

RGC ACCEPTANCE CRITERIA for MECHANICALLY ATTACHED POLYMERIC ROOF UNDERLAYMENTS Used in Water-shedding Systems

RGC ACWS-PUL

Preface

Acceptance Criteria created by the RGC (“Guarantor”) are intended solely to establish objective requirements for materials used in the RoofStar™ Guarantee Program (property of the RCABC Guarantee Corp. (RGC)) through which the RGC issues the RoofStar™ Guarantee for waterproofing and water-shedding systems. Materials used in the construction of waterproofing or water-shedding systems must be accepted by the RGC. Refer to other resources in the *Roofing Practices Manual* for other criteria, and for documents, related to the application and approval process.

Use of this Acceptance Criteria is strictly for the purpose of admitting into the RoofStar™ Guarantee Program products manufactured expressly for waterproofing or water-shedding assemblies, for roofs or at-grade. Use of this Acceptance Criteria for any other purpose shall be at the sole discretion of the user and is not endorsed or condoned by the RGC. Furthermore, this Acceptance Criteria, and the term “accepted”, shall not be construed as a measure of a material’s efficacy or its suitability for any application outside the RoofStar™ Guarantee Program, nor shall it be construed to mean that the *Guarantor* endorses a product conforming to the requirements set out in this document.

This Acceptance Criteria provides guidelines for the material and performance characteristics to which an accepted material must conform. Acceptance is confirmed by the *Guarantor* through a review of the applicant’s submission and is finally endorsed by the RGC Board of Directors. Accepted materials are periodically reviewed by the RGC for conformity to these criteria, and acceptance may be revoked at any time should the product change so that it no longer conforms.

RGC Acceptance Criteria are evaluated periodically by the RGC Technical Committee, which meets throughout the year. The RGC reserves the right under policy to change Acceptance Criteria at any time, and any changes to this Acceptance Criteria shall be effective on the date shown on this document.

Changes will be highlighted for a period of twelve (12) months. Previous versions of this Acceptance Criteria can be requested in writing from the *Guarantor*.

In the event that a product listed in the RoofStar Guarantee Program is rendered non-conforming by a change in an Acceptance Criteria, the manufacturer will have no more than twelve (12) months from the date of the change to conform to the Acceptance Criteria and resubmit the material for acceptance by the RGC. Non-conforming materials will be removed from the RoofStar Guarantee Program.

1.0 Purpose and Scope

1.1 Purpose

The purpose of this Acceptance Criteria is to establish basic requirements for mechanically fastened “synthetic underlayments” used on water-shedding roof systems.

1.2 Scope

So-called “synthetic underlayments” are popular alternatives to bitumen-saturated felt underlayments commonly used beneath water-shedding materials such as asphalt shingles, cedar shingles and shakes, and architectural metal panels. These products must be easy to use, resilient under both environmental and user forces, and able to perform after a stated exposure limit to weathering conditions. Furthermore, since the underlayment may be left exposed for some time because of installation constraints (such as suitable weather), it must remain resistive to water and resist deterioration after it is covered with the primary roof covering.

All fasteners used to secure polymeric roof underlayments must be corrosion-resistant, following the fastener specifications in the RGC water-shedding Standards.

2.0 General

2.1 Reference Documents

- 2.1.1 **ASTM D8257/D8257M** *Standard Specification for Mechanically Attached Polymeric Roof Underlayments Used in Steep Slope Roofing.* ASTM International.
- 2.1.2 **ASTM D1777-96** *Standard Test Method for Thickness of Textile Materials.* ASTM International.
- 2.1.3 **ASTM D5034/D5034M** *Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).* ASTM International.
- 2.1.4 **ASTM D4594/D4594M** *Standard Test Method for Effects of Temperature on Stability of Geotextiles.* ASTM International.
- 2.1.5 **ASTM D5231/D5231M** *Standard Test Method for Determining the Shear Strength of Soil-Geosynthetic and Geosynthetic-Geosynthetic Interfaces by Direct Shear.* ASTM International.

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- 2.1.6 **ASTM D5261/D5261M** Standard Test Method for Measuring Mass per Unit Area of Geotextiles. ASTM International.
 - 2.1.7 **ASTM D7238/D7238M** Standard Test Method for Effect of Exposure of Unreinforced Polyolefin Geomembrane Using Fluorescent UV Condensation Apparatus. ASTM International.
 - 2.1.8 **ASTM E96/E96M** Standard Test Methods for Water Vapor Transmission of Materials. ASTM International.
 - 2.1.9 **ASTM E108-20a** Standard Test Methods for Fire Tests of Roof Coverings. ASTM International.

2.2 Definitions

- 2.2.1 *Polymeric* means a material made of polymers, such as olefins.
- 2.2.2 *Polyolefin* means a synthetic fabric consisting of olefin synthetic fibres commonly identified as either polyethylene or polypropylene.
- 2.2.3 *Product* means the material submitted for acceptance by the RGC, under the terms of this Acceptance Criteria.
- 2.2.4 *Applicant* means the manufacturer or, in the alternative, the agent, distributor or another party representing the manufacturer, who presents the *product* for consideration of acceptance by the RGC.
- 2.2.5 Other terms as defined in the Glossary of the *RGC Roofing Practices Manual*, or as defined in
 - 2.2.5.1 *ASTM D1079 Standard Terminology Relating to Roofing and Waterproofing*
 - 2.2.5.2 *ASTM D4439 Standard Terminology for Geosynthetics*

3.0 Criteria for Acceptance

3.1 Membership

The *Applicant* must be a member of the RCABC/RCABC Guarantee Corp. (RGC), and must have completed the following administrative requirements:

- 3.1.1 **Policy A-055 Associate Member Commitment**
- 3.1.2 **Policy A-041 Material Acceptance Criteria**
- 3.1.3 **Policy A-078 Material Acceptance Agreement**
- 3.1.4 **Material Bond (ref. Policy A-080 Material Bond)**

3.2 Product marketplace installation

- 3.2.1 The *Applicant* shall disclose, together with the *product* application, a list of projects located in British Columbia that incorporate the *product*. Projects must be complete and in service for at least two (2) consecutive years preceding the date of application. The list of projects shall include no fewer than six (6). The

list shall be submitted on the Product History form which is downloadable from the Roofing Practices Manual.

- 3.2.2** The requirements in **3.2.1** may be supplemented with a list of projects in regions with a similar climate to the climate for which the *product* is submitted (ref. **3.5.2.1**).

3.3 Material Information

3.3.1 Characteristics

The *product* shall consist of one or more polymers identified in the verification report (see **4.0 Verification Testing**), and shall be identified by its principal polymer fibre family, i.e. Polyolefin. The term “principal polymer fibre family” shall mean a material that constitutes more than 50% of the *product*.

3.4 Packaging and Identification

- 3.4.1** The product shall be identified on the *RGC Application for Material Acceptance* by one of the following criteria, which are described in Policy A-041.

3.4.1.1 Branded (Proprietary)

3.4.1.2 Private Labeled

3.4.1.3 Co-branded

3.5 Product Specifications and Test Procedures

- 3.5.1 General Specifications:** *Products* must conform to **ASTM D8257/D8257M Standard Specification for Mechanically Attached Polymeric Roof Underlayments Used in Steep Slope Roofing**. The specification addresses the following desirable characteristics and functionality of the *product*:

3.5.1.1 Unrolling: as described in 7.2, *ASTM D8257*

3.5.1.2 Pliability: as described in 7.3, *ASTM D8257*

3.5.1.3 Water Vapor Transmission: per *ASTM E96/E96M*

3.5.1.4 Liquid Water Transmission: per *ASTM D4869/D4869M*

3.5.1.5 Linear Dimensional Change: per *ASTM D1204*

3.5.1.6 Tensile Strength (MD, XMD): as described in 7.7, *ASTM D8257* using a modified test in *ASTM D5025*.

3.5.1.7 Tearing Strength (MD, XMD): as described in 7.8, *ASTM D8257* using a modified test in *ASTM D4533/D4533M*.

3.5.1.8 Fastener Pull-Through Resistance: as described in 7.9, *ASTM D8257* using a modified test in *ASTM D228/D228M*.

3.5.1.9 Hydrostatic Resistance: as described in 7.10, *ASTM D8257* using a modified test in *ASTM D751*.

3.5.1.10 Thermal Cycling: as described in 7.11, *ASTM D8257*.

3.5.1.11 Laboratory Accelerated Weathering: as described in 7.12, *ASTM D8257* using a modified test in *ASTM D4798/D4798M*.

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- 3.5.2** In addition to the foregoing Specification, the following criteria apply:
- 3.5.2.1 Climate suitability:** The *Applicant* shall declare which climate zones the *product* may be installed in (Climate Zone 4, 5, 6, 7a, 7b or 8).
 - 3.5.2.2 Thickness:** *Product* thickness shall be measured using *ASTM D1777-96* and shall be measured in both metric units (mm) and imperial units (mils).
 - 3.5.2.3 Weight:** *Product* weight shall be measured using *ASTM D5261/D5261M* and shall be expressed in both metric units (Kg/m²) and Imperial Units (lbs/100 square feet).
 - 3.5.2.4 Dimensions:** The *product* dimensions (length and width) per roll shall be disclosed by the *Applicant* on the Declaration of Conforming Product. Measurements shall be expressed in metric units (m) and Imperial units (feet or inches).
 - 3.5.2.5 Fire Rating (Class):** The *product* must be tested as part of a fire-resistant assembly using the test method *ASTM E108-20a*, and classified as Class A, B or C using the roof covering classes described in the test method.
 - 3.5.2.6 UV Stability:** The *product* must be rated for consecutive days of exposure to unfiltered ultraviolet solar radiation, using *ASTM D7238/D7238M*. Results shall be expressed as a limitation of exposure to sunlight, measured in consecutive days, before the onset of permanent and developing deterioration.
 - 3.5.2.7 Dimensional Stability Under Multi-Directional Shear:** The *product* must be tested for its cohesive ability to withstand twisting and grinding forces normal during installation. This shall be tested using *ASTM D5231/D5231M*, but the test shall utilize Procedure B, using a wood substrate, and shall be tested using both dry and wet specimens. Results shall be expressed both in metric units (kg) and in Imperial units (lbs). The *product* shall be deemed to pass if the fibres have not visibly separated.
 - 3.5.2.8 Permeability:** *Product* permeability using *ASTM E96/E96M* shall be expressed both in metric units (Pascals) and in Perms.
 - 3.5.2.9 Slip Resistance:** TBD.

3.6 Additional Product Requirements

3.6.1 Materials

The *product* must be identified on the *RGC Application for Material Acceptance* by its principal polymer, i.e. Polyolefin, Polyethylene.

4.0 Product Testing and Verification

The *Applicant* must present a *RGC Application for Material Acceptance*, supported by a report produced by a testing laboratory that possesses no affiliation with the *Applicant*. Manufacturer technical data publications will not be accepted as an alternative to third party verification.

5.0 Guarantor Disclosure of Information

The *Guarantor* agrees to share in tables or pages of the Roofing Practices Manual only the following collected data; all other data collected through this Acceptance Criteria will be retained in confidence by the *Guarantor* and utilized only for Guarantee purposes:

1. Climate Suitability (**3.5.2.1**)
2. Thickness (**3.5.2.2**)
3. Weight (**3.5.2.3**)
4. Dimensions (**3.5.2.4**)
5. Fire Rating (Class) (**3.5.2.5**)
6. UV Stability (expressed in maximum consecutive exposure days (**3.5.2.6**))
7. Water vapour transmission (Pascals/perms) (**3.5.2.8**)

6.0 Application

Refer to Division C in the *RGC Roofing Practices Manual* for a downloadable copy of the *RGC Application for Material Acceptance*.