

Viking EcoStar, Majestic Slate Installation Guide

Version: 1.0

PURPOSE

The purpose of this document is to provide Viking EcoStar Applicators with a good understanding of the key elements related to the installation of Viking Majestic Slate tiles. Correct substrate, underlayment, flashing and fixing requirements are critical steps in meeting the 50-year product warranty conditions. Getting it wrong can prove costly to repair at a later stage.

Reference documents include but are not limited to: EcoStar Product Technical Statement, EcoStar Product Data Sheet, Oculus Engineering Judgement for EcoStar, Substrate Checklists, Underlayment PDS and the Viking EcoStar Standard details library.

Substrate

To be installed in accordance with the Viking EcoStar Substrate check lists for either Plywood or StrandSarking. Deck must be clean and dry (max 18% moisture) before installation.

Underlay

CAUTION: Walking or crawling on any roof surface can be dangerous, especially when wet or snow/ice covered. Two layers to be used on low slopes except in snow and ice prone areas, where Viking's Self-adhered underlay must be used.

1. Viking Self-adhered and self-sealing underlayment – Is designed to protect roofs from wind-driven rain and ice dams. Can be used as a full roof underlay for superior performance over RoofRunner. Options include WinterGuard and Grace Select. These modified bituminous based underlayment offer superior waterproofing in re-roofing applications in addition to self-healing properties around nail heads. Both WinterGuard and Grace Select rolls cover 14.9 m² (914 mm wide x 18.1m long). Must be laid on all areas prone to snow or driving rain and on the upstands. When installing below 10°C, please refer to the EcoStar tips and tricks for cold weather installation.
 - a. Lap end joints 152 mm and side joints 90 mm.
 - b. Apply continuous 914 mm wide (full width) sheet in valley centered over valley.
 - c. Overlap valley metal with a strip of Self-adhered extending from at least 150mm out from the edge of the valley metal to the edge of the tile, or at least 100mm inside the edge of the valley metal.
 - d. Apply rows of 914 mm wide sheets along all eaves and rakes. Lap end joints 150 mm and side joints 90mm.
 - e. Apply rows of 914 mm wide sheets along and around all dormers and roof protrusions. Lap end joints 150 mm and side joints 90mm.
 - f. When applicable install as far up the vertical walls as possible minimum of 300 mm.
 - g. Do not leave Self-adhered exposed to weather more than 30 days after beginning of installation
 - h. Installation of Self-adhered at temperatures below 40°F (4°C) may require cap nailing to hold membrane in place while adhesion develops.
 - i. Prime concrete, masonry surfaces and DensDeck with SES301 Primer. Prime wood composition and gypsum sheathing with SES301 Primer, if adhesion is found to be marginal.

Figures 1 and 2 below show exactly where the Self-adhered underlayment must be installed, as minimum specification. Full roof installation of Self-adhered is also acceptable.

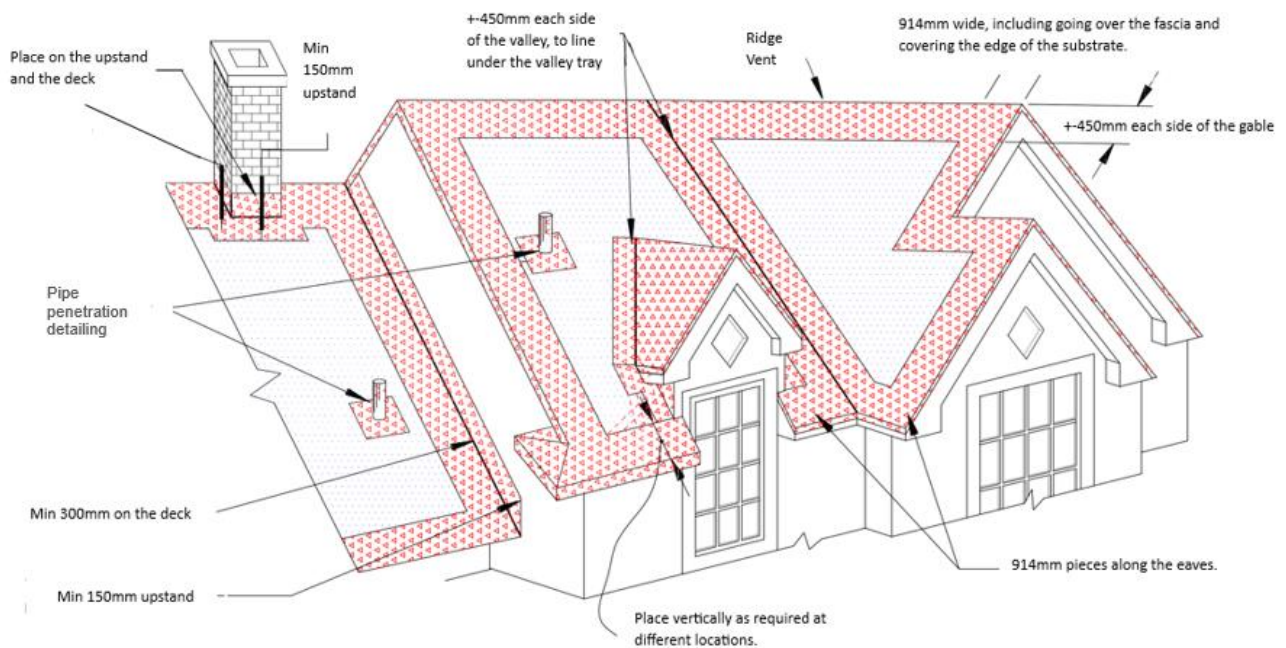


Figure 1

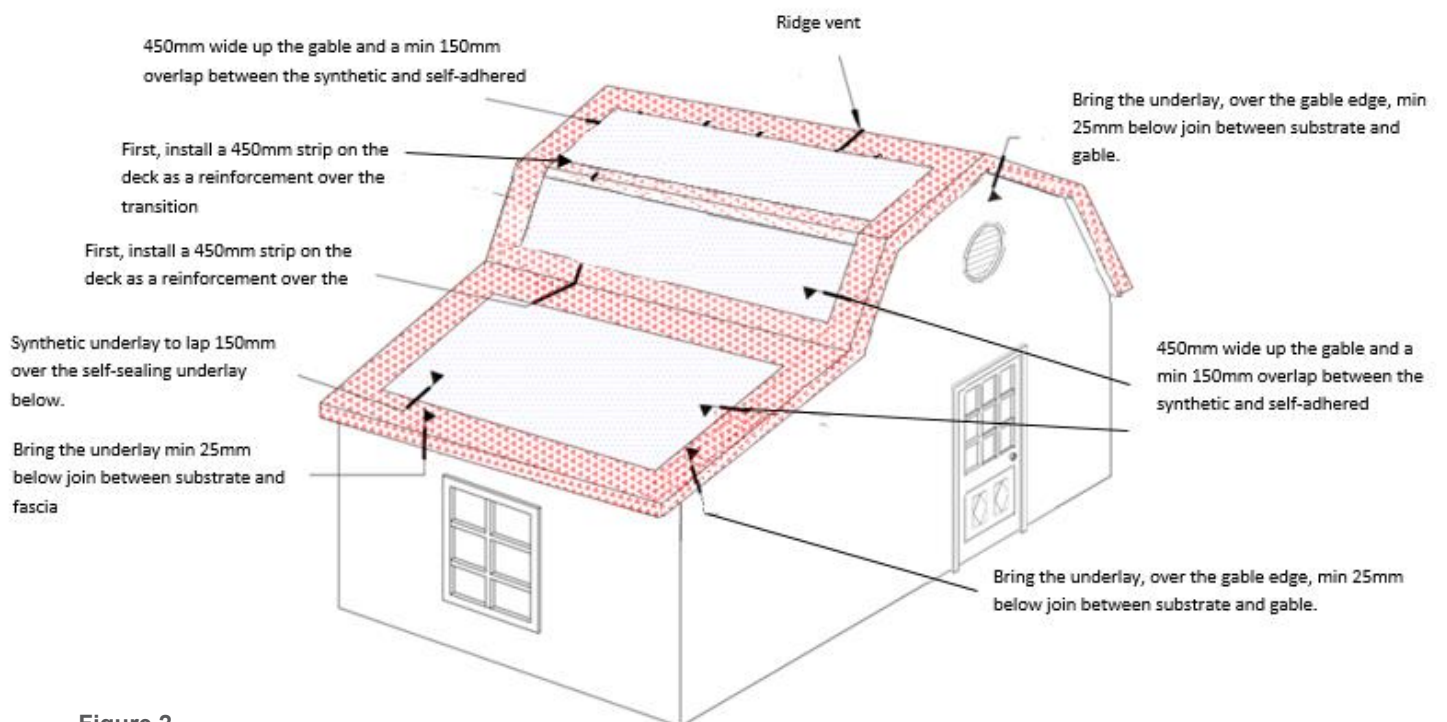
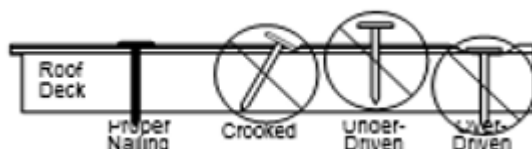


Figure 2

2. RoofRunner – is a synthetic polymer-based scrim-reinforced underlayment designed for use on roof decks as a water-resistant layer beneath the tiles. Follow the Viking Synthetic Underlayment Product Data Sheet. It has exceptional dimensional stability even when wet. Its stability eliminates the possibility of wrinkles caused by moisture related expansion. RoofRunner's extra-large 93m² (1.22m wide x 76.m long), helps speed up application. It has a special top surface treatment that provides excellent slip resistance, even when wet.
 - a. Once mandatory Self-adhered underly and flashing are installed, you are now ready to install your RoofRunner.
 - b. Horizontal overlaps 150mm and vertical overlaps 150mm.
 - c. From the top of the self-adhered at is at the eaves, measure 150mm down and mark horizontally.
 - d. From the inside edge of the self-adhered at is at the gable, measure 150mm towards the gable and mark a vertical line
 - e. Where the two lines meet, that is the starting point, roll your Roof Runner out Horizontally.
 - f. Roll out all the way to the ridge and cut at the vent air gap.

Nails

Fasteners shall be corrosive-resistant. Fasteners shall be 90° to the roof deck and shall not be under or over driven.



1. Tile Fasteners

Ring shank roofing nail with a min 9.5 mm diameter head and a minimum of 38 mm long shank made from stainless steel. Nails can be supplied either as a hand-drive style or in coils for use in pneumatic tools. The EcoStar ring shank roofing nail is required for fastening of all EcoStar roof tiles.

2. Hip and ridge tiles.

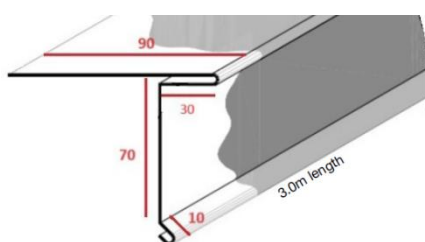
For hips: Ring shank roofing nail with a min 9.5 mm diameter head and a minimum of 51mm long shank made from stainless steel.

For ridge: Ring shank roofing nail with a min 9.5 mm diameter head and a minimum of 64mm long shank made from stainless steel. This is to make allowance for the ridge vent.

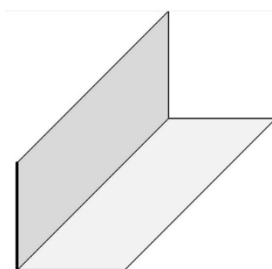
Flashings: Gable and step flashings, drip edge

Metal flashings are not covered by the 50-year EcoStar product warranty, refer to flashing material manufacturers for specific warranty. Viking Roofspec advises that metal flashing and securement of metal should be to industry standards minimum of 0.55 Color Steel Maxx, to prevent the metal from pulling free or buckling. EcoStar also recommend that all flashings should be metal, with stainless steel or copper as the preferred options

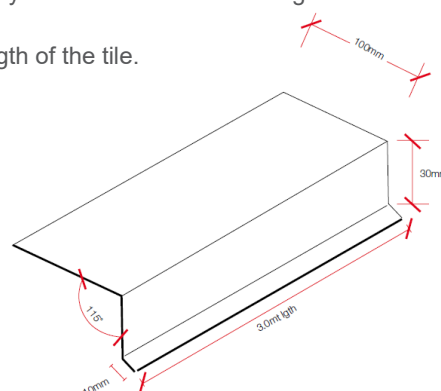
- a. Install drip edge flashings under the mandatory self-sealing underlay at the eaves. You can install on top but will have to add a 200mm strip step over the top section of the drip edge and the roof deck
- b. Gable flashings must be T-shape flashings, that sit over the under. A 200mm strip over the top section of the flash is not mandatory. T-shaped flashing can be used as a drip edge if you want a more robust edge for the tile to sit on.
- c. Step flashing minimum 150m (h) x 150mm (w) and max length, the length of the tile.



T-Gable Flashing



Step Flashing



Standard Drip Edge

Valleys

1. Line the underside of the valley with a full width roll of self-sealing underlay and Install sheet metal and flashing metal in all valleys and where required.
2. EcoStar recommends a V-type, W-type or Double W-type metal valley flashing be used at all valleys. Crushed folds the long edges will give you a more ridged valley flashing to work with and give you a little extra meat to put your fixings into.
3. Fixings either side every 300mm.
4. Strip of self-sealing underlay is over layered on the long edges of the valley; this will cover the valley fixings.
 - a. Extend a minimum of 150mm outside from the edge.
 - b. Depending on your overhang, extend a minimum of 100mm inside the edge.

Blending

The blending of tiles is mandatory. This ensures the best overall finish for your roof and avoids colour blocking.

1. Line up the pallets either in a row or in 2 parallel rows with a walkway between the rows.
2. Remove the white shrouds, then remove the bundle straps from the top layer of bundles on all pallets.
3. Take one tile from one bundle from the 1st pallet, then take one tile from one bundle from the 2nd pallet.
4. Continue taking one tile from one bundle from each of the remaining pallets. If you have 10 pallets, you will end up with 10 tiles in your hand. This will conclude your first pass.
5. On your 2nd pass take one tile from a different bundle from the first pallet.
6. Take one tile from a different bundle from the 2nd pallet.
7. Continue taking one tile from a different bundle from each of the remaining pallets.
8. Continue this process until you have taken one tile from each bundle on the top layer of each pallet.
9. Once your stack of hand-picked tiles becomes unmanageable, stack them in a designated area. These new stacks will be the tiles you will be accessing for installation.
10. Repeat steps 3 through 10 until all tiles have been blended.

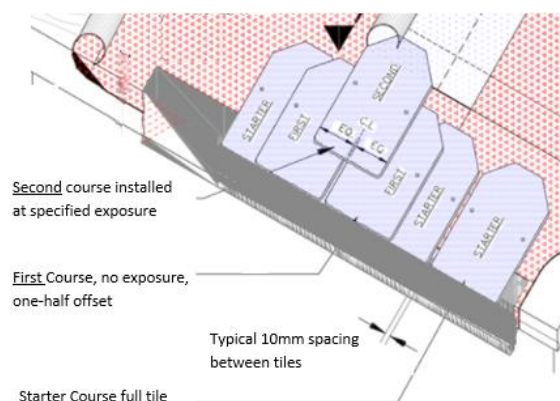
Bending

All tiles must be bent before installing. During shipping or cold storage, tiles may curl or stiffen. **Bending ensures they lay flat** on the roof deck and maintain their shape after fastening.

1. Hold the **top of the tile (textured side up)** with your **right hand**.
2. Hold the **bottom edge** with your **left hand**.
3. Bend the tile **downward in an arching motion** until it maintains a slight curve.
4. This helps the tile **lie flat** when nailed to the roof deck

Starter

Beginning at the eaves, install a row of slate tiles with a minimum of 9.5mm gap between tiles and any protrusions while achieving a 19 mm overhang. Fasten with two EcoStar ring shank fasteners per tile (in location shown on tiles). This layer of tiles will become the starter row. Care must be taken to make sure that the gaps in the starter row do not line up with the gaps in the first exposed row of tiles. Maintain a minimum 51 mm of gap offset. The final tile at roof edges or penetrations must be a minimum of 76 mm wide. This may involve cutting the EcoStar tile to fit. To cut the EcoStar tile to the correct width simply score the front of the tile with a straight edge and utility knife and snap tile at that score. It may be quicker and easier to use a power saw. Any power saw with a blade designed to cut wood can be used to cut the tiles. Install the first course of tiles offset to the starter row. The first course of tiles should be installed flush with the starter row with no exposure.



The Tiles

PRODUCT IDENTIFICATION

This area provides identification of the product and a toll-free contact telephone number for questions or assistance with the product and installation.

IMPORTANT INFORMATION

This area of the tile provides pertinent information about installation and the need to use a trained applicator to install the product.

QUALITY INFORMATION

This area of the tile is used by the production department to denote the date the part was manufactured. This allows tracking of quality by production time. This information may be found on the front or back of the tile.

INSTALLATION MEASUREMENT

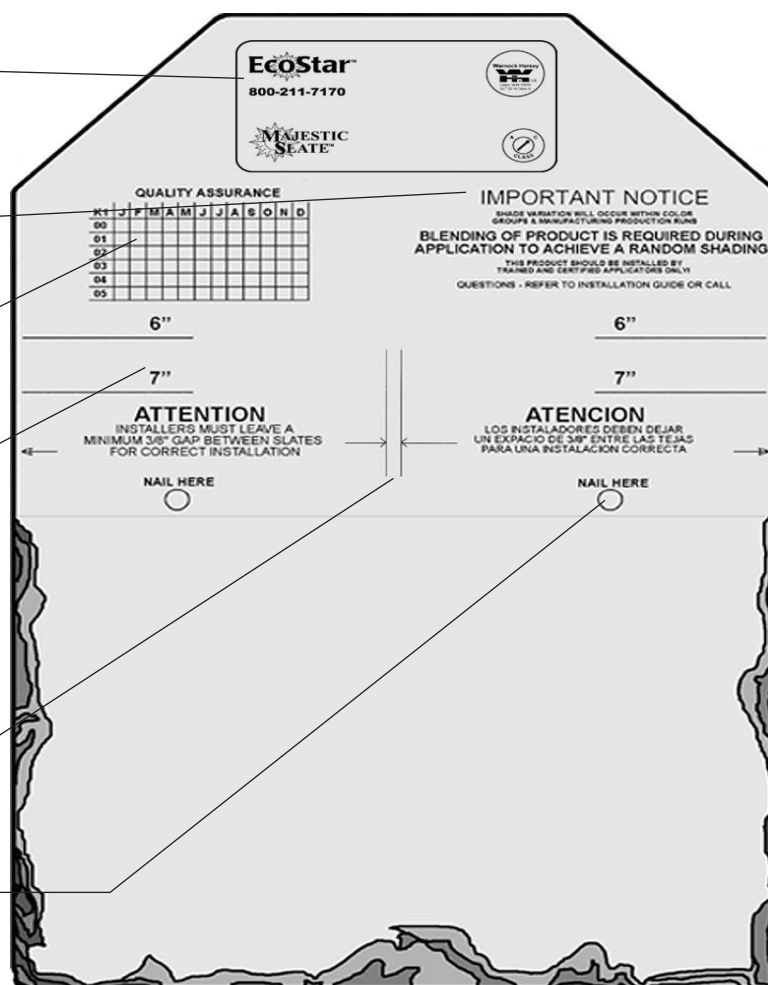
Two marks are molded into every tile. When these marks are placed in alignment with the top edge of the previous row of tiles, proper tile exposure is provided automatically.

GAP

During installation the tiles must be placed at a minimum of 9.5mm apart. Tiles must never be installed directly adjacent to each other. This area of the tile states this in both English and Spanish.

TILE FASTENING

Molded into each tile is a fastener locator. This assists during installation for proper positioning of the fastener.



The Field Tiles

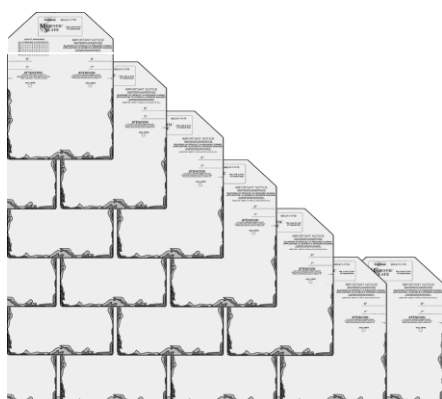
Continue installing rows of tile courses up the roof slope at the correct chosen exposure, ensuring that bond lines are not placed directly over each other. It is recommended that chalk lines be placed horizontally up the roof slope for every tile course. This will ensure that each course is installed parallel with the roof eave. **NEVER** use red chalk, as this will permanently stain the EcoStar roof tiles.

Nails per tiles

While these are the minimum standard, you can use 6-inch exposure and 4 nails for any wind zone for pitch greater than 14°

1. Low and Medium Wind fixing detail: **Two** nails per shingle 7-inch exposure, unless it's a low slope (14° - 26.5°) then 6-inch exposure is required.
2. High and Very-High Wind fixing detail: **Four** nails per shingle* 7-inch exposure, unless it's a low slope (14° - 26.5°) then 6-inch exposure is required
3. Extra -High Wind fixing detail: **FOUR** nails per shingle* 6-inch exposure is required for all slope

Basic layout



Location when using 4 nails per tile.



Valley Install Options - open or closed design

1. With an open valley design leave a minimum of 51 mm on each side of the center of the valley exposed and uncovered by the roof tiles. A V-Style, W-Style, or Double W- Style valley metal may be used.
2. With a closed valley design cut the tiles in a straight line to fit no closer than 9.5 mm against tile of adjoining roof slope.

Install Majestic Slate Hip & Ridge Tiles

1. At all hip locations using a minimum 51 mm stainless steel ring shank, hand-driven EcoStar fastener. EcoStar recommends a chalk line be snapped up the hip line to ensure a straight application up the roof slope. Majestic Slate Hip & Ridge tiles are always installed with 152mm exposure.
2. Install ridge vent system per the detail EC02 (drawing needs to be edited) and then place Majestic Slate Hip & Ridge tiles over the ridge vent. A minimum 64 mm stainless steel ring shank, hand-driven EcoStar fastener should be used when installing Hip & Ridge tiles to the deck. Place fasteners in the location marked on the tile. Majestic Slate Hip & Ridge tiles are always installed with 152mm exposure.

Venting

1. Exhaust venting: Python Roof vents DDE201 are the Vents to be used with EcoStar. Viking Roofspec advises that a ridge-style venting system be utilised to ensure the best possible air movement and to provide a clean aesthetic appearance to the roofing system. If the ridge ventilation system is not used, an alternate venting system must be used; Verification to be provided by the designer.
2. Intake Venting: Intake venting is essential to ensure balanced airflow through the roofing system. This promotes energy efficiency, thermal balancing, moisture control, and extended roof life. See detail EC01 for vented drip edge guidelines, in our EcoStar typical details.

<https://www.vikingroofspec.co.nz/details-documents/shingle-and-tile-roofing/ecostar/>

Sealant

When sealant (DDR013) is required at the gable ends, added adhesion required for small cuts etc; EcoStar primer (DDR015) must be applied to both surfaces.

Penetrations

For roof penetration, pipes etc.; self-adhered underlay must be used around penetration to prevent water ingress. Shingle around the penetration and then install dektite or over flashing.

Precautions

Do not install the Majestic Slate tile roof systems directly over existing asphalt shingles or existing tile roof systems. In the case of existing sawn sarking planks these may remain in place if overlaid with new Plywood or StrandSarking substrate. Existing plywood substrates may be used following confirmation they meet 50-year durability criteria.

- Roofing surface must be free of ice, water, dust, or snow prior to and during the roofing project.
- Decking materials must be dimensionally stable prior to installing the Majestic Slate tiles. If the materials are not dry, EcoStar recommends installing the underlayment and allowing the roof to dry out before installing Majestic Slate tiles.
- Majestic Slate tiles must not be installed if the tiles have been stored in temperatures lower than 7°C. If tiles have been stored in temperatures below 7°C, tiles must be brought back up to temperature. As the temperature rises, Majestic Slate tiles will expand beyond the designed installation pattern if the product is installed while cold or frozen.
- Recommend Minimum 10°C to make installation easier, this may require allowing the sun to slowly bring the tiles up to temperature or to store in a heated warehouse/garage overnight.
- Safety first, always use the correct safety equipment, including working with edge protection. Underlays and tiles can be slippery when wet.
- The Golden rule: BLEND and BEND