

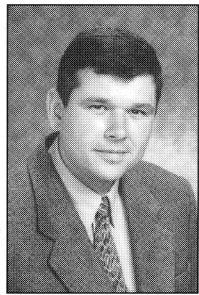
Q & A

A few options for installing asphalt shingles in a valley

by **Frank Lile**

Q: What is the best method for installing asphalt shingles in a valley?

A: Valley construction can be critical to asphalt shingle roof system performance. There are three basic valley



types used in asphalt shingle construction: open, woven and closed-cut.

A valley exists where two roof slopes intersect. Water from these adjoining roof systems is directed to-

ward the valley, resulting in a large amount of runoff over a relatively small area. This makes valleys especially vulnerable to leakage.

Deciding what type of valley to use largely is a matter of function. For example, some valleys will be limited to the roof system's slope (e.g., when roof systems of two equal slopes join to form a valley, the valley's slope will be about 30 percent less than that of the roof [see Figure 1]) or climatic and geographic factors. In addition, surrounding vegetation can affect a valley's performance.

When roof systems of two equal slopes join to form a valley, the valley's slope will be about 30 percent less than that of the roof.

Regardless of the type of valley used, a full width of underlayment always should be centered in the valley. Typically, a 36-inch (914-mm) wide roll of #15 or #30 asphalt-saturated felt or self-adhering modified asphalt ice-dam protection

membrane should be used. Fasteners should not be located within 6 inches (152 mm) of the valley's center when installing any roofing materials, including roll roofing and shingles.

In an open valley, the shingles are held back from the valley's center, leaving a clear path for water to drain rapidly. Open valleys can be used effectively on lower-sloped roof systems and are advantageous in locations where fallout from nearby vegetation could accumulate in the valley.

Open valleys made from 26-gauge (0.45-mm) (minimum) galvanized steel or equivalent noncorrosive, nonstaining metal can be long-lasting and durable. Those made from mineral-surfaced roll roofing are not as durable.

Existing roof slope		Resulting valley slope	
3-in-12	(25 percent)	2.1-in-12	(18 percent)
4-in-12	(33 percent)	2.8-in-12	(23 percent)
5-in-12	(42 percent)	3.5-in-12	(29 percent)
6-in-12	(50 percent)	4.2-in-12	(35 percent)
8-in-12	(67 percent)	5.7-in-12	(47 percent)
10-in-12	(83 percent)	7.1-in-12	(59 percent)
12-in-12	(100 percent)	8.5-in-12	(71 percent)

Figure 1: A comparison of roof and valley slopes.

Woven valleys generally are limited to three-tab shingles where the valley's slope is at least 4 inches per foot (102 mm/m) of run. Woven valleys consist of several layers of roofing materials, typically one layer each of underlayment and mineral-surfaced roll roofing and, as a result of the woven application, four layers of shingles. This makes an especially durable valley.

If the last shingle in a particular course ends in a woven valley, a single- or two-tab shingle piece should be installed followed by the full shingle. This ensures that only full shingles are installed throughout the valley's length, thereby increasing coverage and adding to the valley's weather resistance and durability.

However, there are some drawbacks to specifying a woven valley. In areas where heavy accumulations of

moss can grow between the shingle cutouts, a woven valley could hinder runoff. In addition, some dimensional or architectural shingles, when woven together in a valley, can result in a thick or irregularly sloped valley that could interfere with rapid draining of the valley.

Closed-cut valleys combine some of the advantages of the other valley types. They are partially open, allowing for fairly rapid drainage, and are relatively abuse-resistant. They usually are composed of at least four layers of roofing materials: one layer each of felt underlayment and mineral-surfaced roll roofing and two layers of shingles.

This method for installing shingles in a valley is preferred by many roofing professionals because it can be used with most types of asphalt strip

shingles. For double-layer "T"-lock or double-layer, individual lock-down shingles, NRCA recommends a minimum valley slope of 5 inches per foot (127 mm/m) of run. Single-layer, individual-type asphalt shingles cannot be used because nails may be required at or near the valley's center.

For more information about valley construction, roofing professionals should refer to *The NRCA Steep Roofing Manual*. **PR**

Each month in this column, one of NRCA's technical services staff members will answer readers' technical questions. If you have a specific question you would like answered in this column, send it to Professional Roofing magazine, 10255 W. Higgins Road, Suite 600, Rosemont, Ill. 60018-5607; or fax (847) 299-1183.