



# ICC-ES Evaluation Report

## ESR-4709

Reissued October 2021

This report is subject to renewal October 2022.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**Section: 07 30 05—Roofing Felt and Underlayment**

**REPORT HOLDER:**

**TRI-STATE FOREST PRODUCTS INC**

**EVALUATION SUBJECT:**

**TRISHIELD AND TRISHIELD PLUS SYNTHETIC ROOFING UNDERLAYMENTS**

**1.0 EVALUATION SCOPE**

**Compliance with the following codes:**

- 2018, 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2018, 2015, 2012 and 2009 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

**Properties evaluated:**

- Physical properties
- Fire classification (Trishield Synthetic Roof Underlayment)

**2.0 USES**

Trishield and Trishield Plus Synthetic Roofing Underlayments are alternatives to the ASTM D226, Type I and Type II, roofing underlayment specified in Chapter 15 of the IBC and Chapter 9 of the IRC.

**3.0 DESCRIPTION**

Trishield Plus Synthetic Roofing Underlayment is a woven polypropylene fabric with a spun bonded fabric adhered on the top side. The underlayment has a nominal weight of 2.8 ounces per square yard (95 g/m<sup>2</sup>).

Trishield Synthetic Roofing Underlayment is a woven polypropylene fabric with spun-bonded fabric as the top side and non-skid coating on the bottom side. The underlayment has a nominal weight of 2.89 ounces per square yard (98 g/m<sup>2</sup>).

**4.0 DESIGN AND INSTALLATION**

**4.1 General:**

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

Prior to application of the underlayment, the roof deck surface must be free of frost, dust and 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. For reroofing applications, the same procedures apply after removal of the existing roof covering and roofing felts to expose the roof deck.

**4.2 Application:**

The underlayment must be laid printed side up horizontally (parallel to the eave) starting at the lower edge of the roof, with 4-inch (102 mm) horizontal (head) laps and 12-inch (305 mm) vertical (end) laps.

The underlayment must be fastened to the roof deck using minimum No. 12 gage shank diameter [0.109-inch (2.77 mm)], corrosion-resistant roofing nails having minimum 1-inch-diameter (25.4 mm) plastic caps. The fasteners must be spaced 8 inches (203 mm) on center at vertical and horizontal laps, except in areas subject to high winds where underlayment fastening must comply with the high wind attachment requirements described in IBC Section 1507 or IRC Section R905 for applicable roof covering. Fasteners must be long enough to penetrate into the sheathing a minimum of 3/4 inch (19.1 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.

Trishield and Trishield Plus Synthetic Roofing Underlayments must be extended 12 inches (305 mm) past all hips and valleys with no joints or seams.

Where the underlayment is installed on slopes greater than 2:12 and less than 4:12, the underlayment must be installed with two layers. A minimum 19-inch-wide (483 mm) strip of underlayment is installed parallel with and starting at the eave, and 36-inch-wide (914 mm) sheets of underlayment overlap successive sheets 19 inches

(483 mm). The use of stapling is sufficient, and fastening can be through both layers.

#### 4.3 Ice Barrier:

In areas of the roof required to have an ice barrier under Chapter 15 of the IBC or Chapter 9 of the IRC, two layers of the underlayment must be cemented together with a roofing cement complying with ASTM D4586, for a minimum distance of 24 inches (610 mm) inside the exterior wall line of the building. The synthetic roof 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.

#### 4.5 Roof Classification:

The Trishield Synthetic Roof Underlayment may be used as a component of classified roof assemblies consisting of Class A or Class C asphalt glass fiber mat shingles or Class C asphalt organic felt shingles complying with the applicable code, when installed in accordance with this report over a minimum  $\frac{3}{8}$ -inch-thick (9.5 mm) plywood deck.

Trishield Plus Synthetic Roof Underlayment installation is limited to use on structures located in areas where nonclassified roof coverings are permitted, or to use as a component of a classified roofing assembly when specifically recognized as such in a listing approved by the code official.

### 5.0 CONDITIONS OF USE

The Trishield and Trishield Plus Synthetic Roofing 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 manufacturer's published installation instructions, and the applicable code. In the event of conflict between the published installation instructions and this report, this report governs.
- 5.2 Installation is limited to roofs with a minimum slope of 2:12 (17 percent slope) or to the minimum slope required for the roof covering, 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 The products are manufactured in Silvassa, India, under a quality-control program with inspections by ICC-ES.

### 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 ASTM E108, as modified by Section 3.3 of AC188, for Trishield Plus Synthetic Roof Underlayment.

### 7.0 IDENTIFICATION

7.1 Each roll of the product described in this report must be marked with the Tri-State Forest Products Inc name, the product name (Trishield Synthetic Roofing Underlayment or Trishield Plus Synthetic Roof Underlayment), the manufacturing address, and the evaluation report number (ESR-4709).

7.2 The report holder's contact information is the following:

**TRI-STATE FOREST PRODUCTS INC**  
**2105 SHERIDAN AVENUE**  
**SPRINGFIELD, OHIO 45505**  
**(937) 323-6325**  
[www.tsfpi.com](http://www.tsfpi.com)

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**Section: 07 30 05—Roofing Felt and Underlayment**

**REPORT HOLDER:**

TRI-STATE FOREST PRODUCTS

**EVALUATION SUBJECT:**

TRISHIELD AND TRISHIELD PLUS SYNTHETIC ROOFING UNDERLAYMENTS

**1.0 REPORT PURPOSE AND SCOPE**

**Purpose:**

The purpose of this evaluation report supplement is to indicate that Trishield and Trishield Plus Synthetic Roofing Underlayments, described in the ICC-ES evaluation report ESR-4709, have also been evaluated for compliance with the code editions noted below.

**Applicable code editions:**

- 2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of the State Architects (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2019 *California Residential Code* (CRC)

**2.0 CONCLUSIONS**

**2.1 CBC:**

The Trishield and Trishield Plus Synthetic Roofing Underlayments, described in Sections 2.0 through 7.0 of the ICC-ES evaluation report ESR-4709, comply with CBC Chapter 15, provided the design and installation are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapter 15, as applicable.

**2.1.1 OSHPD:** The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

**2.1.2 DSA:** The applicable DSA Sections of the CBC are beyond the scope of this supplement.

**2.2 CRC:**

The Trishield and Trishield Plus Synthetic Roofing Underlayments, described in Sections 2.0 through 7.0 of the ICC-ES evaluation report ESR-4709, comply with CRC Chapter 9, provided the design and installation are in accordance with the 2018 *International Residential Code*® (IRC) provisions noted in the master report and the additional requirements of CRC Chapter 9, as applicable.

This supplement expires concurrently with the evaluation report, reissued October 2021.

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## Applicable code editions:

- 2017 Florida Building Code—Building
- 2017 Florida Building Code—Residential

## 2.0 CONCLUSIONS

The Trishield and Trishield Plus Synthetic Roofing Underlayments, described in Sections 2.0 through 7.0 of the evaluation report ESR-4709, comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*, provided the design is in accordance with the 2015 *International Building Code*® provisions noted in the evaluation report. Installation must be in accordance with Section 1507.1.1 of the *Florida Building Code—Building* or Section R905.1.1 of the *Florida Building Code—Residential*, as applicable.

Use of the Trishield and Trishield Plus Synthetic Roofing Underlayments for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

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