

Product Evaluation

RC420 | 0719

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-420

Effective Date: July 1, 2019

Re-evaluation Date: June 2023

Product Name: Empire Slate, Empire Shake and Plus Shake, Empire Niagara Slate Polymer Roof Tiles and Roof Shingles

Manufacturer: EcoStar, LLC
42 Edgewood Drive
Holland, NY 14080
(800) 211-7107

General Description:

EcoStar Empire Slate Products: The EcoStar Empire Slate roof tiles/shingles are manufactured from recycled and virgin polyolefin-based materials. The tiles/shingles are available in Traditional, Beaver Tail, Chisel Point, and Beveled Edge styles. The finished product measure 10" or 12" wide x 18" long x 1/4" thick at the butt end. The Empire products are approximately 3 pounds per square foot when installed.

EcoStar Empire Shake and Plus Shake Products: The EcoStar Empire Shake roof tiles/shingles are manufactured from recycled and virgin polyolefin-based materials. The tiles are available in three mixed sizes: 6", 9", and 12" wide by 19" long. Empire Shake is 3/8" thick and Empire Plus is 3/4" thick at the butt end. The weight of the Shake is approximately 3 pounds per square foot when installed and the weight of the Shake Plus is approximately 6 pounds per square foot when installed.

EcoStar Empire Niagara Slate Products: The EcoStar Empire Niagara Slate roof tiles/shingles are manufactured from recycled and virgin polyolefin-based materials. The tiles/shingles are available in Traditional high-profile slate styles. The finished product measures 12" or 14" wide by 22" long X 5/8" thick at the butt end. The Empire Niagara products are approximately 3 to 3-1/2 pounds per square foot when installed.

Limitations:

Roof Slope: Do not install the products on roof slopes less than 3:12.

Maximum Exposure:

Empire Slate Products: On roofs less than 4:12 and greater than 3:12, Empire Slate must be installed with a maximum exposure of 6". On roofs greater than 4:12 but less than 6:12, Empire Slate Traditional tiles may be installed with either a 6", 6.5" or 7" exposure, while Beveled Edge and Beaver Tail tiles must be installed with a 6" exposure. On roof slopes of 6:12 or greater, Empire Slate Traditional, Beveled Edge and Beaver Tail tiles may be installed with either a 6", 6.5" or 7" exposure. Empire Slate Chisel Point tiles must always be installed with a 6" exposure.

Empire Shake and Plus Shake Products: On roof slopes less than 4:12, the tiles must be installed with a maximum 7" exposure. On roof slopes of 4:12 or greater, the tiles may be installed with a 7", 7.5" or 8" exposure.

EcoStar Empire Niagara Slate Products: On roof slopes less than 6:12, the tiles must be installed with a maximum 9" exposure. On roof slopes of 6:12 or greater, the tiles may be installed with a 9", 9.5" or 10" exposure.

Temperature: The EcoStar shingles should be at least 45 degrees Fahrenheit prior to installation.

Installation:

System		
1	Product	Empire Slate
	Design Pressure	-120.0 psf
	Sheathing	Minimum nominal 5/8" plywood
	Sheathing Attachment	Sheathing secured using 8d ring shank nails, spaced 6" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. Install the remaining roof deck with a minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps in accordance with the manufacturer's normal installation instructions.
Roof Tiles Fastener Location/Spacing	Secure each roof tile using two (2), 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nail through the marked nailing locations. Install tiles with a maximum exposure of 7" in relation to the previous course.	

Installation (Continued):

System		
2	Product	Empire Slate
	Design Pressure	-165.0 psf
	Sheathing	Minimum nominal 5/8" plywood
	Sheathing Attachment	Secure sheathing using 8d ring shank nails, spaced 6" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt install with minimum 2" sidelaps in accordance with the manufacturer's normal installation instructions.
Roof Tiles Fastener Location/Spacing	Secure each roof tile using four (4) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails, 1 each on either side of the marked nailing locations. Install tiles with a maximum exposure of 7" in relation to the previous course.	
3	Product	Empire Slate
	Design Pressure	-93.75 psf
	Sheathing	Minimum nominal 1/2" plywood
	Sheathing Attachment	Sheathing secured using 8d ring shank nails, spaced 6" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck a minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
Roof Tiles Fastener Location/Spacing	Secure each roof tile using two (2) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nail through the marked nailing locations. Install tiles with a maximum exposure of 7" in relation to the previous course.	

Installation (Continued):

System		
4	Product	Empire Slate
	Design Pressure	-127.5 psf
	Sheathing	Minimum nominal 1/2" plywood
	Sheathing Attachment	Secure sheathing using 8d ring shank nails, spaced 4" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, install #30 asphalt felt with minimum 2" sidelaps in accordance with the manufacturer's normal installation instructions.
	Roof Tiles Fastener Location/Spacing	Secure each roof tile using four (4) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails, 1 each on either side of the marked nailing locations. Install tiles with a maximum exposure of 7" relation to the previous course.
5	Product	Empire Shake
	Design Pressure	-97.5 psf
	Sheathing	Minimum nominal 1/2" thick plywood
	Sheathing Attachment	Sheathing secured using 8d coated ring shank nails, spaced 6" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, install #30 asphalt felt with minimum 2" sidelaps in accordance with the manufacturer's normal installation instructions.
	Roof Tiles Fastener Location/Spacing	Secure each roof tile using two (2) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails through the marked nailing locations (two nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.

Installation (Continued):

System		
6	Product	Empire Shake
	Design Pressure	-157.5 psf
	Sheathing	Minimum nominal 1/2" thick plywood
	Sheathing Attachment	Sheathing secured using 8d ring shank nails, spaced 4" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, install #30 asphalt felt with minimum 2" sidelaps in accordance with the manufacturer's normal installation instructions.
	Roof Tiles Fastener Location/Spacing	Secure each roof tile using four (4), 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails, 1 each on either side of the marked nailing locations (four nails per shingle). Install tiles with a maximum exposure of 8" relation to previous course.
7	Product	Empire Shake
	Design Pressure	-105.0 psf
	Sheathing	Minimum nominal 7/16" thick OSB
	Sheathing Attachment	The OSB sheathing is secured using 8d coated ring shank nails, spaced 6" on center at the perimeter, seams, and joists.
	Underlayment	Glacier Guard must be installed in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck a minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
	Roof Tiles Fastener Location/Spacing	Secure each roof tile using two (2), 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails through the marked nailing locations (two nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.

Installation (Continued):

System		
8	Product	Empire Shake
	Design Pressure	-112.5 psf
	Sheathing	Minimum nominal 7/16" thick OSB
	Sheathing Attachment	Secure the OSB sheathing using 8d coated ring shank nails, spaced 4" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
	Roof Tiles Fastener Location/Spacing	Secure each roof tile using four (4) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails through the marked nailing locations (four nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.
9	Product	Empire Shake
	Design Pressure	-123.75 psf
	Sheathing	Minimum Nominal 5/8" thick plywood
	Sheathing Attachment	The plywood sheathing is secured using 8d coated ring shank nails, spaced 6" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
	Roof Tiles Fastener Location/Spacing	Secure each roof tile using two (2) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nail through the marked nailing locations (two nails per shingle). Install tiles with 8" exposure in relation to previous course.

Installation (Continued):

System		
10	Product	Empire Shake
	Design Pressure	-142.5 psf
	Sheathing	Minimum nominal 5/8" thick plywood
	Sheathing Attachment	The plywood sheathing is secured using 8d coated ring shank nails, spaced 4" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
Roof Tiles Fastener Location/Spacing	Secure each roof tile using four (4) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails, 1 each on either side of the marked nailing locations (four nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.	
11	Product	Empire Plus Shake
	Design Pressure	-108.75 psf
	Sheathing	Minimum nominal 1/2" thick plywood
	Sheathing Attachment	Secure the plywood sheathing using 8d coated ring shank nails, spaced 9" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
Roof Tiles Fastener Location/Spacing	Secure each roof tile using two (2), 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nail through the marked nailing locations (two nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.	

Installation (Continued):

System		
12	Product	Empire Plus Shake
	Design Pressure	-165.0 psf
	Sheathing	Minimum nominal 1/2" thick plywood
	Sheathing Attachment	Secure the plywood sheathing using 8d coated ring shank nails, spaced 4" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
Roof Tiles Fastener Location/Spacing	Secure each roof tile using four (4) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails, 1 each on either side of the marked nailing locations (four nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.	
13	Product	Empire Plus Shake
	Design Pressure	-138.75 psf
	Sheathing	Minimum nominal 5/8" thick plywood
	Sheathing Attachment	Secure the plywood sheathing using 8d coated ring shank nails, spaced 6" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
Roof Tiles Fastener Location/Spacing	Secure each roof tile using two (2) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nail through the marked nailing locations (two nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.	

Installation (Continued):

System		
14	Product	Empire Plus Shake
	Design Pressure	-187.5 psf
	Sheathing	Minimum nominal 5/8" thick plywood
	Sheathing Attachment	Secure the plywood sheathing using 8d coated ring shank nails, spaced 4" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
	Roof Tiles Fastener Location/Spacing	Secure each roof tile using four (4) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails, 1 each on either side of the marked nailing locations (four nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.
15	Product	Empire Plus Shake
	Design Pressure	-97.5 psf
	Sheathing	Minimum nominal 7/16" thick OSB
	Sheathing Attachment	Secure the OSB sheathing using 8d coated ring shank nails, spaced 6" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
	Roof Tiles Fastener Location/Spacing	Secure each roof tile using two (2) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nail through the marked nailing locations (two nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.

Installation (Continued):

System		
16	Product	Empire Plus Shake
	Design Pressure	-127.5 psf
	Sheathing	Minimum nominal 7/16" thick OSB
	Sheathing Attachment	The OSB sheathing is secured using 8d coated ring shank nails, spaced 4" on center at the perimeter, seams, and joists.
	Underlayment	Install Glacier Guard in all valleys, eaves, rakes, hips, ridges, and projections. The remaining roof deck a minimum of one layer of ASTM D 226, Type II, #30 asphalt felt with minimum 2" sidelaps must be installed in accordance with the manufacturer's normal installation instructions.
Roof Tiles Fastener Location/Spacing	Secure each roof tile using four (4) 1-1/2" long by 0.12" diameter EcoStar brand ring shank roofing nails, 1 each on either side of the marked nailing locations (four nails per shingle). Install tiles with a maximum exposure of 8" in relation to previous course.	
17	Product	Empire Niagara Slate
	Design Pressure	-63.75 psf
	Sheathing	Minimum nominal 15/32" thick plywood
	Sheathing Attachment	15/32" plywood sheathing installed over No. 2 lumber supports spaced 24" o.c. Decking attached with 0.113" x 2-3/8" ring shank nails spaced 6" o.c. along the perimeter and intermediate supports.
	Underlayment	ASTM D 226 Type II felt installed with a minimum 4" side-lap and 6" end-laps and fastened using 12-gauge, 1-1/4" ring shank nails and 32-gauge, 1-5/8" tin cap spaced 6" on center along the laps and two staggered rows 12" o.c. in the field.
Roof Tiles Fastener Location/Spacing	Two (2) 1-3/4" long by 0.120" diameter 304 stainless steel, ring shank roofing nails. One nail is placed at each of the two pre-marked locations. The slates are installed with 10" exposure and 3/8" gap between adjacent slates; courses are offset 7".	

Installation (Continued):

System		
18	Product	Empire Niagara Slate
	Design Pressure	-97.5 psf
	Sheathing	Minimum nominal 15/32" thick plywood
	Sheathing Attachment	15/32" plywood sheathing installed over No. 2 lumber supports spaced 24" o.c. Sheathing attached with 0.113" x 2-3/8" ring shank nails spaced 6" o.c. along the perimeter and intermediate supports.
	Underlayment	ASTM D 226 Type II felt installed with a minimum 4" side-lap and 6" end-laps and fastened using 12-gauge, 1-1/4" ring shank nails and 32-gauge, 1-5/8" tin cap spaced 6" on center along the laps and two staggered rows 12" o.c. in the field.
	Roof Tiles Fastener Location/Spacing	Four (4) 1-3/4" long by 0.120" diameter 304 stainless steel, ring shank roofing nails. The two (2) nails are spaced 1" apart at each of the two pre-marked locations. The slate is installed with 10" exposure and 3/8" gap between adjacent slates; courses are offset 7".
19	Product	Empire Niagara Slate
	Design Pressure	-86.25 psf
	Sheathing	Minimum nominal 19/32" thick plywood
	Sheathing Attachment	19/32" plywood sheathing installed over No. 2 lumber supports spaced 24" o.c. Sheathing attached with 0.113" x 2-3/8" ring shank nails spaced 6" o.c. along the perimeter and intermediate supports.
	Underlayment	ASTM D 226 Type II felt installed with a minimum 4" side-lap and 6" end-laps and fastened using 12 gauge, 1-1/4" ring shank nails and 32-gauge, 1-5/8" tin cap spaced 6" on center along the laps and two staggered rows 12" o.c. in the field.
	Roof Tiles Fastener Location/Spacing	Two (2) 1-3/4" long by 0.120" diameter 304 stainless steel, ring shank roofing nails. One nail is placed at each of the two pre-marked locations. The slate is installed with 10" exposure and 3/8" gap between adjacent slates; courses are offset 7".

Installation (Continued):

System		
20	Product	Empire Niagara Slate
	Design Pressure	-112.5 psf
	Sheathing	Minimum nominal 19/32" thick plywood
	Sheathing Attachment	19/32" plywood sheathing installed over No. 2 lumber supports spaced 24" o.c. Sheathing attached with 0.113" x 2-3/8" ring shank nails spaced 6" o.c. along the perimeter and intermediate supports.
	Underlayment	ASTM D 226 Type II felt installed with a minimum 4" side-lap and 6" end-laps and fastened using 12-gauge, 1-1/4" ring shank nails and 32-gauge, 1-5/8" tin cap spaced 6" on center along the laps and two staggered rows 12" o.c. in the field.
	Roof Tiles Fastener Location/Spacing	Four (4), 1-3/4" long by 0.120" diameter 304 stainless steel, ring shank roofing nails. Two (2) nails are spaced 1" apart at each of the two pre-marked locations. The slates are installed with 10" exposure and 3/8" gap between adjacent slates; courses are offset 7".
21	Product	Empire Niagara Slate
	Design Pressure	-82.5 psf
	Sheathing	Minimum nominal 7/16" thick OSB Sheathing
	Sheathing Attachment	7/16" OSB sheathing installed over No. 2 lumber supports spaced 24" o.c. Sheathing attached with 0.113 x 2-3/8" ring shank nails spaced 6" o.c. along the perimeter and intermediate supports.
	Underlayment	ASTM D 226 Type II felt installed with a minimum 4" side-lap and 6" end-laps and fastened using 12-gauge, 1-1/4" ring shank nails and 32-gauge, 1-5/8" tin cap spaced 6" on center along the laps and two staggered rows 12" o.c. in the field.
	Roof Tiles Fastener Location/Spacing	Four (4), 1-3/4" ring shank roofing nails in each slate. Two (2) nails are spaced 1" apart at each of the two pre-marked locations. The slate is installed with 10" exposure and 3/8" gap between adjacent slates; courses are offset 7".

Note: The manufacturer's installation instructions must be available on the job site during installation. Use corrosion resistant fasteners as specified in the IRC, IBC, and the Texas Revisions.