

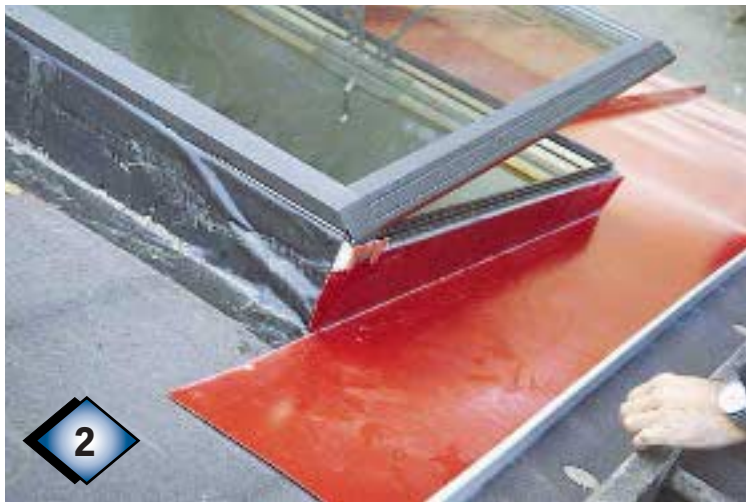
Watertight Skylights in Metal Roofs

by Lonnie Hutchins

**This site-bent flashing
scheme works where prefab
counterflashing won't**

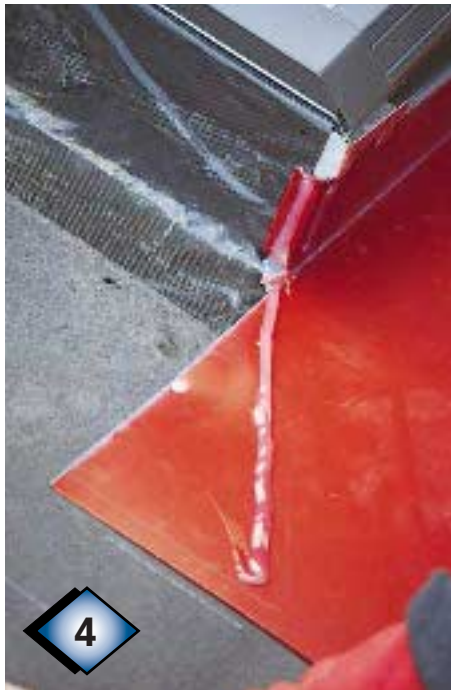


Of all the flashing problems I've come up against in my 12 years as a crew foreman in my uncle's roofing company, sealing skylights in a standing-seam roof takes the cake. The method I use today is the product of years of trial and error. The first time I tried it was out of necessity: The skylight counterflashing package hadn't arrived on site, but we had to get the roofing installed before the weather turned bad. Since I didn't have my soldering tools with me, I had no choice but to devise a mechanical counterflashing system that would seal the skylight from roof runoff without compromising either the roof or the skylight manufacturer's trim flashing. The system I came up with — and which I have fine-tuned over the years — works so well that I now prefer it over soldered flashing. I



STEP 1 Full-width panels are laid out so that the standing seams on subsequent panels will not fall too close to the skylight curb (1). The skylight fell between the third and fifth panels, which are notched around the curb. At the upper end, a 9-inch extension provides enough metal to work with to lock in both the custom head counterflashing and the upper section of roof panel (2). A vertical bend flashes the side of the curb, stopping just short of the top of the curb so it won't interfere with the skylight sash trim piece.

A full-width panel is used to fill in below the skylight, and the notched panel on the left side of the curb matches the panel on the right. Both side panels have a $\frac{3}{4}$ -inch leg that folds around the upper corner of the curb and is tacked in place with a 4d galvanized box nail.



STEP 2 The custom head flashing is fabricated on the ground and trimmed on the roof. The upper corners are cut at about a 60-degree angle and stiffened with a $\frac{1}{4}$ -inch hem (3). This edge is caulked, not mechanically fastened, to the panel beneath it (4). The long upper edge of the head flashing and the uppermost corner of the side panels are turned up to accept an interlock with full roof panels above (5). The head flashing is then pressed into a bead of Geocel 2300 caulk and clipped to the roof sheathing with metal strips.

don't have to worry about setting the sheathing on fire, and I don't have to fool with touching up the factory-applied paint on the panels we typically use. The contractors we sub to usually use venting skylights with built-in curbs, but my system will work with fixed units as well, as long as there's a curb.

We rarely use the manufacturer's counterflashing kits, because they're not designed to work with standing-seam metal roofs. If the contractor can't return the package, we'll occasionally use the head piece only.

But we always remove all of the skylight sash trim and set it aside for reinstallation later. Our custom bends in the roofing are designed to fit neatly underneath the sash trim, and to allow for normal, leak-free operation of a venting skylight without using standard flashing kits.

Seam Layout

We always try to lay out a standing-seam roof so that the width of the first and last panels is more or less equal. But when there's a skylight in the roof, we also have to make sure the standing-seam won't fall too close to the side of the curb. In the job illustrated here, we had to flash around three skylights. A few quick measurements told us we could start with a half-width panel at the rake and the seams would fall in all the right places.

The steel roofing we use comes in continuous rolls. We use a gas-powered panel former that automatically turns up the panel edges and cuts the sheet to length. We then caulk the full length of the locking bend before setting the panel in place on the roof. (We took to caulking the seams because on a long run — say, 40 feet or more — a heavy charge of runoff can cause a leak, even in double-locked seams.) Once adjacent panels are clipped to the sheathing, we use a power seamer to fold, or lock, the standing seam.

Cutting in the Skylight

We lay full roofing panels until we reach the skylight. On this particular roof, we were working from right to left, and the skylight fell in the third panel. So we cut the third panel short, running it to a point 9 inches above the top of the skylight curb, and making an L-shaped cutout around the skylight. When we make this cutout, we leave enough metal to flash up the side of the curb (Step 1).

The fourth panel then butts against the bottom of the skylight. The fifth panel is a mirror image of the third, with a cutout for the skylight, and extending up the roof 9 inches above the top of the curb. All three of the panels around the skylight are clipped to the sheathing and locked at the seams, like any other roof panel. At this point, we're ready for the head piece.



STEP 3 The cap piece is hemmed along the bottom leg for stiffness and sealed to the counterflashing with a bead of caulk (6). The top edge is crimped to the skylight manufacturer's metal base trim (7), and also tacked in place where it extends around the corner of the curb with a single box nail (8).



STEP 4 At the bottom, the roof panels extend all the way to the curb, but the standing seams are cut back to accept the L-shaped bottom counter-flashing. After dry fitting the flashing, the roof and curb are caulked (9), and the flashing is pressed snugly into place (10). A 3-inch return slips behind the flashing along the sides and is tacked with a box nail (11). The bottom flashing is also tacked along the hemmed bottom edge just above each standing seam, and the nail head is dabbed with caulk.

With the custom skylight flashing in place, the crew moves back to the top of the skylight and fills in with full panels (12). These are locked into the head counterflashing at the bottom edge, and to one another along the standing seams.

Custom Head Flashing

Once the first roofing panel is in place against the skylight curb, we send down dimensions for the head flashing. Jeremy, who runs the power-brake, fabricates this piece on the ground in spare moments between cutting and prepping full-width panels. The down-slope edge of the head flashing has a vertical leg that runs up the curb and around each corner, extending about 4 inches down the sides. The rest of the flashing lies flat against the sheathing, headed up the roof. The head piece is clipped to the sheathing and caulked where it overlays the full side panels (Step 2).

The final touch at the head is the cap piece, which is hemmed along the bottom leg for stiffness and notched to turn the corner (Step 3).

Finishing Touches

The last steps are to counterflash the bottom of the curb and fill in with full-width panels between the head flashing and the ridge (Step 4). We also reinstall the original sash trim. Then it's back to installing full panels until we run into the next skylight and start the custom counterflashing process all over again.

On roofs with a reasonably steep pitch, this flashing system has given me no trouble — and I've used it on hundreds of roofs. It sheds water well and leaves a clean, streamlined appearance. ■

Lonnie Hutchins is crew foreman for Hutchins Roofing Co. in Barre, Vt. Thanks also to company president Lloyd Hutchins, and to crew members Jeremy Goodell and Kurt Pierson.