

Valley Application

General Instructions

Valley application must comply with the building code. Where allowed, PABCO[®] recommends open metal valleys. Closed-cut and woven valleys are also allowed for PABCO Premier[®] laminated shingles.

Our Directions For Application, printed on each package, represent one accepted roofing practice. This technical bulletin provides more detailed information on that practice, as well as other practices. Neither the directions nor this technical bulletin are intended to be taken as the only suitable or acceptable means of applying valleys. They are intended as examples and recommendations, not restrictions. Additional recommendations and details can be found in the *NRCA Roofing and Waterproofing Manual* and in the *ARMA Residential Asphalt Roofing Manual*.

All materials used to fabricate the valley (metal and underlayment) should be applied from the bottom (eaves) to the top. If more than one piece of underlayment is required, lap the upper piece over the lower piece at least 12" and cement the joint together with asphalt roof cement complying with ASTM D4586 or equivalent (if material is not self adhering).

The first step in the assembly of a valley by any method is to apply a 36" wide (minimum) sheet of underlayment (first valley underlayment), centered in the valley. PABCO[®] recommends the use of self adhering underlayment complying with ASTM D1970 for this first sheet. This sheet needs to be applied tightly into the valley. A sheet that is not supported by the decking below can be damaged by roof traffic stepping on unsupported valley underlayment sheets. The underlayment that covers the deck planes is run over this first valley underlayment, overlapping this sheet at least 6". See Figure 1 below. Apply a second underlayment over this, centered in the valley. This second underlayment is typically a #30 saturated felt or a 50 lb. (or heavier) smooth coated sheet.

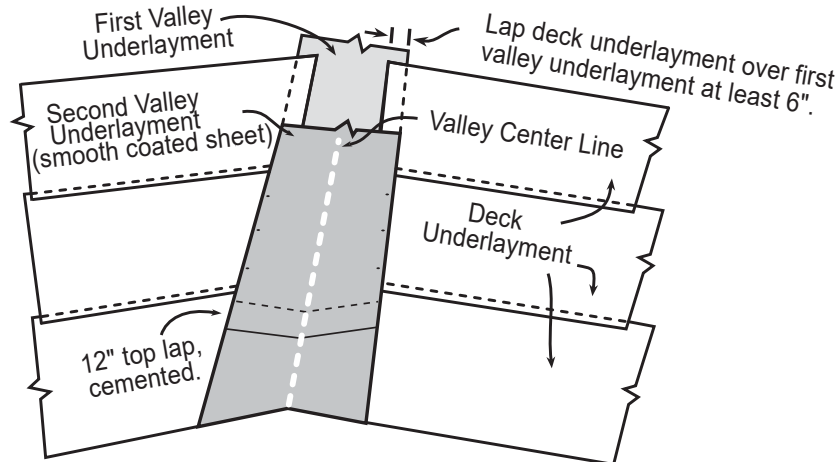


Figure 1
Valley Underlayment and Flashing

Open Metal Valley

The metal used for valley flashing is 26 gauge (minimum) galvanized, or an equally corrosion resistant metal, at least 24" wide, formed with a "W" shape and a center rib. Apply the metal valley with clips, or nail at the edges without puncturing it. Apply the metal centered in the valley over the valley underlayment, trimming the bottom edge to extend beyond the drip edge 1/4" to 3/8". If more than one piece of valley metal is needed, the lower piece is nailed at the top. The upper piece laps over these nails by at least 8" and the lap is cemented together with asphalt roof cement complying with ASTM D4586. Snap two chalk lines, one on each side of the valley center line down the full length of the valley flashing. Locate the upper ends of the chalk lines at least 4" apart (2" to either side of the valley center line). The lower end of the chalk lines should diverge from the center line 1/16" per foot down the valley (1/8" per foot from each other). For an 8' long valley, the chalk lines should be 5" apart at the eaves; for a 16' valley, they should be 6" apart. Shingles should overlap on each side of the metal valley a minimum of 6".



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When the valley is more than 24 feet long, wider valley metal is used so that the caulk line (and shingle application) is always at least 6" inside the outer edge of the metal. See Figure 2 below. Apply the shingles into the valley in the normal sequence of application for the rest of the roof. Trim the shingles to the chalk line, but never use a piece less than 12" wide. If necessary, trim the preceding shingle on the course. Apply the shingles into the valley so that no nails pass through the valley metal. Clip the upper shingle corner (in the valley) 1" at 45°. Embed each shingle in a 3" wide strip of asphalt roof cement. Please note: Trim the shingles to the chalk line with care to avoid any damage to other materials.

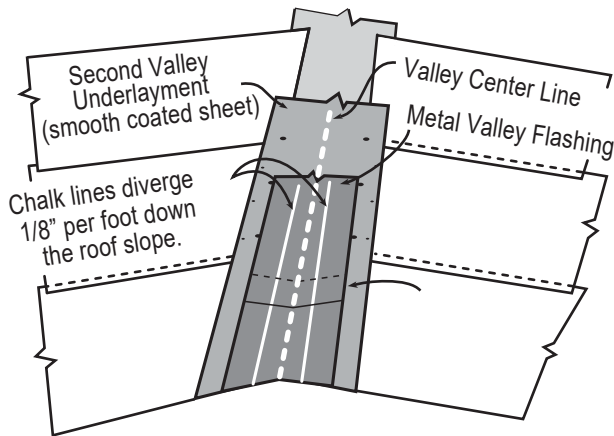


Figure 2
Valley Metal Application

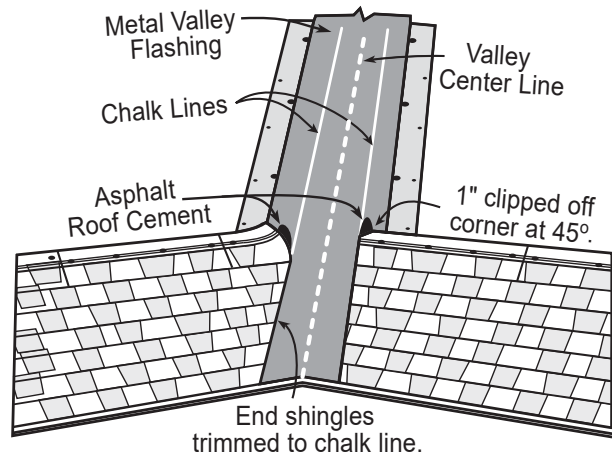


Figure 3
Shingle Application

Closed-Cut Valley

It is best to start applying the shingles on the roof plane that has the lower slope or lesser area draining into the valley. With valley underlayments in place, apply the first course of shingles along the eaves of one of the intersecting roof planes and across the valley. Extend the end shingle through the valley at least 12" onto the adjoining roof. Extra care must be used when a laminated shingle is bent in the valley to avoid any damage to the shingle. Do not have an end to end joint within 12" of the valley center line. If needed, add in a shingle piece in the field so that the joint occurs outside this 12" dimension. Apply the rest of the shingles on that plane in the same manner, extending them across the valley and onto the adjoining roof. Press the shingles tightly into the valley. Use normal nail locations except that no nail should be within 6" of the valley center line. Snap a chalk line 2" beyond the valley center line. Then apply shingles on the other plane. Please note: Trim the shingles to the chalk line with care to avoid any damage to other materials. Clip the upper shingle corner (in the valley) 1" at 45°. This helps direct water into the valley. See Figure 4 below.

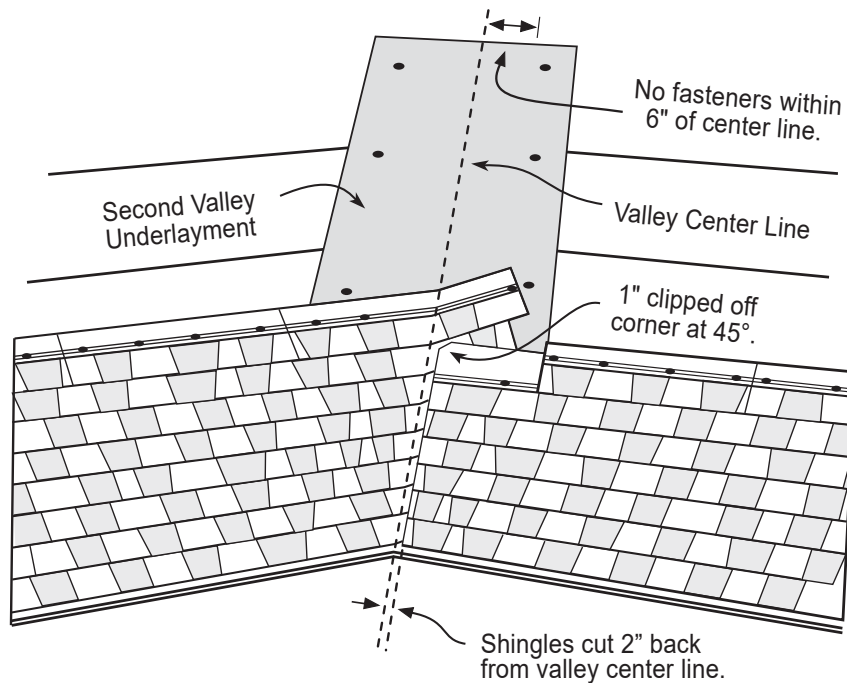


Figure 4
Closed-Cut Valley

Woven Valley

While allowed, woven valleys are uncommon with laminated shingle application. Extra care is required to generate all the bends required for a woven valley without damaging the shingles. See the ARMA *Residential Asphalt Roofing Manual* or the NRCA *Roofing and Waterproofing Manual* for application details.

Alternate Open Metal Valley

A known alternate method is to start shingle application in the valley with vertical shingles applied up the valley end to end, with the "leading edge" of the shingle at the chalk line. The field shingles are then applied from the valley outward, aligned with the valley edge of the vertical shingle, with no trimming.

There are two concerns with this alternate method. First, the end to end joints of the vertical shingles are exposed. Second, the designated horizontal offset for PABCO Premier® shingles from course to course is 5-5/8". Aligning the shingles ends by the valley slope will result in an offset of less than 5-5/8". While there have been no confirmed problems from this application, PABCO® has not investigated every possible combination. See Figure 5 below.

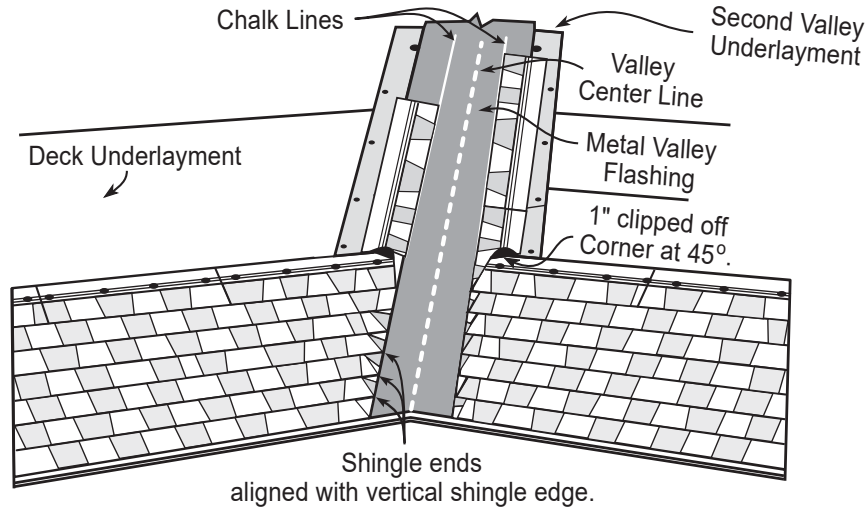


Figure 5
Alternate Shingle Application

The PABCO® Limited Shingle Warranty

PABCO warrants that our shingles are free from manufacturing defects that adversely affect their performance. PABCO is not responsible for failures of any roof system that are not directly attributable to a PABCO product. See the PABCO Limited Shingle Warranty for details, limits, and conditions.



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