layout square as a guide to

form a neat inside corner. I then work my way back upward, pressing the side flap against the trimmer and cutting it loose at the top when I'm partway along, similar to how I installed the sill flashing.

With both pieces of side flashing in place, I'm ready to install the head piece. This is easy, because there are no folds to make — the membrane is just stuck to the sheathing above the window, its lower edge flush with the opening and the ends lapped over the side flashing.

Window and Outer Flashing

Before placing the window, I caulk the top and sides of the flashed opening to provide a bed for the flanges (Figure 6). I don't caulk the area behind the bottom flange, though — that way, water can drain to

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Figure 8. The author uses a track saw to create exterior trim of any width from 3/4-inch PVC sheet stock.

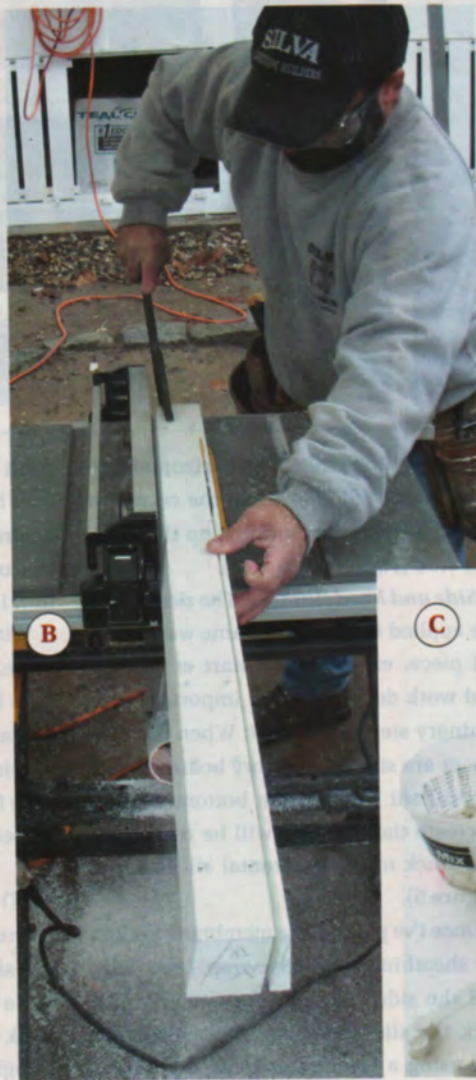
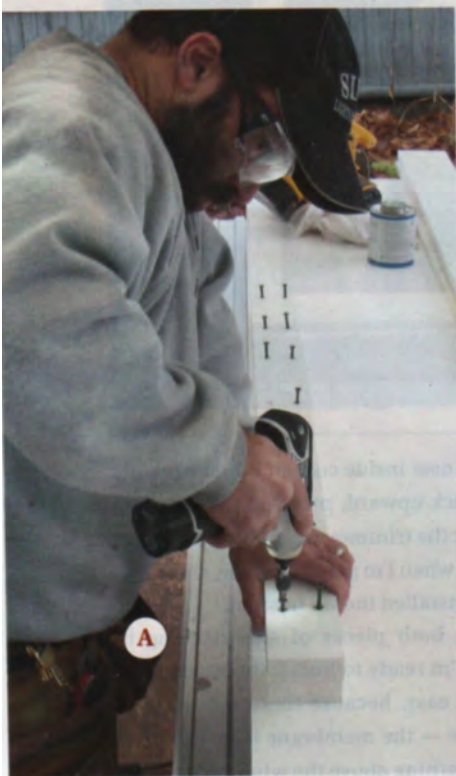


Figure 9. The exterior sill is built up from two thicknesses of material fastened with cement and screws; the screws are spaced back from the edges to avoid contact with the saw blade when the stock is ripped to the required angle (A, B). The countersunk screw holes are filled with manufactured plugs and cut flush (C).



the outside if necessary. For added insurance, I apply a continuous bead of caulk to the horizontal surface of the sill, about 2 inches in from the sheathing. This acts as a dam to prevent wind-driven rain from penetrating beyond it.

After installing the window and confirming that it's plumb and level, I nail it in place according to the manufacturer's directions.

Once the window is secure in the opening and operating freely, I'm ready to apply the outer flashings. I install the side pieces first, working from the top edge of the inner head flashing to the sill, then I go back to the top and add the head flashing (Figure 7, previous page). Finally, I pull down the folded strip of housewrap at the top and seal the corner cuts with strips of housewrap tape. I don't tape the bottom of the housewrap, so that any water that penetrates the housewrap can drain rather than soaking into the sheathing.

Assembling and Installing Exterior Trim

I cut the sill, head casing, and side casings from PVC sheet stock, preassemble them, and install them as a unit. Starting with sheet stock (rather than dimensional material) gives me the option of cutting my trim boards to any width I need without being limited to nominal sizes. Sheet



stock is easier to transport between jobs because it comes in bigger pieces.

It's not easy to push full sheets of material through a table saw, especially when I'm working by myself, so I make the initial cuts with my TrueTrac track saw, which is easy to set up and break down (Figure 8). Once I have my stock cut to width, I pull the length measurements directly from the installed window to make sure they're accurate. I often jot them down on the back of my tape-measure blade as I go, then rub them off with my thumb after I've made the cuts.

I build up the sill from two pieces of 5/4 stock fastened together with glue and screws (Figure 9). After ripping the edges to the required 10-degree angle and cutting a shallow dado along the underside to act as a drip edge, I clamp the side casings, sill, and head casing together and predrill them for pocket screws (Figure 10). Before assembling the unit, I put a screw in each hole to speed things along. Glue-up is fast once all the pieces are ready — I coat the mating surfaces with PVC cement and use a pocket-screw clamp to hold each joint together while I drive the screws home. The side casings are fastened to the sill first, then the head casing.

To fasten the trim assembly to the house, I use 2-inch deck screws, arranged in two rows about 8 inches apart within each row. I drill and countersink the screw holes and insert the screws, then turn the unit around and apply a good-quality caulk to the back just before installation.



Figure 10. The backs of the prepared sill and casings are drilled for pocket screws (A). Facing surfaces are then coated with PVC cement and temporarily clamped together while the screws are driven (B). Next, the completed trim assembly is drilled for the deck screws that will fasten it to the framing, and caulked on the back before being lifted into place (C, D).

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Figure 11. Once the trim unit has been tacked in place and leveled, the screws are driven home, starting at the bottom (A, B). A PVC trim band covers the outer row of screws (C, D); the remaining holes are plugged.

The head and side casings each get a double bead, while the narrower sill gets a single bead.

Once I've tilted the unit into place, I tack it there temporarily and check it for plumb and level (Figure 11). When I'm satisfied, I start driving the screws from the bottom and work my way up. I then lay the level flat against each casing to make sure it's not bowed in or out by a localized dip or hump in the sheathing. If it is, I back off on the screws to allow the unit to shift position as needed.

The outer row of screw holes is covered by a separate band molding, which I assemble from three pieces of PVC stock that are mitered, glued, and pinned together at the corners with stainless-steel finish nails. I use more cement and the same nails to fasten the molding to the casings. The last step before paint is to cement PVC plugs into the remaining screw holes and cut them flush with a sharp 18-point handsaw.

Emanuel Silva owns Silva Lightning Builders in Andover, Mass.

