

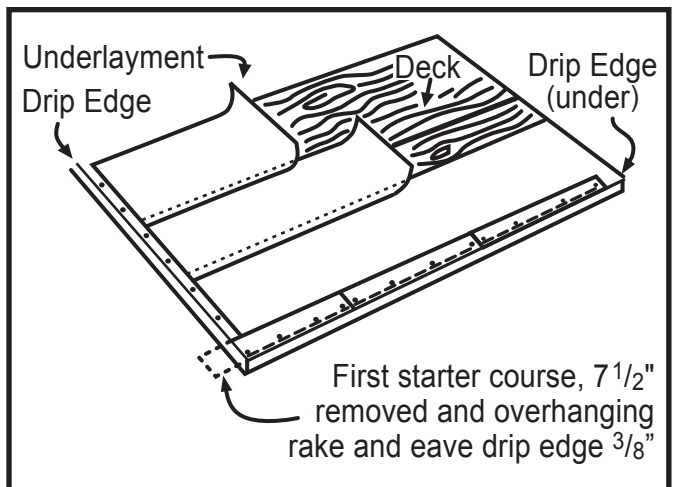
Shingle Application, Getting Started

This Technical Bulletin is focused on getting the CASCADE™ shingle installation started correctly. Specifically, this bulletin details the application of PABCO® Universal Starter, CASCADE™ Starter, and the first few CASCADE™ shingles. These instructions provide details for generating the diagonal application pattern for CASCADE™ shingles. This diagonal application pattern generates the intended roof appearance, covers all of the shingle end joints, and properly positions the sealant stripe. This provides maximum leak and wind resistance. These instructions are written for starting at a left hand corner and generate a right to left diagonal going up the roof. CASCADE™ can also be applied with a left to right diagonal application if starting from a right hand rake edge. Always start application from the opposite end of a roof surface from the valley and work toward the valley.

Apply underlayment, drip edge, eave and valley flashing materials before starting the application of shingles.

The first starter course is started with PABCO® Universal Starter. Remove 7 1/2" from the end. Apply the piece at the lower left corner of the deck with the sealant stripe up, overhanging the drip edge 3/8" at the rake and eave. Finish across the deck with full length pieces.

PABCO® recommends the use of nails. Attach Universal Starter with 4 nails 1" long, placed just above the sealant stripe.



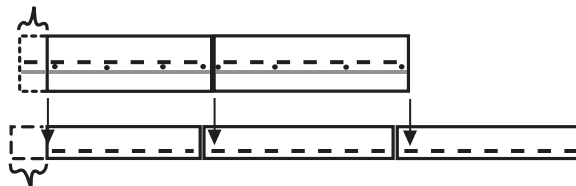
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The second starter course is started with CASCADE™ STARTER matching the color of CASCADE™ for the rest of the roof. Remove 5" from the end. Apply the piece at the lower left corner of the deck, aligned at the eave and rake with the first starter.

Attach with 4 roofing nails at least 1" long, placed in the nail area. The nail area is the area above the shadow line (darker band of granules) and below the sealant stripe. Use 6 nails for high wind applications

NAILS MUST BE ABOVE THE SHADOW LINE to assure that they will not be exposed in the spaces between the teeth of the CASCADE™ shingle that will cover this starter course. Finish across the deck with full length pieces.

Second starter course, CASCADE™ Starter, 5" removed from the first piece and aligned at rake and eave with first starter. Follow first piece with full shingles applied across the roof to finish the course.

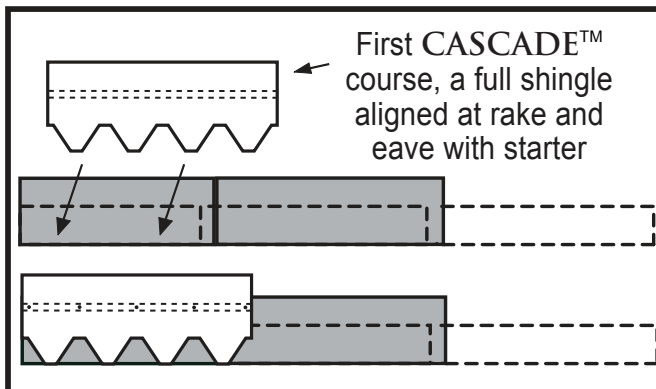


First starter course, PABCO® Universal Starter, 7 1/2" removed from the first piece. Follow the first piece with full shingles applied across the roof to finish the course.

The first CASCADE™ course is started with a full CASCADE™ shingle. Place the shingle at the lower corner of the deck. Align the end and the bottom of the shingle teeth with the edges of the CASCADE™ STARTER under it.

For standard slope roofs attach with 5 nails, placed in the Nail Zone. The Nail Zone is a band of light colored granules on the face of the shingle 9 1/2" to 11" up from the bottom of the teeth.

Steep slopes (greater than 20" per foot) need 6 nails and hand sealing. High wind application also calls for 6 nails.



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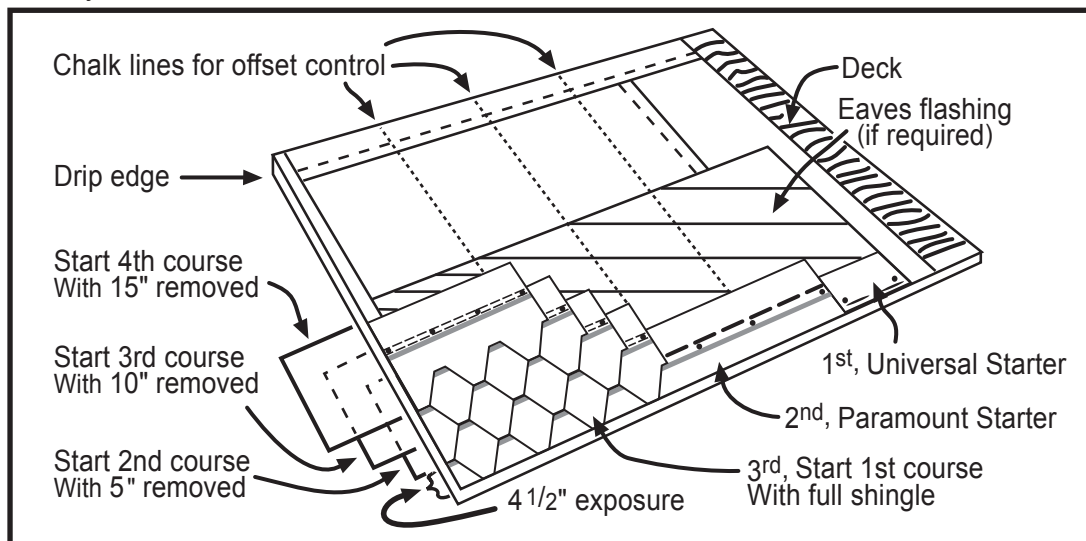
Application, 5" Diagonal Offset Pattern

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. If 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.

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.



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.

