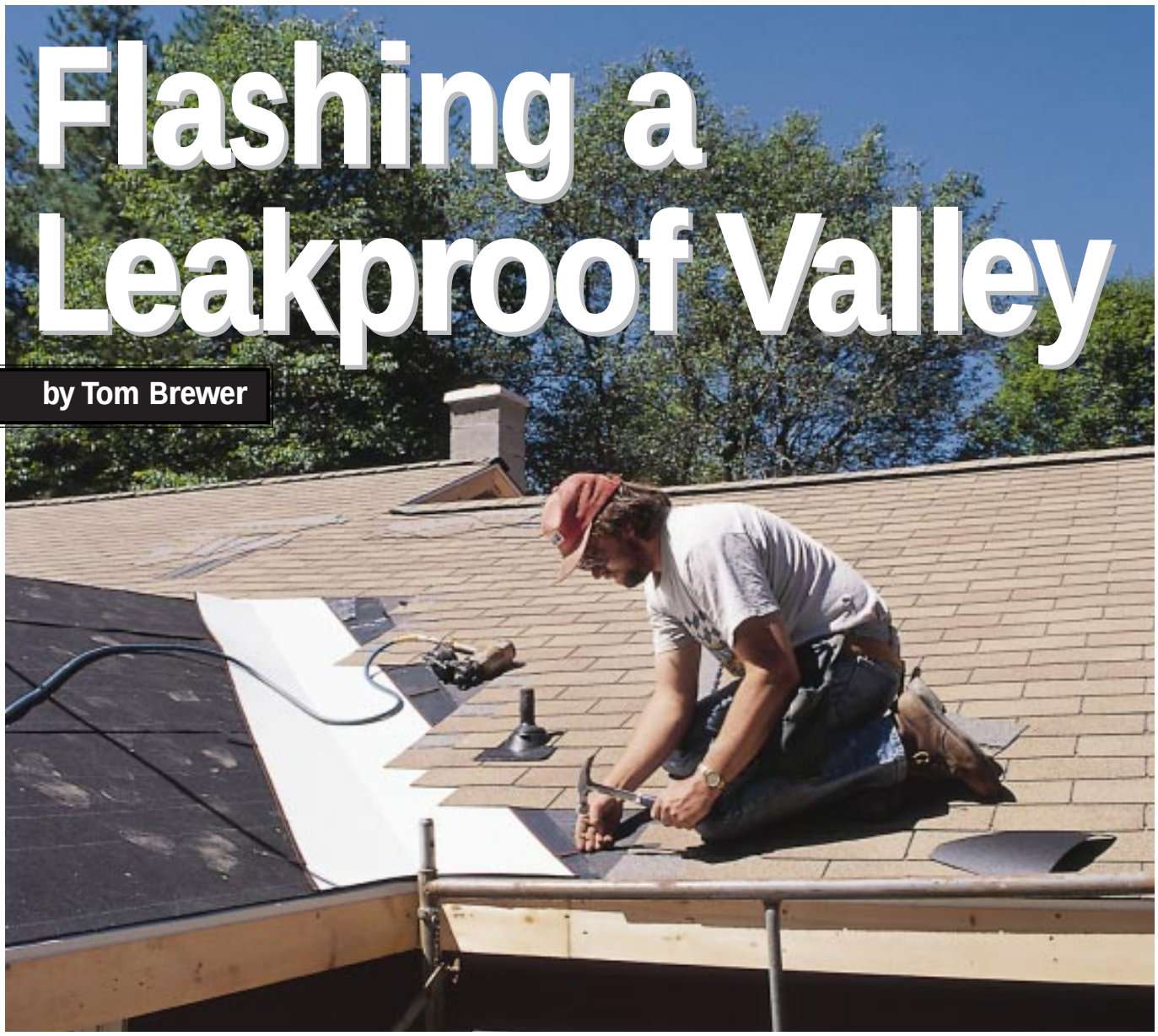
Flashing a Leakproof Valley

by Tom Brewer

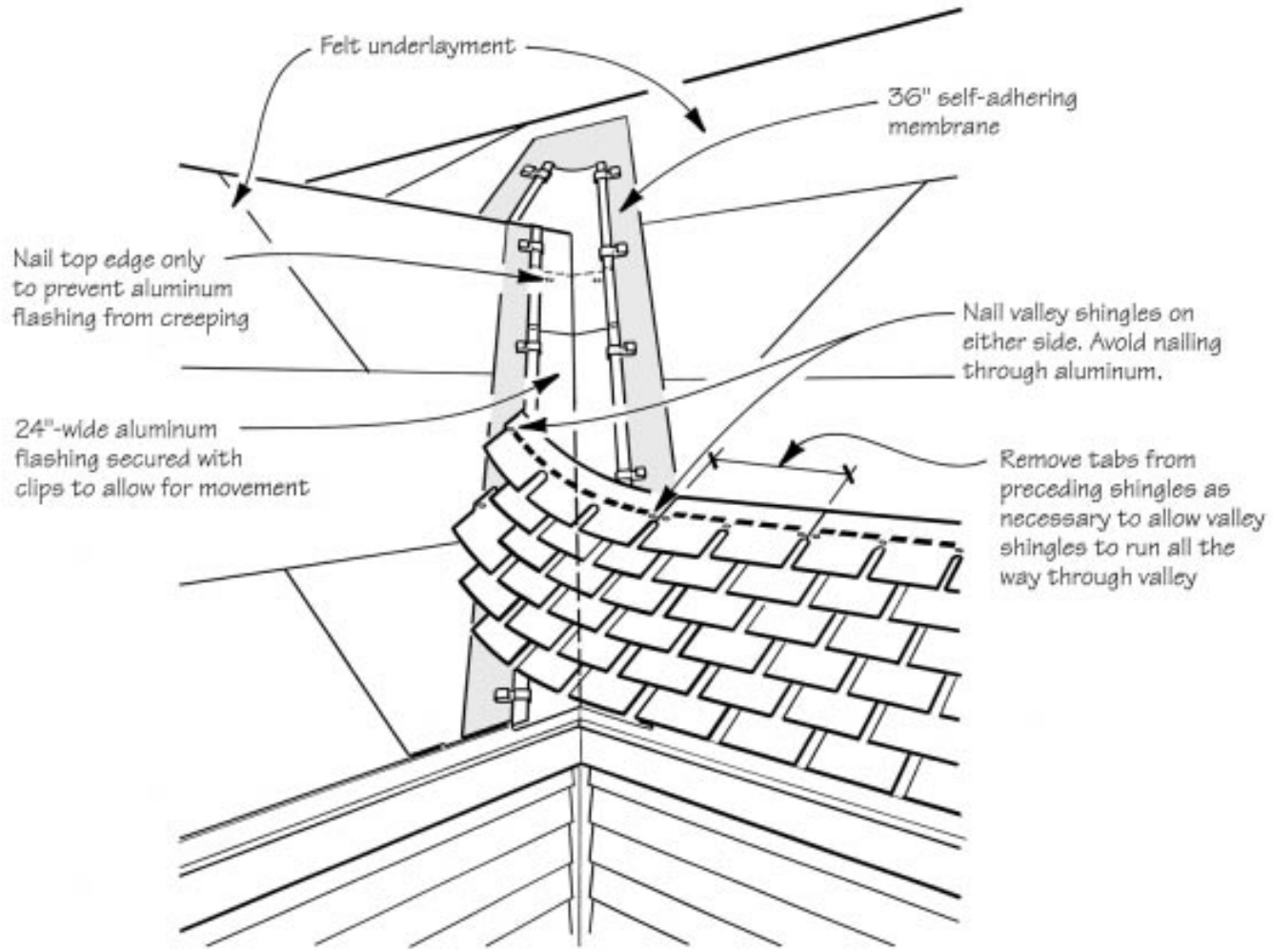


Careful installation of membrane, metal flashing, and shingles is key to a leakproof valley

During the 20 years I've been roofing, I've learned to pay attention to valleys. Valleys are the high mileage areas of the roof: They have to be able to withstand a steady stream of runoff during heavy rains and, during the winter, are parking lots for melting snow and ice.

Look on the back of any bundle of shingles and you'll find instructions on how to flash a valley. Generally, the multilayer flashing system I use exceeds these manufacturer specifications. The methods I describe in this article pass my most important test: the "no leaks, no callback" test.

Closed Valley Details



When shingling a closed valley, the author tries to avoid nailing through the aluminum flashing, so that it's free to expand and contract with temperature changes. The shingles that run through the valley are laid out so that nails can be placed on either side of the aluminum.

Membrane Protection

I use a built-up multi-layer flashing system for valleys — a "belt and suspenders" approach. Typically, by the time I detail the valleys, I've already "dried in" the entire roof by installing 15-lb. roofing felt.

In the old days, before self-sticking membrane materials were readily available, I used to run an additional two layers of 30-lb. roofing felt in the valleys. Nowadays, I lay in a 3-foot-wide sheet of Ice and Water Shield (W. R. Grace Construction Products, 62 Whittemore Ave., Cambridge, MA 02140; 617/876-1400). It's sticky stuff to work with, but well worth the aggravation.

Since the membrane seals itself around any nail shanks, I feel it goes a long way toward preventing leaks from any nails that end up too close to the center of the valley. I'm always careful not to drive any nails within 12 inches of the valley centerline, but sometimes roof-mounted antennas are installed by less conscientious people.

Before I install the membrane, I look for loose nails lying in the valley. Dropped nails tend to collect in valleys, and will puncture the membrane (and the flashing that follows) as it's installed.

Aluminum Backup

For added protection, I next install a 2-foot-wide layer of aluminum coil stock directly over the membrane. The coil stock I use (.019 inch) can be purchased at most lumberyards, and is available in a number of colors.

While the membrane material is very flexible and molds itself to any irregularities in the valley, the coil stock is not as pliable. I use a bending brake to crease the center of the aluminum so that it will fit snugly in the center of the valley.

Allowing for movement. Many builders nail the aluminum valley flashing along the edges to hold it in place. But metal flashing that is loaded with nails will buckle as it expands, making for an unsightly valley. In my area of northeastern

Pennsylvania, for instance, a 10-foot length of aluminum coil stock will change up to 1/2 inch in length between the cold of winter and the heat of summer.

To allow for this movement, I fold a hem along the edge of the valley flashing and use site-bent clips to hold the flashing in place.

To prevent the flashing from creeping downhill, I drive one nail at the top edge of the flashing. Before I position the flashing, I again clear out any loose nails that have found their way into the valley.

To allow aluminum flashing to expand and contract, the author uses a site-bent hem-and-clip system to secure valley flashing. He places the hem clips every 2 to 3 feet along the edge of the flashing.

Laying a Closed Valley

There are three generally accepted methods for shingling a valley: the closed valley, the open valley, and the woven valley. I use the same underlying flashing details for all three methods, and any of the methods will perform satisfactorily when installed properly.

Closed valley. I prefer the closed valley. It's the quickest and easiest to install, it protects the valley with a double layer of shingles, and, to my eye, it's the best looking.

After I've installed the valley flashing, I begin shingling the main roof. When I reach the valley, I run the first layer of valley shingles *all the way through* the valley and onto the secondary roof plane (see illustration, previous page). The trick here is to avoid driving any nails through the aluminum. Nails driven at the edge of the flashing may not cause a leak, but they will "short circuit" the expansion clips.

At some point, however, the shingle coursing will naturally end in the middle of the valley. In this case, I remove a full tab or two from the preceding shingle so that the "run-through" valley shingle falls where it can be nailed on either side of the flashing.

Once the run-through shingles are in place, I shingle the secondary roof plane, trimming these shingles at the centerline of the valley. The line formed by the cut shingles is a strong visual cue, so I make sure my cuts are straight and the finished valley line is crisp.

The finished valley has a crisp appearance — and three layers of protection.

Homeowners and superintendents will quickly complain about a wavy valley.

Open valleys. In an open valley, the shingles stop short of the valley centerline, leaving the flashing exposed. I'm not sure why open valleys are used so often. Twice as many shingles must be cut at the valley, and the exposed flashing is not protected by a layer of shingles.

When a customer insists on an open valley, I install the membrane and flashing as though it were a closed valley. I lay out my shingle cuts so the open portion of the valley is slightly wider at the bottom than the top. The widening trough allows ice and snow to creep out of the valley.

Woven valleys. A woven valley is essentially a closed valley formed by alternating the shingles that run through the valley. The good news is that none of the through shingles need to be cut to length. But for some reason, I'm always frustrated by shingles that creep up on the coursing lines as I weave the valley. The finished valley also has a "mushy" appearance. For these reasons, I try to avoid woven valleys.

Whichever style of valley you choose, take the time to install it correctly. A leaky roof leads to a leaking wallet.

Tom Brewer *owns and operates Brewer Construction in Halstead, Pa., and has been a member of the roofers union for over 15 years.*