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ICC-ES Evaluation Report

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This report is subject to renewal 01/2020.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 30 05—ROOFING FELT AND UNDERLAYMENT

REPORT HOLDER:

DORKEN SYSTEMS INC.

EVALUATION SUBJECT:

**DELTA®-ROOF, DELTA®-VENT S, DELTA®-VENT S PLUS, DELTA®-FOXX,
AND DELTA®-FOXX PLUS**



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REPORT HOLDER:

DORKEN SYSTEMS INC.

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1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2018, 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2018, 2015, 2012 and 2009 *International Residential Code*® (IRC)

Properties evaluated:

- Physical properties
- Ice barrier

1.2 Evaluation to the following green standards:

- 2015, 2012 and 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

- See Section 2.0

2.0 USES

DELTA®-ROOF, DELTA®-FOXX, DELTA®-FOXX PLUS, DELTA®-VENT S AND DELTA®-VENT S PLUS are synthetic roofing underlayments for use as alternatives to the ASTM D 226, Type 1 and Type II, roofing underlayment specified in IBC Chapter 15 and IRC Chapter 9.

DELTA®-ROOF may also be used as an alternative to the ice barrier required by IBC Chapter 15 and IRC Chapter 9.

The attributes of the DELTA®-ROOF underlayment have been verified as conforming to the requirements of (i) ICC 700-2015 and ICC 700-2012 Sections 602.1.13, 11.602.1.13 and 12.5.602.1.14; and (ii) ICC 700-2008 Section 602.10 for ice barriers. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and

the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.0 DESCRIPTION

3.1 DELTA®-ROOF:

DELTA®-ROOF is a five-layer synthetic underlayment consisting of two polypropylene spun fiber (nonwoven) outer layers, two extruded polypropylene film inner layers and a polypropylene woven mesh in the middle. The underlayment has a nominal weight of 4.5 pounds per 100 square feet (220 g/m²) and is produced in rolls 4.9 feet (1.5 meters) wide and 164 feet (50 meters) long.

3.2 DELTA®-FOXX:

DELTA®-FOXX is a synthetic underlayment consisting of a thermo-bonded polyester, nonwoven layer, coated on one side with an acrylic coating. The underlayment has a nominal weight of 5.5 pounds per 100 square feet (270 g/m²) and is produced in rolls 4.9 feet (1.5 meters) wide and 164 feet (50 meters) long.

3.3 DELTA®-VENT S:

DELTA®-VENT S is a three-layer synthetic underlayment consisting of polypropylene spun fiber (nonwoven) inner and outer layers and a polypropylene film center layer. The underlayment has a nominal weight of 2.9 pounds per 100 square feet (143 g/m²) and is produced in rolls 4.9 feet (1.5 meters) wide and 164 feet (50 meters) long.

3.4 DELTA®-FOXX PLUS:

Delta®-Foxx Plus is the same membrane as DELTA®-FOXX, described in Section 3.2, except for a self-adhesive strip to aid installation of the membrane. The adhesive strip does not replace mechanical fasteners required by the code for installation.

3.5 DELTA®-VENT S PLUS:

Delta®-Vent S Plus is the same membrane as DELTA®-VENT S, described in Section 3.3, except for a self-adhesive strip to aid installation of the membrane. The adhesive strip does not replace mechanical fasteners required by the code for installation.

4.0 INSTALLATION

4.1 General:

Installation of the underlayments must comply with the applicable code, this report and the report holder's published installation instructions. The installation instructions must be available at the jobsite at all times during installation.

Prior to application of the underlayment, the deck surface must be free of frost, dust, dirt, loose nails and other protrusions. Damaged sheathing must be replaced.

Installation of an approved roof covering can proceed immediately following application of the roofing underlayment. The underlayment must be covered by the roof covering within the time period set forth in the report holder's published installation instructions.

For reroofing applications, the same procedures apply after removal of the existing shingles and roofing felts to expose the roof deck.

4.2 Application:

The underlayment must be installed in accordance with IBC Chapter 15 or IRC Chapter 9, laid printed side up horizontally (parallel to the eave) starting at the lower edge of the roof, with 6-inch (152 mm) horizontal (head) laps and 8-inch (203 mm) vertical (end) laps for roof slopes between 2:12 and 4:12 (16.67% and 33.33%) or with 4-inch (102 mm) horizontal (head) laps and 6-inch (152 mm) vertical (end) laps for roof slopes greater than 4:12 (33.33%). Overlaps must run with the flow of water in a shingling manner.

The underlayment must be fastened to the roof deck using No. 12 gage [0.109-inch (2.77 mm)] shank diameter or No. 14 gage [0.083-inch (2.11 mm)] shank diameter, corrosion-resistant roofing nails, having minimum 1-inch-diameter (25.4 mm) plastic or metal caps. The fasteners must be spaced 12 inches (305 mm) on center at vertical and horizontal laps, and 24 inches (610 mm) on center vertically and horizontally in a staggered pattern in the field of the underlayment, except in areas subject to high winds where underlayment fastening must comply with high wind attachment requirements specified in 2018 IBC Section 1507.1.1, 2018 and 2015 IRC Section R905.1.1, 2015 2012, 2009 or 2006 IBC Section 1507, or 2012, 2009 and 2006 IRC Section R905, as applicable. Fasteners must be long enough to penetrate into the sheathing a minimum of $\frac{3}{4}$ inch (1901 mm) or through the sheathing, whichever is less. When battens are installed over the underlayment, the underlayment need only be preliminarily attached pending attachment of the battens or counterbattens.

4.3 Ice Barrier:

When DELTA®-ROOF is installed in areas of the roof required to have an ice barrier under IBC Chapter 15 or IRC Chapter 9, a single layer of the underlayment must be applied in sufficient courses to extend from the eave edge for a minimum distance of 24 inches (610 mm) inside the exterior wall line of the building. The roofing underlayment, in the field of the roof, must overlap the ice barrier.

When DELTA®-FOXX or Delta®-Vent S is installed in areas of the roof required to have an ice barrier under IBC Chapter 15 or IRC Chapter 9, two layers of the underlayment must be cemented together with a roofing cement complying with ASTM D4586 and acceptable to Dorken Systems Inc. and applied in sufficient courses to extend from the eave edge for a minimum of 24 inches (610 mm) inside the exterior wall line. The roofing underlayment, in the field of the roof, must overlap the ice barrier.

4.4 Flashing:

Flashing must be in accordance with the applicable code. Flashing around protrusions must be over the lower course of the underlayment and under the upper course of the underlayment, to prevent water backup. When used, metal drip edges must be installed beneath the underlayment at

the eaves and over the underlayment at rakes. Drip edges must be mechanically fastened at a maximum of 12 inches (305 mm) on center.

5.0 CONDITIONS OF USE

The roof underlayments described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the applicable code and the report holder's published installation instructions. In the event of a conflict between the report holder's published installation instructions and this report, this report governs.
- 5.2 Installation must be limited to roofs with a minimum slope of 2:12 (17 percent) or to the minimum slope required for the roof covering in accordance with the applicable code, whichever is greater.
- 5.3 Installation is limited to use with roof coverings that do not involve hot asphalt or coal-tar pitch.
- 5.4 Installation is limited to solid substrates complying with the applicable code.
- 5.5 Installation is limited to use with approved roof coverings that are mechanically fastened through the underlayment to the sheathing or rafters, or to use with approved roof coverings that are mechanically fastened to battens or counterbattens that are mechanically fastened through the underlayment to the sheathing or rafters.
- 5.6 Installation is limited to roofs with ventilated attic spaces in accordance with the requirements of the applicable code.
- 5.7 Installation is limited to structures located in areas where nonclassified roof coverings are permitted or as a component of a classified roofing assembly when specifically recognized as such in a listing approved by the code official.
- 5.8 The underlayments are manufactured in Herdecke, Germany, under a quality control program with inspections by ICC Evaluation Service, LLC.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Roof Underlayments (AC188), dated February 2012 (editorially revised May 2018).
- 6.2 Data in accordance with Section 3.1.2 of the ICC-ES Acceptance Criteria for Self-adhered Roof Underlayments for Use as Ice Barriers (AC48), dated February 2012 (editorially revised May 2018) for DELTA®-ROOF.

7.0 IDENTIFICATION

- 7.1 Each roll of underlayment is labeled with the report holder's name (Dorken Systems Inc.) and address, the name of the product and the evaluation report number (ESR-2625).
- 7.2 The report holder's contact information is the following:

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