

Flashing a Chimney The Right Way

by Peter Scripture

In the last ten years I have looked at over a thousand chimneys. Less than twenty of these were properly flashed. It may take a few years, but a poorly done flashing job will eventually cause expensive repair problems for the homeowner, and maybe a callback for the builder.

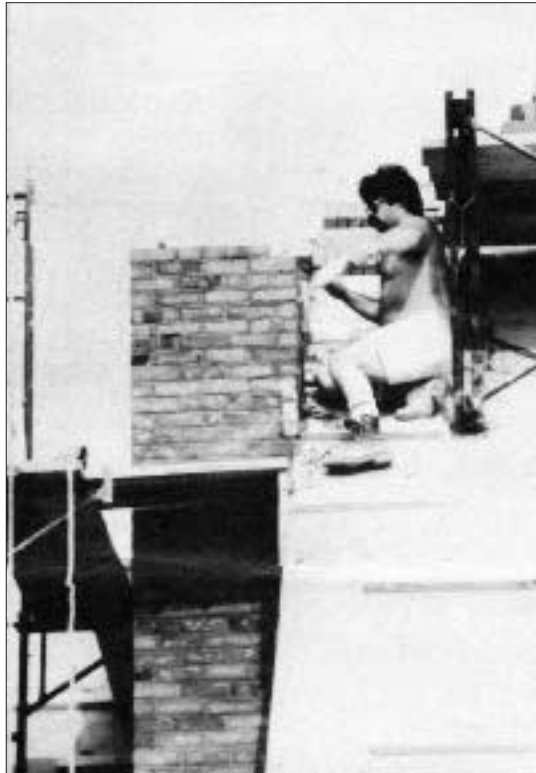
Flashing Requirements

What is a flashing job required to do? The obvious requirement is to seal the opening around the chimney where it goes through the roof. Second, the flashing should provide a sliding connection that will allow the building to move independently of the chimney. The third, not so obvious requirement is to prevent the transfer of water, absorbed by the masonry above the roof, into the masonry below the roof. The flashing should meet these requirements for the life of the chimney.

Most of the masons I've seen lately prefer to use lead flashing in their masonry. Lead is the easiest metal to work, which makes up for its higher cost over aluminum and galvanized metal in time saved. Copper is the most expensive flashing, but it will probably last longer than lead. Since it too is difficult to form, copper flashing has to be formed in a metal shop. This shop work adds to the cost, so you usually see copper only on more expensive homes where it is specified by the architect.

On the average home, the mason sticks the ends of the lead an inch or so into the mortar joint and leaves it hanging down around the chimney. The roofers arrive, shingle up to the chimney, fold the flashing down between shingle courses, and nail the ends to the roof. If they are more conscientious than usual, they may slap some tar on the end of the flashing before they lay the next shingle.

The above scenario creates a number of problems. All wooden structures shrink in height as they age and shift slightly with seasonal changes. The chimney, however, does not move. The shift-



ing and shrinkage of the frame structure stresses the flashing, causing the ends of the shingles to lift, breaking the tar seal and eventually tearing the flashing. Sooner or later, but usually within the first ten years, leaks will begin around the chimney. Also, since the problem of water transfer through the masonry units was not addressed at all, the chimney begins transferring moisture into the house through the first good rain. This is because masonry units, whether brick, block, or stone, are not waterproof or even water-resistant; they can transfer gallons of water into a house. Doing the job right in the beginning can save the builder the headache of trying to fix a "leak" that no amount of tarring or reflashings can solve.

Three Trades Involved

Flashing a chimney involves workmen from three trades: Usually at least one, and sometimes all of them, does not do the job correctly.

The carpenter. A good flashing job begins with the carpenter who makes the opening in the roof. If you're the carpenter on a chimney job, you must find out, preferably from the mason, the exact dimensions of the chimney at the point where it exits the roof. Codes usually require that the framing for the opening be kept 2 inches away from the masonry. If the roof sheathing is extended into the opening 1 1/2 inches on all sides (leaving a hole 1 inch larger than the dimensions of the chimney) the mason can then drop plumb lines from the corners to position the chimney at its base. You must also make sure that the roof opening lines up with the openings for the chimney in any floors or ceilings below and that the opening size is corrected for the roof pitch. These things may seem obvious, but I've seen mistakes made many times.

The next step is to build the cricket. All chimneys, even small ones, should have a cricket unless they go through the roof directly at the ridge. The cricket should be no wider than the up-

Three trades must do their jobs well to build a leakproof chimney

Chimney Flashing Details

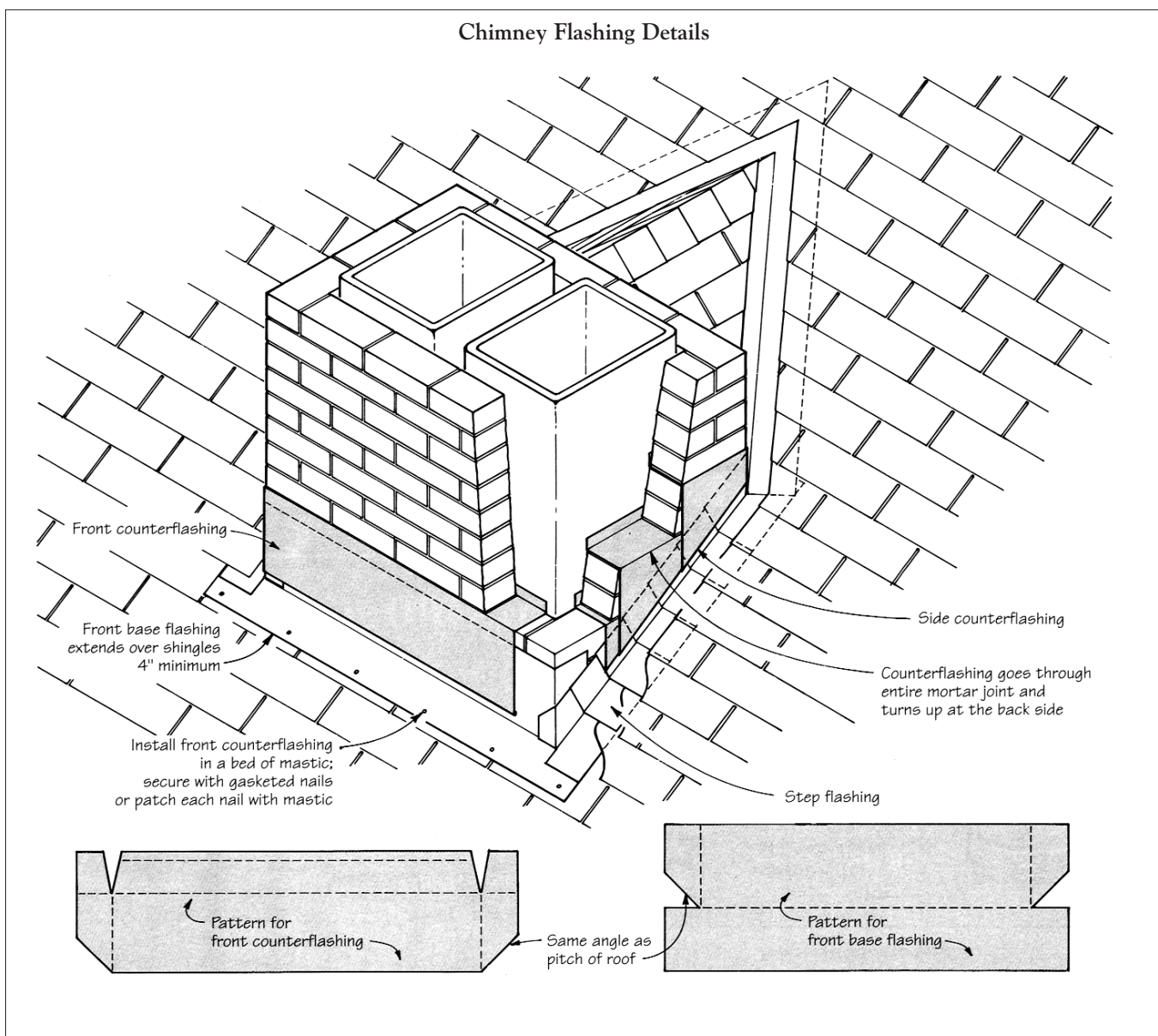


Figure 1. When flashing a chimney, never attach a flashing to both the chimney and the roof. The base flashings are attached to the roof only, the counterflashings to the chimney only. This creates a slip membrane, allowing the house to move independently of the chimney.

roof dimension of the chimney and should be constructed like the roof of a small dormer, with both sides the same pitch as the main roof. If the chimney is close to the ridge, the pitch of the sides may have to be less than the roof pitch to avoid extending the cricket above the ridge. Tack the completed cricket to the roof in its intended location. (The mason may want to move it to facilitate his work, but he will need the completed cricket to correctly position the flashing in the masonry.)

The mason. Preventing the water transfer problem mentioned above is the responsibility of the mason. If you are the mason building the chimney, you may have to make a minor, but very important, change in the way you place the flashing pieces in the chimney. Instead of sticking them into the

mortar joints only an inch or so, you must place the flashing so it passes completely through the mortar joint and turns up on the back of the masonry unit. This does not weaken the chimney because the flashing goes in at different levels of mortar joints as it follows the pitch of the roof. If you place the flashing this way, there will be no transfer of water into the house through the masonry units.

The roofer. The roofer's part of the job requires the most attention. If you are roofing around a chimney, a critical point to keep in mind is that you must never fasten any flashing connected to the chimney to the roof. The job goes as follows:

- On the down-roof side, or front, of the chimney, nail a continuous piece of flashing over the last shingle course and bend it up against the chimney to a height

of about 3 inches. Take care to form this front flashing so that the first step flashing on each side can bend around it to prevent water from being funnelled into the building at this point (see Figure 1). You may want to try Flash-Rite Corner Shingles (P.O. Box 23, Grabill, IN 46741; 219/627-3086) to give added protection at the corners. These are inexpensive prebent corner flashings, made of corrugated aluminum, that can be shaped to match your roof pitch (see Figure 2, next page).

- Next, beginning at the bottom and working up, install the step flashings where the end of each shingle course abuts the chimney.
- When you reach the up-roof side, or back, of the chimney, nail the cricket in place and shingle it as

if it were a dormer roof, again using step flashings where the shingle courses abut the back of the chimney (see Figure 3, next page). It is usually easier to cover a small cricket with lead flashing rather than shingles. The step flashings may be lead, too, but on a large chimney it is easier and quicker to use standard 5x7-inch preformed aluminum step flashings.

- To complete the job, fold the flashings attached to the chimney down over the step flashings and cut the ends in line with and slightly above the bends in the step flashing. As you fold down each piece, cement it to the previous piece at the vertical joint, using clear silicone caulk for mastic. The caulk will prevent a high wind from lifting the flashings and allowing water in. Also

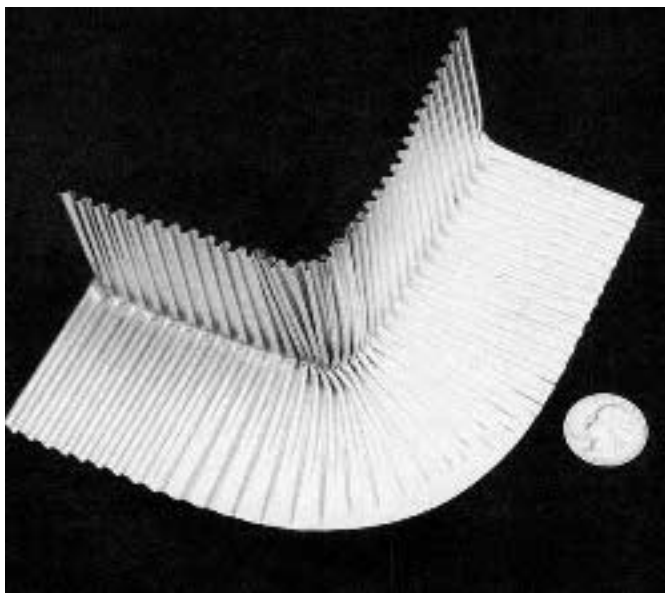


Figure 2. Install Flash-Rite corner shingles between base and counterflashings to protect the vulnerable spot at chimney corners. The corner shingles cost less than \$2 each.

Building a Cricket

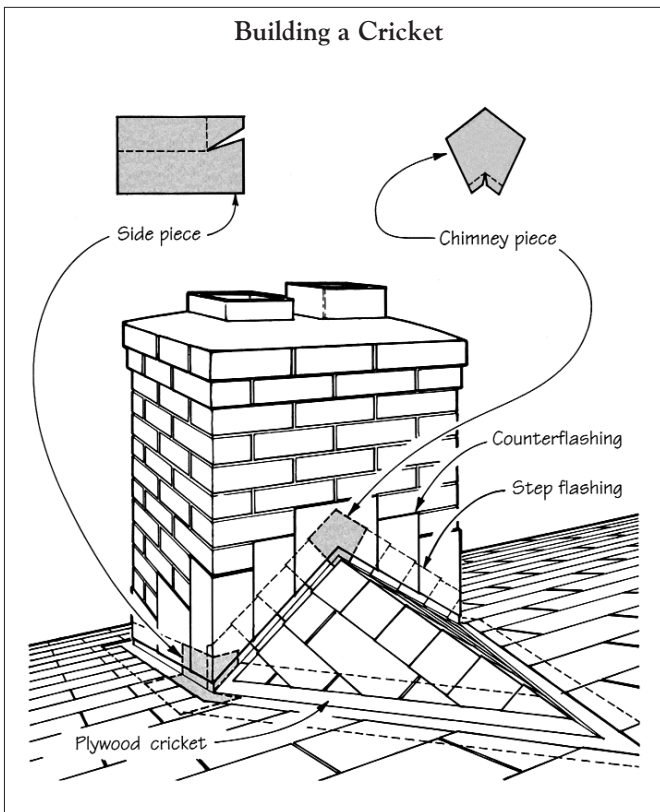


Figure 3. You can build the cricket from plywood and cover it with shingles or metal flashing (for a small chimney). The joint at the cricket is step-flashed and counter-flashed like the rest of the chimney.

be careful not to cement the step flashings to the chimney or the counterflashing to the step flashing. You should not need mastic anywhere else.

When the flashing job is done this way it will last many decades and the builder will have no callbacks. Also, when the time comes

to reroof, it is easy to remove the old shingles and install new ones, reusing the flashing embedded in the mortar. ■

Peter Scripture has been in the building trades for 30 years. For the last 12 years he has specialized in building, repairing, lining, and cleaning chimneys.