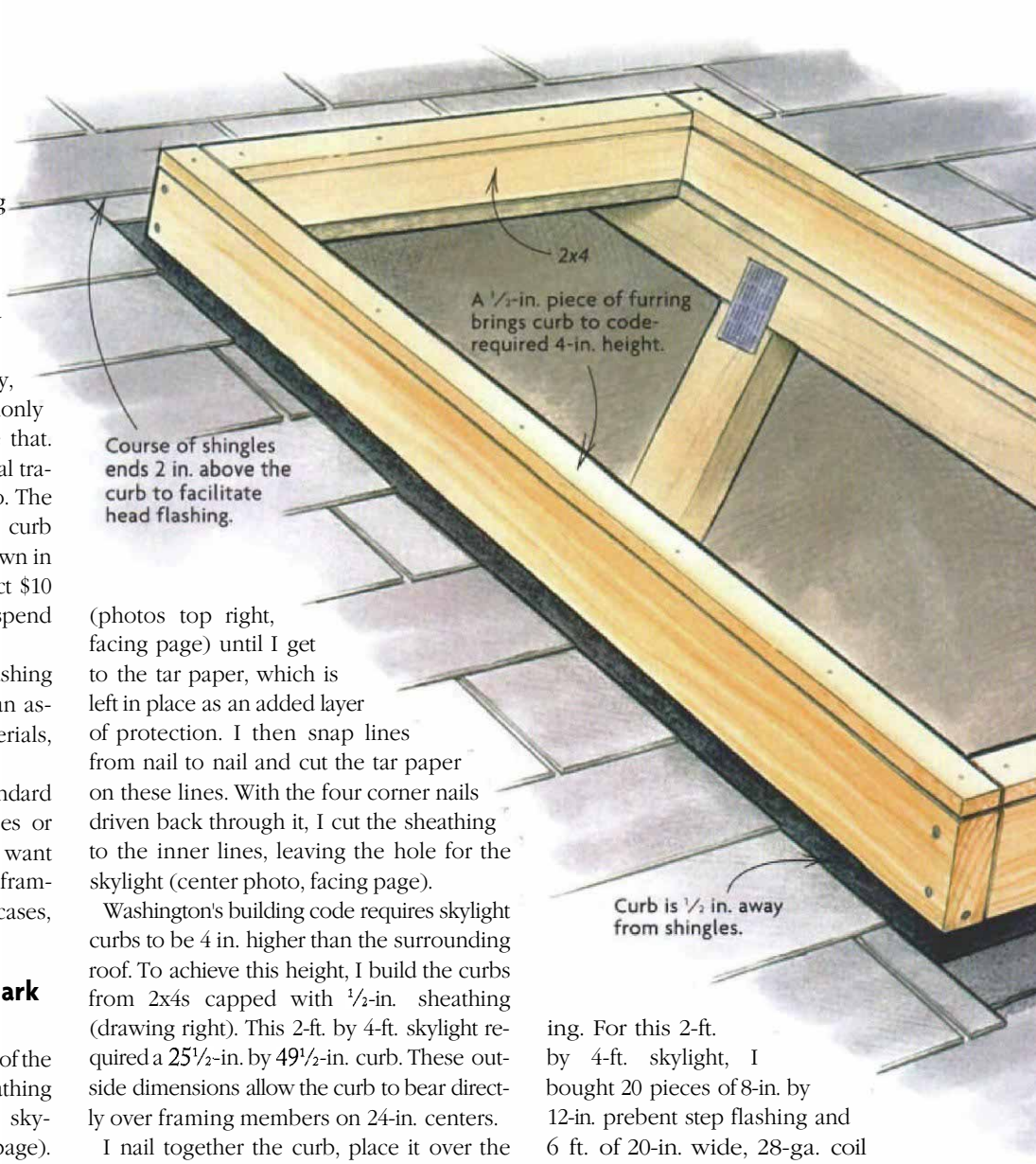
Retrofitting a Curbed Skylight

Get the flashing right to ensure leak-free skylights

BY JIM BLODGETT



I can count on two things to happen every spring. April 15 will roll around, and my phone will ring with customers wanting skylights cut into their roofs. Adding a skylight can turn a dark, gloomy room into a warm, inviting space.

Here in the Northwest, we usually mount skylights on site-built curbs. I'm told that in some regions of the country, skylights with integral curbs are commonly used, but I've never installed one like that. Part of the reason is doubtlessly regional tradition, but economics plays into it, too. The same-size skylight with an integral curb costs about $50 more than the one shown in the photos for this article. If you deduct $10 for the material, the ten minutes that I spend nailing the curb together nets me $40.

Cutting the opening, building and flashing the curb, and mounting a skylight in an asphalt-shingled roof, using stock materials, takes me less than a day.

The skylight in this article is a standard unit built to fit in a roof whose trusses or rafters are spaced 24 in. o. c. You might want a different-size skylight, or your house framing may be spaced differently. In these cases, reframing is called for.

Nails driven through the roof mark the opening

To mark the four corners of the inside of the curb, I drive nails through the roof sheathing from below, about where I want the skylight's corners to be (photo left, facing page). I may have to move the curb's location up or down a few inches from these nails. It's important that there be a full course of shingles 2 in. above the skylight curb; I'll explain why later. I snap lines on the shingles 2 in. to the outside of these nails. When the shingles are cut back to these lines, the extra 2 in. allows for the 2x4 curb, plus ½ in. to leave room for water to flow freely along the flashing between the curb and the edges of the shingles.

Using a hook blade in a utility knife, I cut through the shingles one layer at a time (photos top right, facing page) until I get to the tar paper, which is left in place as an added layer of protection. I then snap lines from nail to nail and cut the tar paper on these lines. With the four corner nails driven back through it, I cut the sheathing to the inner lines, leaving the hole for the skylight (center photo, facing page).

Washington's building code requires skylight curbs to be 4 in. higher than the surrounding roof. To achieve this height, I build the curbs from 2x4s capped with ½-in. sheathing (drawing right). This 2-ft. by 4-ft. skylight required a 25½-in. by 49½-in. curb. These outside dimensions allow the curb to bear directly over framing members on 24-in. centers.

I nail together the curb, place it over the hole and toenail one corner with a 16d common nail. Then I check that the inside edge of the curb is flush with the rafter or truss below and verify that the diagonals are equal (bottom photo, facing page). Then I toenail the other three corners to the roof.

Off-the-shelf flashing works fine

Most skylight manufacturers sell flashing kits for about $50. They save only a few minutes of time spent cutting and bending, so I use off-the-shelf step flashing and coil flashing. For this 2-ft. by 4-ft. skylight, I bought 20 pieces of 8-in. by 12-in. prebent step flashing and 6 ft. of 20-in. wide, 28-ga. coil flashing for about $30.

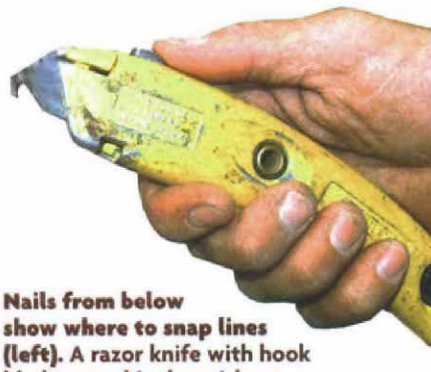
The first thing I do is cut the top (top photo, p. 97) and bottom (photo left, p. 96) pieces from the coil flashing. I make these pieces long enough to extend 4 in. beyond each side of the curb, 33½ in. in this case.

Both of these flashing pieces are bent to extend the height of the curb frame. I lay out this bend by scribing a line 4 in. from one long edge of each flashing. Before I bend the bottom piece, though, I snip in 4 in. along this line on each side of the flashing. After

Drawings: Dan Thornton



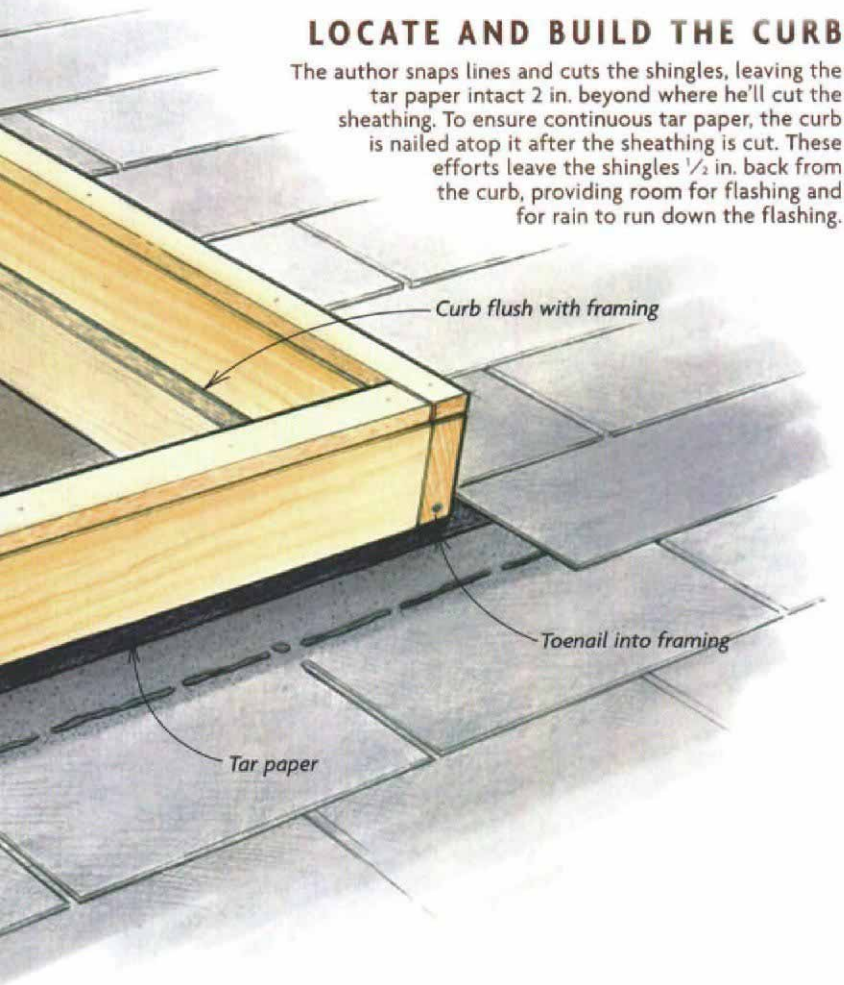




Nails from below show where to snap lines (left). A razor knife with hook blade cuts shingles without harming tar paper (center).

LOCATE AND BUILD THE CURB

The author snaps lines and cuts the shingles, leaving the tar paper intact 2 in. beyond where he'll cut the sheathing. To ensure continuous tar paper, the curb is nailed atop it after the sheathing is cut. These efforts leave the shingles ½ in. back from the curb, providing room for flashing and for rain to run down the flashing.





The sheathing is cut flush with the roof framing (photo above). Equal diagonals indicate a square curb (photo below).



the bottom flashing is bent, these 4-in. cuts form the ears that fold up against the sides of the curb (photo left, p. 96).

I then bend the top and bottom flashings with a site-built brake that consists of two 2x4s screwed together face to face. The flashing is slipped between the 2x4s and clamped in place by tightening the screws. I begin the fold with my hands and finish by tapping with a 2x4 block, creating a crisp 90° fold.

After bending the top flashing, I mark the curb width on it. Then I fold down the ends diagonally (bottom photo, p. 97).

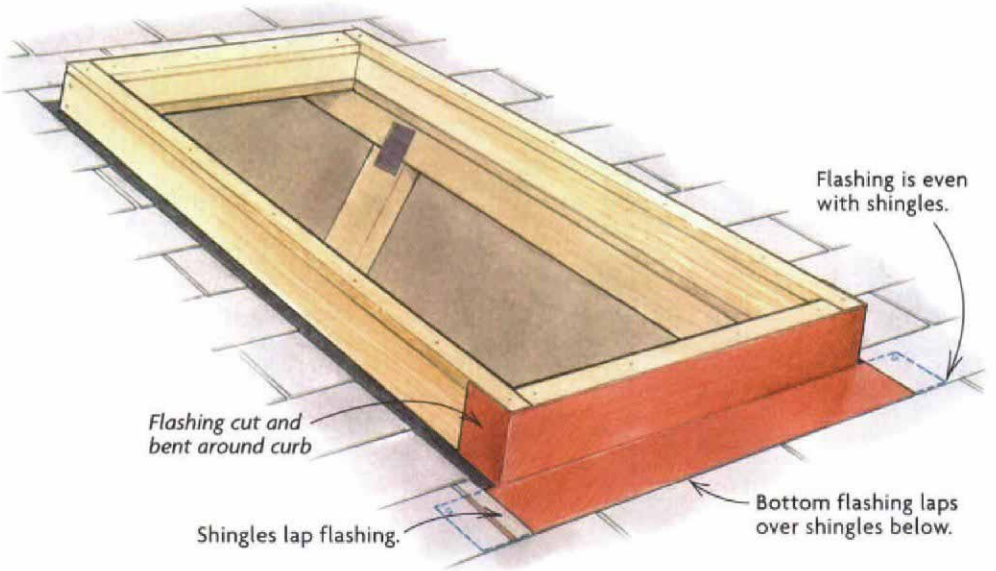
Fitting the flashing to the shingles

I trim the bottom flashing so that it ends up in line with the first course of shingles below the skylight. Then I carefully lift the bottom shingles alongside the curb and slide the bottom flashing under them, folding its ears against the side of the curb (top drawing, p. 96). This flashing is then nailed to the roof deck with galvanized roofing nails along the upper edge of the flashing. I also slip the first piece of step flashing under the same shingle (photo right, p. 96). This bottom piece of step flashing should extend about 2 in. beyond the curb (bottom drawing, p. 96).

All the flashing is nailed to the roof sheathing, not to the curb. This precaution

INSTALL BOTTOM AND STEP FLASHING

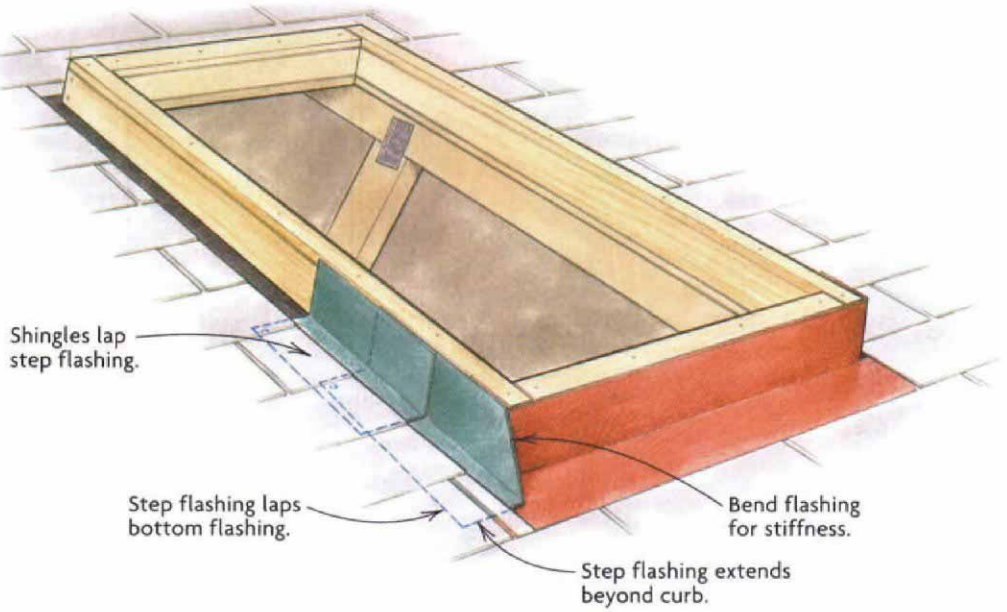
Flashing is all about layering upper elements to drain onto lower elements. Bottom flashing laps the shingles below and is in turn lapped by the step flashing and the side shingles.







Properly layered flashing and shingles drain the rain. Both the bottom and step flashings are slipped under the shingles. To ease reroofing, flashing is nailed only to the roof deck.



allows any future reroofer to pull the nails and reuse the flashing without having to remove the skylight and counterflashing.

With the bottom flashing in place, I work up the side of the curb, carefully lifting shingles with a flat bar, and sliding and nailing step flashing under each course. As with bottom flashing, I nail the step flashing as close to the upper edge as possible so that the next row of shingles and flashing covers the nail.

You should end up with one piece of step flashing for each course of roofing beside the skylight, with the roofing on top of the flashing. The topmost pieces of step flashing extend beyond the curb. I snip them along the crease, then fold the resulting ear against the top of the curb (top drawing, facing page).

I always use 12-in. long step flashing rather than shorter pieces so that the bottom edge of each piece overlaps the shingle as well as top of the flashing below it. Any water that might get between the shingle and flashing runs out on top of the shingle beneath.

The head flashing is crucial

Now I'm ready for the most critical piece of flashing, the top, or head flashing. Correct installation of this piece goes a long way in determining whether the skylight sheds water properly. If I mess up the head flashing, my phone will be ringing after the first rain, and I'll be busier than I want to be repairing leaky roofs.

I located the skylight hole so that there is a full course of shingles 2 in. above it. This placement comes into play now. I also have to remove one or two shingles in the next-higher course to fit the head flashing in place.

I may not have new shingles to replace ones I tear off. In this case, I'm careful not to damage the old shingles so that I can reuse them.

Using my hook knife, I cut back shingles in the first full course so that I can center a full replacement shingle directly over the curb (top drawing, facing page).

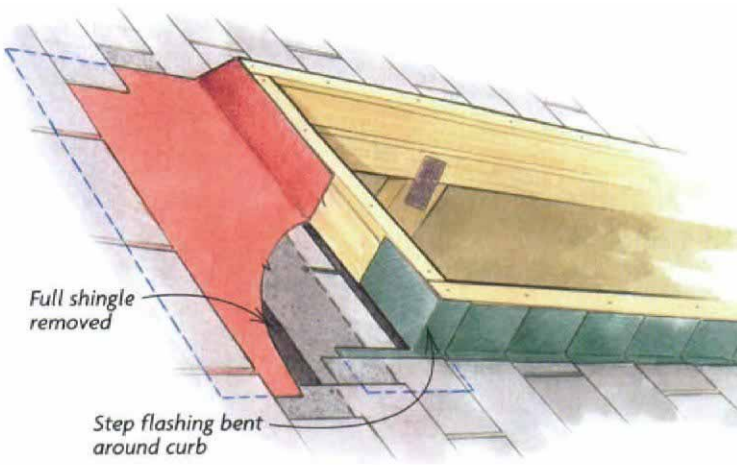
Next, I slip the head flashing under the third course of shingles above the skylight and nail it in place, centered on the skylight (top photo, facing page). The bottom of the flashing drains onto the first full course of shingles below the top of the curb. This arrangement ensures that water will run off the side of this top flashing and harmlessly down the roof.

I install a new shingle, top side down, over the head flashing in the first full course above the skylight (center photo and drawing, facing page). This shingle, called a bleeder, works much like a starter course at a roof edge, ensuring that water drains to the course's bottom and doesn't leak onto the flashing at the tab slots. Because standard

INSTALL HEAD FLASHING AND SHINGLES

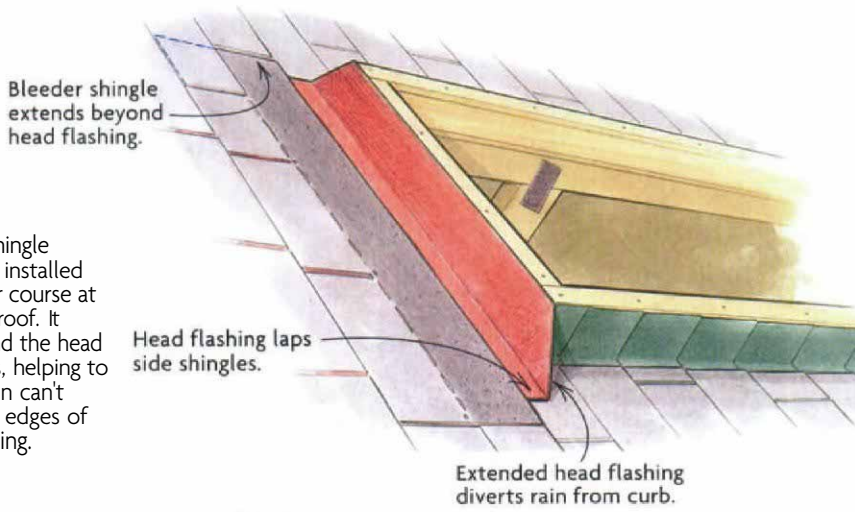


Properly installing the head flashing and the upper shingles is critical to divert runoff away from the skylight.



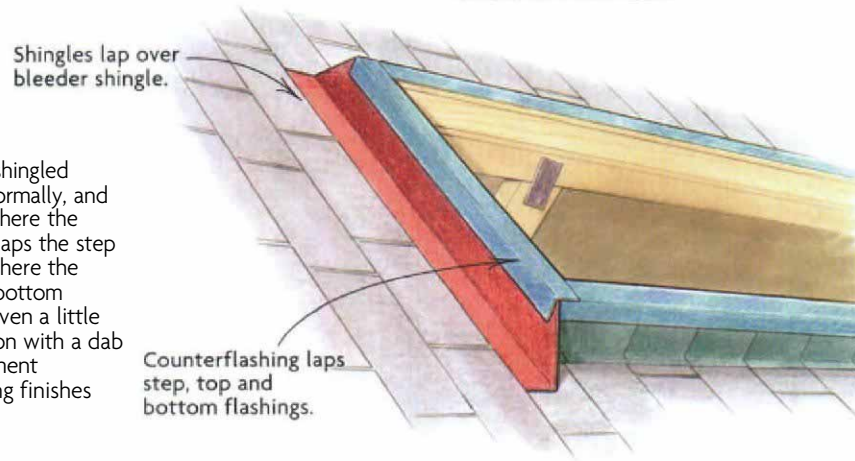
The last step flashings are bent around the top of the curb, and the course of shingles above the curb is removed to allow a full new shingle to be centered. The head flashing is then slipped under the remaining shingles (photo left).





The bleeder shingle (photo left) is installed like the starter course at the edge of a roof. It extends beyond the head flashing's sides, helping to ensure that rain can't sneak past the edges of the head flashing.





The roof is reshingled (photo left) normally, and the corners, where the head flashing laps the step flashing and where the step laps the bottom flashing, are given a little extra protection with a dab of roofing cement Counterflashing finishes the job.

shingles are 39 in. long, this bleeder extends past the ends of the head flashing, which measures 33½ in. For a wider skylight, I center two bleeder shingles over the curb.

I reshingle around the curb normally, going over the bleeder (photo above). Then I counterflash the curb with some L-shaped pieces of flashing, with each leg of the L measuring 1½ in. (drawing above). I nail these pieces to the curb, lapping the head, bottom and step flashings as shown in the drawing above. Now comes the easy part: installing the skylight. Installation varies a bit among manufacturers. The lower frame of the operable skylight shown in this article simply screws to the curb.

The last step before leaving the roof is to seal the vertical joints between the bottom flashing and the first step flashing, and between the topmost pieces of step flashing and the head flashing. I seal these joints with roofing cement or a high-grade silicone caulk. You never know where wind-driven rain will go, and if there's one thing I dread more than paying income tax, it's getting a phone call that starts with, "Jim, I think we have a little problem with our skylight." □

Jim Blodgett owns A Small Woodworking Company in Roy, WA. Photos by Mark Cadioli.