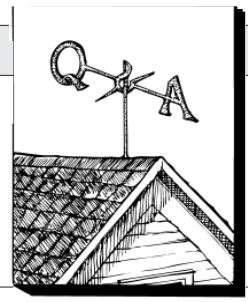


Flashing Tile Roofs

Q. *What's the best way to flash a skylight on a mission tile roof?*

A. *Craig Savage responds:* Because of its fire resistance, tile is the predominant roofing here in Southern California. On these roofs we've done all our skylights using one of two basic methods, both of which have performed well (no callbacks yet).

Membrane and metal. These days most local building codes call for a continuous membrane over the entire roof, with the tile over the top. We commonly use either 90-pound felt or a hot-mop, three-ply built-up roofing for this water barrier.

When we install a skylight, we start by framing in a 2x6 or 2x8 curb. The sides and ends of this curb get covered with the felt or the hot-mop tar. The felt or hot-mop then gets covered by formed metal flashing. The top, side, and bottom pieces of this flashing are shown in the illustration. Notice that water rolling down the sides and off the bottom of the metal flashing runs over the membrane and *under the tile*.

Lead flashing. If you don't want to get involved with the continuous membrane on the roof, then you'll have to opt for the expensive way to flash skylights. In this case, we install lead flashing that covers the curb and forms the first "pan" along the sides and top of the skylight. (Mission tile has both cap and pan tiles.) Near the bottom of the skylight, however, the lead has to transition from a pan to a cap, shedding water over the top of the row of tiles below the skylight. Ideally, you have a perfect, uncut cap tile starting on either side of the skylight over the lead flashing. But this method requires careful layout and a lot of time.

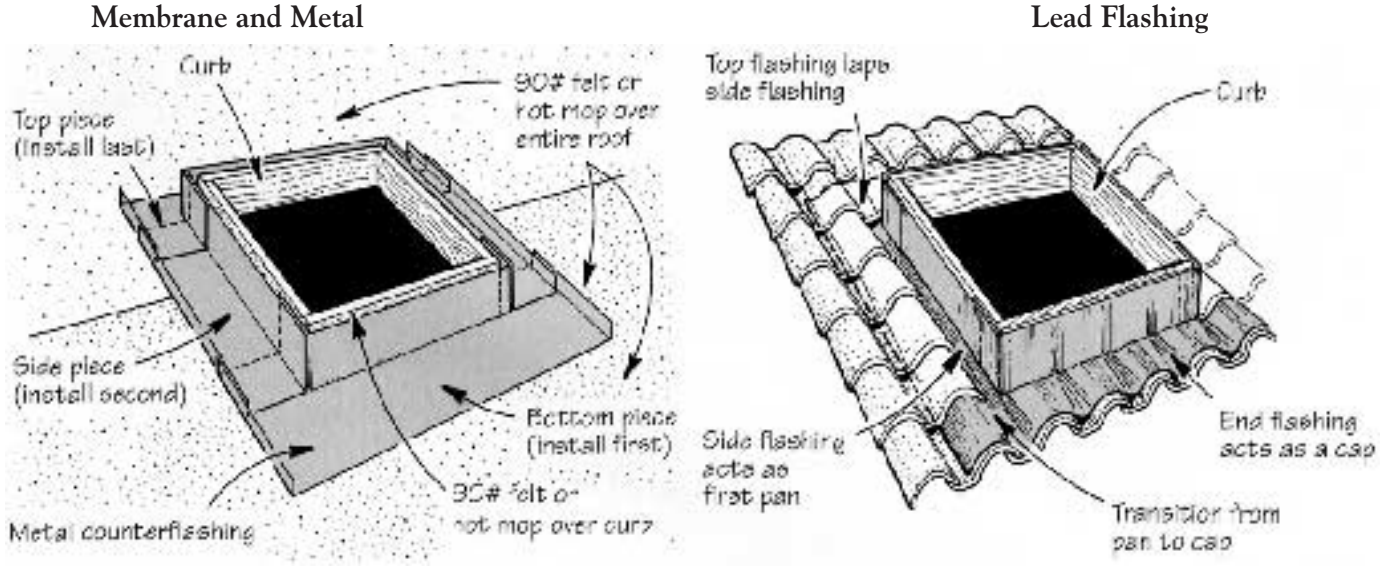
Craig Savage is a builder in Carpinteria, California.

Q. *All of the foundation specs we build on require rebar to be free of rust and mill scale. For years this hasn't been an issue, until recently when a project manager called us on it. All we can think to do is wire brush the entire lot of rebar. Is this really necessary?*

A. *Tim Fisher responds:* Fortunately, there are a couple of standards you can cite in your defense. The ASTM standard for deformed steel reinforcement (A706) and the Concrete Reinforcement Steel Institute (CRSI) *Manual of Standard Practice* both give the same recommendation: Reinforcing bar with rust, mill scale, or a combination of both is satisfactory, provided the minimum dimensions, weight, and height of the deformations (the formed protrusions on the bar) of a hand-wire-brushed test sample are not less than the values specified in the standard. In other words, if the rust or mill scale is light, it will not affect the bond to the concrete. In fact, studies have shown that mill scale and light rust enhance the bond between concrete and steel. ■

Tim Fisher is the field engineering editor for Aberdeen's Concrete Construction *magazine.*

Skylight Flashing for Tile Roofs



Skylights can be flashed two different ways. On roofs with a continuous membrane under the tiles, a simple metal flashing is sufficient to divert water away from the skylight opening (left). Without a continuous membrane, the curb must be flashed with lead (right). The side flashings act as the first tile "pan" and must transition to cap the tile near the bottom of the skylight.