



## Heavyweight Designer Shingle Installation Instructions



# Directions for Applying Malarkey Heavyweight Designer Shingles

## GENERAL INSTRUCTIONS

Install Malarkey Windsor® *designer shingles* in accordance with 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](http://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 adequate ventilation according to FHA or HUD minimum property standard requirements and adopted building code.

For current warranty information, please visit: [WWW.MALARKEYROOFING.COM/warranty-center](http://WWW.MALARKEYROOFING.COM/warranty-center).

Standard exposure is 5¾" (146 mm) to the weather. Offset between courses is 6⅝" (162 mm). Minimum offset for shingle installation is 5½" (140 mm).

These step-by-step application instructions apply to standard slopes/inclines not less than 4" (102 mm) per 12" (305 mm) or more than 21" (533 mm) per 12" (305 mm). For low 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 strip on each shingle is to prevent the shingles from sticking together while in the bundle and is 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. Building codes require one square foot of free ventilation to each 150 ft<sup>2</sup> (1 m<sup>2</sup>/150 m<sup>2</sup>) of attic area or one square foot/300 ft<sup>2</sup> (1 m<sup>2</sup>/300 m<sup>2</sup>) if 50% ventilation is provided near the ridge. All roof structures must have thorough ventilation to prevent entrapment of moisture-laden air behind roof sheathing.

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 condition and solidly sheathed, constructed of a minimum ⅝" (10 mm) thick, exterior-grade plywood, 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. Replace deteriorated or rotted boards, and for excessively resinous areas and loose knots, cover with sheet metal patches.

Malarkey strongly recommends installing sheathing over wood board decks. 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 2015 International Building Code, Section 1507.2.9.3, and 2015 International Residential (Building) Code, Section R905.2.8.5, install non-corrosive, 26-gauge, sheet metal drip edge flashing (drip edge) along eave and rake edges.

Install drip edge with dimensions large enough to both position the top flange of the metal 2" (51 mm) back from the edge of the roof deck, and extend outward, down over the edge.

Apply drip edge first along the eaves, and once underlayment is in place, follow by flashing the rakes (drip edge installed atop the underlayment).

Secure drip edge with roofing nails, centered on the top flange at 8" (203 mm) to 10" (254 mm) on center, or per adopted local building code.

To apply the rake drip edge, start at the corner near the eave, and work your way up, lapping subsequent lengths of flashing over the lower pieces by a minimum of 2" (51 mm). Be sure to overlap the eave drip edge, too.

## UNDERLAYMENT

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

## INSTALLATION IN NON-ICE DAM REGIONS

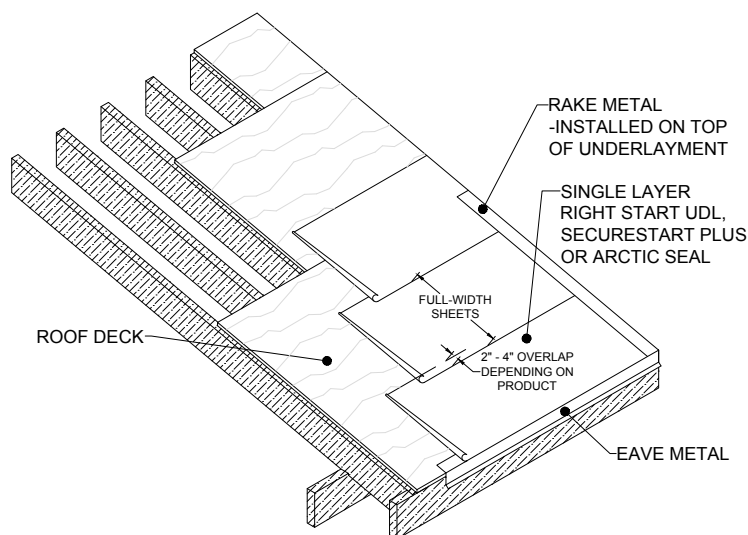
### Roof Slopes 4:12 and Greater

Apply a single layer of Malarkey Right Start™ UDL, Malarkey SecureStart™ Plus Synthetic Underlayment, or code-compliant equivalent underlayment<sup>1</sup> to the roof deck, beginning at and parallel to, the eaves. At the eave, overhang the drip edge ¼"-¾" (6-19 mm).

Lap a minimum of 2" (51 mm) on sides for Right Start™ and 4" (102 mm) for SecureStart™ Plus, 6" (152 mm) on the ends, and either fasten: 1) Sufficiently to hold the underlayment in place and work safely until shingles are applied; or 2) According to adopted building code.

Extend underlayments 6" (152 mm) over hips, ridges and valleys. Where the roof meets a vertical surface, run them a minimum of 3" (76 mm) up the wall and fasten. (**See Figure 1**)

<sup>1</sup> Use of Malarkey Arctic Seal® self-adhering underlayment may be necessary if local code specifies.



**Figure 1 - Typical Installation of Malarkey Underlayments on Roof Slopes 4:12 and Greater (Non-Ice Dam Regions)**

### Roof Slopes 2:12 Up to 4:12

Lower slopes require a *double layer* of underlayment.

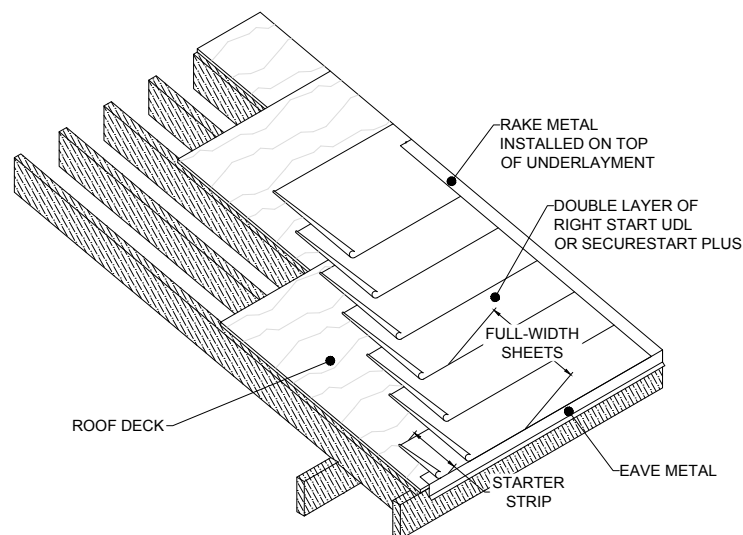
Begin by fastening a half-width *starter strip* of either Right Start™, SecureStart™ Plus, or code-compliant equivalent underlayment directly to the roof deck, beginning at and parallel to, the eaves. At the eave, overhang the drip edge  $\frac{1}{4}$ " -  $\frac{3}{4}$ " (6-19 mm).

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

Fasten sufficiently to hold in place and work safely until shingles are applied or according to adopted building code.

Extend underlayments 6" (152 mm) over hips, ridges and valleys. Where the roof meets a vertical surface, run them a minimum of 3" (76 mm) up the wall and fasten. (**See Figure 2**)

For detailed information, please refer to complete Right Start™ and SecureStart™ Plus installation instructions at: [WWW.MALARKEYROOFING.COM](http://WWW.MALARKEYROOFING.COM).



**Figure 2 - Typical Installation of Malarkey Underlayments 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 Malarkey 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.

For detailed information, please refer to complete Arctic Seal® installation instructions at [WWW.MALARKEYROOFING.COM](http://WWW.MALARKEYROOFING.COM).

### INSTALLATION IN ICE DAM REGIONS

#### Roof Slopes 4:12 and Greater

In geographic regions that regularly experience ice dams along the eaves (or if required by building code), install a full-width sheet of Arctic Seal® *self-adhering* underlayment (or equivalent underlayment conforming to ASTM D1970) along the eaves. It will not have an overhang but be flush with the drip edge.

Continue installing Arctic Seal® up the roof from the eaves and along the rakes, too, 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.

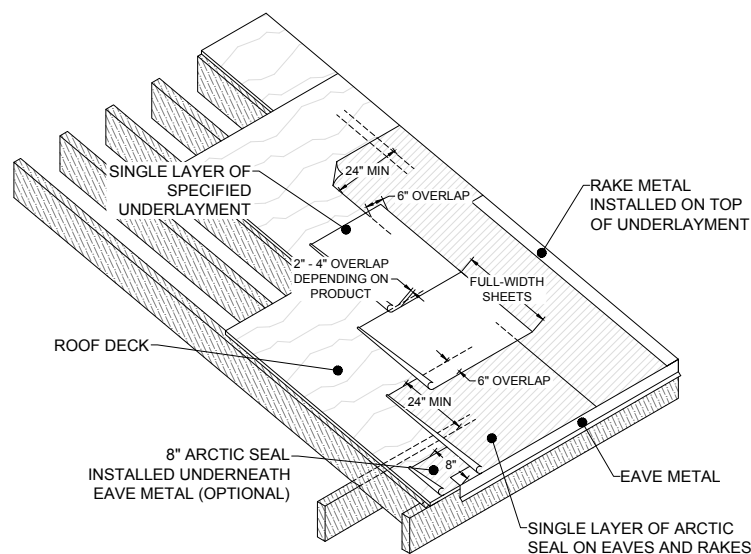
Side laps in overlying courses of Arctic Seal® can be lapped to either the 2" (51 mm) or 4" (102 mm) lay lines. Firmly hand-roll these overlaps to ensure a complete, watertight bond.

Once past 24" (610 mm), follow with full-width courses of Right Start™, SecureStart™ Plus, or code-compliant equivalent, the first course lapped 6" (152 mm) over the last course of Arctic Seal®.

Continue up the roof, successive courses overlapping the preceding a minimum of 2" (51 mm) on sides for Right Start™ and 4" (102 mm) for SecureStart™ Plus. Lay lines show how far to lap the material. Fasten as described above.

Once the top of that expanse of roof is reached, apply drip edge flashing to the rakes, over the ends of underlayment.

For extra protection at the eaves and prior to the installation of drip edge, install an 8" (203 mm) stripping ply of Arctic Seal®, and ensure it covers the junction of roof and fascia. (**See Figure 3**)



**Figure 3 - Typical Installation of Malarkey Underlayments on Roof Slopes 4:12 and Greater (Ice Dam Regions)**

## Roof Slopes 2:12 Up to 4:12

Like non-ice dam regions, lower slopes require a *double* layer of underlayment. Begin with a half-width starter strip of Arctic Seal® and apply along the eaves and rakes.

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

Continue installing Arctic Seal® up the roof from the eaves and along the rakes, too, 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.

Once that point is reached, continue up the roof with double layers of Arctic Seal® or switch to Right Start™, SecureStart™ Plus, or other code-compliant underlayment. (See Figure 4)

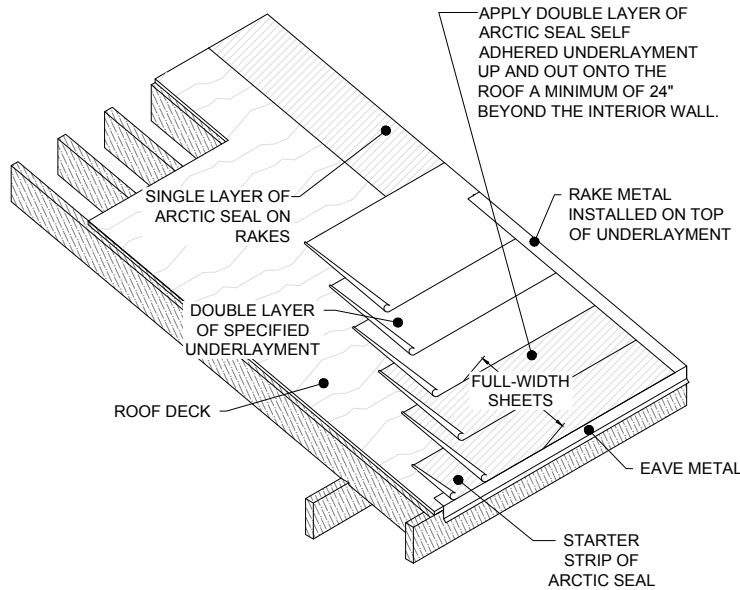


Figure 4 - Typical Installation of Malarkey Underlayments on Roof Slopes 2:12 Up to 4:12 (Ice Dam Regions)

## 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)

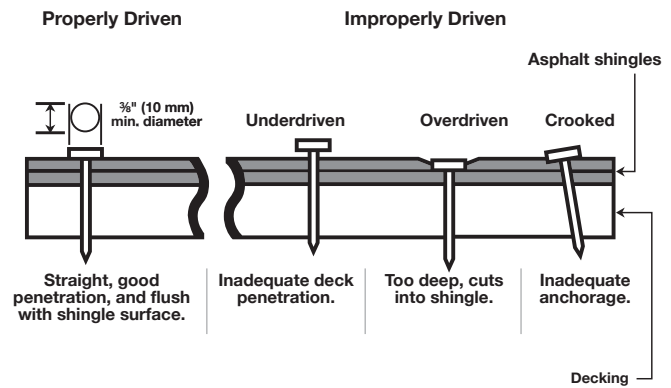


Figure 5 - Nailing Instructions

**Nailing Pattern:** Use five (5) fasteners for each shingle, evenly spaced across the shingle, and placed within the *high nailing area* designated by the parallel *nailing lines*. Ensure the outside fasteners are approximately 1" (25 mm) from each edge. (See Figure 6)

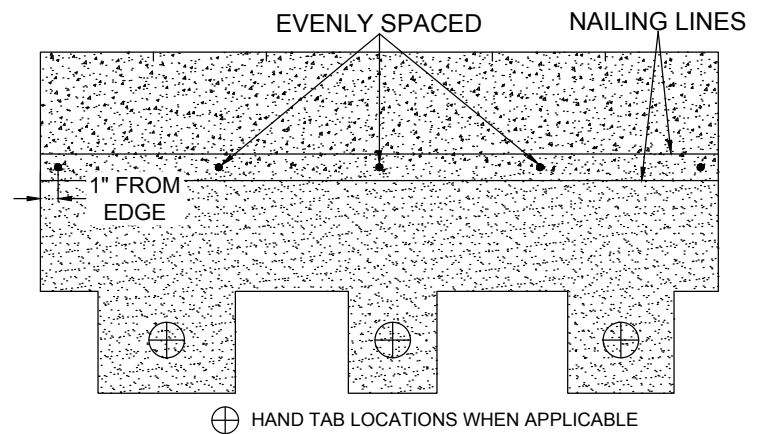


Figure 6 - 5-Nail Fastening Pattern and Hand-Tab Locations

In regions requiring six (6) nails per shingle, two methods can be used:

**Method 1:** Place four (4) fasteners in the high nailing area, evenly spaced across the shingle, with the outer fasteners 1" (25 mm) from each edge.

Place two (2) fasteners in the *low nailing area*, no more than 1" (25 mm) from each edge, and approximately  $\frac{3}{4}$ " (19 mm) above the tabs, making sure they will be covered by shingle tabs in the course above them. (See Figure 7)

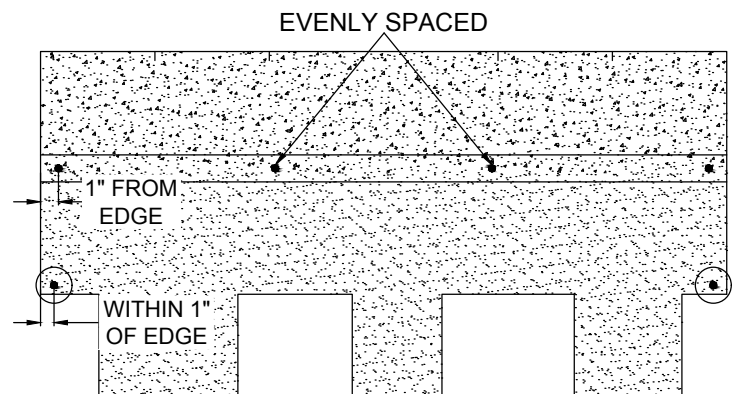


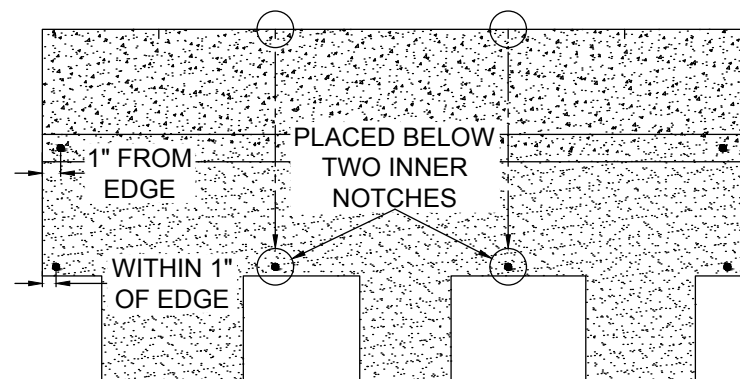
Figure 7 - 6-Nail Fastening Pattern



**Method 2:** Place two (2) fasteners in the high nailing area, each 1" (25 mm) from the outside edge.

Place four (4) fasteners in the low nailing area, approximately  $\frac{3}{4}$ " (19 mm) above the tabs, making sure they will be covered by shingle tabs in the course above them.

The two inner notches, or slits\*, at the top of the shingle will aid in the alignment of the two middle fasteners while the two outer fasteners are placed 1" (25 mm) from each edge. (See **Figure 8**)



**Figure 8 - Alternate 6-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 and warm temperatures 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 Windsor® designer shingle, apply a quarter-size dab of asphalt roof cement conforming to ASTM D4586 under each shingle tab, and press them firmly into the cement (see Figure 5).

Excessive use may cause blistering; correct amounts should not bleed out from under the shingle.

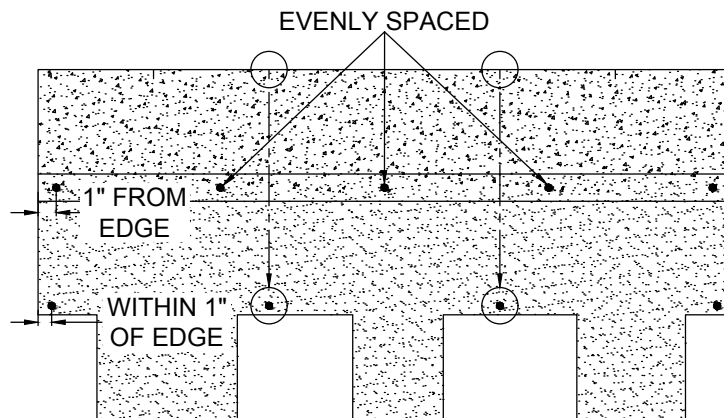
**Steep Slope Fastening of Shingles:** Roof decks with slopes greater than 21" (533 mm) per 12" (305 mm) require installation with nine (9) fasteners per shingle (six [6] for starter shingles) and hand-sealing of tabs.

Place five (5) fasteners in the high nailing area, evenly spaced across the shingle, with the outer fasteners 1" (25 mm) from each edge.

Place four (4) fasteners in the low nailing area, approximately  $\frac{3}{4}$ " (19 mm) above the tabs, making sure they will be covered by shingle tabs in the course above them.

The two inner notches at the top of the shingle will aid in the alignment of the two inner low nailing area fasteners while the

two outer fasteners are placed 1" (25 mm) from each edge of the shingle. (See **Figure 9**)



**Figure 9 - 9-Nail Fastening Pattern**

Note: In order to be eligible for a Malarkey *Enhanced Wind Warranty*, Windsor® designer shingles must be 9-nailed regardless of roof slope (six [6] nails for starter shingles).

\*Windsor® shingles have five (5) notches on the top of each shingle. The two outer notches are  $6\frac{3}{8}$ " (162 mm) from each edge, the two inner notches are each  $12\frac{3}{4}$ " (324 mm) from the edge, and the center notch is at the middle of the shingle,  $19\frac{1}{8}$ " (486 mm) from the edges.

When it comes to applying the shingles (see the *Shingle Pattern Layout* section below), the outer notches will play an important role for determining offsets and establishing a consistent diagonal pattern of shingles against the rake.

## 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,  $8\frac{3}{16}$ " (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.

## 6 $\frac{3}{8}$ " (162 MM) OFFSET - FOUR COURSE DIAGONAL METHOD

**Starter Course:** Install Malarkey Smart Start™ starter shingles or use 3-tab shingles with the tabs cut off.

Lay the initial, full-length starter shingle on the lower left-hand corner of the roof, overhanging the drip edge  $\frac{1}{4}$ " to  $\frac{3}{4}$ " (6-19 mm). Whether using factory starter shingles or 3-tab shingles with the tabs cut off, ensure they are positioned face up with the factory-applied seal-down strip adjacent to the eave edge of roof.

Fasten with 4 nails,  $1\frac{1}{2}$ " - 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 roof, butting the starter shingles loosely together and fastening in place.

**Windsor® Starter Course:** Trim the end of the first Windsor® Starter shingle, 6 $\frac{3}{8}$ " (162 mm), and lay it over the Smart Start™ starter, positioning the Windsor® Starter so the full color blend overhangs the Smart Start™ starter by approximately  $\frac{1}{8}$ " (3 mm).

Fasten with four (4) nails in-between the paint lines, approximately 1" (25 mm) from each side of the starter and the remaining two evenly spaced. Continue across the roof, butting the shingles loosely together to prevent buckling, and fastening in place.

**First Course of Shingles:** Start with a full-length shingle and apply directly over and flush with the edges of the Windsor® Starter course on both eave and rake sides, maintaining the  $\frac{1}{8}$ " (3 mm) overhang previously established. Secure with fasteners.

**Second Course:** Cut 6 $\frac{3}{8}$ " (162 mm) from the left end of the first shingle and apply the remaining 31 $\frac{7}{8}$ " (810 mm) section over the underlying first course shingle and flush with the rake edge.

The bottom edge of the shingle tabs should line up with the top edge of the cutouts in the underlying shingle, leaving an exposure of 5 $\frac{3}{4}$ " (146 mm). Secure with fasteners.

Another way to position it is to align the right side with the right outside *notch* in the underlying *first* course shingle.

**Third Course:** Cut 12 $\frac{3}{4}$ " (314 mm) from the rake end of a full shingle and apply the remaining 25 $\frac{1}{2}$ " (648 mm) section over the underlying second course shingle and flush with the rake edge.

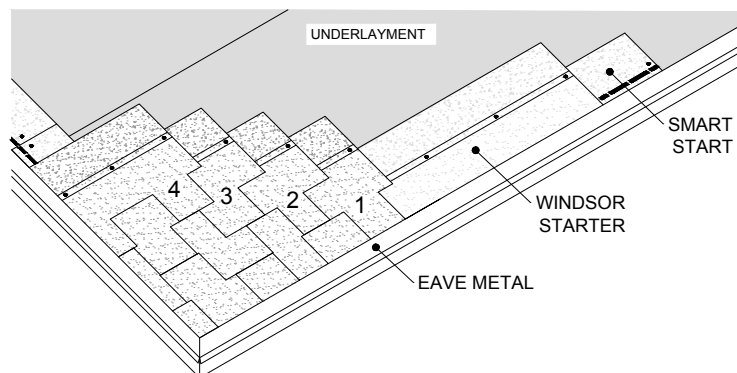
Position as before, lining up the bottom edge of the shingle tabs with the top edge of the cutouts in the underlying shingle, leaving an exposure of 5 $\frac{3}{4}$ " (146 mm). Secure with fasteners.

Another way to position it is to align the right side with the right outside *notch* in the underlying *second* course shingle.

**Fourth Course:** Cut 19 $\frac{1}{8}$ " (486 mm) from the rake edge of a full shingle (in half), and apply the remaining 19 $\frac{1}{8}$ " (486 mm) over the underlying third course shingle and flush with the rake edge. Position it carefully, allowing an exposure of 5 $\frac{3}{4}$ " (146 mm), and secure with fasteners.

Another way to position it is to align the right side with the right outside notch in the underlying *third* course shingle.

(See Figure 10)



**Figure 10 - Windsor® Shingle Layout Pattern with Smart Start™ and Windsor® Starter Shingles**

Prior to proceeding with the fifth course, fill in the preceding courses with full length shingles adjacent to the first pieces,

and secure with fasteners. When fastening, butt ends loosely together to prevent buckling.

**Courses Five and Above:** To continue the installation on up the roof, repeat the diagonal pattern established in courses one to four. Snap a horizontal chalk line every six courses or so to ensure horizontal alignment.

Note: Shingles may be laid from either the left- or right-hand side. Start at either rake edge and follow layout and cutting instructions as required for proper application. If starting from the right rake, position the left side of cut shingles with the left outside notch in shingles of underlying courses.

Pieces cut from Windsor® shingles along the left rake can be used to finish off courses at the right rake. Because of our Windsor® shingles' unique tab patterning, they cannot be used to continue the diagonal installation pattern up the left rake.

Straight up application of shingles, or racking, is not recommended.

## 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.

*Open metal valley* applications are recommended for Windsor® shingles, but *closed-cut valleys* are also acceptable. Contact Malarkey Technical Services for more information.

**Valley Underlayment:** Center a valley liner of Malarkey Arctic Seal® 401 or code-compliant ASTM D1970 self-adhered underlayment, and apply it directly to the roof deck. Ensure the membrane is tight to the deck without bridging in the center of the valley.

Lace the field underlayment into and through the valley from each side or overlap the self-adhered valley underlayment a minimum of 6" (152 mm) on each side. When fastening, none should be placed closer than 6" (152 mm) from the valley centerline.

**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 underlayment, 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 9" (229 mm) strip of self-adhering Arctic Seal® may be applied over the fasteners on each side of the valley metal.

Lay a first course of shingles along the eave of one roof section and over the valley, making sure the end of the last shingle reaches or goes beyond the centerline 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.

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

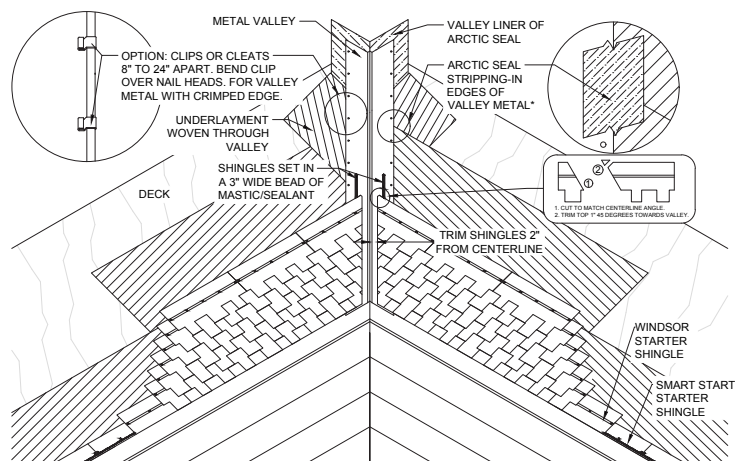
Complete the installation of shingles on that roof section.

After all shingles have been installed in the valley, snap a chalk line that extends out from the centerline on the shingled side a

minimum of 2" (51 mm), and trim the shingle ends to the chalk line. 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"-wide (76 mm) bead of asphalt roof cement conforming to ASTM D4586, and press them into the adhesive.

Continue installing shingles on the adjoining roof as described above. (See Figure 11)



**Figure 11 - 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 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 1/4" - 3/4" (6-19 mm) gap between the shingles and vertical bend of the flashing is recommended.

To allow for possible differential movement, fasten each piece of step 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 step 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.

Apply the Windsor® Starter. The horizontal flange of the step flashing will no longer be visible, but you can still see the vertical flange along the sidewall.

Place the second step flashing atop the Windsor® Starter, and position it 5 3/4" (146 mm) up from the eave edge of the shingle, matching the shingle tab exposure, and fasten as before.

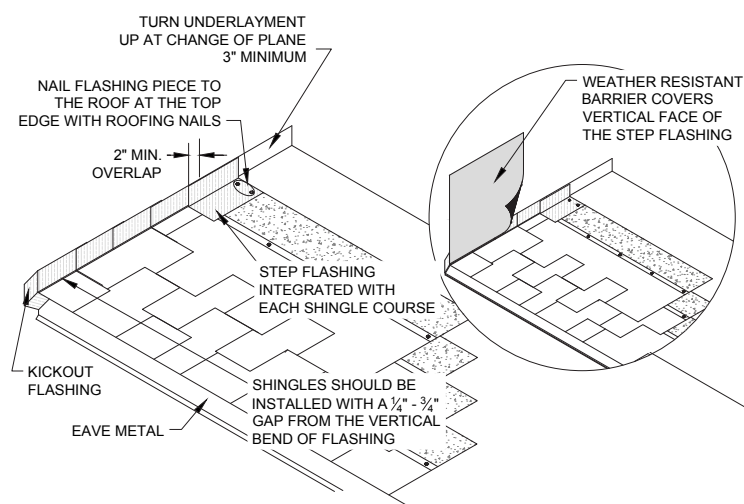
Position a first course Windsor® shingle over the Windsor® Starter and fasten.

Place the third step flashing atop that, overlapping the end of the previous step flashing by 2 1/4" (64 mm) - the point of shingle tab exposure.

Maintain the 5 3/4" (146 mm) exposure of each step flashing on up to the top of the sidewall intersection, alternating between the placement of step flashing and shingles.

\* The "first piece of step 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 step flashing. Otherwise, the installation of starter shingles, Windsor® shingles, and step flashing to follow is the same. (See Figure 12)



**Figure 12 - Step Flashing Application at Roof-to-Sidewall Transitions**

**Duct and Vent Pipe Flashing:** Flashing assemblies and roof jacks shall be minimum of 26-gauge galvanized steel or lead.

Install shingle courses up to the vent pipe, and cut a hole in the shingle to be positioned over the pipe. Lay that shingle in place, fasten, and apply asphalt roof cement (sealant) conforming to ASTM D4586 around the pipe where it protrudes through the shingle.

Before installing the roof jack to come next, turn it over and apply sealant to the flanges along the top and both sides. Place the roof jack down over the vent pipe, and press the assembly firmly onto the roof.

Install a bead of sealant on the top surface of the roof jack's metal flanges as these will be covered by subsequent, overlapping shingle courses. Apply pressure to seal.

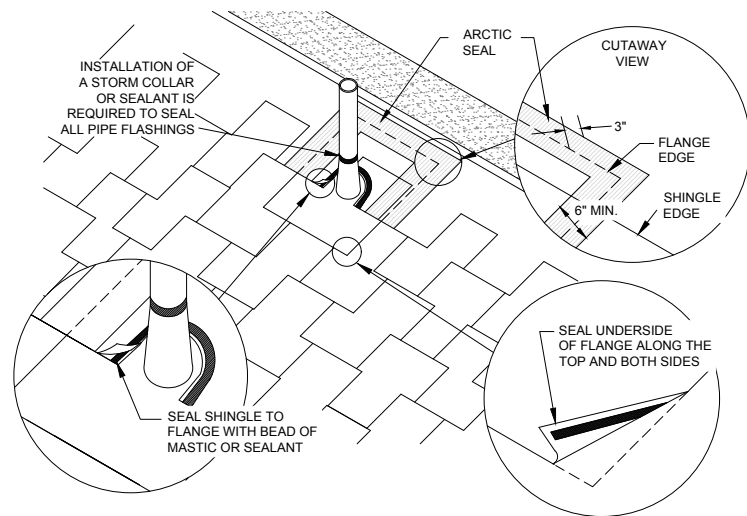
To complete the installation, placement of a metal storm collar (not rubber) and/or sealant is required to adhere them to all pipe and rooftop penetrations.

Ensure no shingle butt joints are left exposed by this process.

Additional, optional weatherproofing: Roof jack flanges may also be stripped-off with minimum 6" (152 mm) wide Arctic Seal® self-adhering underlayment, covering all fasteners used



to secure the flanges, and tying onto the field underlayment a minimum of 3" (76 mm). (See Figure 13)



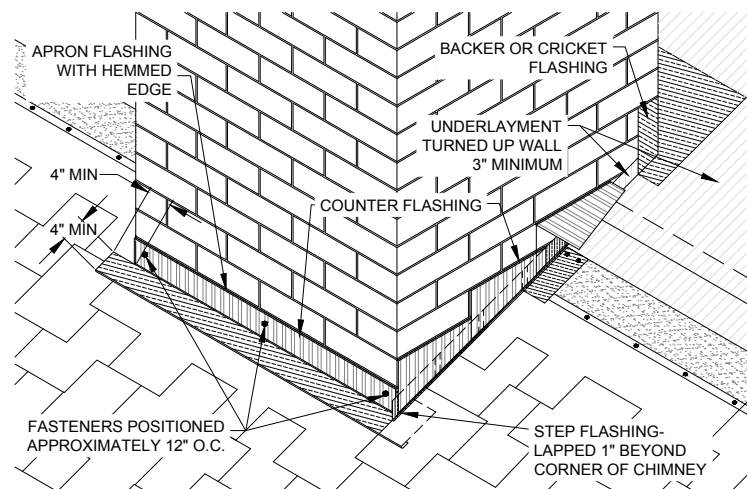
**Figure 13 - Pipe Flashing Application**

**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 14)



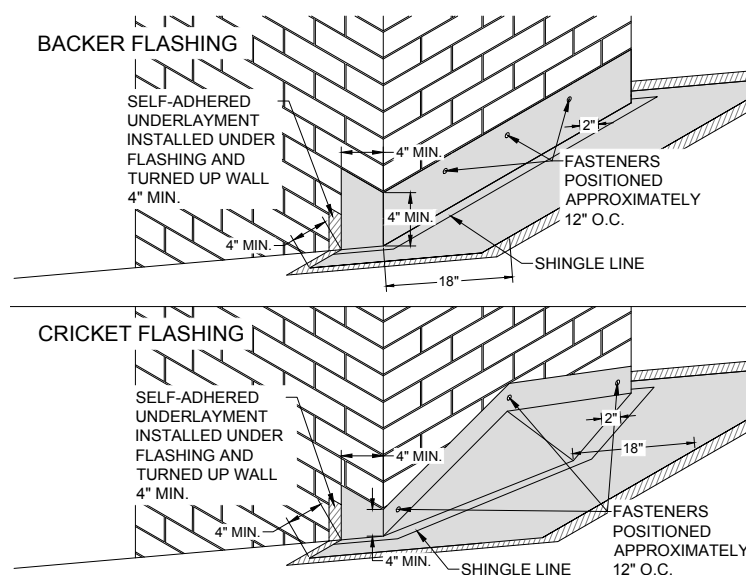
**Figure 14 - Chimney Apron and Cap Flashing Applications**

**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 15)



**Figure 15 - Chimney Saddle and Cricket Flashing Applications**

## HIPS AND RIDGES

Malarkey EZ-Ridge™ and EZ-Ridge XT™ high-profile hip and ridge shingles are recommended for Windsor® shingles, but RidgeFlex™ strip shingles may also be used. An acceptable, alternative method using 3-tab shingles is described in an upcoming section.

Note: Malarkey shingles featuring Scotchgard™ Protector from 3M (including Windsor® shingles) must be installed with hip and ridge shingles having Scotchgard™ Protector. All four of Malarkey's hip and ridge shingle types feature this algae-resistant protection.

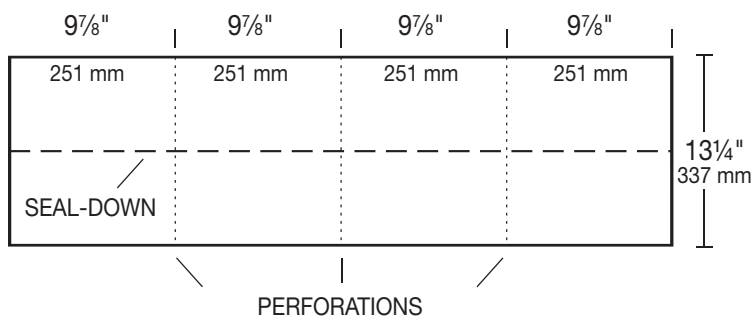
Malarkey hip and ridge shingles also include a factory-applied, thermally activated seal-down adhesive that provides additional protection against blow-off. When applied in cold weather or a windy location, however, it is recommended each ridge shingle be hand-sealed under each lower corner with a quarter-size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

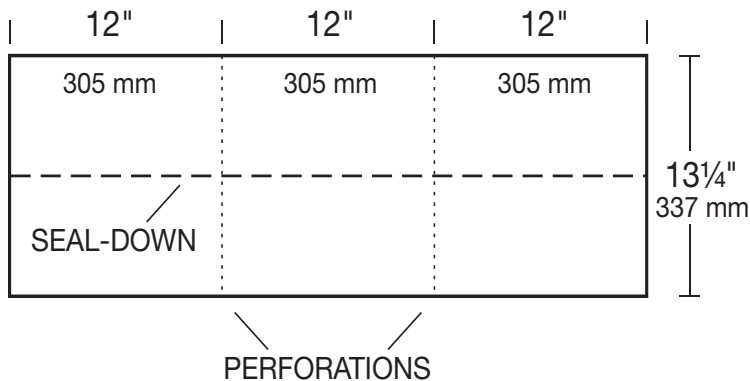
## LOW-PROFILE INSTALLATION (10" AND 12" RIDGEFLEX™ HIP AND RIDGE SHINGLES)

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 16), and the 12" RidgeFlex™ produces three (3) (see Figure 17). Note the seal-down strips.





**Figure 16 - 10" RidgeFlex™ Hip and Ridge Shingle**

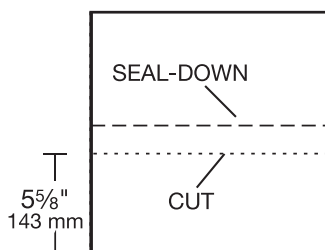


**Figure 17 - 12" RidgeFlex™ Hip and Ridge Shingle**

Each scored strip is 13 1/4" (337 mm) tall and has an exposure of 5 5/8" (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*.

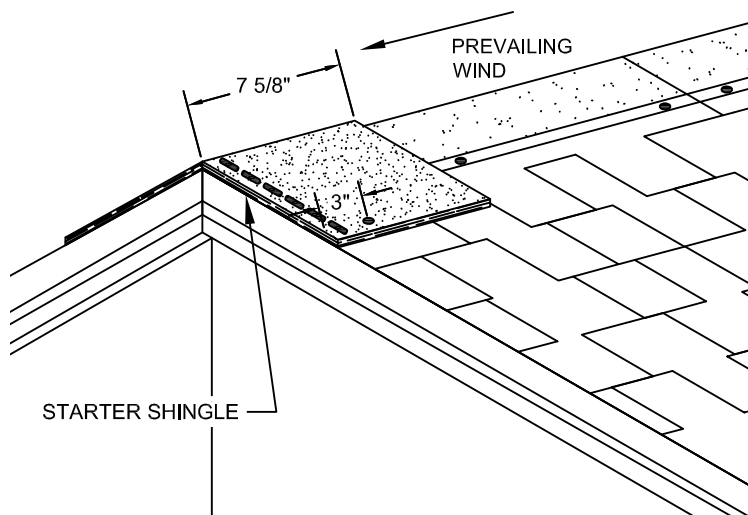
**RidgeFlex™ Starter Shingle:** Create a starter shingle by cutting off the lower 5 5/8" (143 mm) portion of a RidgeFlex™ shingle strip, and use the 7 5/8" (194 mm) remainder as a starter. (See Figure 18)



**Figure 18 - 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 1/4" - 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 19)

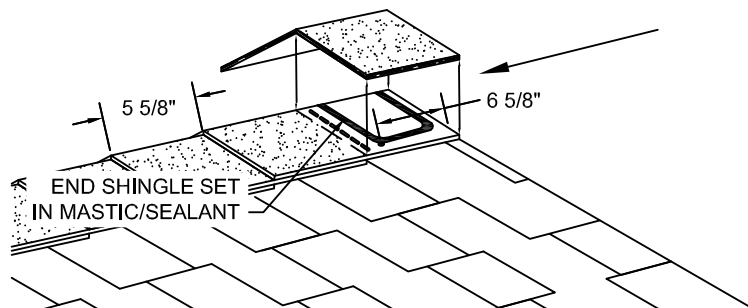


**Figure 19 - Placement and Fastening of the RidgeFlex™ Starter Shingle**

**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 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.

At the end of the ridge, cut a shingle strip, and use the lower 5 5/8" (143 mm) portion of a RidgeFlex™ shingle to create an *end cap*. Position to maintain the exposure of 5 5/8" (143 mm), and set the cap in asphalt roof cement conforming to ASTM D4586. Press down firmly to seal. (See Figure 20)



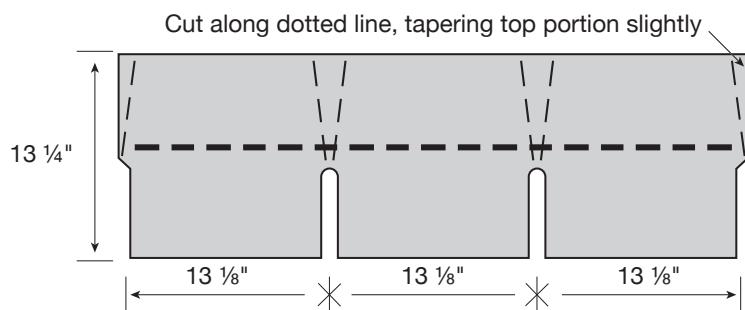
**Figure 20 - Installation of RidgeFlex™ Shingles, Maintaining the 5 5/8" Exposure; End Cap Set in Mastic**

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.

### USING 3-TAB SHINGLES AS HIP AND RIDGE SHINGLES

Make hip and ridge shingles by taking a 3-tab shingle and cutting it vertically into thirds.

For a neater appearance, taper the top half of the shingle 1" (25 mm) on each side so it is narrower than the exposed portion. (See Figure 21)



**Figure 21 - Cutting a 3-tab Shingle for Use as Hip and Ridge Shingles**

Install as you would the low-profile RidgeFlex™ hip and ridge shingles.

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

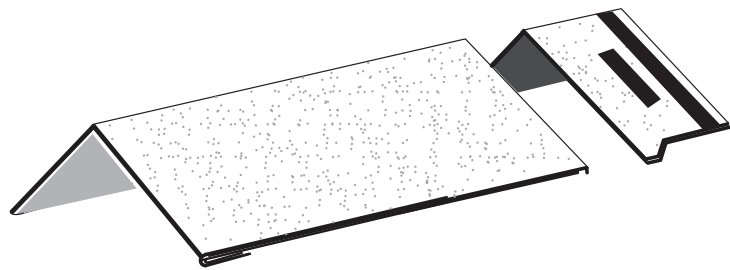
Malarkey's EZ-Ridge™ is a high-profile hip and ridge shingle specially designed to accompany laminate and Windsor® shingle applications.

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 3/4" (19 mm) into the roof sheathing. Where the roof sheathing is less than 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 1/4" (210 mm) exposure portion of the shingle, and use the 3 1/4" (83 mm) remainder (with sealant strip) as the starter. (See Figure 22)



**Figure 22 - 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 cap 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

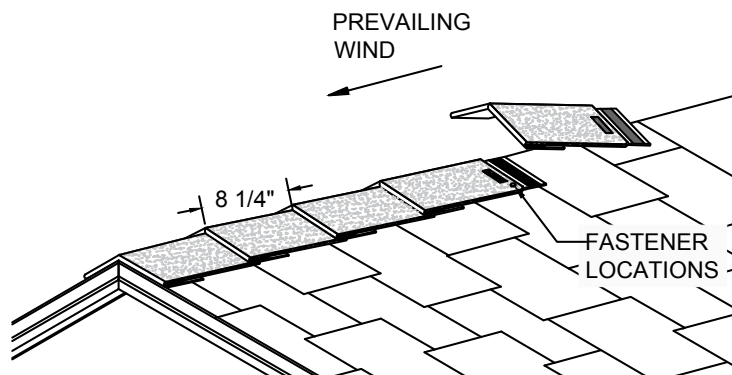
roof edge. Push down on the center of the shingle and adjust to fit the pitch of roof.

Fasten with two (2) nails, one (1) on each side, 3/4" (19 mm) behind the cutout and 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 1/4" - 3/4" (6-19 mm). Push down on the center of the shingle and adjust it to fit the pitch of roof.

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

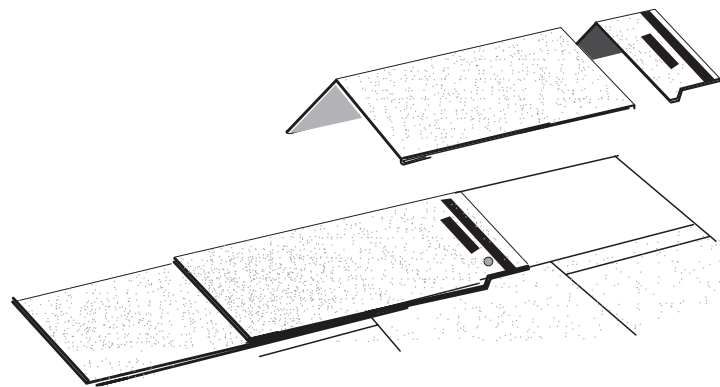
Continue installing EZ-Ridge™ shingles across the ridge, overlapping each with the side cutouts of the underlying shingle, and producing a consistent exposure of 8 1/4" (210 mm). Fasten in the same manner as the first. (See Figure 23)



**Figure 23 - Placement and Fastening of EZ-Ridge™ Shingles, Maintaining the 8 1/4 inch Exposure**

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

Set this end cap in asphalt roof cement, maintaining the 8 1/4" (210 mm) exposure. (See Figure 24)

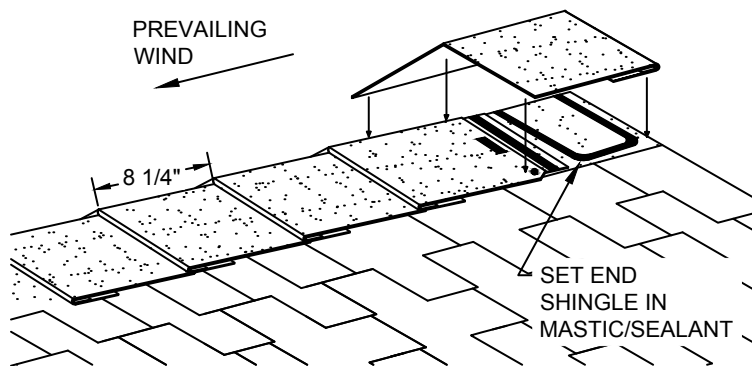


**Figure 24 - EZ-Ridge™ Shingle Cut to Create an End Cap**

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 25)

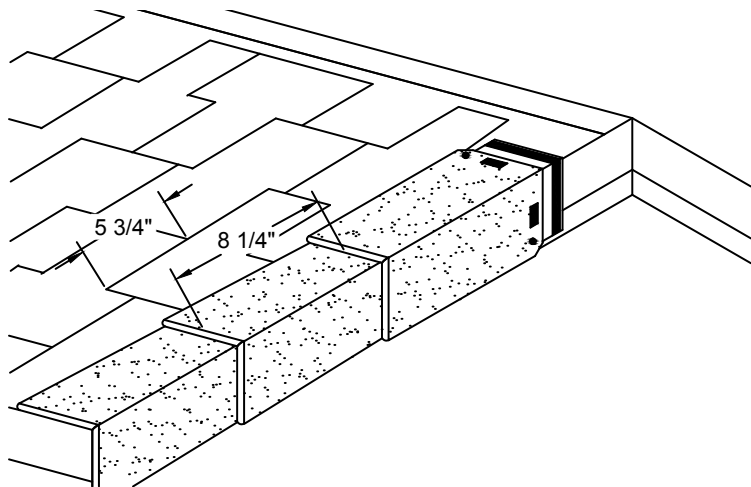


**Figure 25 - Optional Positioning and Fastening of the EZ-Ridge™ End Cap**

### 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 end of EZ-Ridge™ shingles in the lowest position. (See Figure 26)



**Figure 26 - Installation of EZ-Ridge™ Shingles on Rake Edges of the Roof**

Note: Installation with exposed nails may affect the aesthetic appeal of EZ-Ridge™ shingles.

### 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 and designers like the Windsor® create 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 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  $\frac{3}{4}$ " (19 mm) into the roof deck or completely through plywood or OSB sheathing.

Installing UL 2218 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](mailto:technicalinquiries@malarkeyroofing.com). Thank you.



P.O. Box 17217  
Portland, OR 97217-0217

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