EcoStar Synthetic Roof Tile Installation Guide

This installation guide is 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: EcoStar tiles are manufactured in two formulas. EcoStar Empire tiles have been tested and listed by Underwriters Laboratories as a Class A and as a Class C roofing material (UL 790). EcoStar Majestic/Seneca tiles have been tested and listed by Underwriters Laboratories as a Class C roofing material (UL 790). All EcoStar tiles have 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

After installing underlayment and before installing the EcoStar tiles, clean the surface of debris and dirt. All EcoStar tiles come with shade variation. EcoStar tiles that have been ordered and supplied to the job site under one EcoStar sales order number are blended at the factory to ensure every bundle has the correct color percentages and equal tile widths. EcoStar recommends that the installing contractor work amongst several bundles and randomly pull tiles from each bundle to ensure that random shading occurs. It is always the responsibility of the applicator to make frequent inspections from the ground or other vantage points to ensure that random shading occurs. Roofers must inspect the roof frequently to prevent customer dissatisfaction.

NOTE: If EcoStar tiles have been supplied to the job site under two or more EcoStar sales order numbers, all tiles must be blended together on-site before installation. Specific blending instructions can be found at www.ecostarllc.com on the "Resource Library" page.

EcoStar will not be held responsible for correcting the appearance of unblended installations. Natural weathering will produce further shade variations, even in tiles appearing to be identical in color when new.

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 15/32" (12 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

The tiles are not recommended for slopes less than 3/12 (14˚). If this is desired, contact the technical department for review. Refer to Quick Estimate Guide on page 3-4 for proper tile exposure dependent on roof slope.

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, or EcoStar-approved alternate. If VersaShield or EcoStar-approved alternate 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. Like materials should be used when fastening metal flashings. Flashing metal is not covered by any EcoStar warranty.

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.

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INSTALLATION STEPS

EcoStar tiles are designed and manufactured to duplicate the look of a real slate, shake, concrete or clay roof tiles.

1. Install Glacier Guard or equal in all valleys, eaves, rake edges, hips, ridges and protrusions. Gold Star Warranty* application requires the use of Glacier Guard or an approved alternate.

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 EcoStar-approved alternate over the entire deck including areas already covered by the Glacier Guard. Gold Star Warranty* application requires the use of GAF VersaShield or EcoStar- approved alternate 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. EcoStar requires all Traditional Slate, Traditional Shake and Designer Tiles to be bent in a downward direction before installation. Shake Plus, Niagara Slate, Niagara Shake, Concrete Flat Tile and Island Groove Clay tiles do not need to be bent.

5. Beginning at the eave edge, install EcoStar Universal Starter Row tiles gapped a minimum 3/8" (9.5mm) between tiles and any protrusions while achieving a ¾" (19mm) overhang. Fasten with three nails per tile in designated "NAIL HERE" locations shown on tiles. Cut starter tiles to maintain at least 2" (51mm) of gap offset. The final tile (at roof edges or penetrations) must be a minimum of 3" (76mm) wide. This may require cutting the EcoStar tiles to fit. To cut the EcoStar tile to the correct width, score the front of the tile with a straight edge and utility knife and snap tile at the score. It may be quicker and easier to use a power saw. Any 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. Stainless steel ring shank roofing nails are recommended. Gold Star Warranty* application requires the use of 1 ½" (38mm) or 1 3/4" (44 mm) EcoStar Ring Shank Fasteners dependent on profile of choice. Maintain a minimum 3/8" (10 mm) gap between starter tiles.

6. When using pneumatic nailing equipment, frequently check 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. The nail should not dent the tile. NOTE: If the Niagara Slate/Concrete/Island Groove tiles are used for the starter row, the top 8" (203 mm) of the tile must be cut off for the starter row tiles only. Use the remaining 14" (356 mm) long tiles for the starter row. Failure to do so will result in the third row of field tiles to kick up. EcoStar Traditional Tiles can be used as starter without any modification.

7. As the tiles are installed up the roof, the tiles must be cut at rake edges, valleys and protrusions. The tiles can be cut using a straight edge and a utility or roofing knife, but it may be quicker and easier to use a power saw. Any blade designed to cut wood will cut the tiles. Cut the tiles so that the cut will be toward the field of the roof away from the rake edge.

8. 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.

9. 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. The warranty does NOT cover the aesthetic appearance of the roof installation. It is the responsibility of the applicator to ensure that color/shading and quality of workmanship meets the aesthetic expectations of the home/building owner.

10. 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.

    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.

11. When all tiles have been applied to the roof slopes, the pre-formed EcoStar Hip & Ridge tiles are applied to all hips and ridges. Stainless steel ring shank nails are recommended. Gold Star Warranty* application requires the use of 2 ½" (64mm) EcoStar Ring Shank Hand Drive Fasteners dependent on profile of choice. Ventilation is recommended but not required for an EcoStar roof assembly. EcoStar advises that a ridge style venting system be utilized to ensure the best possible air movement for the benefit of the roof deck substrate and to provide the best aesthetic appearance to the roofing system. If a ridge ventilation system is not to be used on the project, another form of ventilation may be used. When installing over ridge vent, Hip & Ridge tiles are installed with 2 1/2" (64 mm) nails. Gold Star Warranty* application requires the use of EcoVent when ridge vent is specified in the design of an EcoStar roof assembly with roof slopes between 3/12 and 12/12. Refer to EcoStar EcoVent Technical Data Sheet for further installation instructions. The Hip & Ridge tiles can also be used for the Rake Edge, if desired for aesthetic appearance, but are not required for installation purposes.

12. 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.

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

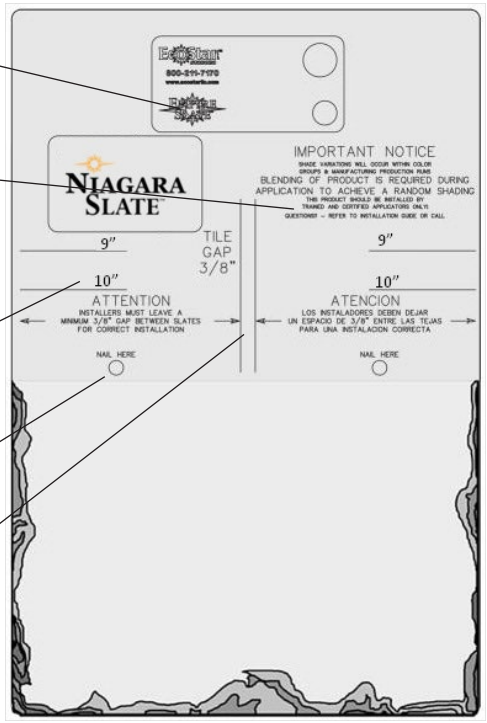
IMPORTANT INFORMATION
This area of the tile provides pertinent information about installation and the need to use a trained applicator to install the product.

QUALITY INFORMATION on back
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 is on the back of the tile.

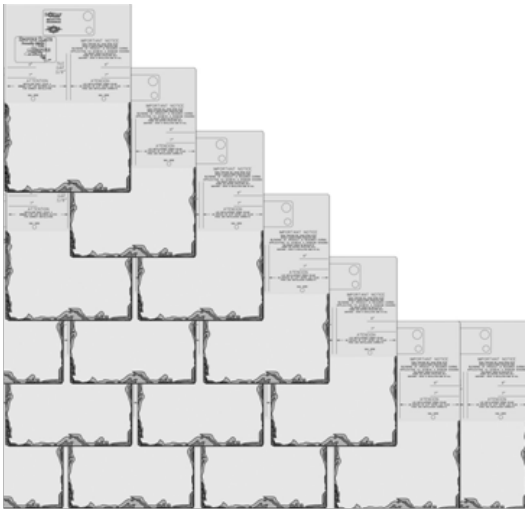
INSTALLATION MEASUREMENT
Two marks are molded into every tile. When these marks are placed in alignment with the top edge of the previous row of tiles, proper tile exposure is provided automatically.

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

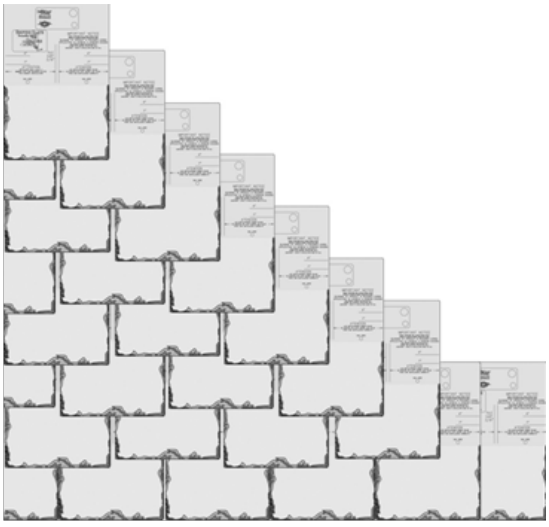
GAP
During installation the tiles must be placed a minimum of 3/8" (10 mm) apart. Tiles must never be installed directly adjacent to each other. This area of the tile states this in both English and Spanish.



Niagara Slate
12" wide x 22" tall
(305 mm x 559 mm)



Standard Installation: This drawing depicts EcoStar tiles 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.



Staggered Installation: This drawing depicts Niagara Slate tiles installed using the staggered method. Each tile is installed alternating between the 9" (229 mm) exposure and the 10" (254 mm) exposure. This creates more texture in the roof system.

Quick Estimate Guide

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Pioneers in Sustainable Roofing Since 1993

	Bundles Per Square					Nails	
	6" Exposure (152 mm)	7" Exposure (178 mm)	8" Exposure (203 mm)	9" Exposure (229 mm)	10" Exposure (254 mm)	Length	Per Bundle
TRADITIONAL SLATE (Standard Shadow Line)							
Traditional Slate 12", Beavertail and Beveled Edge -- Class C	8	6.88				1 1/2"	50
Traditional Slate 10" -- Class C	9.24	7.96					
Chisel Point -- Class C	8						
Random-Width Blend Slate -- Class C	7.4	6.35				1 1/2"	72
Traditional Slate 12"-- Class A	10	8.57	7.5			1 1/2"	40
Traditional Slate 10" -- Class A	12	10.0	9				
Beavertail and Beveled Edge -- Class A	10	8.57					
Chisel Point -- Class A	10						
Random-Width Blend Slate -- Class A	8.9	7.6	6.7			1 1/2"	60
NIAGARA SLATE (Enhanced Shadow Line)							
Niagara Slate 14" -- Class C and A			12.52	11.13	10	1 3/4"	20
Niagara Slate 12" -- Class C and A			14.54	12.86	11.63		
Niagara Slate 10" -- Class C and A			17.35	15.42	13.88		
Niagara Slate Random-Width Blend -- Class C and A			8.08	7.4	6.65	1 3/4"	36
TRADITIONAL SHAKE (Standard Shadow Line)							
Traditional Shake -- Class C	7.41	6.35	5.56			1 1/2"	72
Traditional Shake -- Class A	7.41	6.35	5.56	4.94			
NIAGARA SHAKE (Enhanced Shadow Line)							
Niagara Shake -- Class C and A				7.5	6.76	1 3/4"	48
ASPEN BLEND SHAKE (Varied Shadow Line)							
Aspen Blend Shake and Shake Plus -- Class A	11.11	9.5	8.34	7.4		1 1/2" or 1 3/4"	48
CONCRETE (Enhanced Shadow Line)							
Concrete Flat Tile -- Class C and A			14.54	12.86	11.63	1 3/4"	20
CLAY (Enhanced Shadow Line)							
Island Groove Clay -- Class C and A			14.54	12.86	11.63	1 3/4"	20
HIP & RIDGE							
Traditional Slate and Shake Hip & Ridge	5 lineal ft/ bundle					2 1/2"	20
Niagara Slate, Concrete Flat Tile and Island Groove Clay Hip & Ridge		7.5 lineal ft/bundle				2 1/2"	20

Notes:

- High wind installations require double the number of nails per bundle.
- Roofs with a 6/12 (26.6º), or greater, pitch can be installed at any of the listed exposures.
- This document is for estimating purposes only and does not include waste factor or starter row tile requirements. Actual usage will vary based upon roof configuration.

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EcoStar Gold Star Warranty Tile Exposure and Deck Substrate Requirements

Proper Tile Exposure	Slope			
	3/12 (14º)	4/12 (18.4º)	5/12 (22.6º)	6/12 & Greater (26.6º)
TRADITIONAL SLATE (Standard Shadow Line)				
Traditional Slate 12", 10", Beavertail, Beveled Edge and Random-Width Blend -- Class C	6" (152 mm)			6" (152 mm) 7" (178 mm)
Chisel Point -- Class C and A	6" (152 mm)			
Traditional Slate 12", 10" and Random-Width Blend -- Class A	6" (152 mm)	6" (152 mm) 7" (178 mm)		6" (152 mm) 7" (178 mm) 8" (203 mm)
Beavertail and Beveled Edge -- Class A	6" (152 mm)			6" (152 mm) 7" (178 mm)
NIAGARA SLATE (Enhanced Shadow Line)				
Niagara Slate 10", 12", 14" and Random-Width Blend -- Class C and A	9" (229 mm)	9" (229 mm)	9" (229 mm)	9" (229 mm) 10" (254 mm)
TRADITIONAL SHAKE (Standard Shadow Line)				
Traditional Shake -- Class C	7" (178 mm)	7" (178 mm)	7" (178 mm)	7" (178 mm) 8" (203 mm)
Traditional Shake -- Class A	7" (178 mm)	7" (178 mm) 8" (203 mm)	7" (178 mm) 8" (203 mm)	7" (178 mm) 8" (203 mm) 9" (229 mm)
NIAGARA SHAKE (Enhanced Shadow Line)				
Niagara Shake -- Class C and A	9" (229 mm)	9" (229 mm)	9" (229 mm)	9" (229 mm) 10" (254 mm)
ASPEN BLEND SHAKE (Varied Shadow Line)				
Aspen Blend Shake and Shake Plus -- Class A	7" (178 mm)	7" (178 mm) 8" (203 mm)	7" (178 mm) 8" (203 mm)	7" (178 mm) 8" (203 mm) 9" (229 mm)
CONCRETE (Enhanced Shadow Line)				
Concrete Flat Tile -- Class C and A	9" (229 mm)	9" (229 mm)	9" (229 mm)	9" (229 mm) 10" (254 mm)
CLAY (Enhanced Shadow Line)				
Island Groove Clay -- Class C and A	9" (229 mm)	9" (229 mm)	9" (229 mm)	9" (229 mm) 10" (254 mm)
HIP & RIDGE				
Traditional Slate and Shake H&R -- Class C and A	6" (152 mm)			
Niagara Slate and Concrete H&R -- Class C and A	9" (229 mm)			

Deck Substrate Requirements for Gold Star Warranty:

- Nominal 1/2" (12.7 mm) or thicker plywood
- Nominal 7/16" (11.1 mm) or thicker OSB
- 3/4" (19.1 mm) or thicker tongue and groove or shiplap boards
- Other deck types considered on a case by case basis, contact EcoStar Technical Department

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