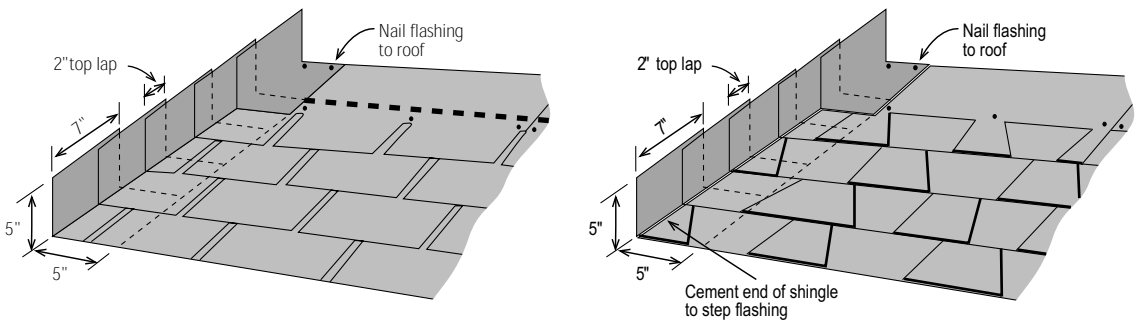
CHAPTER 10
FLASHING

Wherever there is an intersection of the roof plane or a penetration through the roof surface, flashing is essential for leak-free roof performance. Flashing consists of one or more thin layers of sheet metal inserted between the components of a roofing assembly and a wall or protrusion to direct the flow of water toward gutters and drains, and away from the interior of a building. While the flashing details shown in this manual indicate either strip shingles or laminated shingles, they are, in most cases, applicable to both types.

FLASHING AGAINST SIDEWALLS

Shingled roof planes that terminate against walls are best protected by sheet metal step flashing placed under the shingles as each course of shingles is applied.

Figures 10-1a and 10-1b show a method of installing step flashing at the juncture of a sidewall and a sloped roof shingled with strip shingles and laminated shingles, respectively. The metal flashing is rectangular, at least 10" long and a minimum of 2" wider than the expected exposure of the roofing shingles. For example, when used with shingles with a 5" exposure, they should be a minimum of 10" x 7". The 10" length is bent at 90 degrees to extend 5" over the roof deck and 5" up the wall assembly. Each flashing unit is placed up-roof from the exposed edge of the shingle that will overlap it so that it is not visible when the overlapping shingle is in place.



10-1a and 10-1b
Application of step flashing for 5" exposure. See manufacturer for application instructions for other exposures.

To install step flashing, place the first flashing unit over the end of the starter strip and position it so that the end shingle in the first course covers it completely. Secure the horizontal flange to the roof with two nails within 1" of the upper edge of the flashing. Do not nail the vertical flange to the wall framing as differential movement between the wall and roof will likely cause shingle buckling and or sealant breakage. Then apply the first course of shingles up to the wall. Next, position the second flashing unit over the end shingle in the first course 5" up from the butt or the same distance as the shingle exposure so that the end shingle in the second course covers it completely. Fasten the horizontal flange to the roof.

The second course of shingles follows; the end is flashed as in preceding courses and so on to the top of the wall intersection. Because the metal strip is 7" wide, when the roof shingles are laid with a 5" exposure, each flashing unit will overlap the one on the course below by 2".

Bring wall siding down over the vertical sections of the step flashing to a minimum of 2" to serve as counter flashing. Keep wood siding far enough away from the roof shingles so that it may be painted.

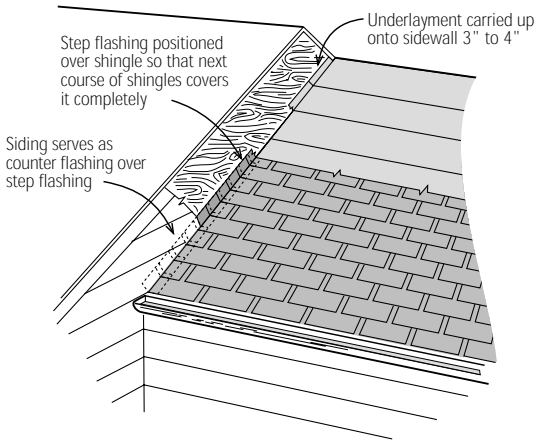


Figure 10-2
Application of step flashing against sidewall

FLASHING AGAINST FRONT WALLS

Apply shingles up the roof until a course must be trimmed to fit at the base of the vertical wall. Plan ahead and adjust the exposure slightly in the previous two courses so that the last course is at least 8" wide. Apply a continuous piece of metal flashing over the last course of shingles by embedding it in asphalt roof cement and nailing it to the roof. The metal flashing strip should be bent to extend at least 5" up the vertical wall and at least 4" onto the last shingle course. Do not nail the strip to the wall. Apply an additional row of shingles in asphalt roof cement (conforming to ASTM D4586) over the metal flashing strip, trimmed to the width of the strip. (See Figure 10-3)

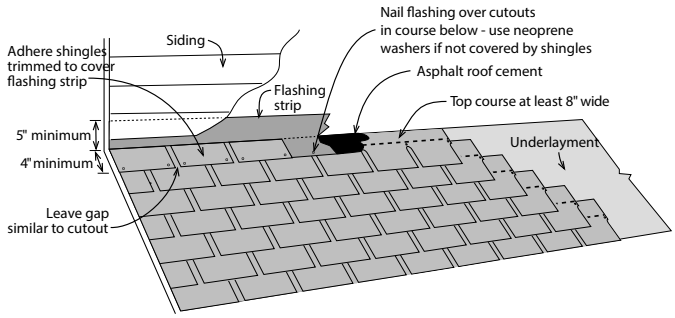


Figure 10-3
Application of flashing against front wall

[Caution]
Excessive use of asphalt roofing cement may cause blistering.

Bring siding down a minimum of 2" over the vertical flashing to serve as counter flashing. Keep wood siding far enough away from the roof shingles so that it may be painted. Follow the siding manufacturer's recommendations for clearances. Do not nail siding into the vertical flashing.

If the vertical front wall meets a sidewall, as in dormer construction, cut flashing so that it extends at least 7" around the corner. Then continue up the sidewall with step flashing as described earlier.

SOIL STACKS AND VENT PIPES

Practically all dwellings have vent pipes or ventilators projecting through the roof that are circular in section and require special flashing methods.

Apply shingles up to the vent pipe as shown in Figure 10-4. Then cut a hole in a shingle to go over the pipe and set the shingle in asphalt roof cement conforming to ASTM D4586.

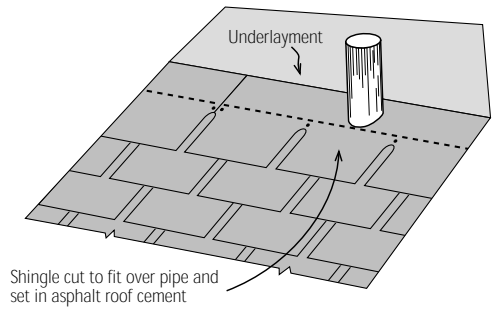
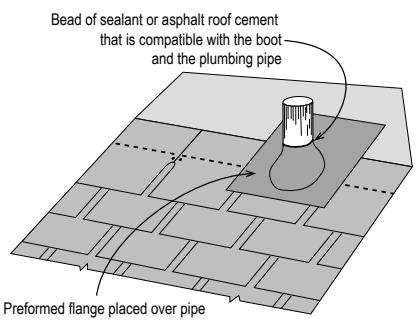


Figure 10-4
Application of shingle over vent pipe

[Caution]
Excessive use of asphalt cement may cause blistering.

A preformed flashing flange (also referred to as a "boot") that fits snugly over the pipe is then placed over the shingle and vent pipe. Place the flange over the pipe to lay flat on the roof as shown in Figures 10-5a and 10-5b. Inspections should be performed once a year to check for cracks in the flange. A variety of boot styles are available on the market, so refer to the flashing manufacturer's installation instructions.



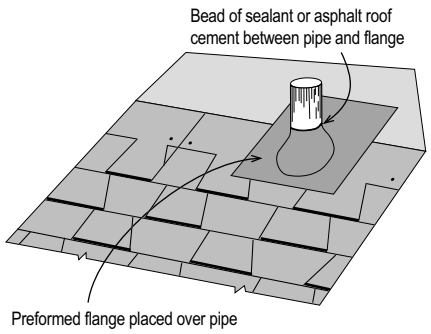


Figure 10-5a and 10-5b
Application of flashing over vent pipe

After the flashing is in place, resume shingle application. Cut shingles in successive courses to fit around the pipe and embed them in asphalt roof cement where they overlay the flange. Avoid excessive use of cement as it may cause blistering. Do not drive fastener nails any closer than 2" from the pipe. The completed installation should appear as shown in Figure 10-6a and 10-6b with the lower part of the flange overlapping the lower shingles and the side and upper shingles overlapping the flange.

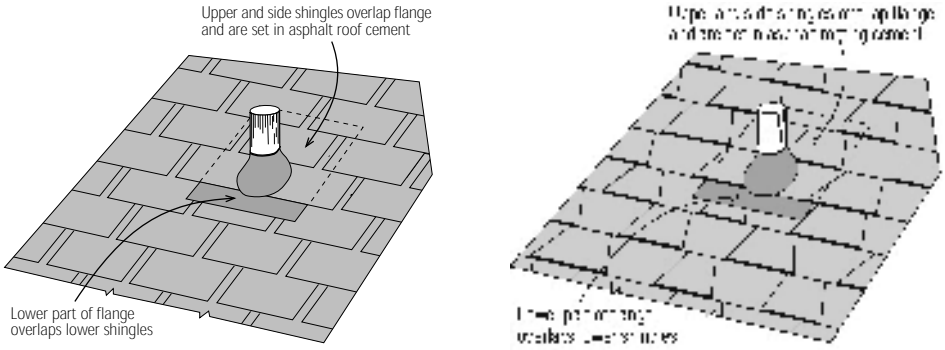


Figure 10-6a and 10-6b
Application of shingles around flashing

FLASHING AROUND CHIMNEYS

Because of potential differential movements, flashings at the point where the chimney projects through the roof call for an arrangement of components that will allow movement without damage to the water seal. To accomplish this it is necessary to apply apron flashings that are secured to the roof deck and counter flashings that are secured to the masonry. If movement occurs, the counter flashing slides over the apron flashing without affecting water runoff.

[Note]
It is strongly recommended a cricket be installed on any chimney that is 24" or greater in width. The International Residential Code (IRC) requires a cricket or saddle be installed on any chimney greater than 30" in width.