ICC-ES Evaluation Report

ESR-5544

Issued *September 2024*

This report also contains:

- CBC Supplement

Subject to renewal September 2025

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION Section: 07 25 00—Water-Resistive Barriers/Weather Barriers Section: 07 27 00—Air Barriers	REPORT HOLDER: ALPHA PROTECH ENGINEERED PRODUCTS, INC.	EVALUATION SUBJECT: REX™ WRAP ROYAL	

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2024, 2021, 2018 and 2015 *International Building Code*® (IBC)
- 2024, 2021, 2018 and 2015 *International Residential Code*® (IRC)
- 2024, 2021, 2018 and 2015 *International Energy Conservation Code*® (IECC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

Properties evaluated:

- Water resistance
- Surface-burning characteristics
- Air Leakage

1.2 Evaluation to the following green code(s) and/or standards:

- 2019 *California Green Building Standards Code (CALGreen)*, Title 24, Part 11
- 2018 and 2015 *International Green Construction Code*® (IgCC)
- 2017 ANSI/ASHRAE/USGBC/IES Standard 189.1–Standard for the Design of High-Performance Green Buildings, Except Low-Rise Residential Buildings
- 2020 and 2015 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™ Wrap Royal is used as a water-resistive barrier on the exterior side of exterior walls of buildings of any construction type under the IBC and construction permitted under the IRC. Under the IBC, the water-resistive barrier may be used on buildings of Type I, II, III and IV construction that are not greater than 40 feet (12.2 m) in height above grade in accordance with 2024, 2021 and 2018 IBC Section 1402.5, or 2015 IBC Section 1403.5, except as permitted in Exception 1 of the 2024 IBC Section 1402.6, 2021 and 2018 IBC Section 1402.5

and 2015 IBC Section 1403.5. Rex™ Wrap Royal is an alternative to the water-resistive barriers specified in the 2024, 2021 and 2018 IBC Section 1403.2 (2015 IBC Section 1404.2) and IRC Section R703.2. The products are considered equivalent to 60-minute Grade D paper as described in IBC Section 2510.6 and IRC Section R703.7.3. The products are also classified as ASTM E2556 Type II water-resistive barriers as specified in 2024, 2021, 2018 and 2015 IBC Section 2510.6 and 2024, 2021, 2018 and 2015 IRC Section R703.7.3. The products may also be used as air barrier materials under IRC Section N1102.4.1 and Sections C402.5 and R402.4 of the IECC.

The attributes of the Rex™ Wrap Royal water-resistive barrier has been verified as conforming to the provisions of (i) CALGreen Section 5.407.1 for water-resistive barriers and Section A4.407.5 for air barriers; (ii) 2018 IgCC Section 701.3.1.1 and 2015 IgCC Section 605.1.2.1 for air barriers; (iii) 2017 ASHRAE 189.1 Section 7.3.1.1 for air barriers; and (iv) ICC 700-2020 Sections 602.1.8, 11.602.1.8, 1202.6 and 13.104.1.4; (v) ICC 700-2020 Sections 602.1.8, 11.602.1.8, 1202.6 and 13.104.1.4; (v) ICC 700-2015 Section 602.1.8, 11.602.1.8 for water-resistive 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 General:

Rex™ Wrap Royal has a flame spread index of less than 25 and a smoke-developed index of less than 450, when tested in accordance with ASTM E84.

3.2 Rex™ Wrap Royal:

Rex™ Wrap Royal consists of a non-perforated, non-woven, vapor permeable film laminated between two layers of non-woven spun bond polypropylene. The membrane has a nominal weight of 21.47 pounds per 1000 square feet (105 g/m^2) and is produced in rolls of varying size.

3.3 Air Barrier:

The product described in this report has an air leakage rate not exceeding 0.02 L/s·m² at 75 Pa [0.004 cfm/ft² at 0.3 w.g. (1.57 psf)] when used as an air barrier material under IRC Section N1102.4.1 and Sections C402.5 or R402.4 of the IECC.

3.4 Water Vapor Transmission:

The water vapor transmission (WVT) value of Rex™ Wrap Royal, as determined in accordance with ASTM E96 Procedure A (Desiccant Method), is greater than 5 Perms [2.9 x 10^{-10} Kg/(Pa·s·m^2)].

4.0 INSTALLATION

4.1 General: The water-resistive barrier must be installed on the exterior side of exterior walls over exterior sheathing or insulation. The printed side must be installed facing outside. The product must be installed in accordance with the manufacturer's published installation instructions, this report and the applicable code. If requested by the code official, a copy of this report must be available at the jobsite during installation. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

4.2 Water-resistive Barrier:

Rex™ Wrap Royal is installed after wall framing is completed and before windows and doors are installed. The roll is placed a minimum of 12 inches (305 mm) from the starting corner and fastened to the sheathing with corrosion-resistant nails having minimum 1-inch-diameter (25.4 mm) plastic washer heads or cap heads, spaced at a maximum of 32 inches (812 mm) on center, or corrosion-resistant staples with minimum 1-inch (25.4 mm) crowns, spaced a maximum of 32 inches (812 mm) on center; and is then unrolled around the building and fastened with nails spaced at a maximum of 32 inches (812 mm) on center or staples spaced a maximum of 32 inches (812 mm) on center. The printed side of the wrap is installed facing the outside. A minimum of 6 inches (152 mm) of overlap must be provided for vertical seams and 2 inches (51 mm) for horizontal seams, except where the manufacturer's installation instructions specify a greater overlap. When used over wood-based sheathing in exterior plaster applications, the product must be applied over the sheathing in accordance with Section R703.7.3 under the 2018 and 2015 IRC, using two layers of the product or using one layer together with an intervening layer.

When use is over wood-based sheathing in exterior plaster applications, one or two layers of Rex™ Wrap Royal may be applied over sheathing in accordance with 2024 and 2021 IBC Section 2510.6 or 2024 and 2021 IRC Section R703.7, as applicable.

When used over wood based sheathing in exterior plaster applications in accordance with 2024 and 2021 IBC Section 2510.6 and 2024 and 2021 IRC Section R703.7.3 installations must be as follows:

- For dry climate zones (B) in accordance with 2024 and 2021 IBC Section 2510.6.1 or 2024 and 2021 IRC Section R703.7.3.1, the product must be applied in accordance with 2024 and 2021 IBC Section 2510.6.1 Item 1 or 2 or 2024 and 2021 IRC Section R703.7.3.1 Item 1 or 2, as applicable.
- For moist climate zones (A) or marine climate zones (C) in accordance with 2024 and 2021 IBC Section 2510.6.2 or 2024 and 2021 IRC Section R703.7.3.2, the product must be applied in accordance the dry climate zone (B) provisions noted above and with the additional requirements noted in 2024 and 2021 IBC Section 2510.6.2 Item 1 or 2024 and 2021 IRC Section R703.7.3.2 Item 1, as applicable.

For cementitious coatings or exterior insulation and finish systems, application must be in accordance with the evaluation report on the exterior coating.

4.3 Air Barrier Material:

Rex™ Wrap Royal, when used as an air barrier material in accordance with IECC Section C402.5.1.3, IECC Section R402.4.1 or IRC Section N1102.4.1, must be installed in accordance with the report holder's published installation instructions.

5.0 CONDITIONS OF USE:

The Rex™ Wrap Royal water-resistive barrier described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The product must be installed in accordance with the manufacturer's published installation instructions, this report and the applicable code. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

5.2 The membrane must be covered in accordance with the manufacturer's installation instructions with an approved exterior wall covering complying with the applicable code.

5.3 This report is based on air leakage rates for the product as an air barrier material only. The design and evaluation of the air barrier assembly, of which the product is a component, is outside the scope of this report.

5.4 The product is manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with ICC-ES Acceptance Criteria for Water-resistive Barriers (AC38), dated August 2016 (Editorially revised June 2024).

6.2 Report of surface burning characteristics testing in accordance with ASTM E84.

6.3 Report of air leakage testing in accordance with ASTM E2178.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5544) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.

7.2 In addition, the Rex™ Wrap Royal product is identified by a label on the container bearing the report holder's name (Alpha ProTech Engineered Products, Inc.), the product name (Rex™ Wrap Royal), and the evaluation report number (ESR-5544). The product name (Rex™ Wrap Royal), and the evaluation report number (ESR-5544) are printed, at regular intervals, on the outside face of the product.

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

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301 SOUTH BLANCHARD STREET
VALDOSTA, GEORGIA 31601
(229) 242-1931
www.alphaprotech.com

DIVISION 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers

REPORT HOLDER:

ALPHA PROTECH ENGINEERED PRODUCTS, INC.

EVALUATION SUBJECT:

REX™ WRAP ROYAL

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Rex™ Wrap Royal, evaluated in ICC-ES evaluation report ESR-5544, has also been evaluated for compliance with the codes 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 Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 *California Residential Code* (CRC)
- 2022 *California Energy Code* (CEC)

2.0 CONCLUSIONS

2.1 CBC:

The Rex™ Wrap Royal, described in Sections 2.0 through 7.0 of the evaluation report ESR-5544, complies with CBC Chapter 14, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the applicable provisions of the CBC. Use as an air barrier must be in accordance with the CEC.

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™ Wrap Royal, described in Sections 2.0 through 7.0 of the evaluation report ESR-5544, complies with CRC Chapter 7, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report and the applicable provisions of the CRC. Use as an air barrier must be in accordance with the CEC.

This supplement expires concurrently with the evaluation report, issued September 2024.