Flashing an Entry Door

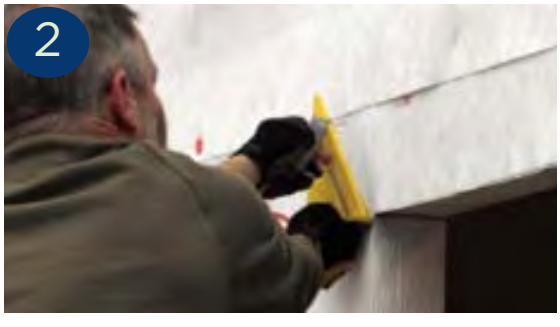
For doors with applied casings, simple flashings made from self-healing membrane serve the same purpose as fins

by Carl Hagstrom

There's plenty of material available about how to flash windows and patio doors, but most of it seems to cover flanged units. Nearly every house I build, though, includes at least one "flangeless" unit — typically a standard entrance door with an applied brick-mold casing. The tricky part about flashing cased units is sealing the area where the back of the casing meets the housewrap. And door units present an added challenge: Since there's no sill flange, wind-driven rain has a straight shot at penetrating the area immediately below the threshold.

In this article, I'll explain how I use self-healing membrane to fabricate flashing flanges for the jambs and heads of cased units, and a flexible membrane to form a one-piece sill pan.

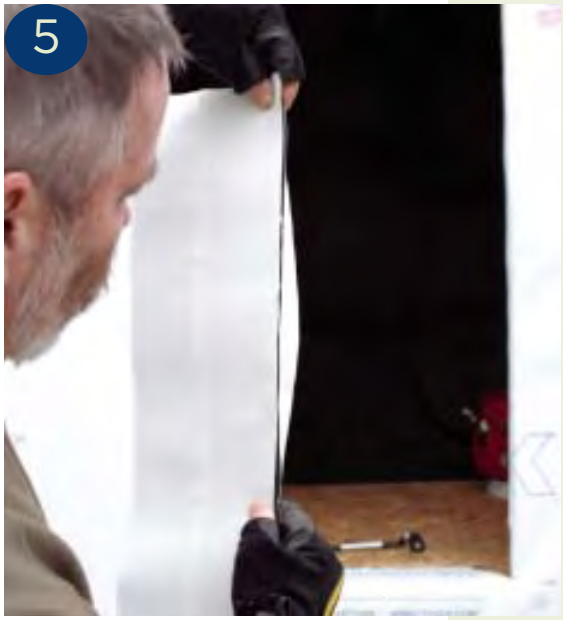
All photos by Brett Hagstrom



Prepping the Opening

The days of X-cutting housewrap openings are long gone. The proper method is first to make a level cut at the door head (1), followed by two 45-degree cuts at the corners (2), creating a head flap that is folded up and out of the way (3). An inverted Y-cut is used to prepare the remainder of the opening.

As with most flashing details, I start at the lowest



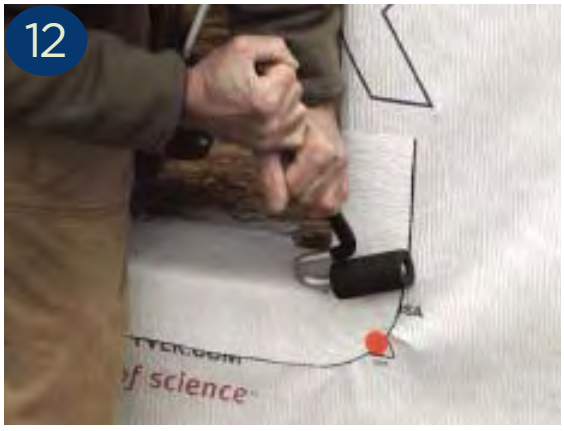
point and work my way uphill, making sure each layer overlaps the previous one and avoiding any reverse laps. In the case of an entrance door, this means I start with the sill flashing.

Self-Healing Sill Pan

To prevent moisture from working its way under the door threshold to the framing, I fabricate a sill pan using Tyvek FlexWrap, a flexible self-healing membrane that can be stretched to form seamless sill corners.

In the past, I've tried both metal and plastic sill pans, but the upturned rear flange always made for nasty trim details, because the rear flange never fit snug against the back of the threshold. Also, I always felt that any fasteners I drove through those pans were potential leaks. Plus the fabrication lead times for metal pans were a pain.

I cut a length of FlexWrap one foot longer than the rough-opening width, and with the piece upside-down on my sawhorses, I measure in ½ inch from the edge and carefully score the release paper with my utility knife (4). I make sure I've got a brand-new blade in the knife, and I score only the paper, being careful to avoid cutting into the membrane itself. (Before I developed the feel required to cut freehand,



I found that I could create an effective blade-depth stop by pinching the end of the knife blade with a pair of small vise grips.)

After I score the release paper, I fold the FlexWrap back on itself, creasing the cut and finishing off any areas where I may not have cut completely through the paper (5).

I snap a line on the subfloor ½ inch behind where the interior edge of the threshold will rest; this marks the back (or inside) edge of the sill-pan material. I pull the release paper off the FlexWrap, leaving the ½-inch strip I scored (6). I center the membrane above the door opening (7) and lower it into place, making sure the back edge lands on my layout line (8).

I use a J-roller to apply pressure and ensure a good bond between the flashing and the housewrap (9). At the outside corners, I carefully push the flashing out to form a seamless corner (10). The flashing has a memory, so to prevent it from curling back I drive a cap nail (11) at the outer edge; that holds it in place until the adhesive achieves its full grab (24 to 48 hours).

Finally, I smooth the vertical portion of the flashing against the housewrap, and again use the J-roller to press things tightly in place (12).

Site-Applied Flanges

At this point, the opening is ready for the door. My next step is to apply peel-and-stick membrane (I typically use DuPont StraightFlash) to the back of the door casing and frame, creating my own sealed flanges to prevent moisture from working its way behind the brick molding. I stick the membrane to both the back of the casing and the side of the door jamb.

I cut the jamb pieces about 3 inches longer than the height of the door frame, and cut the head piece about 10 inches longer than its width. Since the aggressive adhesive backing is tricky to work with, I begin by scoring the release paper into thirds, lengthwise (13). As with the sill pan, I'm careful to cut only the paper, not the membrane. After scoring, I fold the membrane material back on itself and crease all the score lines to make sure the release paper is cut all the way through (14).

I lay the door frame facedown on sawhorses, and because I'm working from the back of the door, I

install the head flange before the jamb flanges to avoid creating a reverse lap when the door is upright. I fold one-third of the flange back on itself, remove the release paper from the middle third of the flange, position the piece at the door head, and press it onto the back of the head casing (15). Then I remove the release paper from the folded-back portion of the flange (16), fold this outer third up against the door-frame head, and stick it in place (17).

With the J-roller, I press the head-flange adhesive tight against the frame and casing (18), then slice the flange material at the jambs and fold it down on the jamb casing (19). With the head flange in place, I install the jamb flanges in the same manner (20, 21), and at the door head, slice the material and apply it to the back of the head flange (22).

Counter Flanges Are the Final Step

I now install the door frame (23). First, I run a bead of elastomeric latex caulk along the interior edge of the threshold. (Caulk along the exterior edge of the threshold could trap moisture instead of allowing it to drain out.) I peel off the remaining release paper from the jamb flanges (24), peel back enough release paper on the head flange to expose the jamb portion (25), and then apply a StraightFlash counter flange over the jamb flanges (26).

I've got to stay on my toes when applying the counter flanges — I'm joining two adhesive faces of the membrane, and once they touch, they're stuck together for good. To make sure the counter flanges are positioned correctly, I remove a portion of the release

paper from the top of the jamb counter flange and adhere that much to the head flange. Then I pull the jamb counter flange taut and slightly away from the wall, and work my way down the counter flange, pulling the release paper off in stages as I stick the upper portion to the flange (27, 28).

After the jamb counter flanges are in place, I peel off the remaining release paper from the head flange (29) and install a drip cap (30) — which I make from painted aluminum coil stock or bendable vinyl — directly on the adhesive of the head flange. Then I remove the release paper from the counter head flange (31) and install it over the vertical leg of the drip cap, with the upper portion adhering directly to the wood sheathing (32). I roll all the counter flanges

tight to the wall to ensure a good bond to the housewrap and sheathing (33).

I fold the housewrap head-flap down over the doorhead counter flange (34), skip-tape the flap in place (35), and tape the diagonal housewrap cut (36). The small gaps created by skip-taping allow any moisture that works its way behind the housewrap to drain off the drip cap. I also tape all horizontal seams in the housewrap (37).

Interior Threshold Trim Detail

On the interior of the threshold, I fold and tape the exposed portion of the sill pan against the interior edge of the threshold (38). This lip serves as a dam, preventing outside moisture from working its way under the sill and into the house. I run the finish flooring tight to the threshold and use a utility knife to cut back any portion of the sill pan still exposed. The result is a very clean flooring detail that requires no trim.

After the siding is installed, I sometimes apply a $1\frac{1}{2}$-inch strip of membrane material to the underside of the sill and to the face of the siding. This added flange prevents wind-driven moisture from blowing beneath the sill, while still allowing the sill pan to drain out over the housewrap.

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