



Laminate Shingle Installation Instructions

Includes the following shingles:

Highlander[®]

Highlander[®] AR

Vista[®]

Vista[®] AR

Ecoasis[™]

Legacy[®]

Legacy[®] Scotchgard[™]

Featuring:

The Zone[®]

Directions for Applying Malarkey Laminate Shingles

GENERAL INSTRUCTIONS

Install Malarkey laminate shingles according to adopted building code and local amendments. To qualify for warranty protection and obtain stated coverage, the installation instructions detailed here must be followed. Contact Malarkey Technical Services or check our website at WWW.MALARKEYROOFING.COM for the most current version.

We assume no responsibility when there has been improper application, failure to properly prepare the surface or provide proper ventilation according to FHA or HUD minimum property standard requirements and adopted building code.

For current warranty information, visit WWW.MALARKEYROOFING.COM/warranties.

Standard exposure is 5 $\frac{5}{8}$ " (143 mm) to the weather. Offset between courses is 8" (203 mm). Minimum offset for shingle installation is 4" (102 mm).

These step-by-step application instructions apply to standard slopes/inclines of not less than 4" (102 mm) per 12" (305 mm) or more than 21" (533 mm) per 12" (305 mm). For lower slopes [2" (51 mm) to less than 4" (102 mm) per 12" (305 mm)] and steep slopes [more than 21" (533 mm) per 12" (305 mm)], modify the installation as described below. Do not apply shingles on roofs having a slope less than 2" (51 mm) per 12" (305 mm).

Note: The film strips on each shingle, front and back, prevent shingles from sticking together while in the bundle and are not designed to be removed.

IMPORTANT

- ALWAYS wear fall protection when working on a roof.
- Underlayments can be slippery, particularly when wet or covered with frost. Be careful when walking on them.

Ventilation: To prevent harmful condensation or heat buildup, air must circulate freely under the roof deck. Install roof vents at ridges and eaves. Ventilation provisions must meet or exceed current FHA or HUD requirements and adopted building codes.

Roof Deck: The surface to receive the new roofing should be in good shape and solidly sheathed, constructed of a minimum $\frac{3}{8}$ " (10 mm) thick, exterior-grade plywood, $\frac{7}{16}$ " (11 mm) thick oriented strand board (OSB), or seasoned lumber, nominally 1" (25 mm) thick. Boards should be positioned tight to each other and securely nailed to framing members. Deteriorated or rotted boards should be replaced. For excessively resinous areas and loose knots, cover with sheet metal patches.

Malarkey strongly recommends installing sheathing when wood board decking is the existing substrate. Problems with the performance of your roofing system, such as leaks and buckling, increase if installed directly over wood board decks. Failure to use properly conditioned deck materials can result in deck movement which can damage the roof covering and may void your warranty.

Drip Edge Flashing: In accordance with 2018 International Building Code, Section 1507.2.8.3, and 2018 International

Residential (Building) Code, Section R905.2.8.5, *drip edge flashing* (drip edge, eave or rake metal) is required along the eave and rake edges of shingle roofs.

Install drip edge first along the eaves, and later on the rakes once the field underlayment has been applied.

UNDERLAYMENT

Malarkey makes two types of underlayment, the first being water-resistant, *mechanically-attached* field underlayments Right Start™ UDL and our Secure Start® line of synthetic underlayments.

The second type are waterproof, *self-adhering* underlayments, Arctic Seal® and Secure Start® HT products which are intended for use in cold weather climates that produce ice dams.

Self-adhering underlayment can also be installed as a flashing membrane in areas susceptible to leaks such as roof valleys, roof-to-vertical transitions, and around vents, curbs, skylights and other roof penetrations.

Underlayment is required on roof decks prior to the installation of Malarkey shingles. Your geographical location, weather, degree of roof slope, and type of roof covering will help determine which Malarkey underlayment is right for your situation. Consult local building code for additional guidance.

Complete installation instructions are available on our website at WWW.MALARKEYROOFING.COM.

Other Instructions Common to the Installations that Follow:

- Underlayment is installed parallel to the eaves.
- End laps in the same course should be 6" (152 mm), and staggered 6' (1.8 m) apart in subsequent courses.
- Extend field underlayments 6" (152 mm) over hips, ridges and valleys. Where the roof meets a vertical surface, run the underlayment a minimum of 3" (76 mm) up the wall and secure.
- Once an expanse of roof is covered by underlayment up to the ridge, apply drip edge flashing to the rakes, over the ends of underlayment.

INSTALLATION IN NON-ICE DAM REGIONS

Roof Slopes 4:12 and Greater

Roof slopes 4:12 (4" [102 mm] per 12" [305 mm]) and greater require the installation of a single (1) layer of Malarkey's field underlayment (or code-compliant equivalent) over the entire roof deck.

Install the initial course flush to the eave and trim at the rake. Fasten sufficiently to hold the underlayment in place and work safely until shingles are applied or according to adopted building code. Secure Start® underlayments have bullseye imprints on the material to act as guides for fastening.

Continue working up the roof, subsequent courses overlapping the preceding by 2"-4" (51-102 mm), depending on the type of underlayment being applied. (*See Figure 1*)

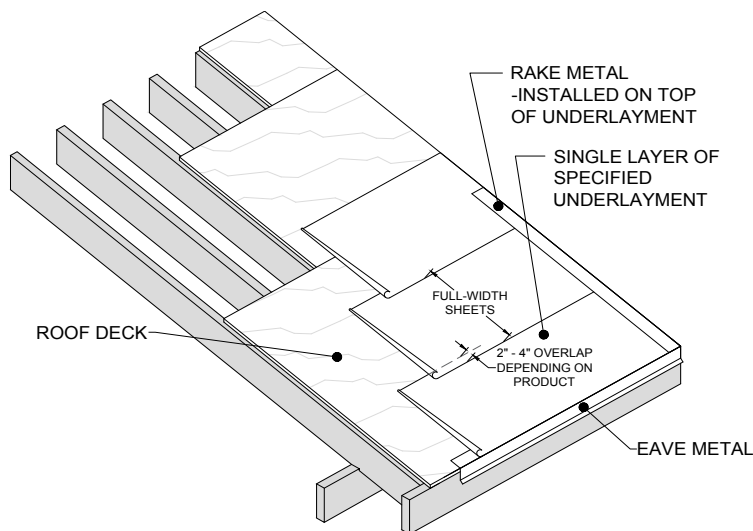


Figure 1 - Application of Field Underlayment on Roof Slopes 4:12 and Greater (Non-Ice Dam Regions)

Roof Slopes 2:12 Up to 4:12

Install a *double layer* of any Malarkey underlayments. If local building code has adopted 2015 or later IBC or IRC, a *single layer* of ASTM D1970 underlayment (Arctic Seal®, Secure Start® HT) is acceptable as an exception per the I-Codes.

For a double layer, start at a lower corner of roof and begin by applying a half-width *starter strip* of field underlayment (or code-compliant equivalent) along the eaves.

Succeeding courses are all full-width, the first course completely overlapping the starter, and followed by courses half-lapped over preceding courses, on up the roof.

Fasten sufficiently to hold in place and work safely until shingles are applied or according to adopted building code. (See **Figure 2**)

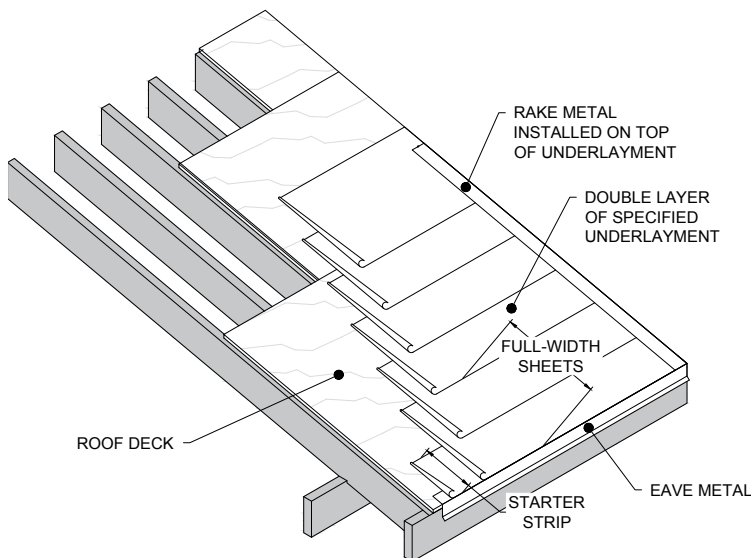


Figure 2 - Application of Field Underlayment on Roof Slopes 2:12 Up to 4:12 (Non-Ice Dam Regions)

Optional installation for low slope roofs: For superior protection in coastal regions, areas of wind-driven rain, or homes with double-slope construction, the roof deck can be covered with a double layer of Arctic Seal® self-adhering underlayment or equivalent conforming to ASTM D1970.

When choosing this option, make sure proper ventilation and moisture control issues are addressed.

INSTALLATION IN ICE DAM REGIONS

Roof Slopes 4:12 and Greater

In geographic regions that experience the possibility of ice dams along the eaves (or if required by building code), install a full-width sheet of *self-adhering* underlayment (or equivalent underlayment conforming to ASTM D1970) along the eaves.

Continue installing self-adhering underlayment up and out onto the roof no less than 24" (610 mm) past the inside, warm interior wall of the house or above the expected level of ice dams or according to building code requirements.

If additional courses of self-adhering underlayment are necessary to reach that point, *course lap guide lines* (lay lines) on the sheets show how far to lap the material. Firmly hand-roll these overlaps to ensure a complete, watertight bond.

Once past 24" (610 mm), follow with full-width courses of your specified field underlayment, the first course lapped 6" (152 mm) over the termination of self-adhering underlayment and the rest with 2"-4" (51-102 mm) side laps, depending on the type of underlayment being applied. Lay lines show how far to lap the material.

Fasten as described above.

For extra protection at the eaves and prior to the installation of drip edge, install a 6"-wide (152 mm) stripping ply of Arctic Seal®, and ensure it covers the junction of roof and fascia. (See **Figure 3**)

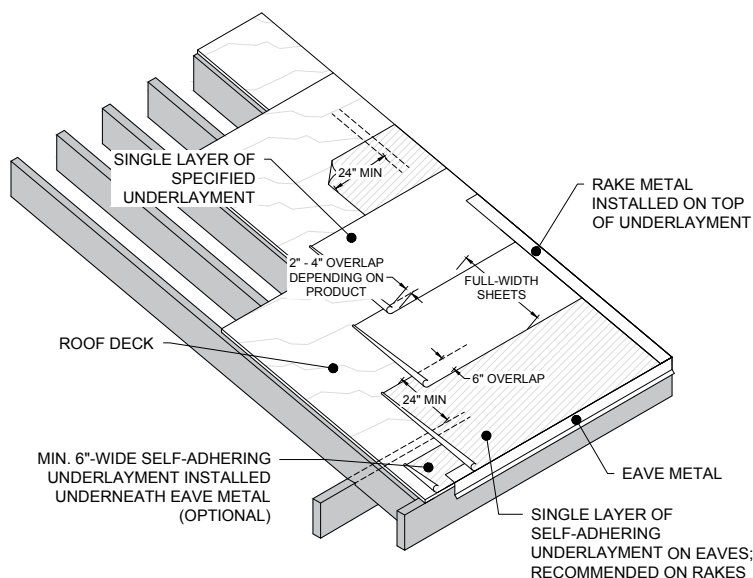


Figure 3 - Application of Self-Adhering and Field Underlayments on Roof Slopes 4:12 and Greater (Ice Dam Regions)

Roof Slopes 2:12 Up to 4:12

Like 4:12 and greater slopes, begin with a full-width sheet of self-adhering underlayment (or equivalent compliant with ASTM D1970) along the eaves.

Continue application up and out onto the roof as necessary to a point not less than 24" (610 mm) past the inside, warm interior wall of the house or above the expected level of ice dams or according to building code requirements.

Once that point is reached, switch to *double layers* of your specified field underlayment, the first course a half-width *starter strip* lapped 6" (152 mm) over the termination of self-adhering underlayment.

Succeeding courses are full-width, the first course completely overlapping the starter, and followed by courses half-lapped over preceding courses, on up the roof.

Fasten as described above. **(See Figure 4)**

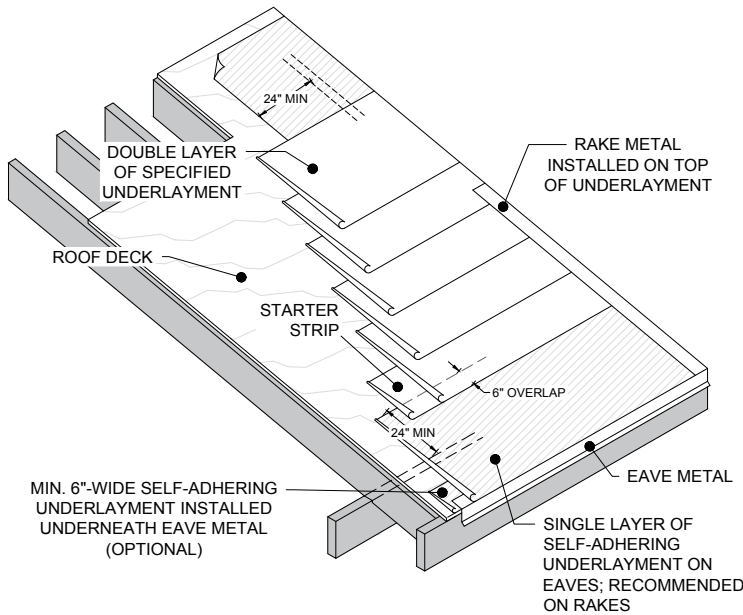


Figure 4 - Application of Self-Adhering and Field Underlayments on Roof Slopes 2:12 Up to 4:12 (Ice Dam Regions)

SHINGLE FASTENING

Type of Fasteners: Fasteners must be minimum 12-gauge (0.105 inch [3 mm]) shank, galvanized steel, stainless steel, aluminum or copper roofing nails, with a $\frac{3}{8}$ " (10 mm) head, compliant with ASTM F1667, and long enough to penetrate through all layers of roofing materials and at least $\frac{3}{4}$ " (19 mm) into the roof sheathing. Where the roof sheathing is less than $\frac{3}{4}$ " (19 mm) thick, the fasteners shall penetrate through the sheathing.

Malarkey approves the use of hand-nailing and/or pneumatic nailers for applying fasteners, but nails must be driven flush to the shingle surface and not overdriven, underdriven or driven at an angle, especially on low slope installations where water runs off less freely and leaks could result. When fastening adjacent shingles, butt them loosely together to prevent buckling.

The use of staples is not an approved fastening method. (See Figure 5)

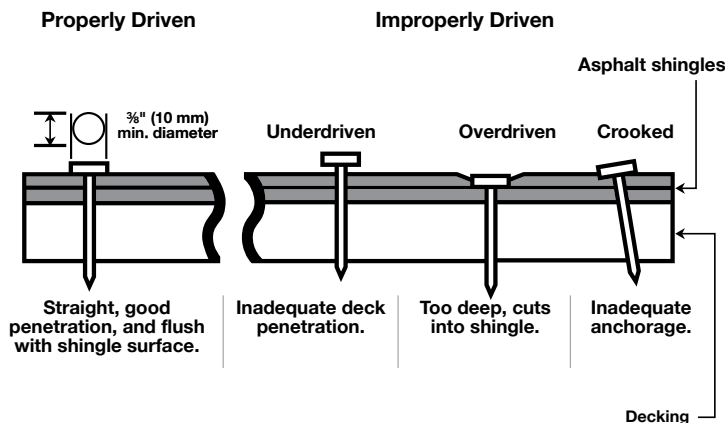


Figure 5 - Nailing Instructions

Nailing Pattern: Under normal conditions, use four (4) fasteners for each full shingle.

Malarkey laminate shingles feature The Zone®, an enlarged, $1\frac{5}{16}$ " (33 mm) wide *nailing area* that helps ensure correct fastener placement. Place fasteners in this nailing area approximately 1" (25 mm) in from each edge and the remaining fasteners evenly spaced between. **(See Figure 6)**

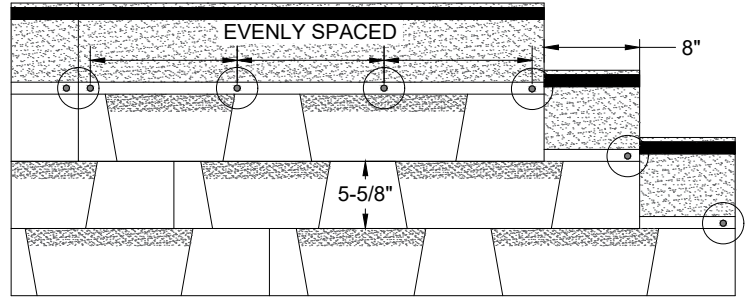


Figure 6 - Laminate, 4-Nail Fastening Pattern

Wind Resistance and Hand-Sealing: Malarkey shingles are manufactured with strips of a factory-applied, thermal sealant that is activated by the heat of the sun after the shingle is on the roof. Exposure to the sun's heat bonds each shingle to the one below for wind resistance.

A variety of conditions like cold weather, high winds or blowing dust, however, can affect the ability of the sealant strip to activate and prevent shingles from self-sealing during, or shortly after, installation. If shingles have not sealed after a reasonable time period, *hand-sealing* (also called hand-tabbing) is strongly recommended.

Note: Malarkey's wind warranties apply only when shingles are sealed, whether by hand-sealing or activation of the self-sealing strips. Failure to seal under adverse circumstances like those described above is not a manufacturing defect.

To hand-seal a shingle, apply four (4) quarter-size dabs of asphalt roof cement conforming to ASTM D4586 evenly spaced under each shingle, and press shingles firmly into the cement. Excessive use may cause blistering; correct amounts should not bleed out from under the shingle. **(See Figure 7)**

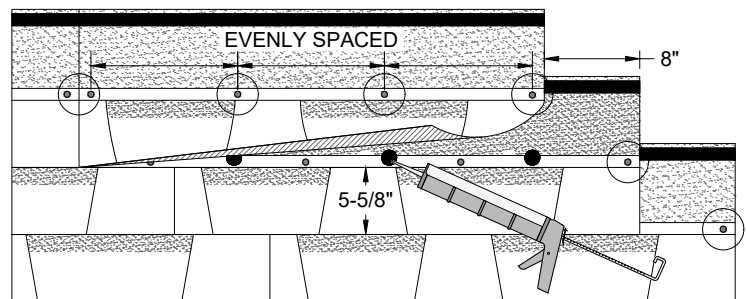


Figure 7 - Hand-Sealing Laminate Shingles

Steep Slope Fastening of Laminate Shingles: Roof decks with slopes greater than 21" (533 mm) per 12" (305 mm) require installation with six (6) fasteners per shingle and hand-sealing underneath.

Two methods for fastening can be used, but for each, the outer fasteners must be placed in the nailing area approximately 1" (25 mm) in from each edge. The first method has the remaining four (4) fasteners also placed in the nailing area and evenly spaced between. **(See Figure 8)**

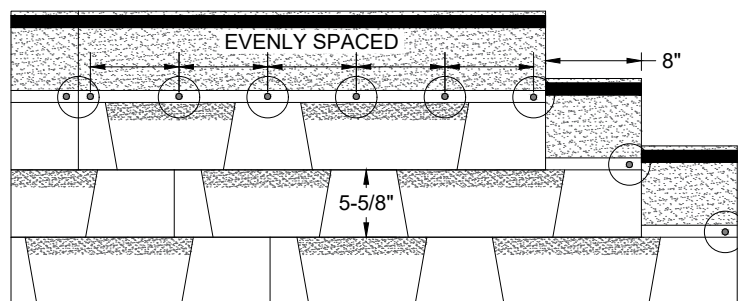


Figure 8 - Laminate, 6-Nail Fastening Pattern

The second, alternate way has the interior fasteners as indicated to accommodate shingle offsets and ensures no nail is less than 2" (51 mm) from the joint of the underlying shingles. (See Figure 9)

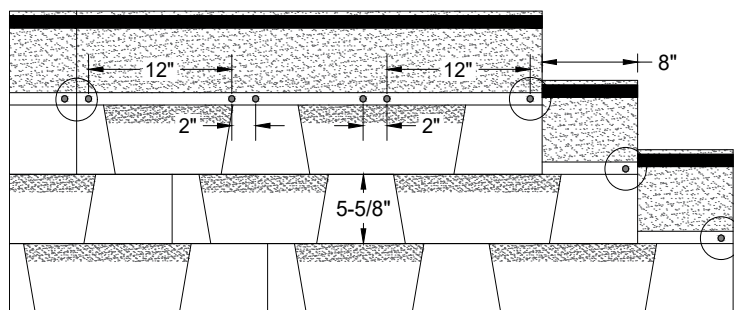


Figure 9 - Laminate, 6-Nail Alternate Fastening Pattern

Note: See Malarkey's *Shingle and Accessory Warranty* online for any additional requirements related to specific coverages.

SHINGLE PATTERN LAYOUT AND APPLICATION

Important: The diagonal application procedures described below are necessary to prevent objectionable patterning. Malarkey is not responsible for such patterning on roofs where this diagonal application is not used. Exposures should be even along the courses as well, or an objectionable appearance may occur.

Malarkey Smart Start™ Starter Shingles: Smart Start™ starter shingles are designed to be separated lengthwise at a perforation so you get two, full-size starter shingles in one. The perforation is in the middle of the shingle, 8³/₁₆" (208 mm) from each edge, and both pieces have seal-down strips. Besides eaves, it is recommended Smart Start™ starter shingles be installed on the rake edges of roof to provide a clean edge and increase wind resistance.

LAMINATE SHINGLE PATTERN LAYOUT (8" [203 MM] OFFSET, FIVE COURSE DIAGONAL METHOD)

Starter Course: Install Malarkey Smart Start™ starter shingles or equivalent conforming to ASTM D3462. Ensure they are positioned with the factory-applied sealant strip face up and the strip adjacent to the eave edge of roof.

Cut 6" (152 mm) off one end of the first starter shingle, and lay it on a lower corner of the roof, overhanging the rake and eave edges by ¼" - ¾" (6-19 mm).

Fasten with 4 nails, 1½" - 3" (38-76 mm) up from the eave, with one fastener 1" (25 mm) from each side of the starter and

the remaining two evenly spaced on the same line as the end fasteners. Do not place fasteners in the seal-down strip.

Continue across the eave with full-length starter shingles, butting them loosely together to prevent buckling.

First Course of Shingles: Start the first course with a full-length shingle laid directly over the starter course.

Begin at the same lower corner of roof and apply flush with the edges of the starter course on both eave and rake sides (maintaining the ¼" - ¾" [6-19 mm] roof overhang).

Fasten as described in the *Shingle Fastening* section above.

Second through Succeeding Courses: Start the second course with a shingle from which 8" (203 mm) has been cut from one end.

Position the remaining piece over the underlying, first course shingle, and align the bottom edge along a line level with the "sawtooth" overlay, leaving an exposure of 5½" (143 mm). Secure with fasteners.

Courses three through five are begun with partial shingles, each progressively 8" (203 mm) shorter, establishing the overall diagonal pattern. Pieces cut from shingles along the left rake can be used either to continue the diagonal installation pattern or finish off courses at the right rake.

Apply a full-length shingle adjacent to each of the first five courses to extend the pattern. Join the shingles loosely together to prevent buckling. Butt factory edge to factory edge when installing the stairstep method. This helps maintain a straight layout of the remaining shingles.

The sixth course begins again with a full length shingle, so repeat the 1-to-5 course cycle on up the roof.

Shingles may be laid from either lower corner of roof; follow layout and cutting instructions as required for proper application.

Note: Other shingle offsets are acceptable but no less than 4" (102 mm). Straight up application of shingles, or *racking*, is not recommended. (See Figure 10)

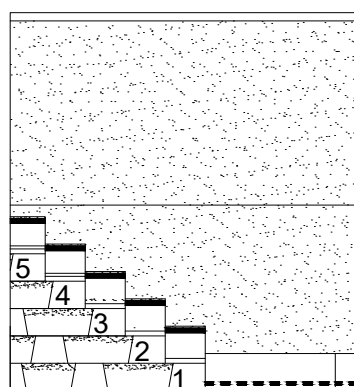


Figure 10 - Laminate Shingle Layout Pattern

CONSTRUCTING ROOF VALLEYS

Similar to a roof deck being prepared for shingles by first applying an underlayment, roof valleys must be likewise prepared before they can be "constructed" with shingles.

Closed-cut and *Open Metal Valley* applications are recommended for laminate shingles (instructions to follow); the *Open Membrane Valley* style is also acceptable.

Valley Underlayment: Center a full-width strip of self-adhering underlayment (or equivalent conforming to ASTM D1970)

in the valley, and apply it directly to the roof deck. Ensure this *valley liner* is tight to the deck without bridging in the center of the valley.

Field underlayment can be woven across the valley liner and up the opposite side at least 12" (305 mm) or lapped over each side a minimum of 6" (152 mm). When fastening, be aware no fasteners are allowed within 6" (152 mm) of the valley centerline.

Valley underlayment must be in place for each method described next.

Closed-Cut Valley Construction: Lay a first course of shingles along the eave on one side of the roof, and continue it across the valley and onto the adjoining roof at least 12" (305 mm). Do not make a joint in the valley. Should a shingle fall short, add-in one or two tab sections so the joint falls outside the line of the valley.

Press the shingles well into the break of the valley, and nail using normal fastening methods, remembering no fasteners are allowed closer than 6" (152 mm) to the valley centerline.

Besides the nails used to secure the shingle, add another in the upper corner at the end of each shingle crossing the valley.

Repeat these procedures with the first course of shingles on the intersecting roof, extending it across the valley, over the top of the shingles laid before, and at least 12" (305 mm) onto the adjoining roof surface. Press into the valley, and fasten as before.

Note: The first course of shingles are the only ones woven in this fashion.

Return to the side of the roof you began with, and resume laying shingle courses across the valley and onto the adjoining roof at least 12" (305 mm). Complete the installation of shingles on that roof section.

Snap a chalk line 2" (51 mm) from the centerline of the valley on the unshingled side. Begin applying shingle courses on the unshingled side, trimming them diagonally at the chalk line to match the centerline angle, and cropping the upper corner of the last shingle at a 1" (25 mm), 45 degree cut. Doing this will direct water into the valley.

Embed the ends of the cut valley shingles in a continuous 3" (76 mm) wide bead of asphalt roof cement conforming to ASTM D4586, and press them into the adhesive.

Complete the installation of shingles on that roof section.
(See Figure 11)

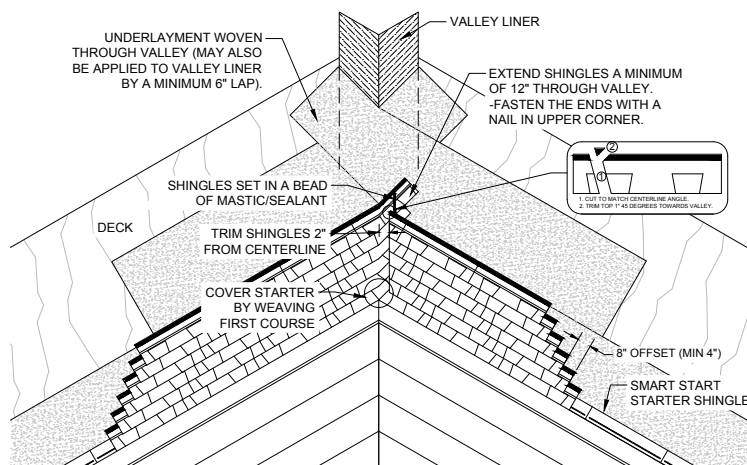


Figure 11 - Closed-Cut Valley Application

Open Metal Valley Construction: Metal valley flashing ("valley metal") used with Malarkey shingles must be minimum 24" (610 mm) wide and 26 gauge. Preformed, "W"-shaped flashing is recommended.

Center the valley metal over the valley liner, press it into the break of the valley, and secure with fasteners no more than 1" (25 mm) from the outside edges at a spacing of 10" (254 mm) to 12" (305 mm) O.C.

Set overlapping ends of the valley metal in a continuous bead of sealant, achieving a lap of 4" (102 mm). **DO NOT FASTEN THE METAL LAP.**

For additional sealing, a continuous 6" (152 mm) strip of self-adhering Arctic Seal® may be applied over the fasteners on each side of the valley metal.

Never use a shingle trimmed to less than 12" (305 mm) in length to finish a course running into a valley. If necessary, trim a tab off the adjacent shingle in the course to allow a longer portion to be used. Make sure each shingle extends far enough into the valley so in a future step, a shingle's full width (or height) will be trimmed back.

Nail no closer than 6" (152 mm) to the valley centerline.

Now, trim shingles a minimum of 2" (51 mm) back from the centerline, cut the ends diagonally to match the centerline angle, and crop the top of each shingle at a 1" (25 mm), 45 degree cut.

Embed the ends of the cut valley shingles in a continuous 3" (76 mm) wide bead of asphalt roof cement conforming to ASTM D4586, and press them into the adhesive.

(See Figure 12)

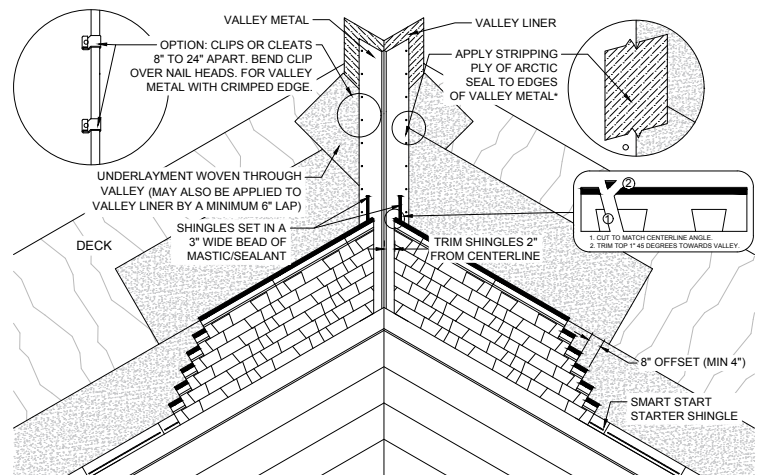


Figure 12 - Open Metal Valley Application

FLASHING APPLICATIONS

Intersections of Roof and Vertical Sidewall: Minimum 26-gauge, metal step flashing is used in the junction between a sloping roof and intersecting sidewall (on a dormer, for example) to protect this vulnerable area from moisture intrusion.

Step flashing can be square or rectangular, but 8-inch (203 mm) by 8-inch (203 mm) dimensions are common and satisfactory for our purposes.

Being 8" wide allows the flashing to be bent at 90 degrees and pushed against the transition of roof to wall, the horizontal flange extending 4" (127 mm) out onto the roof deck and the vertical flange, 4" (127 mm) up the wall assembly. Being

8" long allows individual step flashing pieces to overlap each other in water-shedding fashion as they are installed.

Individual step flashing pieces are integrated with each course of shingles as they are applied to intersect the sidewall. A $\frac{1}{4}$ " - $\frac{3}{4}$ " (6-19 mm) gap between the shingles and vertical bend of the flashing is recommended.

To allow for possible roof movement, fasten each piece of flashing to the roof deck and not the sidewall.

Installation is as follows: Atop the Smart Start™ starter course at the eave, place the first piece of flashing*. The horizontal flange should be flush with the eave edge of the starter and the vertical flange against the sidewall, counter-flashed by the wall cladding.

Fasten the horizontal flange of the step flashing to the roof deck with two nails placed 1" (25 mm) from the upper edge and spaced an equal distance apart.

Lay a first course shingle down on the roof, positioning it close to the sidewall but leaving a $\frac{1}{4}$ " - $\frac{3}{4}$ " (6-19 mm) gap between the end of the shingle and vertical bend in the step flashing. Fasten in place. The horizontal flange of the flashing will no longer be visible, but you can still see the vertical flange along the sidewall.

Place the second step flashing atop the first course shingle, and position it up from the eave edge of the shingle, matching the shingle exposure, and fasten as before.

Lay a second course shingle on the roof, position leaving a gap, and fasten.

Place the third step flashing atop that, overlapping the end of the previous step flashing at the point of shingle exposure (overlap is typically 2" [51 mm]).

Continue like this on up to the top of the sidewall intersection, alternating between the placement of step flashing and shingles.

* The "first piece of flashing" in this instance might well be "kickout" flashing, a piece of flashing cut and angled to direct water out and away from the side of a structure.

To accommodate the angled part, yet still serve as the initial piece of step flashing, the kickout will likely have a greater length than a regular piece of flashing. Otherwise, the installation of shingles and step flashing to follow is the same.

(See Figure 13)

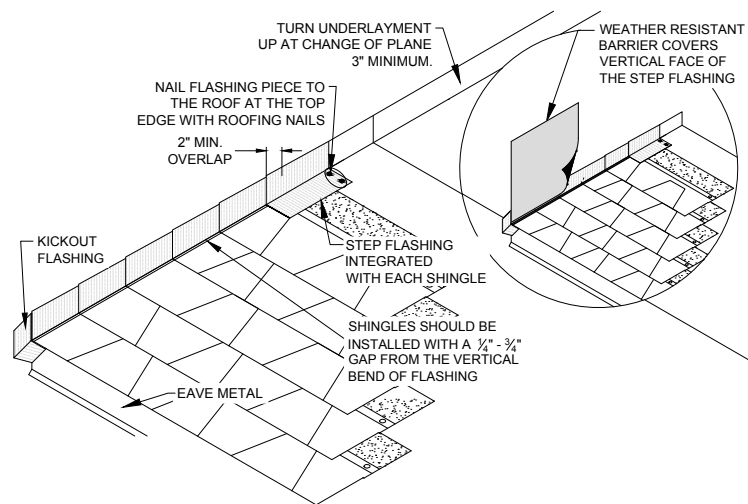


Figure 13 - Step Flashing Application at Roof-to-Sidewall Transitions

Vent Pipe (and Other Flanged Penetration) Flashing:

Install shingle courses up to the vent pipe, and cut a hole in the shingle to be positioned over the pipe. Install the pipe jack or boot (top and side flanges may be set in sealant).

Additional, *optional* weatherproofing: Unexposed pipe jack flanges (top and both sides) may also be stripped-off with minimum 6" (152 mm) wide Arctic Seal®, covering all fasteners used to secure the flanges, and tying onto the field underlayment a minimum of 3" (76 mm).

Continue roofing around the pipe, cutting shingles to fit on the sides and top of the pipe jack flanges. Ensure shingles extend beyond the downslope side of the pipe itself. Shingles that overlap any part of the flanges should be sealed to the flange with asphalt roof cement conforming to ASTM D4586. Correct amounts should not bleed out from under the shingles; excessive use may cause blistering. Apply pressure to seal.

(See Figure 14)

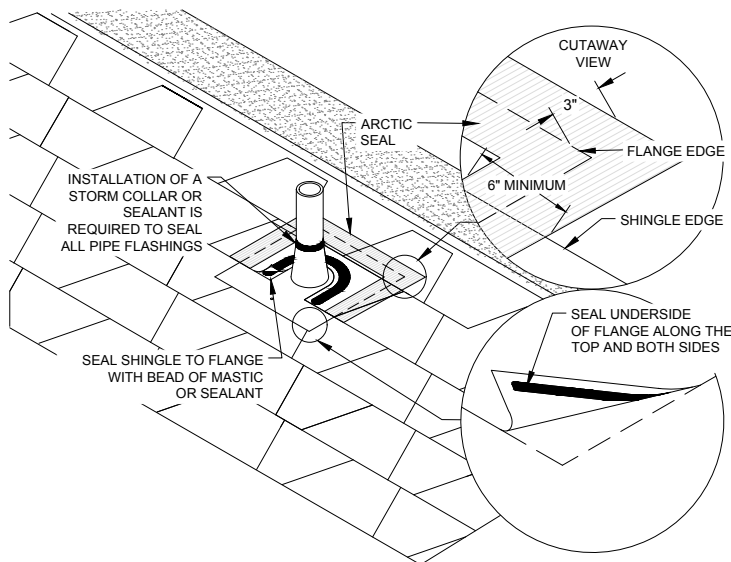


Figure 14 - Vent Pipe Flashing Application

Cap (Counter) and Chimney Flashings: The metal flashing apron for the front of the chimney shall be installed over the last course of shingles below the chimney and its vertical flange extending up the face of the chimney.

The metal flashings of chimneys, skylights, vents, and adjoining walls must be counter-flashed with sheet metal cap flashing.

Cap flashing (also called counter flashing) should originate in the masonry mortar joints of the chimney and be mortared-in or caulked with urethane sealant to ensure a watertight connection.

Cap flashing should then turn down the chimney and extend a minimum of 2" (51 mm) over the step flashings at all roof-to-sidewall intersections. (See Figure 15)

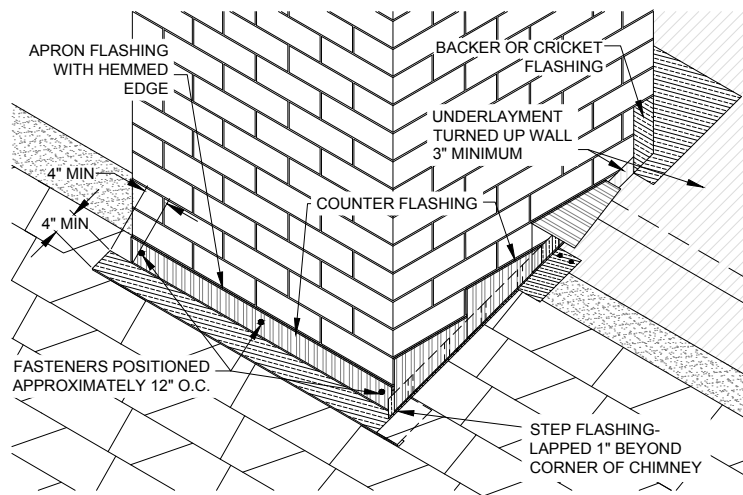


Figure 15 - Chimney Apron and Cap Flashing Applications

Chimney Saddles and Crickets: Apply Arctic Seal® self-adhering underlayment (or equivalent conforming to ASTM D1970) atop chimney saddles prior to the installation of flashing assemblies.

Flashing for chimney saddles and crickets shall be minimum 26-gauge galvanized or stainless steel, designed to cover the entire surface, and extend vertically 4" (102 mm) up the chimney.

Install a bead of mastic on the edges of chimney saddles and crickets. Press overlapping shingle courses into the mastic to seal. Seal all relief cuts and corners. (See Figure 16)

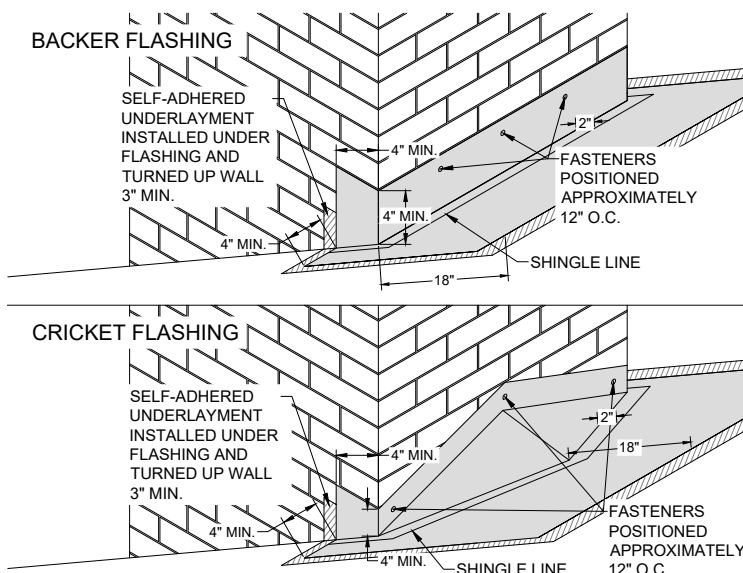


Figure 16 - Chimney Saddle and Cricket Flashing Applications

HIPS AND RIDGES

Factory-produced, Malarkey hip and ridge shingles are recommended for all Malarkey shingle roofs and required for expanded warranty coverage. Some contractors adapt 3-tab roofing shingles to use as hip and ridge shingles, but Malarkey only allows this when the field shingle is also a 3-tab shingle.

Shingles with Scotchgard™ Protector from 3M require hip and ridge shingles with Scotchgard™ Protector be installed with them. All four of Malarkey's hip and ridge shingle types feature this algae-resistant protection.

Malarkey hip and ridge shingles also include a factory-applied, thermally activated seal-down adhesive that provides additional protection against blow-off. When applied in cold weather or a windy location, however, it is recommended each ridge shingle be hand-sealed under each lower corner with a quarter-size spot of asphalt roof cement conforming to ASTM D4586.

To avoid damage to hip and ridge shingles in cold weather, Malarkey recommends warming them sufficiently to prevent damage during installation.

Apply Malarkey hip and ridge shingles beginning at the bottom of the hip or from the end of the ridge opposite the direction of prevailing winds.

Snapping a chalk line will help maintain a straight line while installing ridge shingles.

LOW-PROFILE INSTALLATION (10" AND 12" RIDGEFLEX™ HIP AND RIDGE SHINGLES)

Prepare for application by separating each hip and ridge shingle at the perforations: The 10" RidgeFlex™ produces four (4) individual hip and ridge strips (see Figure 17), and the 12" RidgeFlex™ produces three (3) (see Figure 18). Note the seal-down strips.

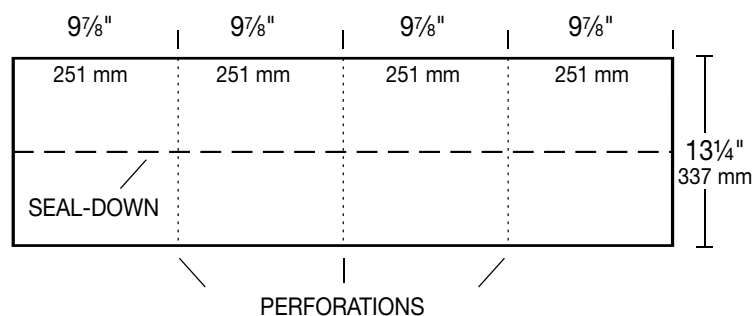


Figure 17 - 10" RidgeFlex™ Hip and Ridge Shingle

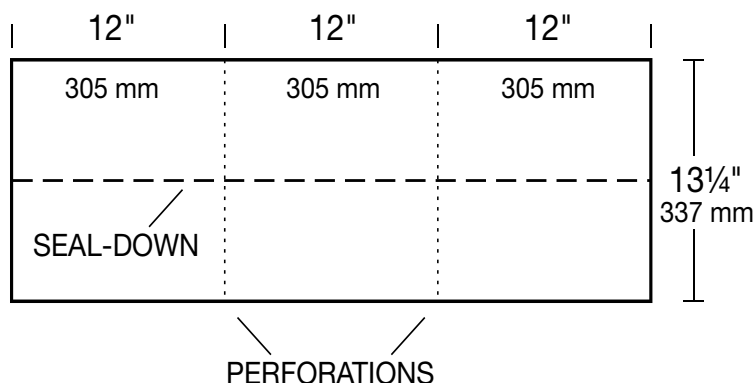


Figure 18 - 12" RidgeFlex™ Hip and Ridge Shingle

Each scored strip is 13¼" (337 mm) tall and has an exposure of 5⅝" (143 mm). You will be installing these individual pieces, and all are installed sealant side up.

Detail drawings to follow in this section show the installation of hip and ridge shingles along a roof ridge, but hips are essentially the same. Application begins at the bottom of the hip or from the end of the ridge opposite the direction of prevailing winds with a hip and ridge *starter shingle*.

RidgeFlex™ Starter Shingle: Create a starter shingle by cutting off the lower 5⅝" (143 mm) portion of a RidgeFlex™

shingle strip, and use the 7 $\frac{5}{8}$ " (194 mm) remainder as a starter. (See Figure 19)

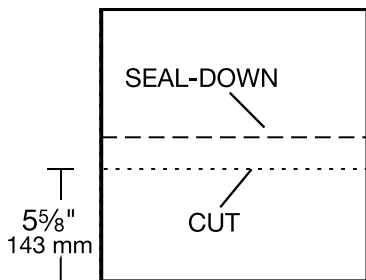


Figure 19 - RidgeFlex™ Shingle Strip for Use as a Hip and Ridge Starter Shingle

Apply the starter shingle (with seal-down strip adjacent to the roof edge) over the bottom corner of the hip or on either end of the ridge, overhanging the corner or end by $\frac{1}{4}$ " - $\frac{3}{4}$ " (6-19 mm), and bending the starter shingle along its centerline to form into place (ensure shingles are sufficiently warm to avoid cracking).

Fasten with two nails, approximately 3" (76 mm) back from the leading edge and 1" (25 mm) up from each side. (See Figure 20)

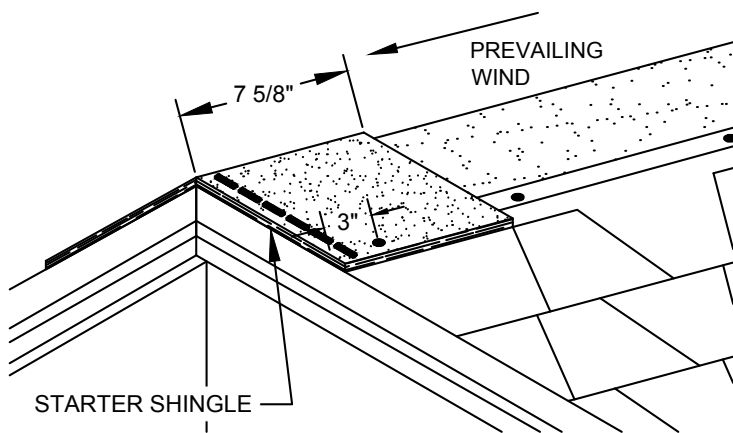


Figure 20 - Placement and Fastening of the RidgeFlex™ Starter Shingle

RidgeFlex™ Hip and Ridge Shingles: Lay the first RidgeFlex™ shingle strip on top of the starter shingle (maintaining the overhang). Fasten with two nails, 1" (25 mm) more than the designed exposure and 1" (25 mm) up from each side so succeeding hip and ridge shingles conceal nailheads.

Continue installing hip and ridge shingles, maintaining the exposure of 5 $\frac{5}{8}$ " (143 mm) and fastening with one nail on each side and 1" (25 mm) up from the edge so succeeding shingles conceal nailheads. (See Figure 21)

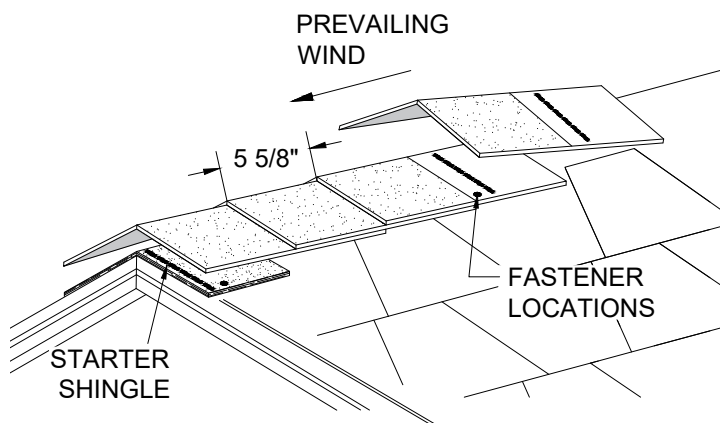


Figure 21 - Placement and Fastening of RidgeFlex™ Shingles, Maintaining the 5 $\frac{5}{8}$ " Exposure

At the end of the ridge, cut a shingle strip, and use the lower 5 $\frac{5}{8}$ " (143 mm) portion of a RidgeFlex™ shingle to create an *end cap*. Position to maintain the exposure of 5 $\frac{5}{8}$ " (143 mm), and set the cap in asphalt roof cement conforming to ASTM D4586. Press down firmly to seal.

Should adverse conditions exist (like high winds), the end cap can also be face-nailed. Place two (2) nails on each side, 1" (25 mm) back from each end, and 1" (25 mm) up from the sides. Cover the nailheads with a dab of sealant. (See Figure 22)

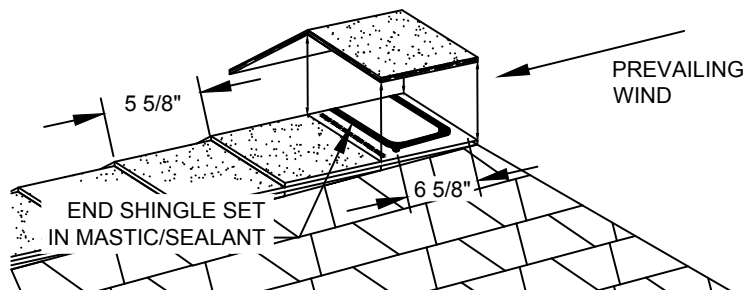


Figure 22 - Installation of RidgeFlex™ Shingles; End Cap Set in Mastic

HIGH-PROFILE INSTALLATION (EZ-RIDGE™ AND EZ-RIDGE™ XT HIP AND RIDGE SHINGLES)

Malarkey's EZ-Ridge™ is a high-profile hip and ridge shingle specially designed to accompany laminate and designer shingle applications.

Detail drawings to follow in this section show the installation of shingles along a roof ridge, but hips are essentially the same. Instructions for installing along rake edges are at the end of the section.

Given the added thickness of EZ-Ridge™ shingles, ensure your fasteners are long enough to penetrate all layers and at least $\frac{3}{4}$ " (19 mm) into the roof sheathing. Where the roof sheathing is less than $\frac{3}{4}$ " (19 mm) thick, the fasteners shall penetrate through the sheathing.

Application begins at the bottom of the hip or from the end of the ridge opposite the direction of prevailing winds with a hip and ridge *starter shingle*.

EZ-Ridge™ Starter Shingle: To create an EZ-Ridge™ starter shingle, cut off the $8\frac{1}{4}$ " (210 mm) *exposure* portion of the shingle, and use the remaining $3\frac{1}{4}$ " (83 mm) *cutout* portion (with sealant strip) as the starter. (See Figure 23)

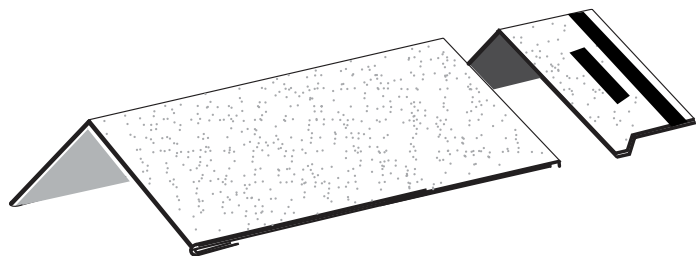


Figure 23 - Cutting an EZ-Ridge™ Shingle to Make a Hip and Ridge Starter Shingle

Save the exposure portion because it can be used as the end piece on the opposite end of the ridge.

Note: The longer strip on the end of an EZ-Ridge™ shingle is a film strip that prevents the shingles from sticking together while in the box they're packaged in. It is not designed to be removed.

Place the EZ-Ridge™ starter shingle flush to the rake at the peak, and position it so the seal-down strip is adjacent to the roof edge. Push down on the center of the shingle and adjust to fit the pitch of roof.

Fasten with two (2) nails, one (1) on each side, $\frac{3}{4}$ " (19 mm) behind the cutout and $\frac{1}{2}$ " (13 mm) up from the side. If installed correctly, fasteners should be covered by the overlying EZ-Ridge™ shingles to come, leaving none exposed.

EZ-Ridge™ Hip and Ridge Shingles: Apply a full-size EZ-Ridge™ shingle over the starter and overhang the end of the ridge by $\frac{1}{4}$ " - $\frac{3}{4}$ " (6-19 mm). Push down on the center of the shingle and adjust to fit the pitch of roof.

Fasten this shingle and those to follow with two (2) nails, one (1) on each side, $\frac{3}{4}$ " (19 mm) behind the cutout (not on the exposed part of the shingle) and $\frac{1}{2}$ " (13 mm) up from the side.

Continue installing EZ-Ridge™ shingles across the ridge, overlapping each with the side cutouts of the underlying shingle, and producing a consistent exposure of $8\frac{1}{4}$ " (210 mm). Fasten in the same manner as the first. (See Figure 24)

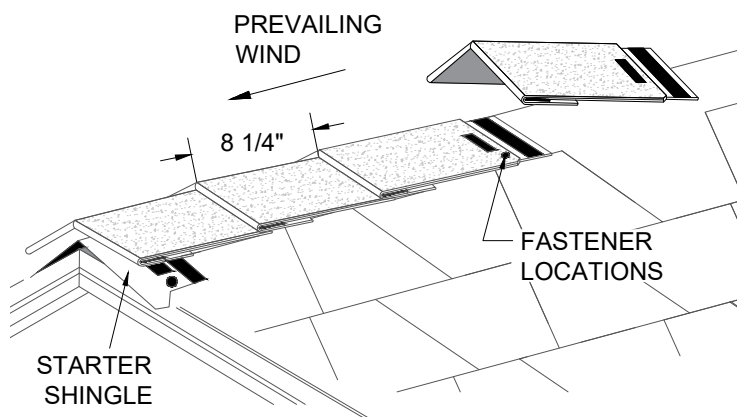


Figure 24 - Placement and Fastening of EZ-Ridge™ Shingles, Maintaining the $8\frac{1}{4}$ " Exposure

For the last hip and ridge shingle in the run, remove the cutout portion of an EZ-Ridge™ shingle and trim the exposure portion to fit or use the exposure portion of the shingle you cut earlier when creating the starter.

Set this *end cap* in asphalt roof cement, maintaining the $8\frac{1}{4}$ " (210 mm) exposure. (See Figure 25)

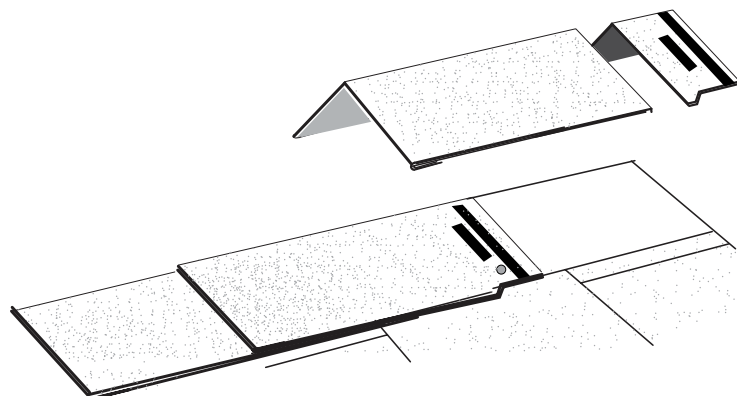


Figure 25 - EZ-Ridge™ Shingle Cut to Create an End Cap

Should adverse conditions exist (like high winds), the end cap can also be face-nailed. Place two (2) nails on each side, 1" (25 mm) back from each end, and 1" (25 mm) up from the sides. Cover the nailheads with a dab of sealant.

Note: The end cap can also be flipped around to preserve the high-profile appearance and give a finished look to the ridge. Position it to overhang the end of the ridge by $\frac{1}{4}$ " - $\frac{3}{4}$ " (6-19 mm). (See Figure 26)

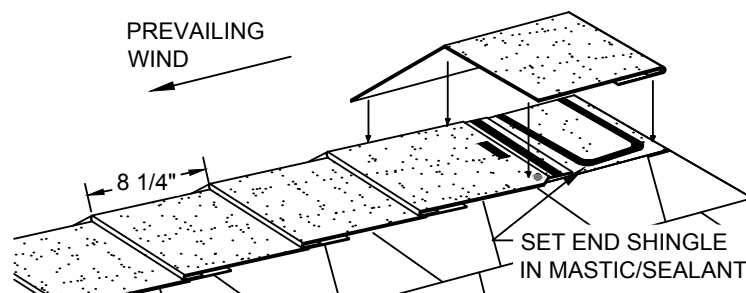


Figure 26 - Optional Positioning and Fastening of the EZ-Ridge™ End Cap

EZ-RIDGE™ RAKE EDGE INSTALLATION

Instructions are the same as those above with these exceptions:

1. Always start at the low end of the roof.
2. Have the high-profile, finished ends of EZ-Ridge™ shingles in the lowest position.
3. Note: Installation with exposed nails may affect the aesthetic appeal of EZ-Ridge™ shingles. **(See Figure 27)**

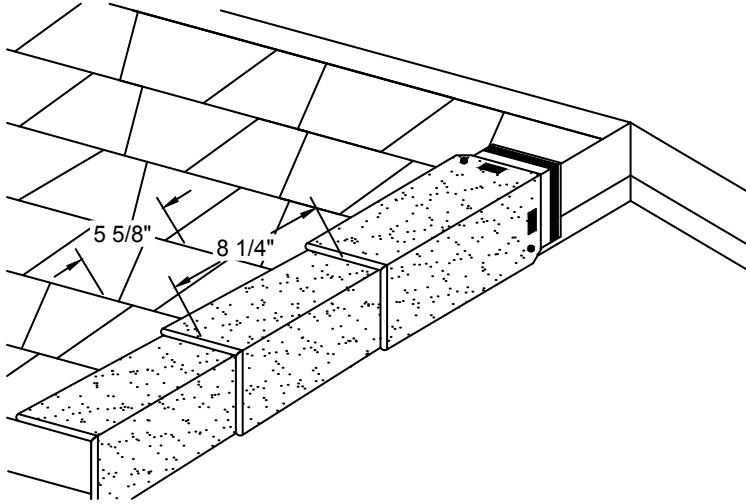


Figure 27 - Installation of EZ-Ridge™ Shingles on Rake Edges of the Roof

RE-ROOFING OVER EXISTING ASPHALT SHINGLES

For best performance and appearance, it is recommended old roofing be completely removed from the deck.

When roofing over existing asphalt shingles, *it is recommended only 3-tab shingles be overlaid*. Roofing over laminates creates an irregular surface across each course that may prevent the newly installed shingles from sealing down properly, leaving them more susceptible to wind damage.

In some areas, building codes do not require removal of old roofing if: 1) The existing shingles and framing will support the workers installing the roofing, the new roof itself, and required dead loads; and 2) The old wood deck is sound and able to provide good anchorage for nails.

Make the surface as smooth as possible by replacing missing shingles and securely nailing all buckles, raised tabs or curled shingles. Malarkey is not responsible for a potentially objectionable appearance of the new surface from any irregularity in the substrate caused by remaining roofing.

Additional ventilation should be provided, and longer nails will likely be necessary to penetrate a minimum of ¾" (19 mm) into the roof deck or completely through plywood or OSB sheathing.

Installing Class 3 or Class 4 impact resistant shingles over existing roofs negates their impact resistance and will not make them eligible for insurance discounts.

FINAL NOTE

These instructions are meant to act as a general guide. If you have questions about this installation or any Malarkey roofing product, please contact our Technical Services Department weekdays at (800) 545-1191 or (503) 283-1191, 7:00 am to 5:00 pm Pacific Time. You can also email us at: technicalinquiries@malarkeyroofing.com. Thank you.



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