

Directions For Application

1 General Instructions

NOTICE: THIS PRODUCT MUST BE APPLIED TO CONFORM WITH ALL APPLICABLE BUILDING CODES. THESE DIRECTIONS REPRESENT COMMON AND ACCEPTED ROOFING PRACTICES. DEVIATIONS FROM THESE DIRECTIONS MAY ADVERSELY AFFECT THE ASSEMBLED ROOF SYSTEM PERFORMANCE, ROOF APPEARANCE, COMPLIANCE TO PRODUCT STANDARDS, COMPLIANCE TO BUILDING CODES AND STATED COVERAGE. See PABCO's limited warranty for details, limits and conditions. Ask your supplier for a copy or visit our web site at www.pabcoroofing.com.

Standard application exposure is 4 1/2" to the weather.

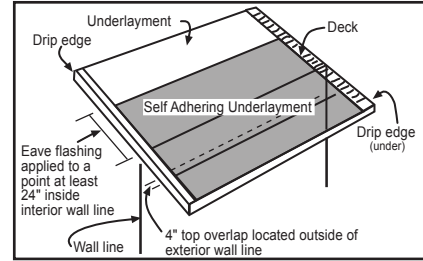
The standard step-by-step application instructions below apply to slope/inclines below 4" per foot and 20" per foot. For low slopes (between 2" and 4" per foot) and on steep slopes (more than 20" per foot), modify the installation as described in Section #8. These shingles are not approved for use on roof slopes less than 2:12.

IMPORTANT: FROM COURSE TO COURSE UP THE DECK, END JOINTS MUST BE MAINTAINED WITH A HORIZONTAL OFFSET OF 6". THE INSTALLER MUST ASSURE THAT ALL END JOINTS ARE COVERED. UNCOVERED END JOINTS MAY RESULT IN LEAKS WHICH ARE NOT COVERED BY PABCO'S LIMITED WARRANTY. THE DIAGONAL APPLICATION DESCRIBED HERE IS NECESSARY TO GENERATE THE CORRECT PATTERN APPEARANCE. SEE SECTION 7 FOR ADDITIONAL INFORMATION AND INSTRUCTION. PABCO IS NOT RESPONSIBLE FOR THE APPEARANCE WHERE THIS DIAGONAL METHOD OF APPLICATION IS NOT USED.

Ventilation: To prevent harmful condensation, air must circulate freely under the roof deck. FHA Minimum Property Standard indicates: A minimum of 1 square foot of total net free ventilating area is required for each 150 square feet of ceiling area, or 1 square foot for each 300 square feet of ceiling area if (A) a vapor barrier is installed on the warm side of the ceiling or (B) approximately one-half the ventilation is provided near the ridge.

4 Eave Flashing

If winter temperatures average 30°F or less, and ice may form along eave to cause a back-up of water, install a self adhering eave flashing for ice dam protection. Install this self adhering, peel and stick type underlayment sheet, complying with ASTM D1970, directly to the deck and parallel to the eave. It overhangs the drip edge at the eave by 1/4" to 3/8". This sheet extends up the roof to at least 24" inside the interior wall line. Horizontal (top) overlaps (when needed), should be located over the overhang area. Top laps are at least 4", end laps are at least 6". The underlayment covering the balance of the deck overlaps the top of this flashing by at least 2".



2 Roof Deck Requirements: New Construction

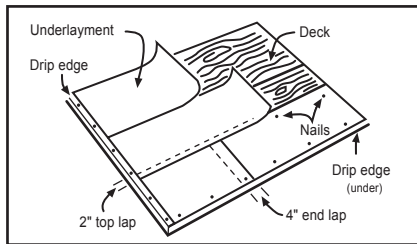
Roof decks must be at least 3/8" thick plywood or 7/16" OSB type structural sheets conforming to the exposure standards and specifications of the APA - The Engineered Wood Association and the building code, or wood board decks must be well-seasoned, minimum nominal thickness 1", not over 6" in width.

PABCO SHINGLES SHOULD NEVER BE APPLIED TO ANY OTHER DECK without first obtaining written approval from PABCO Roofing Products. Requests for approval must be accompanied by the deck manufacturer's recommended application procedure for asphalt shingles. APPLICATION DIRECTLY OVER POLYURETHANE OR POLYSTYRENE SURFACES WILL NOT BE APPROVED.

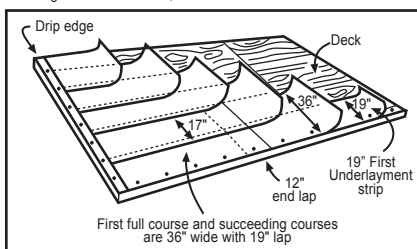
3 Underlayment

On decks with a pitch of 4" per foot or greater, for new construction or when old roofing has been removed, apply a single layer of underlayment felt complying with ASTM D226, D4869 or D6757 and the building code. Underlayment is applied with 2" top laps and 4" end laps. Lap the felt a minimum of 6" from both sides over all hips, ridges and valleys.

Drip edges are made of corrosion resistant materials that extend 2" minimum back from the roof edges and bend downward over them. Apply drip edges directly to the deck along the eave and over the underlayment along the rake. At the eave, the underlayment is extended beyond the drip edge to overhang by 1/4" to 3/8".



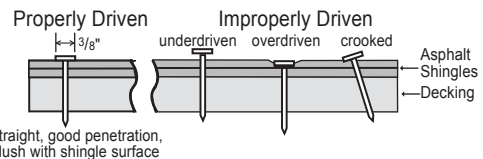
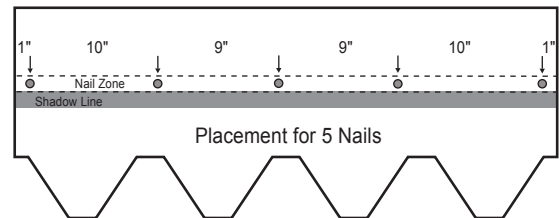
Low Slope Application: On slopes between 2" and 4" per foot, provide a double layer of underlayment felt (ASTM D226, D4869 or D6757) by applying a 19" wide underlayment strip across the eaves. Over this, apply a full 36" wide sheet. Continue 36" wide sheets, lapping each 19" over the preceding course. If winter temperatures average 30°F or less, use the special eave flashing shown in Section 4, below.



5 Nailing Instructions

PABCO recommends the use of nails. Use five nails per shingle for normal application, positioned in the "Nail Zone" as shown below. The nail zone" is a band of light colored granules running across the face of the shingles 9 1/2" to 11" up from the leading edge of the teeth.

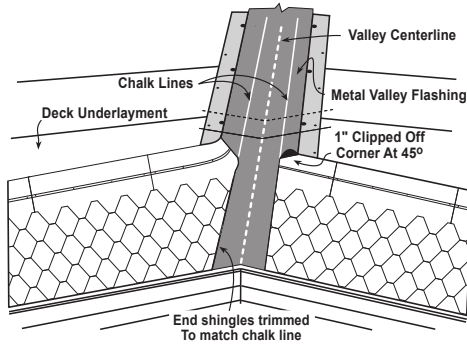
Nails must be at least 1" long, aluminum or galvanized, 3/8" head, 11 or 12 gauge roofing nails. Drive nails flush with shingle surface. NAILS MUST NOT BE OVERDRIVEN TO CUT INTO SHINGLES. See Nail Application Instructions Technical Bulletin at pabcoroofing.com for more detailed information.



6 Valleys

Valley application must be in compliance with the building code. Where allowed, PABCO recommends using open metal valleys (closed cut valleys are also accepted). This valley starts with a 36" underlayment centered down the valley. PABCO recommends the use of self adhering underlayment for this bottom layer. The underlayment felt covering the decks extends over this and is trimmed overlapping 6". A second layer of felt is applied over this, centered down the valley. The metal valley flashing must be at least 26 gauge galvanized metal or an equally corrosion resistant metal, at least 24" wide, formed with a "W" shape and center rib. Apply the metal valley flashing without puncturing it. Center the metal in the valley over the second layer of underlayment, extending beyond the eave 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 2 chalk lines down the valley, starting at least 2" on either side of the valley center line at the top of the valley and diverging from the center line 1/16" per foot down the valley (1/8" per foot from each other). Apply the shingles into the valley in the normal sequence of application and with the directed course to course offset as 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°. See Cascade Valley Application Instructions Technical Bulletin at pabcoroofing.com for more detailed information.

6 Valleys (Continued)



7 Application, 5" Diagonal Offset Pattern
The 5" horizontal offset to align bottom tooth ends with the space between teeth in the course below is critical to the final appearance of the roof. No other offsets are approved. The use of chalk lines to assure alignment is strongly recommended. In the circumstance where a roof plane is interrupted, such as with a dormer, proper use of chalk lines to assure each side is properly spaced is critical to assuring that the shingles on each side are properly positioned to each other when they come together above that interruption. See the PABCO technical bulletin on Cascade Offset Control at www.pabcoroofing.com for more details.

FIRST STARTER COURSE: Use PABCO Universal Starter or a self sealing three tab shingle with the tabs cut off and the adhesive at the eave. Remove 7" from the end of the first piece and apply it at the lower left hand corner of the roof, overhanging the drip edge 1/4" to 3/8". Nail in place with 4 nails about 2" up from the eave, spaced evenly across the shingle. Continue the Universal Starter across the deck with full shingles.

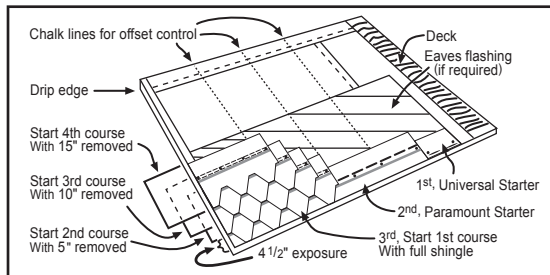
SECOND STARTER COURSE: Use Paramount Starter to assure matching shingle colors. Cut 5" off the length of the first slab of Paramount Starter and apply at the lower left hand corner of the roof. This Starter is applied flush with the first starter course at the rake and eave. Continue the Starter across the deck with full shingles. See Cascade Starter Application Technical Bulletin at pabcoroofing.com for more detailed information.

FIRST COURSE: Start with a full Cascade shingle aligned with the edges of the Paramount Starter at the lower left hand corner of the roof.

SECOND COURSE: Cut 5" from the left end of a shingle and apply the 35" long piece over the headlap of the first course shingle, exposing the first course 4 1/2".

THIRD COURSE: Cut 10" from the left end of the shingle and apply the 30" long piece over the headlap of the second course shingle, exposing the second course 4 1/2".

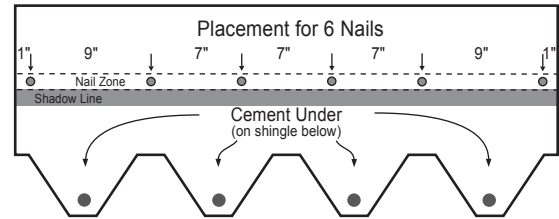
SUCCEEDING COURSES: Start courses four through eight with a partial shingle 5" shorter progressively, establishing the overall diagonal offset pattern. See illustration below. (Pieces cut from shingles along the left rake can be used to finish off courses at the right rake.) Now apply full shingles to courses one through eight. Repeat the diagonal pattern from the first eight courses by starting course nine as a full shingle and proceeding with partial shingles 5" shorter progressively each time.



8 Special Applications
 For areas where local knowledge indicates exposure to high winds may occur, shingles must be applied with 6 nails (spaced as shown below) and sealed to qualify for wind damage warranty coverage.

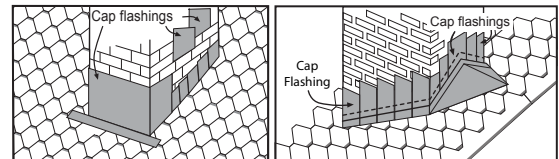
Steep Slope Application: On slopes greater than 20° per foot (Mansard type roofs), 6 nails are required, spaced as shown below. These shingles are to be hand sealed at the time of application with asphalt roof cement, by applying 4 spots about the size of a quarter, each centered under a tooth, 1" up from the bottom edge of that covering tooth.

Low Slope Application: See special underlayment instructions in Section 4.

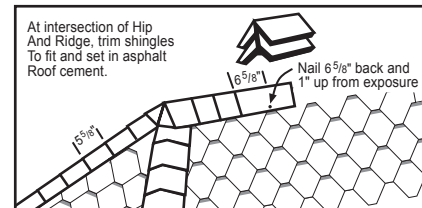


9 Base and Cap (Counter) Flashing
 Install the metal base flashing for the front of a chimney, skylight, vent or adjoining wall as illustrated over the headlap of the last course of shingles below the chimney, and extending up the chimney. Set both the roof and chimney overlaps in asphalt roof cement. Where shingle ends are against a vertical surface (chimney or vertical wall), the shingles must be flashed with a metal step flashing shingle applied over the end of each course of shingles. The flashing shingles are at least 8" by 6 1/2", bent to extend 4" out over the shingles on the roof deck and 4" up the vertical surface. Each flashing shingle is placed so that its leading (bottom) edge is just back from the exposed edge of the shingle which will overlap it. It is secured to the deck with one nail near the top corner.

The base flashing must be covered with a cap flashing of sheet metal. The cap flashing must extend at least 1" into the masonry mortar joints and be caulked with asphalt roof cement to insure a water-tight connection. The base flashing should be cut to cover the entire cricket and extend 6" up the brickwork on the chimney. See ARMA Residential Asphalt Roofing Manual for additional details.



10 Hips and Ridges
 Trim shingles to be even with the ridge and cap with PABCO Shadow Cap shingles exposed 5/8" to the weather. Nail 6 5/8" back from the exposed edge and 1" up from the side with galvanized roofing nails long enough to penetrate the deck 3/4". A course of double ridge shingles is recommended to accent the hip & ridge lines. **IMPORTANT:** In cold weather (40°F or below) store shingles for hip & ridge in heater location 24 hours prior to application to assist in forming properly.



11 Reroofing
 PABCO recommends that this shingle not be used for covering over an existing shingle roof. Remove all roofing materials from the deck. Inspect and repair the deck as needed. Proceed with the application as with a new roof.

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 defect. See PABCO's Limited Shingle Warranty for details, limits, and conditions.