

ICC-ES Evaluation Report

ESR-1601

Reissued November 2024


This report also contains:

- [CA Supplement](#)

Subject to renewal November 2026

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

Copyright © 2024 ICC Evaluation Service, LLC. All rights reserved.

<p>DIVISION: 07 00 00— THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 30 05— Roofing Felt and Underlayment</p>	<p>REPORT HOLDER:</p> <p>ALPHA PROTECH ENGINEERED PRODUCTS, INC.</p>	<p>EVALUATION SUBJECT:</p> <p>REX™ SYN FELT, REXTREME, TECHNOPLY AND TECHNO SB 50 SYNTHETIC ROOF UNDERLAYMENTS</p>	
--	--	--	---

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 [International Building Code® \(IBC\)](#)
- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 [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

1.2 Evaluation to the following green standards:

- 2022 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 [National Green Building Standard™](#) (ICC 700-2020, ICC 700-2015, ICC 700-2012, and ICC 700-2008)

Attributes verified:

- See Section 2.0

2.0 USES

REX™ SynFelt, REXtreme, TECHNOply and TECHNO SB 50 synthetic roofing underlayments are alternatives to the ASTM D226, Type I and Type II, roofing underlayment specified in IBC Chapter 15 and IRC Chapter 9. The underlayments are also used as components of classified roofing assemblies when installed as described in this report.

The attributes of REX™ SynFelt, REXtreme, TECHNOply and TECHNO SB 50 synthetic roofing underlayments have been verified as conforming to the requirements of (i) ICC 700-2020 Sections 602.1.13, 11.602.1.13, 1202.9 and 13.104.1.7; (ii) ICC 700-2015 and ICC 700-2012 Sections 602.1.13, 11.602.1.13 and 12.5.602.1.14; (iii) ICC 700-2008 Section 602.10; and (iv) 2022 CALGreen Section A4.407.5 for ice barriers when installed in accordance with Section 4.3 of this report. 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 REX™ SYN FELT, REXTREME and TECHNOPLY:

The roof underlayments consist of a woven polypropylene fabric with a polypropylene coating on each side. The REX™ SynFelt, REXtreme and TECHNOply synthetic underlayments have nominal weights, respectively, of 2.56 pounds per 100 square feet (125 g/m²), 2.97 pounds per 100 square feet (145 g/m²), and 2.05 pounds per 100 square feet (100 g/m²), and are produced in rolls of various colors and sizes.

3.2 TECHNO SB 50:

The roof underlayment consists of a woven polypropylene fabric with a polypropylene coating on the bottom side and nonwoven spun bond surface on the top side. The TECHNO SB 50 synthetic underlayment has nominal weight of 2.05 pounds per 100 square feet (100 g/m²) and is produced in rolls of various colors and sizes.

4.0 DESIGN AND INSTALLATION

4.1 General:

Installation must comply with the applicable code, this report and the report holder's published installation instructions. The report holder'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. The underlayment is to be covered by the roof covering within the time set forth in the report holder's published installation instructions, except when installed using staples where the roof covering is to be installed immediately following the underlayment application. For reroofing applications, the same procedures apply after removal of the existing roof covering and roofing felts to expose the roof deck.

4.2 Applications:

The underlayment must be installed in accordance with IBC Chapter 15 or IRC Chapter 9, and must be laid printed side up horizontally (parallel to the eave) starting at the lower edge of the roof, with 3-inch (76 mm) horizontal (head) laps and 6-inch (152 mm) vertical (end) laps.

The underlayment must be fastened to the roof deck using No. 12 gage [0.109-inch (2.77 mm)] shank diameter, corrosion-resistant roofing nails having minimum 1-inch-diameter (25.4 mm) plastic caps; or 1-inch-long (25.4 mm) No. 14 gage [0.083-inch (2.11 mm)] shank diameter, corrosion-resistant ring shank roofing nails with minimum 1-inch-diameter (25.4 mm) plastic caps; or ⁷/₈-, 1¹/₄- or 1¹/₂-inch-long (22.2, 31.8 or 38.1 mm) No. 18 gage [0.038-inch-thick x 0.050-inch-wide (0.97 mm x 1.27 mm) rectangular legs] corrosion-resistant staples having minimum ⁷/₁₆-inch crowns (11.1 mm) with minimum 1-inch-diameter (25.4 mm) plastic 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 2024, 2021 and 2018 IBC Section 1507.1.1, 2024, 2021, 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 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.

A single layer of minimum 24-inch-wide (610 mm) underlayment must be installed and centered vertically at all valleys before underlayment in the field, and at all hips and ridges after underlayment in the field.

Where the slope is from 2:12 (17 percent slope) up to 4:12 (33 percent slope) and the roof is to be covered with asphalt shingles, or where the slope is from 2¹/₂:12 (21 percent slope) up to 4:12 (33 percent slope) and the roof is to be covered with concrete or clay roof tiles, the underlayment must be horizontally lapped 24 inches (610 mm) to the centerline of the underlying course to form two layers with 6-inch (152 mm) vertical laps. Seams in laps must be sealed with adhesives complying with ASTM D4586, Type 1. Subsequent courses of underlayment must be installed parallel to the eave, from the lower edge upwards to the ridge, in a shingle manner. The underlayment must be mechanically fastened as specified in Section 4.2.

4.3 Ice Barrier:

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, for a minimum

distance of 24 inches (610 mm) inside the exterior wall line of the building. The 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. Drip edges must be mechanically fastened at a maximum of 12 inches (305 mm) on center.

4.5 Classified Roofs:

Under the 2024, 2021, 2018, 2015, 2012 and 2009 IBC and IRC, the roofing underlayments may be used as components of classified roof assemblies consisting of Class A or C glass fiber mat shingle or Class C asphalt organic felt shingle complying with the applicable code, when installed in accordance with this report over a minimum ¹⁵/₃₂-inch-thick (11.9 mm) plywood deck.

Under the 2006 IBC, the underlayment may be used in Class A or Class B roof assemblies that utilize the roof coverings specified in the exception to Sections 1505.2 and 1505.3. Under the 2006 IRC, the underlayment may be used with roof coverings of brick, masonry, slate, clay or concrete roof tile, concrete roof deck, ferrous or copper shingles or sheets, and metal sheets and shingles where such roof coverings are permitted to be used in lieu of a Class A assembly under Section R902.1.

5.0 CONDITIONS OF USE:

The REX™ SynFelt, REXtreme, TECHNOply and TECHNO SB 50 synthetic 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 and the report holder'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 must be limited to roofs with a minimum slope of 2:12 (17 percent slope) or to the minimum slope required for the roof covering in accordance with the applicable code, whichever is greater.
- 5.3 Installation must be limited to use with roof coverings that do not involve hot asphalt or coal-tar pitch.
- 5.4 Installation must be limited to solid substrates complying with the applicable code.
- 5.5 Installation must be 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 must be limited to roofs with ventilated attic spaces in accordance with the requirements of the applicable code.
- 5.7 The products are manufactured in Valdosta, Georgia, 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 2023 (editorially revised April 2024).
- 6.2 Report of testing in accordance with ASTM E108 (UL 790).

7.0 IDENTIFICATION

- 7.1 Each roll of the product described in this report is marked with the manufacturer's name (Alpha ProTech Engineered Products, Inc.) and address, the product name, the date of manufacture, and the evaluation report number (ESR-1601).

Alternatively, each roll of the product described in this report is marked with the additional listee's brand name (Repel) and address, the product name (See [Table 1](#) of this report), the date of manufacture, and the evaluation report number (ESR-1601).

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

ALPHA PROTECH ENGINEERED PRODUCTS, INC.
301 SOUTH BLANCHARD STREET
VALDOSTA, GEORGIA 31601
(229) 242-1931
www.alphaprotech.com

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 30 05—Roofing Felt and Underlayment

REPORT HOLDER:

ALPHA PROTECH ENGINEERED PRODUCTS, INC.

EVALUATION SUBJECT:

REX™ SYN FELT, REXTREME, TECHNOPLY AND TECHNO SB 50 SYNTHETIC ROOF UNDERLAYMENTS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that REX™ SynFelt, REXtreme, TECHOpoly and TECHNO SB 50 synthetic roofing underlayments, described in ICC-ES evaluation report ESR-1601, have also been evaluated for compliance with the codes editions noted below.

Applicable code editions:

- 2022 California Building Code (CBC)

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

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The REX™ SynFelt, REXtreme, TECHOpoly and TECHNO SB 50 synthetic roofing underlayments, described in Sections 2.0 through 7.0 of the evaluation report ESR-1601, comply with CBC Chapter 15, provided the design and installation are in accordance with the 2021 *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 REX™ SynFelt, REXtreme, TECHOpoly and TECHNO SB 50 synthetic roofing underlayments, described in Sections 2.0 through 7.0 of the evaluation report ESR-1601, complies with CRC Chapter 9, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report and the additional requirements of CRC Chapter 9, as applicable.

This supplement expires concurrently with the evaluation report, reissued November 2024.