

Issue Date: 11-28-2018
Revision Date: 11-05-2020
Renewal Date: 11-30-2021

DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION
Section: 07 18 13 – Pedestrian Traffic Coatings
Section: 07 54 00 – Thermoplastic Membrane Roofing

REPORT HOLDER:
Tuff Industries Inc.
9570 Bottom Wood Lake Road
Lake Country, B.C. V4V 1S7
(250) 766-1333

REPORT SUBJECT:
Tufdek® Walkable Vinyl Deck and Roof System

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2018, 2015, and 2012 *International Building Code*® (IBC)
- 2018, 2015, and 2012 *International Residential Code*® (IRC)
- 2020 *Florida Building Code* (FBC) (Excluding High Velocity Hurricane Zones) (See Section 9)
- 2015 *National Building Code of Canada* (NBC) (See Section 9)

NOTE: This report references 2018 Code sections. Earlier versions of the Codes may have different section numbers.

1.2 The Tufdek® system has been evaluated for the following properties (see Table 1):

- Physical properties
- Wind resistance
- Fire classification

1.3 The Tufdek® system has been evaluated for the following uses (see Table 1):

- Walking surface applied to wood and concrete deck substrates
- Class A fire classification when applied to noncombustible decks. Refer to Table 3.
- Class A fire classification when applied to combustible decks with noncombustible substrates. Refer to Table 3.

2.0 STATEMENT OF COMPLIANCE

The Tufdek® system complies with the Codes listed in Section 1.1, for the properties stated in Section 1.2, and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.0.

3.0 DESCRIPTION

3.1 Tufdek® Membrane: PVC single-ply, polyester weft-scrim reinforced membrane complying with ASTM D4434. The membrane has a nominal thickness of 60 mils (1.52mm) and is available in rolls 64 in. (1626mm) wide by nominal 360 ft. (109.7m) long. The membrane is available in various surface colors and has an embossed surface texture.

3.2 Tuff Low VOC Contact Adhesive: Solvent based, roll- or brush-on adhesive for bonding Tufdek® to flat or vertical wood and concrete surfaces. Coverage rate: 60 sq. ft./gal. The shelf life is one year.

3.3 Tuff Trowel-On Latex Vinyl Adhesive: Water based, for bonding Tufdek to flat, horizontal wood surfaces using a 1/16 in. u-notched trowel. Coverage rate: 130 sq. ft./gal. The shelf life is one year.

3.4 Tuff Roll-On Latex Vinyl Adhesive: Water based, roll- or brush-on adhesive for bonding Tufdek® to wood and concrete surfaces. Coverage rate: 160 sq. ft./gal. The shelf life is one year.

3.5 Tuff Deck-Patch: Cement based, floor-leveling compound used for filling plywood gaps, knotholes, and uneven surfaces.

3.6 Tuff-Clad PVC Laminated Metal Flashing: 21 mil PVC laminated film thickness, laminated to 24 GA G-90 galvanized sheet steel on one side, for use with Tufdek® Membrane. Tuff-Clad is fabricated into metal flashings and edge details.



4.0 PERFORMANCE CHARACTERISTICS

4.1 Physical Properties: The physical properties of the Tufdek® Membrane have been evaluated to ASTM D4434 and are in compliance with IBC Sections 1504.6 and 1507.13, and IRC Section R905.13.

4.2 Wind Resistance: The wind uplift resistance of the Tufdek® system installed in accordance with Section 5.0 of this Report is described in Table 2.

4.3 Impact Resistance: Impact resistance of the Tufdek® system installed on low-slope roofs (roof slope < 2:12) complies with the "Resistance to Foot Traffic Test" in Section 5.5 of FM4470, as required in IBC Section 1507.

4.4 Fire Classification: The Tufdek® system has been tested in accordance with ASTM E108 and has roof classifications as described in Table 3.

5.0 INSTALLATION

5.1 Substrates must be structurally sound and in accordance with the applicable Code. Surfaces shall be dry and free from all debris, with installation being limited to time periods where precipitation is not expected.

5.2 Metal or membrane flashing shall be installed in accordance with the applicable Code and must be applied to all door thresholds, jambs, fascia, and walls.

5.3 The membrane sheets are installed with a minimum 1 in. (25.4mm) overlap and melted together with an approved hot air welding gun and nozzle. A silicone pressure roller is used to bond the overlapping seam of the two surfaces together.

5.4 The Tufdek® system shall be installed in accordance with the manufacturer's instructions using one of the adhesives identified in Section 3.0.

5.5 Repairs to the membrane require that the damaged section of membrane be cut out and removed. Application of a repair membrane patch to proceed following the installation requirements in Section 5.0.

6.0 CONDITIONS OF USE

6.1 Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable Code. In the event of a conflict, this report governs.

6.2 Installation of the Tufdek® system as a walking deck is limited to a walking surface having a minimum slope of 1/4:12.

6.3 Use of the Tufdek® system as a Class A roof installation is limited to the assemblies described in Table 3 with a slope of 1:12 or less.

6.4 Wind uplift pressure on any roof area, including edge and corner zones, must not exceed the allowable wind uplift pressure stated in Section 4.2.

6.5 Components of the Tufdek® system are manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Reports of tests in accordance with ASTM D4434-12.

7.2 Fire resistance in accordance with ASTM E108-16, Standard Test Methods for Fire Tests of Roof Coverings.

7.3 Data in accordance with the ICC-ES AC39, Acceptance Criteria for Walking Decks, Approved June 2017, editorially revised May 2018, and AC75, Acceptance Criteria for Roofing Membrane Roof-Covering Systems, Approved July 2010, editorially revised March 2018.

7.4 Intertek Listing Report "Tuff Industries - Tufdek Membranes", on the [Intertek Directory of Building Products](#).

8.0 IDENTIFICATION

The Tufdek® Membrane is identified with the manufacturer's name (Tuff Industries Inc.), address and telephone number, the product name (Tufdek®), shelf life, date of manufacture or lot number, the Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-1122).





9.0 OTHER CODES

9.1 Florida Building Code:

9.1.1 Scope of Evaluation: The Tufdek® Walkable Vinyl Deck and Roof System has been evaluated for compliance with the 2020 *Florida Building Code*.

9.1.2 Conclusion: The Tufdek® Walkable Vinyl Deck and Roof System, described in Sections 2.0 through 8.0 of this Research Report, complies with the requirements of Sections 1504.3, 1504.6, 1505, and 1507.13 of the 2020 *Florida Building Code – Building*, and Sections R902 and R904 of the 2020 *Florida Building Code – Residential*, subject to the following conditions:

- Fasteners used for installation in compliance to 2020 *Florida Building Code – Residential* must meet the requirements of Section R904.5
- Use of the Tufdek® Walkable Vinyl Deck and Roof System for compliance with the High-Velocity Hurricane Zone provision of the 2020 *Florida Building Code* has not been evaluated and is outside the scope of this Research Report

9.1.3 Intertek is an approved *evaluation entity* and *quality assurance entity* pursuant to Florida Statute 553.842 – *Product Evaluation and Approval*.

9.2 National Building Code of Canada:

9.2.1 Scope of Evaluation: The Tufdek® Walkable Vinyl Deck and Roof System has been evaluated for compliance with the 2015 *National Building Code of Canada*.

9.2.2 Conclusion: The Tufdek® Walkable Vinyl Deck and Roof System, described in Sections 2.0 through 8.0 of this Research Report, complies with the requirements of Division B, Part 3, Article 3.1.15.1, Sentence 3.1.15.2(1), Division B, Part 9, Article 9.26.2.1, of the 2015 *National Building Code of Canada*. Installation in buildings governed by Part 9 as defined in the NBC is to be in accordance with the provisions of Division B, Part 9, Article 9.26.16.1.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

10.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

10.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

10.3 Reference to the <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.

This Code Compliance Research Report (“Report”) is for the exclusive use of Intertek’s Client and is provided pursuant to the agreement between Intertek and its Client. Intertek’s responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Report. Only the Client is authorized to permit copying or distribution of this Report and then only in its entirety, and the Client shall not use the Report in a misleading manner. Client further agrees and understands that reliance upon the Report is limited to the representations made therein. The Report is not an endorsement or recommendation for use of the subject and/or product described herein. This Report is not the Intertek Listing Report covering the subject product and utilized for Intertek Certification and this Report does not represent authorization for the use of any Intertek certification marks. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.





TABLE 1A – PROPERTIES EVALUATED

| Property | 2018, 2015, and 2012 IBC | 2018, 2015, and 2012 IRC | 2020 FBC – Building | 2020 FBC – Residential |
|---------------------|--------------------------|--------------------------|---------------------|------------------------|
| Physical Properties | 1504.6, 1507.13 | R904, R905.13 | 1504.6, 1507.13 | R904, R905.13 |
| Wind Resistance | 1504.3 | R905.1 | 1504.3 | R905.1 |
| Fire Classification | 1505 | R902 | 1505 | R902 |

TABLE 1B – PROPERTIES EVALUATED (CANADA)

| Property | 2015 NBC, Division B |
|---------------------|-----------------------|
| Physical Properties | 9.26.2.1. |
| Fire Classification | 3.1.15.1, 3.1.15.2(1) |

TABLE 2 – WIND UPLIFT RESISTANCE

| System | Deck | Roof Covering | Adhesives ² | Maximum Wind Uplift (psf) |
|--------|---|---------------|---|---------------------------|
| 1 | Plywood; Min. 5/8 in. thick ¹ | Tufdek® | Tuff Low VOC Contact Adhesive Tuff Trowel-On Latex Vinyl Adhesive Tuff Roll-On Latex Vinyl Adhesive | 170 |
| 2 | Concrete | Tufdek® | Tuff Trowel-On Latex Vinyl Adhesive | 630 |

¹The joints of the plywood decks must be sealed with Tuff Deck Patch in accordance to the installation instructions provided by the Report Holder.

²The application rate of the adhesives must be as specified by Sections 3.2, 3.3, and 3.4 of this Report.

TABLE 3 – FIRE CLASSIFICATION

| System | Deck | Substrate | Adhesives ² | Roof Covering | Slope | Classification |
|--------|--|--|---|---------------|------------|----------------|
| 1 | AC Grade Fir Plywood; Min. 5/8 in. thick ¹ | Permabase Substrate; Min. 1/2 in. thick | Tuff Low VOC Contact Adhesive Tuff Trowel-On Latex Vinyl Adhesive Tuff Roll-On Latex Vinyl Adhesive | Tufdek® | 1:12, max. | Class A |
| 2 | Concrete | None | Tuff Low VOC Contact Adhesive Tuff Trowel-On Latex Vinyl Adhesive Tuff Roll-On Latex Vinyl Adhesive | Tufdek® | 1:12, max. | Class A |

¹The joints of the plywood decks must be sealed with Tuff Deck Patch in accordance with the manufacturer's installation instructions.

²The application rate of the adhesives must be as specified by Sections 3.2, 3.3, and 3.4 of this Report.

