



PERFORMANCE APPLICATION METHOD



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IMPORTANT INFORMATION. READ THIS FIRST.

Please note the following general information:

- › The CodePlus™ Application Method set out in this manual is designed to result in a roof that is better able to withstand the impact of high winds. It is inspired by and modeled after the Insurance Institute for Business and Home Safety (IBHS) FORTIFIED Roof Standard. **Please note that in order to qualify for a FORTIFIED Home designation, additional technical and inspection requirements apply.** Some of these additional or varying requirements are noted in this manual. For more information, please visit www.fortifiedhome.org.
- › While faithful adherence to the instructions set out in this manual and proper installation should result in a more resilient roof under high-wind events, IKO is not providing any guarantee of performance related to the CodePlus System and is not assuming any responsibility or liability for damage to any property, systems or contents in respect to a roof applied in accordance with the CodePlus Method.
- › IKO assumes no responsibility for leaks or defects resulting from poor or improper application, nor from failure to properly prepare the surface to be roofed over, nor from failure to provide proper ventilation in accordance with minimum property standards and requirements.
- › Review all applicable building codes, minimum property standards and requirements before applying these products. Always apply products according to the instructions on the wrapper and the CodePlus requirements in this manual. In the event of any conflict between the instructions on the wrapper and the CodePlus requirements, please follow the CodePlus requirements.
- › Understand the definition of Hurricane Zone as defined herein: where the design wind speed for V_{ult} in accordance with ASCE 7-10 (or ASCE 7-16) exceeds 115 mph or V_{asd} in accordance with ASCE 7-05 exceeds 90 mph.
- › Stack products on sloped roofs with caution.

Fasten the Roof Deck

1.1 Review the Roof Deck

- › Remove all existing roofing materials. Although some jurisdictions allow a new roof to be installed over an existing roof, IKO CodePlus requires existing roof covering be removed to the deck before installing a new roof cover system.
- › Replace any damaged decking.
- › Ensure that the deck is smooth, firm, clean, dry, securely nailed and free of debris to provide a workable surface.
- › Repair any damaged or rotten roof decking and roof framing members before starting work.
- › Avoid applying asphalt shingles to roof slopes less than 3:12. For slopes from 3:12 to less than 4:12 (low slope), see special underlayment requirements outlined in Section 2.2.
- › It is not recommended that IKO roofing shingles be applied directly to any type of roof insulation, including perlite or fiberglass, foam, wood fiber or similar products.

NOTE: Applying IKO roofing shingles directly over any structural decks, including gypsum, nailable concrete or similar products (without IKO's prior approval), will void the limited warranty.



1.2 Prepare the Roof Deck

- › Use exterior-grade wood panel decking that conforms to building code requirements. Roof sheathing thickness must be a minimum of 7/16 inch with roof framing spaced at a maximum of 24 inches o.c. (on center).

NOTE: In High Wind Zones, where the design wind speed for V_{ult} in accordance with ASCE 7-10 (or ASCE 7-16) is equal to or less than 115 mph or V_{asd} in accordance with ASCE 7-05 is equal to or less than 90 mph, 3/8-inch-thick sheathing is acceptable with roof framing spaced at a maximum of 16 inches o.c. For more details of roof sheathing requirements in the IBHS FORTIFIED program, check IBHS FORTIFIED standard.

- › Prepare the surface by removing any nails, dirt or dust. Installing asphalt shingles on dimensional lumber (including shiplap/board decks) is not recommended as it may potentially cause buckling problems. Any damage or failure resulting from installing the asphalt shingles on dimensional lumber, shiplap/board decks will not be covered under the limited warranty.
- › If reroofing, tear off old roofing material down to the deck so that the deck can be examined for any damage and proper nailing.
- › Any remaining underlayment should be removed without damaging the roof deck.
- › After ensuring that the condition of the deck as well as the nailing are acceptable, remaining residual underlayment will need to be covered with new tape and/or underlayment as discussed in Section 2 (Seal the Roof).
- › ZIP System® sheathing may be acceptable. For more details, see Section 2.3 or call IKO toll-free 1-888-766-2468 (Canada) or 1-888-456-7663 (United States).



1.3 Fasten the Deck

- › Determine the condition of the existing roof deck's fastening:



- Condition 1: If the existing fasteners are staples, 6d or unknown nails, use 8d ring-shank nails (minimum diameter 0.113 inch and minimum length 2 3/8 inches) at 6 inches o.c. along all framing members as the added fasteners for re-nailing the entire roof sheathing. There is no need to remove old fasteners.
- Condition 2: If the existing fasteners are 8d or larger common nails, install 8d ring-shank nails (minimum diameter 0.113 inch and minimum length 2 3/8 inches) between existing fasteners as necessary to achieve a maximum spacing of 6 inches between fasteners. For more details, please check this IBHS technical bulletin at: <https://fortifiedhome.org/wp-content/uploads/standard-details/F-RR-4.pdf>.

NOTE: In Hurricane Zones, if the home is located within 600 feet of the oceanfront, an intercoastal waterway or a bay with more than 1 mile of open water, fasten with 8d ring-shank nails at 4 inches o.c. within 4 feet of a gable or a 4-foot by 4-foot corner area of a hip roof as shown by the hatched areas in Figure 1.

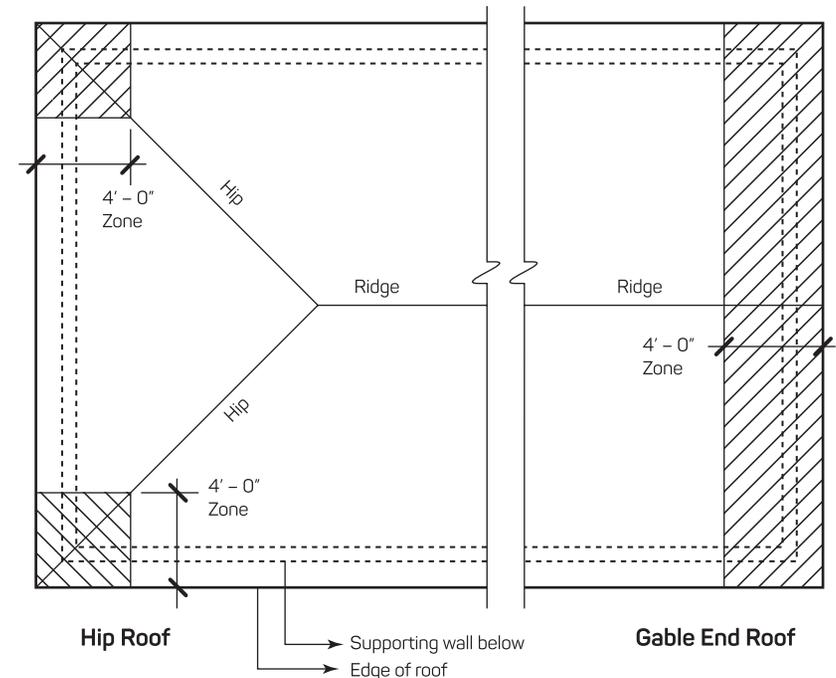


Figure 1: Typical Plan View for Roof

Seal the Roof

2.1 Seal the Gaps at Eaves

- › Apply IKO GoldSeam™ along the eave/fascia area to cover any gaps where water can infiltrate the walls or attic space. First, remove the release film. Then, center the tape over the gap and use a hand roller to ensure adhesion to all surfaces.
- › Install IKO GoldSeam prior to installing drip edge. Any tape extending beyond and below the bottom edge of the roof deck shall be covered by drip edge (or other roofing components) so tapes are not permanently exposed to UV rays.



2.2 Seal the Entire Roof Deck

2.2.1 If a Waterproof Membrane Is Required by Local Building Code

- › Install IKO ice and water protectors, such as GoldShield™, ArmourGard™ or IKO StormShield®, at eaves following IKO application instructions and extend up the roof at least 24 inches from the vertical projection of the interior surface of the outside wall.



Option 1:

Seal the Deck With Roof Sealing Tape and Synthetic Underlayment

- › Apply IKO GoldSeam™ roof sealing tape, starting from low to high point of roof, in a way similar to shingle courses being laid to overlap and shed water. Center tape over roof deck joints or seams. Peel off 6 inches to 12 inches of release film from one end. Stick one end down to the roof and apply the tape to the decking. It is recommended to use a hand roller to apply with firm, uniform pressure over entire surface of the tape. Allow 4-inch to 6-inch overlaps between pieces of tape.

NOTE: Pressure is key to achieving optimal adhesion across the entire tape, which is why using a hand roller is recommended.



- › IKO recommends covering the taped deck with roof underlayment as soon as possible. Apply IKO Stormtite® or RoofGard-Cool Grey™ synthetic underlayment in horizontal courses up the roof with minimum 4-inch side laps, 6-inch end laps and 24-inch end lap offset, conforming to local building code requirements. For roof slopes less than 4:12 down to 3:12 apply underlayment in successive courses by overlapping the preceding sheet by 25" with 4" end laps.

- › Attach underlayment using annular-ring or deformed-shank roofing nails (minimum 0.083 inch dia.) with minimum 1-inch-diameter caps (button cap nails) at 6-inch o.c. spacing along all laps and two equally spaced rows with 12-inch o.c. spacing vertically or horizontally between the laps.



NOTE: Regardless of the synthetic underlayment's width, install a minimum of three rows of fasteners and space them evenly along the exposed surface area of the membrane.

- › Trim the sheet to fit the final course at the peak.



NOTES:

- In Hurricane Zones, fastening spacing may need to be increased to 4-inches o.c. Check local building codes for any additional requirements.
- Double lap underlayment across ridges (unless there is a continuous ridge vent).
- Lap underlayment with minimum 6-inch leg "turned up" at wall intersections. Lap wall weather barrier over turned-up roof underlayment.

Option 2:**Seal the Entire Deck With Ice and Water Protector**

- › IKO's ice and water protectors can be installed over the entire roof deck to seal it. Ensure the roof has proper ventilation and the attic space has required airflow.
- › Install a bond break using an IKO synthetic underlayment. This bond break is to be held back 8 inches from the eave and rake edges so that flashing cement or self-adhering starter strip can be applied along the edges to ensure the shingles seal properly at these roof edges.

Install a bond break using an IKO synthetic underlayment.



- › Some local building departments (e.g., Miami-Dade and Broward counties in Florida) prohibit the use of a self-adhered membrane applied directly to the roof sheathing. Check with the local building department for any restrictions and always refer to local codes for any underlayment requirements.
- › Option 2 can be used for low slope roofs from 3:12 - 4:12 and steep slope roofs 4:12 and above.

2.2.2 If a Waterproof Membrane Is Not Required by Local Building Code**Seal the Deck With Roof Sealing Tape and Synthetic Underlayment**

- › Tape all vertical and horizontal seams with IKO GoldSeam™.
- › Install synthetic underlayment over the IKO GoldSeam, covering the entire roof deck. Follow Section 2.2.1, Option 1, for synthetic underlayment installation requirements.

NOTE: Methods promoted in Section 2.2.1 are still acceptable for regions where a waterproof membrane is not required by local building code.



2.3 Consider Huber ZIP System

- › Where Huber ZIP System is recognized by the local building code, it is acceptable to use ZIP System sheathing in IKO CodePlus Method.
- › Follow ZIP System installation guide on ZIPSystem.com.
- › For new construction, apply IKO Stormtite™ or RoofGard-Cool Grey™ synthetic underlayment over ZIP System sheathing panels after all seams are taped with ZIP System Tape. See synthetic underlayment installation requirements in Section 2.2.1, Option 1.
- › For reroofing, apply IKO ice and water protector over entire deck above ZIP (as long as the old deck is approved by inspector and/or an IBHS FORTIFIED evaluator and does not need to be replaced). See ice and water installation requirements in Section 2.2.1, Option 2.

2.4 Install Ventilation

- › Always ensure sufficient ventilation in order to avoid condensation. Proper ventilation of attic areas is essential to maximize the service life of building materials used in the roof assembly. This is even more critical when tightly sealing the roof deck with seam tape or ice and water membrane; so, never skip this important step.
- › As a member of the Asphalt Roofing Manufacturers Association (ARMA), IKO supports and endorses the positions and guidelines pertaining to roof ventilation found in ARMA's bulletin, "[Attic Ventilation Best Practices for Steep Slope Asphalt Shingle Roof Systems.](#)"
- › Additional requirements for vents in Hurricane Zones:
 - Ridge and off-ridge vents must be:
 - Designed for the applicable wind load.
 - Tested in accordance with Florida Building Code TAS 100(A).
 - Installed per manufacturer's installation instructions.
 - Gable end vents are to be protected with operable or removable shutters that will seal the vents in case of a hurricane.

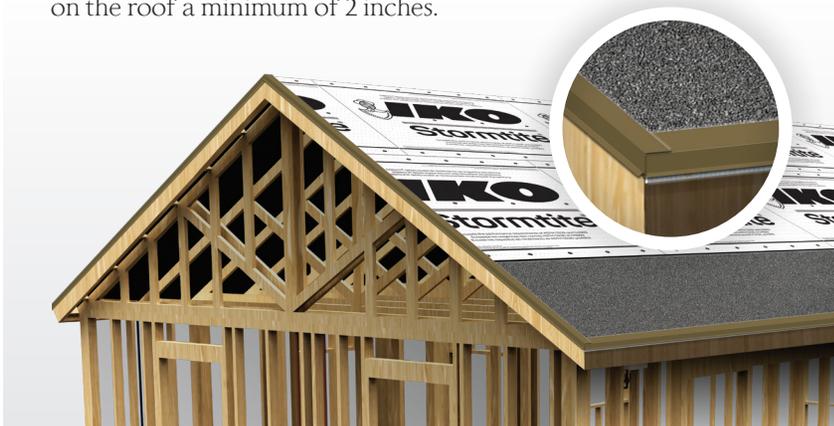
Secure the Edges

3.1 Apply Drip Edge Along Eaves and Rakes

- › Apply new (minimum 26 gauge for steel) corrosion-resistant metal drip edge over IKO GoldSeam™ and synthetic underlayment or ice and water protector along eaves and over synthetic underlayment and/or ice and water protectors along the rakes, spacing nails approximately 12 inches apart with minimum 3-inch laps.

Check local building code requirements and proceed as follows:

- If adhesion to substrate (e.g., top flange of the drip edge) is found to be marginal, use a primer to ensure optimal adhesion. The primer must be dry before installing the EdgeSeal.
- Apply mechanical fasteners in an alternating (staggered) pattern along the length of the drip edge and place adjacent fasteners near opposite edges of the leg/flange of drip edge on the roof.
- Ensure drip edge extends a 1/2-inch below sheathing and extends back on the roof a minimum of 2 inches.



3.2 Install the Flashing

- › Note that new corrosion-resistant flashing must be used to help prevent leaks where a roof meets a wall, another roof, a chimney or other objects that penetrate a roof. Flashing is to conform to the requirements of applicable building codes and good roofing practice. For more details, please visit [IKO's website](#) or Insurance Institute for Business and Home Safety "[IBHS General Flashing Guidelines for Steep-Sloped Roofs.](#)"

3.3 Install IKO EdgeSeal® at Eaves

- › Note that, to ensure optimal bonding, it is recommended, but not required, to prime the metal drip edge. Properly position the IKO EdgeSeal flush or with up to a 1/4-inch overhang with the outer edge of the drip edge metal on the eave. With EdgeSeal in place, carefully remove the bottom release film and apply firm pressure along the length of the roll using a hand roller. Only remove the top release film as the shingles are applied along the length of the eave. IKO recommends installing shingles as soon as possible to help eliminate potential damage to the EdgeSeal membrane.
- › When transitioning from one roll to another, overlap a minimum of 6 inches.

NOTE: If adhesion to substrate (e.g., top flange of the drip edge) is found to be marginal, use an ASTM D41 asphalt primer to ensure optimal adhesion. The primer must be dry before installing the EdgeSeal.

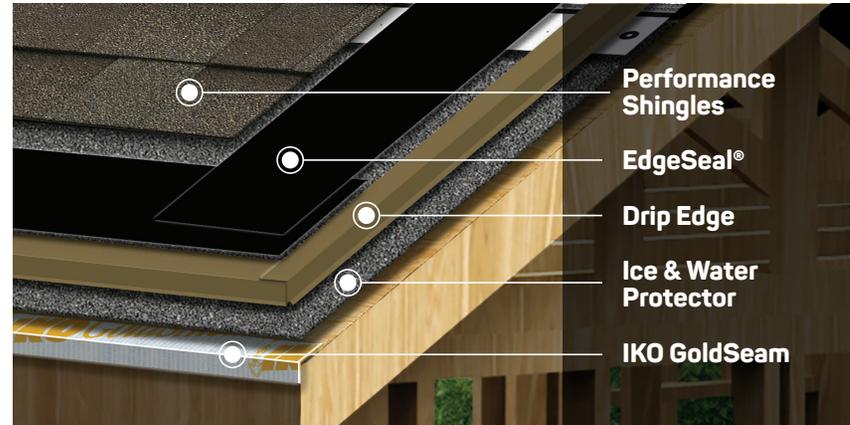
3.4 Install IKO EdgeSeal® at Rakes

- › At the rake, ensure the underlayment and drip edge are in place, then properly position the EdgeSeal so that it overlaps the eave edge starter course by at least 3 inches (or down to the eave) and is flush or with up to a 1/4-inch overhang with the outer edge of the drip edge metal on the rake.
- › With the EdgeSeal in place, carefully remove the bottom release film and apply firm pressure along the length of the roll. Only remove the top release film as the shingles are applied along the length of the rake.
- › When transitioning from one roll to another, overlap a minimum of 6 inches.
- › IKO recommends installing shingles as soon as possible to help eliminate potential damage to the EdgeSeal membrane.



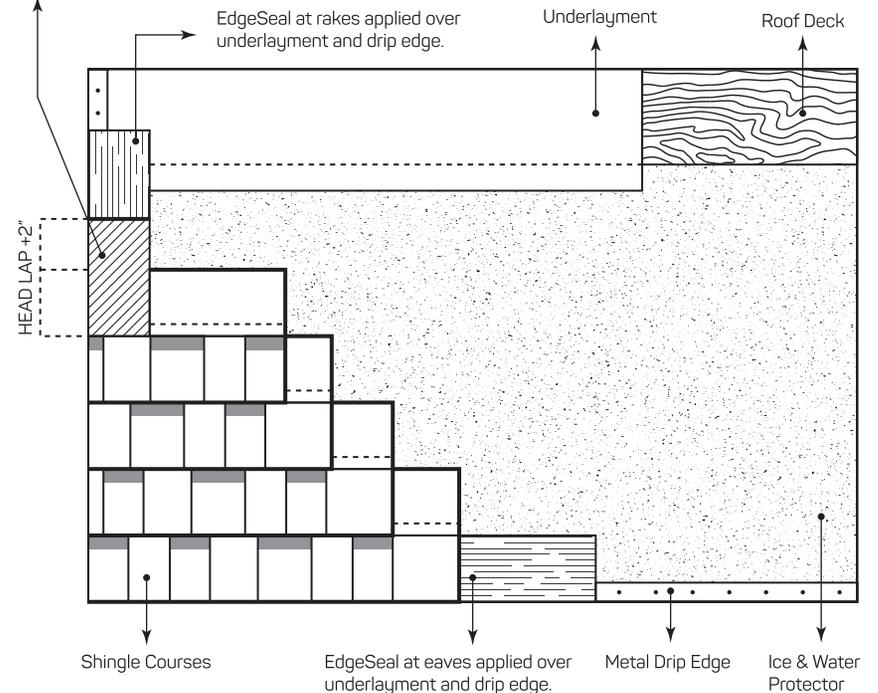
NOTES:

- In Hurricane Zones, the minimum nailing space for a drip edge is 4 inches o.c.
- To comply with Miami-Dade NOA, place cut pieces of EdgeSeal (or ASTM C920 sealant) within the head lap, between subsequent courses, to seal rake edge exposure. Cut pieces are to extend at least 2 inches beyond the head lap going up the slope. See “Detail B.”



Detail A: Installation Diagram for Eaves and Rakes

Apply EdgeSeal at head lap to seal rake edge exposure. Extend EdgeSeal at least 2” beyond the head lap going up the slope.



Detail B: Installation Diagram for High-Wind Regions and Miami-Dade NOA

Install Performance Shingles

4.1 Read Before Installation

- › Never apply asphalt shingles to roof slopes less than 3:12. For slopes from 3:12 to less than 4:12 (low slope), see special underlayment requirements outlined in Section 2.2, Options 1 and 2.
- › For any low-slope application less than 3:12, IKO Roof-Fast membrane can be used. Roof-Fast comes in several colors to complement various IKO Performance shingle colors. Please check with your local IKO territory sales representative for more details.
- › Install IKO Dynasty® or Nordic™ Performance asphalt shingles as their application instructions and IKO CodePlus Standard direct.

NOTE: IKO recommends installing shingles as soon as possible to help eliminate potential damage to the EdgeSeal membrane.

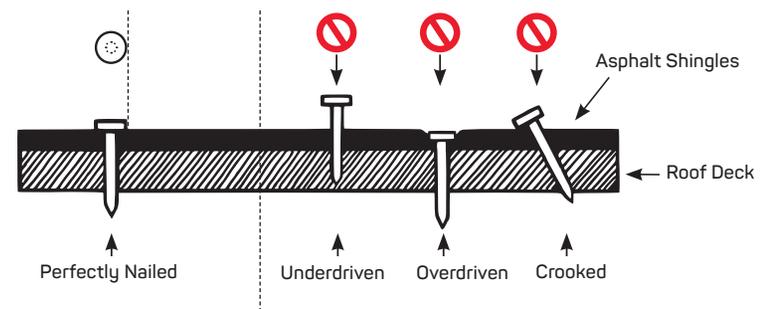


4.2 Use Correct Fasteners

- › Nails must be corrosion-resistant, 11- or 12-gauge roofing nails, with at least 3/8-inch heads, and should be at least 1-inch long. For decks 3/4-inch thick or thicker, nails must go at least 3/4 inch into the deck. On thinner decks, nails must go at least 1/8 inch through the deck.

NOTE: For minimum fastener corrosion protection requirements for IBHS FORTIFIED Home, please check IBHS Technical Bulletin FH018-01 "[Corrosion-Resistant Fasteners](#)."

- › For all applications, it is critical to use the nail lines as a guide and to position the nails between the lines in the ArmourZone. Improper nailing can void IKO's Limited Warranty. See "Detail C."



Detail C: Diagram for proper nailing on IKO Dynasty and Nordic Performance shingles

4.3 Install the Valleys

- › For longer roof performance, IKO strongly recommends open metal valleys. Closed cut valley applications are acceptable, but not recommended. Please see IKO's Limited Warranty for more details.

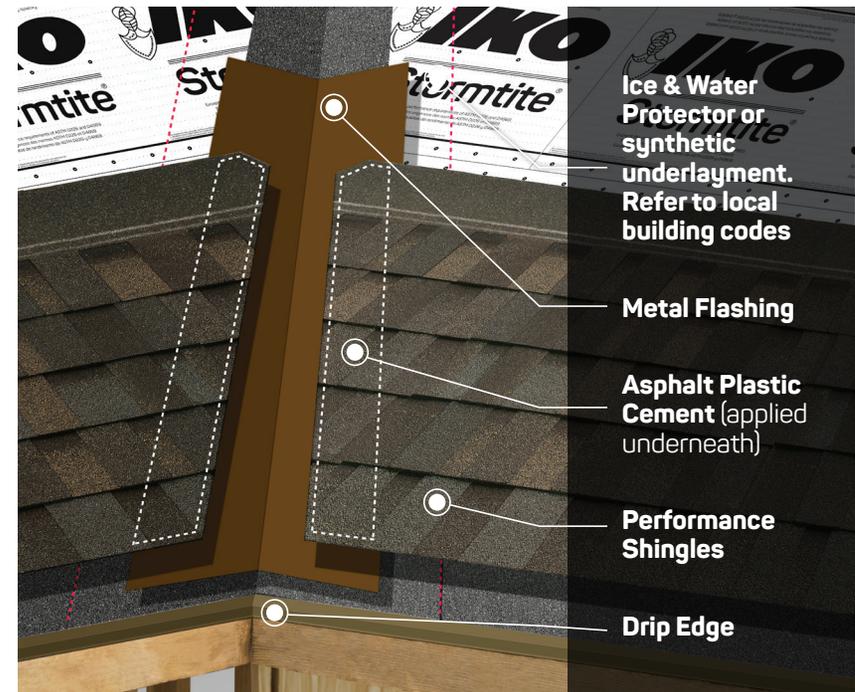


4.3.1 Open Metal Valleys (Recommended)

- › Complete valley flashing before applying shingles. Center a 36-inch-wide strip of ice and water protector in the valley, then fasten at the edges with only enough nails to hold in place.
- › Center a minimum 24-inch-wide, minimum 28-gauge prefinished/ galvanized metal valley liner in the valley and fasten the edges with only enough nails to hold in place.
- › Snap two chalk lines the full length of the valley, 6 inches apart at the top, and increase width in increments of 1/8 inch per foot toward the bottom to a maximum of 8".
- › When applying the shingles, lay them over the valley flashing, trim the ends to the chalk line and cut a 2-inch triangle off the corner to direct water into the valley.
- › Do not place a nail in the shingle closer than 2 inches from the chalk line.

4.3.1.1 Seal the Open Valley

- › Embed the valley end of each shingle into an 8-inch band of asphalt plastic cement, with maximum thickness of 1/8 in. Refer to Detail D.



Detail D: EdgeSeal Installation Diagram for Valley

4.3.2 Closed Valleys (Acceptable)

- › IKO is a member of the “[Asphalt Roofing Manufacturers Association](#)” (ARMA). Please follow ARMA’s Asphalt Roofing Residential Manual Design and Application Methods for closed-valley application. At the cut side of closed valleys, apply minimum 2-in wide strip of cement with maximum thickness of 1/8 in.

4.4 Snap Chalk Lines

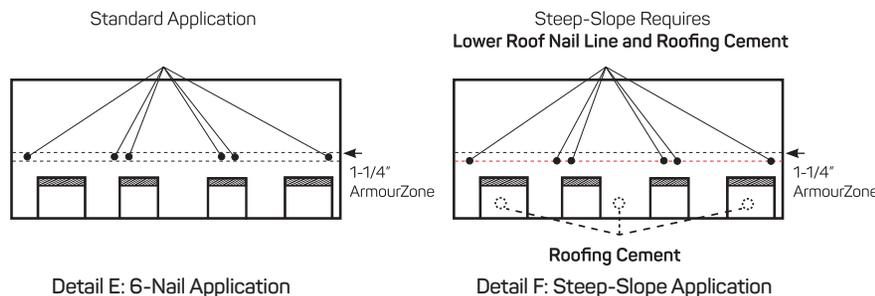
- › To aid in alignment, snap horizontal chalk lines. Shingle exposure is 5 7/8 inches.

4.5 Install the First Course

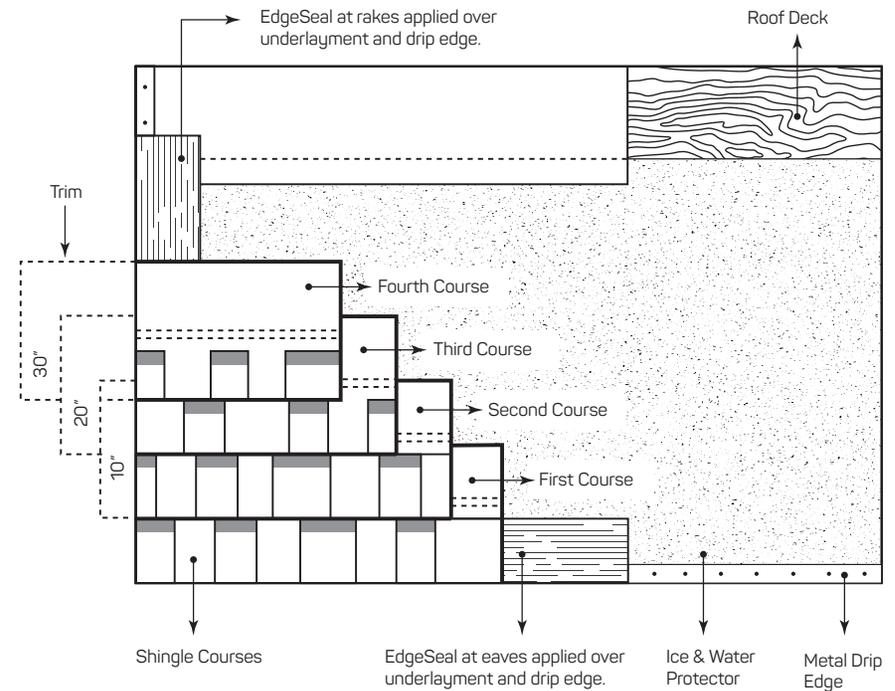
- › Start with a full-length shingle. Apply over the EdgeSeal®, with a 1/4-inch to 3/4-inch overhang at rake and eave. Use six nails per shingle placed as shown below (Detail E).

NOTE: Ensure that all nails are at least 2 inches away from the joint of the underlying shingle.

- › On slopes of 21:12 (60 degrees) or more, seal down each shingle at time of application with three 1-inch diameter spots of roofing cement placed under the shingle 2 inches above the bottom edge and equally spaced along the shingle. Each nail must penetrate both layers of the shingle by nailing into the lower nail line only. Use roofing cement sparingly, as excessive amounts may cause blistering (Detail F).



- › After installing the first shingle in the course, continue with full-length shingles to complete the first course and trim the last shingle so that it matches the overhang of the EdgeSeal, of 1/4 inch to 3/4 inch.



Detail G: Install the First Course

4.6 Install the Second, Third and Fourth Courses

- › Trim off 10 inches, 20 inches and 30 inches, respectively, from the left end of the starting shingle and apply to overhang rake edge by 1/4 inch to 3/4 inch (Detail G).
- › Continue each course across the roof with full shingles butting ends loosely. Align the bottom edge of the shingles with the tops of the saw teeth of the shingles in the underlying course.

NOTE: Other offsets between 6 and 10 inches may be used. These alternative offsets will not adversely affect the applicable provisions of IKO's Limited Warranty, but may, in some instances, result in aesthetic issues.

4.7 Install the Fifth and Succeeding Courses

- › Repeat the sequence of the first four courses up the roof.



4.8 Install the Capping Shingles

- › The IKO CodePlus method requires the use of pre-cut IKO hip and ridge products. Utilize IKO UltraHP®, UltraHP® IR, and Hip & Ridge 12™ for Nordic™ shingle installation. For IKO pre-cut hip and ridge products, bend each piece over the hip or ridge and nail as per instructions on the wrapper.
- › Cover the exposed nail heads of the final shingle with roofing cement.
- › For IKO UltraHP or IKO UltraHP IR, follow the instructions on the box.
- › Before installing capping shingles in cold weather, store in a heated area to allow for easier bending.





IMPORTANT INFORMATION ABOUT SEALING

Please read and carefully note the following:

- › EdgeSeal® must be used at all edges.
- › Shingles should seal to the underlying course when the heat of direct sunlight is warm enough to activate the factory-applied asphalt sealant.
- › Certain application conditions, such as cool weather, or areas subject to high winds or blowing dust, might render the sealing strip less effective. In such cases, ensure shingle adhesion by following the steep-slope requirements within this guide and apply roofing cement manually.

