



PLEASE REMEMBER TO BEND AND BLEND TILES

Polymeric Slate Tile Roof System

This installation guide is written and provided for the use of professional roofing applicators and EcoStar™ Gold Star Authorized Applicators. Contact the technical department for information on warranty availability and the requirements and benefits of the Gold Star program.

SPECIAL NOTE: Empire Slate™ has been tested and listed by Underwriters Laboratories as a Class A and as a Class C roofing material (UL 790). Empire Slate has been tested and listed by Underwriters Laboratories as a Class 4 impact resistance product (UL 2218). To maintain the requirements of these tests and their listings the roof system must be installed exactly as stated in this installation guide.

WARRANTIES* EcoStar warrants this product to be free of manufactured defects at the time of shipment from EcoStar's factory. EcoStar will at its option either supply new product or pay the reasonable cost of replacement products found to be defective hereunder.

EcoStar's limited warranties are the only warranties extended by EcoStar with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. EcoStar specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever.

The dollar value of EcoStar's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the EcoStar material in question.

SHADE VARIATION All tiles come with a shade variation. This shade variation will occur from pallet to pallet and within individual pallets. Application of the product should not begin until ALL material has been delivered to the project site. Because of this shade variation the applicator must take precautions to insure that the various shades of the product are properly blended. Tiles must be taken from different pallets and bundles to guarantee consistency in application. Natural weathering will produce further shade variations, even in tiles appearing to be identical in color when new.

NOTE: EcoStar will not be responsible for the improper blending or application of the product. Contact EcoStar Customer Service for available factory-blended options.

TEMPERATURE Like all roofing materials, EcoStar tiles are subject to thermal contraction and expansion. To ensure that they are installed at their normal dimensions, materials should be installed at temps of 45°F (7°C) or greater. EcoStar considers any installation when ambient temperatures are below 45°F (7°C) to be a "low temperature installation". If tiles have been stored in temperatures below 45°F (7°C), they must be restored to a temperature above 45°F (7°C) before installation. Ambient temperature should be at least 34°F (1°C) and rising. For assistance with low temperature installations, please contact the technical department.

SUBSTRATE The tiles should only be installed on a minimum of 1/2" (13 mm) plywood decking, 7/16" (11 mm) OSB or minimum 3/4" (19 mm) tongue and groove decking with end gaps not exceeding 1/4" (6 mm). Contact the technical department for approved alternatives. Under all circumstances existing roof materials must be removed down to the deck, prior to installation.

SLOPE Empire Slate is not recommended for slopes less than 3/12 (14°). On roofs less than 4/12 (18.4°) and greater than 3/12 (14°), Empire Slate must be installed with a maximum exposure of 6" (152 mm). On roofs 4/12 (18°) or greater, Empire Slate Traditional tiles may be installed with either a 6" (152 mm) or 7" (178 mm) exposure, while Beveled Edge and Beaver Tail tiles must be installed with a 6" (152 mm) exposure. On slopes of 6/12 (27°) or greater, Empire Slate Traditional tiles can be installed at an 8" (203 mm) exposure, while Beveled Edge and Beaver Tail tiles can be installed with either a 6" (152 mm) or 7" (178 mm) exposure. Empire Slate Chisel Point tiles must always be installed with a 6" (152 mm) exposure.

UNDERLAYMENT Glacier Guard™ or equal must be applied to all eaves, rake edges, hips, valleys, ridges and protrusions. If a Class C roof system has been specified, cover the remaining exposed deck with Aqua Guard™ or equal. If a Class A roof has been specified, GP Gypsum Corporation DensDeck® roof board may be used, or GAF VersaShield underlayment. If VersaShield is used, it must be applied over the entire roof deck, after the installation of the Glacier Guard. Gold Star Warranty* requires the use of the above mentioned EcoStar specified products.

FASTENERS Stainless steel ring shank roofing nails are recommended for application of the tiles. Gold Star Warranty* application requires the use of EcoStar Ring Shank Fasteners. Hand drive and pneumatic coil nails are available.

FLASHING MATERIAL EcoStar recommends that flashing be either copper or stainless steel. Flashing metal, however, is not covered by any EcoStar warranty. Like materials should be used when fastening metal flashings.

SEALANTS If local codes require the use of a shingle sealant, the only material approved for use with EcoStar tiles is Dow Corning 790 silicone sealant.



* See www.ecostarllc.com for available warranties.

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INSTALLATION STEP

EcoStar makes every effort to maintain the quality and consistency of all products, however, shade variations will occur within all tile products.

Due to these shade variations it is extremely important that all members of the installation crew be aware of the fact that tiles must be blended between bundles and pallets. The entire lot of material must be blended evenly in rotation until all material is used. EcoStar recommends that a member of the crew be assigned the responsibility of blending tiles and insuring that no shade patterning or blotching occurs. This can best be accomplished by blending all tiles before beginning installation, and by making periodic inspections of the roof from the ground.

Empire Slate tiles are designed and manufactured to duplicate the look of natural slate.

1. Install **Glacier Guard** in all valleys, eaves, rake edges, hips, ridges and protrusions. **Gold Star Warranty*** application requires the use of **Glacier Guard**.
 2. Install a minimum of 30 lb (13.6 kg) (ASTM D226 Type II or ASTM D4869 Type IV) felt over the remaining area of the deck surface. If a Class C roof is required, the 30 lb (13.6 kg) felt or equal must be UL listed. **Gold Star Warranty*** application requires the use of **EcoStar Aqua Guard** underlayment for a Class C roof system. If a Class A roof is required, install **GAF VersaShield®** or equivalent over the entire deck including areas already covered by the **Glacier Guard**. **Gold Star Warranty*** application requires the use of **GAF VersaShield** for a Class A roof system.
 3. Install metal edging at eaves and rake edges. Any corrosion resistant metal edging is acceptable. Copper and stainless steel are recommended. It should be noted that EcoStar Warranties do NOT cover metal flashing.
- Note:** When using copper and stainless steel flashing material the appropriate corresponding nails should be used.
4. A critical step is **BENDING**. Every tile that is installed must be bent in a downward arch before applying it to the roof deck. Whatever position the tile is in when fastened to the roof deck, is the position it will maintain. It is recommended that each member of the installation crew be instructed on how to bend the tile to insure that it lies flat when fastened to the roof deck. While grabbing the top of the tile (textured side up) with the right hand and the bottom edge of the tile with the left hand, bend the tile in a downward motion until the tile maintains arch. The tiles must be curved under when installing.
 5. Beginning at the eave edge, install a starter row of tiles with two nails per tile (in location shown on tiles). 1½" (38 mm) long stainless steel ring shank roofing nails are recommended. **Gold Star Warranty*** application requires the use of **EcoStar Ring Shank Fasteners**. Maintain a minimum ⅜" (10 mm) gap between starter tiles.
 6. If a pneumatic nailer is utilized for application of the tiles, care should be taken to determine that the proper pressure and depth setting is being used. Nails can be over driven causing tiles to lift diminishing the quality of the installation.
 7. The initial layer of tiles becomes the starter row. This layer will be completely covered by the next row to be installed. The starter row may be installed either front side up or back side up. When the first course of tile is installed, tiles must be offset half a tile to cover the nails from the previous row. A minimum of ⅜" (10 mm) is required between tiles and between tiles and protrusions.

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8. **CAUTION:** Do not install the tiles with an upward curl. Whatever position the tile is in when fastened to the roof deck, it will maintain that position. It is required that each member of the installation crew be instructed on how to bend the tile manually to insure that it lies flat when fastened to the roof deck.
9. As the tiles are installed up the roof, the tile must be cut at rake edges, valleys and projections. The tiles may be cut using a straight edge and a utility or roofing knife. Once the tile has been scored with a knife it can be snapped along the scored line.
10. As the tiles are installed up the roof slope, it is recommended that lines be snapped both horizontally and vertically. The horizontal lines will keep the tiles looking straight and uniform. The vertical lines will keep the space between the tiles in line from row to row. **DO NOT USE RED CHALK. Red chalk will stain the tiles.**
11. **CAUTION:** As the tiles are installed up the slope of the roof, the installation should be constantly checked from the ground to ensure there is no patterning developing and proper blending is occurring. **Gold Star Warranty*** application requires that the Authorized Applicator correct any blending problems prior to issuance of the warranty.
12. Continue to install the tiles up the roof slope. Be sure to place the nails directly in the position noted on the tiles. Stainless steel ring shank nails are recommended. **Gold Star Warranty*** application requires the use of **EcoStar Ring Shank Fasteners**.

When using pneumatic nailing equipment, frequently check both the depth and pressure setting, so nails are not over driven, causing tiles to lift. Lifted tiles will diminish the aesthetic appearance of the finished roof system. The nail should not dent the tile.

For 10" (254 mm) **Empire Slate** tiles, there are two ways to install: 1) the entire project is 10" (254 mm) tile and the installation is the same as the current 12" (305 mm) specification or 2) for a 10" (254 mm) and 12" (305 mm) blend, mix the two sizes together for desired random width look. Take caution when installing to ensure enough coverage past nail heads of previous course.

Tiles can be slippery when wet, caution should be exhibited with early morning dew, frost and after rain. EcoStar suggests the use of toe boards, OSHA approved harnesses and safety equipment at all times.

13. When all tiles have been applied to the roof slopes, the pre-formed Empire Slate Hip & Ridge tiles are applied to all hips and ridges. **Empire Slate Hip & Ridge tiles are always installed with a 6" (152 mm) exposure** with two 2" (51 mm) or 2½" (64 mm) nails per tile. The use of ridge venting systems is highly recommended. Mushroom cap style vents may be used, but ridge venting provides better venting and improves the aesthetic appearance of the roof system. Ridge venting must be installed before installing the Empire Slate Hip & Ridge. When installing over ridge vent, Hip & Ridge tiles are installed with 2½" (64 mm) nails. **Gold Star Warranty*** covers EcoStar EcoVent if used. Note, EcoVent installation instructions should be read in full before project begins.
14. As work progresses up roof slopes, care should be taken to minimize traffic over completed areas of the roof. The tiles will show any mud or dirt tracked across them. This will cause aesthetic issues with the completed appearance of the roof. It is the responsibility of applicator or building owner to remove this mud or dirt. A mild detergent should be used in combination with a bucket of water to remove the mud or dirt. Clean water can then be used to finish the cleaning process. Do not use any chemicals or solvents without first checking with the EcoStar technical department. **EcoStar is not responsible for the cleaning of any 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 on back side

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

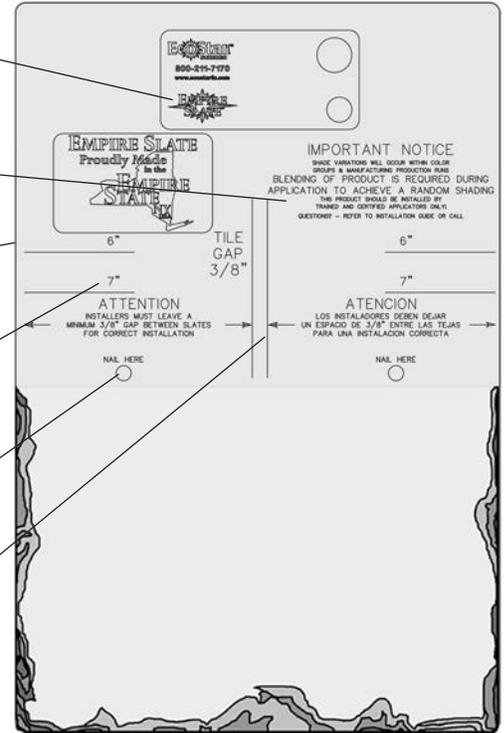
Two marks are molded into every tile. When these marks are placed in alignment with the top edge of the previous row of tiles, proper tile exposure is provided automatically.

TILE FASTENING

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

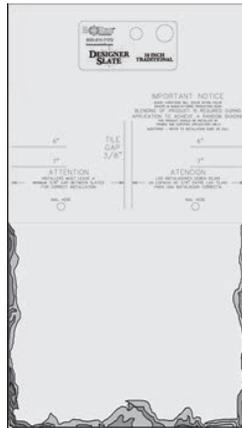
GAP

During installation the tiles must be placed a minimum of 3/8" (10 mm) apart. Tiles must never be installed directly adjacent to each other. This area of the tile states this in both English and Spanish.



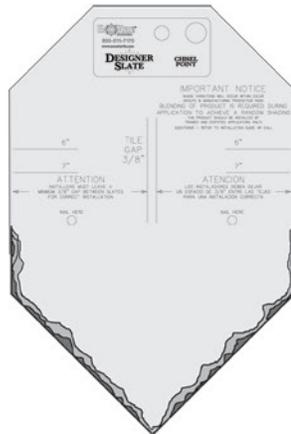
Empire Slate 12" (305 mm) Traditional
 12" wide x 18" long
 (305 mm x 457 mm)

Designer Slate



Empire Slate 10" (254 mm) Traditional

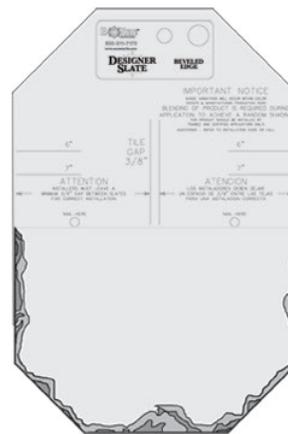
10" x 18" long
 (254 mm x 457 mm)



Empire Slate Chisel Point

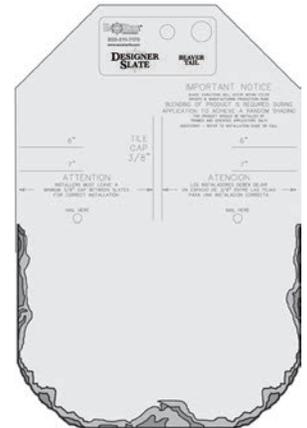
12" wide x 18" long
 (305 mm x 457 mm)

6" (152 mm) exposure only



Empire Slate Beveled Edge

12" wide x 18" long
 (305 mm x 457 mm)



Empire Slate Beaver Tail

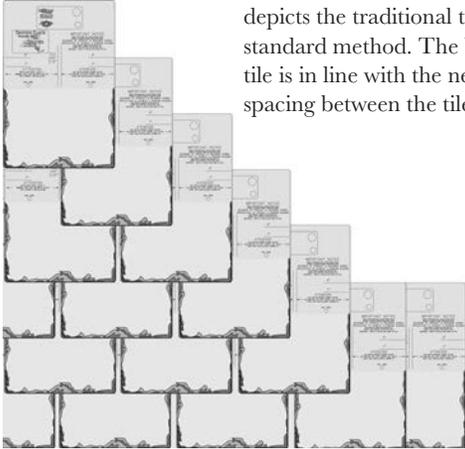
12" wide x 18" long
 (305 mm x 457 mm)

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Empire Slate Traditional Design

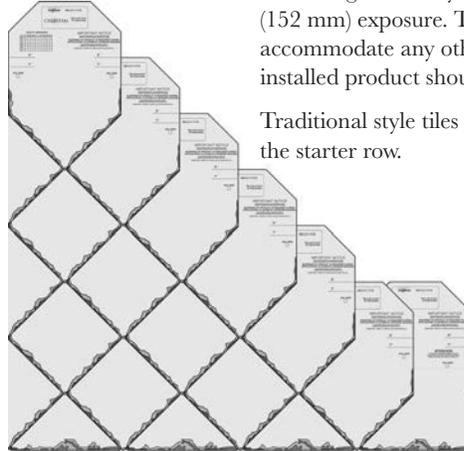
Standard Installation: This drawing depicts the traditional tile installed in the standard method. The bottom edge of each tile is in line with the next and the vertical spacing between the tiles is in line.



Empire Slate Chisel Point Design

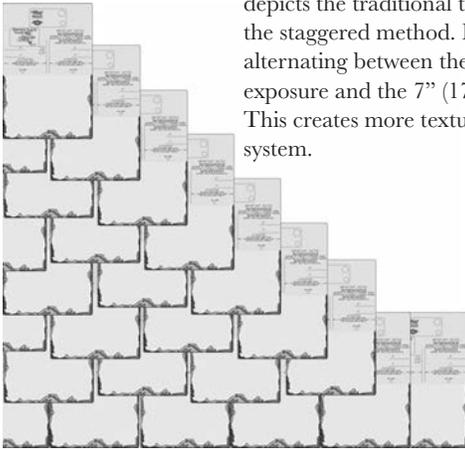
This design can only be put down using a 6" (152 mm) exposure. The design will not accommodate any other exposure. The installed product should look like this drawing.

Traditional style tiles must be used as the starter row.



Empire Traditional Design

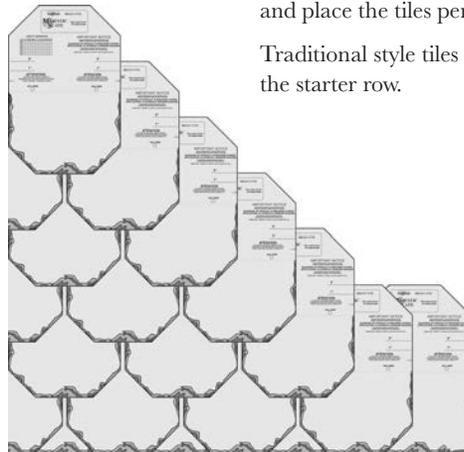
Staggered Installation: This drawing depicts the traditional tile installed using the staggered method. Each tile is installed alternating between the 6" (152 mm) exposure and the 7" (178 mm) exposure. This creates more texture in the roof system.



Empire Slate Beveled Edge Design

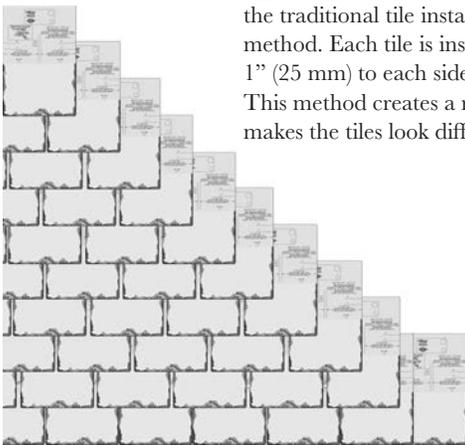
Use the standard installation methods and place the tiles per this drawing.

Traditional style tiles must be used as the starter row.



Empire Slate Traditional Design

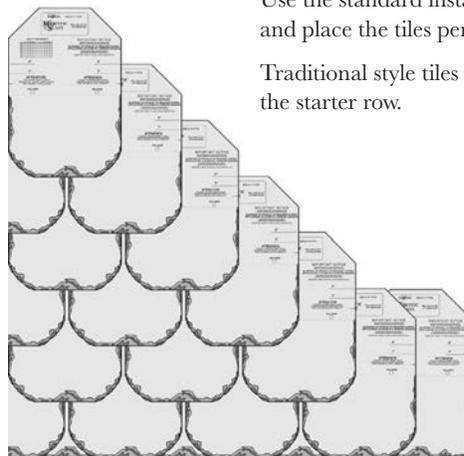
Offset Installation: This drawing depicts the traditional tile installed using the offset method. Each tile is installed by moving it 1" (25 mm) to each side of the center line. This method creates a roof system that makes the tiles look different sizes.



Empire Slate Beaver Tail Design

Use the standard installation methods and place the tiles per this drawing.

Traditional style tiles must be used as the starter row.



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VersaShield is a registered trademark of GAF. DensDeck is a trademark of Georgia Pacific Corporation.

P/N-606002 EMPIRE SLATE INSTALL GUIDE. This installation guide, effective 04/17/2019 supersedes all previous versions.