

Replacing a Skylight

BY EMANUEL SILVA

When a homeowner reports a leaky skylight, the problem could be the skylight itself, the flashing around the skylight, or simply excessive condensation on the glass. In the case of replacing the two 25+ year-old Roto roof windows shown here, the main problem was that the insulating glass had failed, though some water staining was present. Using that project as an example in this

article, I describe my belt-and-suspenders approach to flashing a new unit to the roof deck, because that is where most leaks occur, regardless of why the existing unit failed.

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Removing the existing skylights. Before ordering new Velux units to replace the two existing Roto skylights, I cut inspection holes in the corners of the shaft drywall to accurately measure the rough openings, then temporarily sealed the holes with spray foam (1). Removing drywall creates a lot of dust and debris, so I sealed off the wall and floor below the skylights with plastic to make cleanup easier. Some water staining was visible at the corners of the shaft (2). Weather conditions were ideal when I removed the existing shingles around the skylights: not cold enough to make the shingles brittle and not warm enough to make them too flexible. I tried not to damage them so that they could be reused (3). The roof had a relatively shallow, 5/12 pitch, so traction was good, and I set up staging below the eaves for fall protection (4, 5). Because the new Velux units are a stock size that is slightly shorter than the existing Roto skylights, I installed 2x10 fillers at the top of each rough opening (6).

Photos by Emanuel Silva



Prepping the roof deck and installing the skylight. Though it's not required by the window manufacturer's installation instructions, I sealed the opening in the roof deck to the roofing underlayment with 12-inch-wide strips of Vycor Plus self-adhering flashing membrane. Layout lines drawn with a Sharpie on the existing underlayment help with positioning the flashing (7, 8). Timing and prepping materials in advance are important when you're replacing a skylight; you don't want a big hole in the roof with rain in the forecast. It took me about three hours to remove one of the skylights and install its replacement so that it was weatherproof. I typically work alone, but lifting a heavy skylight up onto a roof is a two-person job; fortunately, the homeowner was available and able to help out (9). The Roto windows had been fastened to the roof with a few screws driven through angle brackets; the new, Velux skylights are fastened to the roof sheathing with 1¹/₄-inch roofing nails (included with the installation kit) driven through pre-punched holes in the units' aluminum mounting flanges (10). After the new skylight was in place, I laid out the position of the flexible flashing (supplied as part of the Velux installation kit) used to seal the skylight frame to the flashing-covered roof deck, to ensure that it wouldn't interfere with the manufacturer's metal flashing (11). The roll of flexible flashing was backed with release paper, so I cut the flashing into 2-foot-long strips to make the pieces easier to handle. After installing the bottom piece of flashing, I made diagonal cuts at the corners with a sharp utility knife so that the flashing could wrap up the sides of the curb (12).



Multiple layers of flashing. I carefully followed the layout lines that I marked on the roof-deck flashing as I installed the white flexible flashing, folding it at a 90-degree angle so that it would adhere tightly both to the side of the skylight and to the roof-deck flashing (13). Another diagonal cut allowed the flashing to wrap around the corner. I used a similar detail at the top corners of the unit. After the remaining pieces of flashing were installed up the sides and over the top of the unit with a 6-inch overlap, I filled the small gaps at each of the four corners with clear, flashing-compatible Geocel sealant (14). When I reinstalled the lowest shingle course, I used the shingles that I had carefully removed previously, because they hadn't been cut or damaged (15). Then I installed the bottom section of the manufacturer's metal curb-flashing kit, which is designed to slip underneath a rubber flange that wraps around the curb of the unit (16). A couple of roofing nails, located according to the manufacturer's installation instructions so that they will be covered by step flashing, hold the first section of curb flashing in place. When reinstalling shingles, I first fill any holes in the roofing underlayment with sealant and avoid driving nails through the old holes in the shingles, filling them with sealant instead (17). Metal step flashing that's supplied with the skylight manufacturer's installation kit is installed along with each shingle course. To provide for good drainage, I cut the shingles short to leave a 1/2-inch gap between them and the step flashing around the skylight curb. At the top corners, I seal the last step flashings to the shingles beneath with Vycor (18).



A metal flashing kit finishes the installation. Before installing the metal head flashing, I pulled back the roofing underlayment so that I could first slide a length of 12-inch-wide Vycor underneath and lap it shingle-style over the white flexible flashing that seals the skylight to the roof deck. This extra layer of self-adhered flashing offers additional protection against snow that might pile up against the curb or water that might be blown underneath the shingles by the wind (19, 20). A U-shaped metal counterflashing covered the bottom and sides of the curb (21), followed by the metal head flashing, which fastened to the lower piece with clips (22). A couple of roofing nails on either side of the flashing fastened it to the roof deck and would later be covered with shingles. Next, I applied another layer of Vycor to seal the metal head flashing to the roof deck, again making sure that the Vycor was overlapped by the roofing underlayment above (23). Whenever I reinstall shingles, I always apply dabs of sealant to the tabs to ensure that the overlapping shingles will adhere to the ones underneath (24). Note the foam rubber pad that I'm kneeling on in many of the photos; years ago, I cut a number of pads from 24-by-24-inch interlocking floor tiles and have used them on an almost daily basis ever since to protect my knees from stones, splinters, nail heads, and—in this case—the coarse granules of the asphalt shingles.



Prefabricated MDO skylight shaft. I prefer to use 1/2-inch medium density overlay (or MDO) panels instead of drywall to cover the rough framing of a skylight shaft, partly because MDO is tougher and more moisture-resistant, but mainly because this allows me to prefabricate the shaft and install it as a single unit. I start by making a trim template to find the angle and check the fit of the MDO within the slots of the skylight jambs (25). Then I rip the MDO to width with a track saw, using the template to mark the angles, which I also cut with a track saw (26). I nail together the sides of the shaft with 18-gauge brads, then reinforce the joints with 1 1/4-inch trim screws (27). Centering the trim screws in the middle of the 1/2-inch-thick panels without blowing out one of the sides is tricky, so I carefully lay out and drill pilot holes for the screws. Before lifting the shaft assembly for this project into position and fastening it to the framing with a few trim screws, I took measurements for the trim kit that I would use to finish the installation (28). The stiles and rails were made from primed 1x5 WindsorOne trim and joined together with pocket screws and glue. I sealed the gaps around each shaft to the opening with spray foam insulation, then fastened a simple T-jig above the window to act as a third hand, allowing for enough room between the leg of the T-jig and the ceiling drywall for the trim kit to slide into position (29). Once I was satisfied that the reveals were even, I nailed the trim kit to the ceiling framing with 2-inch-long 18-gauge nails (30).