

Submittal Requirements for Product Evaluation Roof Coverings

The information and product requirements requested below will be used by the Texas Department of Insurance (TDI) to develop a product evaluation report for use in the designated catastrophe areas along the Texas Gulf Coast.

Exceptions:

Asphalt Shingles: The submittal requirements contained in this document do not apply to asphalt roof shingles tested in accordance with ASTM D 7158 or ASTM D 3161. Consult with TDI for specific requirements regarding asphalt roof shingles.

Roof Coating: A coating applied only to provide weather protection to the roof covering and is not intended to be used as a new roof covering, a re-roof application, or as a repair to an existing roof covering does not apply to these submittal requirements.

1.0 Building Code Requirements for Products

- 1.1 Products will be evaluated by TDI in accordance with the wind load criteria of Chapter 3 of the 2018 International Residential Code (IRC); the wind load criteria of Chapter 16 of the 2018 International Building Code (IBC); test standards and performance criteria specified in the IRC and the IBC; and nationally recognized test standards or procedures.
- 1.2 **Basic Design Wind Speed Requirements:** The basic windspeed requirements for the windstorm program area are as defined in the IRC and the IBC. Contact TDI for more information regarding the basic wind speed requirements.
- 1.3 **Design Pressure Requirements:** Refer to Chapter 3 of the IRC or to ASCE 7-16 for design wind pressure requirements based on the basic wind speeds that are required for the TDI windstorm program area. The manufacturer should consider that different Exposure conditions can occur for all structures that are located within the TDI windstorm program area. Contact TDI for more information regarding design pressure requirements.

2.0 Product Applicability and Limitations of Evaluation Report

- 2.1 Evaluation of a product does not constitute approval of the product for use on all structures. The design pressure rating of the product (as reported in the TDI evaluation report) must exceed the required design pressure required for the specific structure.
- 2.2 TDI will develop the product evaluation report based on the way the product was tested. Products must be tested as complete assemblies and must include all components of the product that are to be installed. This includes the attachment of the product to the roof deck, to the underlayment, or to the battens and the material used for the roof deck and, when applicable, for the battens. **Note:** Products must be tested as they would be installed in the field. Products must be tested with a roof deck construction (concrete, lightweight concrete, steel deck, framing members (wood, steel, etc.), wood structural panels, etc.) that is representative of the way the product will be installed and must be secured to the roof deck in the manner in which it will be installed. Fasteners used should be

readily available, commonly used fasteners. Note: For wood structural panel roof decks, either minimum 7/16" OSB or 15/32 plywood is recommended.

Membrane roof coverings: Alternative components such as membranes, primers, adhesives, fasteners, and base plates are permitted if they are verified through tests using nationally recognized test standards. Comparison must be made between the alternative component and the component to be substituted that is part of the full-scale test of the roof covering assembly. NOTE: The test reports for the substitution must be submitted. A RoofNAV output is not an acceptable verification of performance.

- 2.3 Products tested that are mechanically attached (fasteners) to OSB will be acceptable on equal or greater thickness plywood at the design pressure rating of the tested assembly.
- 2.4 **Requirements for field, perimeter, and corner zones:** Analysis to increase the design pressure rating of a product by increasing the fastener density or by modifying the fastener attachment of a tested assembly that is listed in a TDI evaluation report is not permitted.
- 2.5 **Fastener analysis for metal roof panels:** Fastener analysis of metal roof panels tested to a wood structural panel roof deck is permitted to allow for alternative attachment to 1x4 SYP or 2x4 SYP wood purlins or minimum 16-gauge metal purlins. Analysis shall demonstrate equal or greater withdrawal resistance of the fasteners into the alternative substrate to the withdrawal resistance of the fasteners into the tested substrate. In addition, analysis shall include the attachment of the alternative substrates to the roof framing and that the alternative substrates are capable of resisting the uplift loads applied to them (bending). The same fastener, fastener pattern, and fastener spacing used to secure the metal roof deck shall apply to the alternative substrates. The uplift rating of the assembly with the alternative substrates shall not exceed that of the tested assembly.
- 2.6 **Interpolation of design pressures for metal roof panels:** Interpolation of design pressures is permitted to arrive at intermediate design pressures. The tested assemblies must be identical except for the on center spacing fastener pattern.

3.0 Testing and Test Reports

- 3.1 **Testing Facility:** Test reports shall be developed by testing facilities that comply with one of the following:
 - 3.1.1 The test facility must be either UL (Underwriters Laboratories) or FM (Factory Mutual);
 - 3.1.2 The test facility must be recognized by the International Code Council Evaluation Service (ICC-ES) as specified in ICC-ES Acceptance Criteria AC85;
 - 3.1.3 The test facility must be recognized by Miami-Dade County, Florida; or
 - 3.1.4 The test facility must be accepted by TDI. TDI will accept test facilities that are accredited as complying with ISO/IEC Standard 17025 by the International Accreditation Service (IAS) or by any other accreditation body recognized by the International Laboratory Accreditation

Cooperative (ILAC) Mutual Recognition Agreement (MRA). The scope of the accreditation must include the type of testing covered in the submitted test reports.

Manufacturer's test facility: If the manufacturer performs in-house testing, then the manufacturer shall have the testing conducted under the supervision of an independent testing facility that qualifies under Sections 3.1.1 through 3.1.4. The test report shall be prepared by and issued by the supervising party.

TDI reserves the right to request that the testing facility provide documentation to verify compliance with Sections 3.1.1 through 3.1.4.

3.2 **Built-up, Modified Bitumen, Fully Adhered or Mechanically Attached Single-Ply, Spray-Applied Foam, Waterproofing Systems, or Other Types of Membrane Roof Coverings:** Roof coverings shall be tested in accordance with either UL 1897, UL 580, or FM 4474.

3.3 **Edge Securement for Low Slope Roofs:** Low slope built-up, modified bitumen, and single-ply roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with ASCE 7 and tested for wind load resistance in accordance with Test Methods RE-1, Re-2, and RE-3 of ANSI/SPRI ES-1, except the basic wind speed is determined in Section 2.2 of this document.

3.4 **Formed Metal Panels (through fastened or standing seam):** Roof coverings shall be tested in accordance with either UL 1897, UL 580, ASTM E 1592, or FM 4474.

3.5 **Formed Shingles, Shakes, Slate, and Tiles (Metal, Polymer):** Roof coverings shall be tested in accordance with either UL 1897, UL 580, or FM 4474.

3.6 **Concrete and Clay Roofing Tiles:**

3.6.1 The aerodynamic uplift moment for roofing tiles shall be determined in accordance with Chapter 16 of the IBC. The analysis to determine the aerodynamic uplift moment shall be signed, sealed, and dated by a Texas licensed professional engineer.

3.6.2 The overturning resistance (required moment of resistance) for roofing tiles shall be determined in accordance with either SBCCI SSTD 11 or ASTM C 1568.

3.6.3 For adhesive attached roofing tiles, a fastener analysis for the mechanical attachment of the underlayment system to the roof deck is required. The analysis shall include: (1) the type of fasteners required, (2) the attachment method (number of rows, spacing, and locations on the underlayment); (3) required underlayment design pressure (function of roof slope, mean roof height, and location); and (4) Allowable uplift resistance (function of attachment method, fastener type used, and deck thickness. The analysis to determine the aerodynamic uplift moment shall be signed, sealed, and dated by a Texas licensed professional engineer.

NOTE: The default position of TDI will be to list the overturning resistance (required moment of resistance) in the product evaluation report and require the aerodynamic uplift moment to be determined on a structure specific basis by a Texas licensed engineer. It will be left up to the manufacturer to decide if they want to list tables of allowable mean roof heights based on the aerodynamic uplift moment for roofing tiles in the product evaluation report.

- 3.7 **Safety Factor:** TDI will apply an appropriate safety factor to the test loads specified in the test reports or UL and FM listings.

4.0 Substantiating Information

The following information must be included as part of the submittal package for each product to be listed:

- 4.1 **Test Reports.** Test reports in accordance with Section 4.0. **Note:** If the product is listed with either UL or with FM, then submit a current copy of the UL listing or the FM listing, which includes the construction number, uplift class rating, name of the product, and the components and attachment of the roof deck and roof covering construction. A current UL or FM listing may be submitted in lieu of the test report. TDI will not accept a RoofNAV summary as substantiating information. TDI reserves the right to request a copy of a test report or to request information related to the testing or UL/FM listing of a product if a question regarding the listing arises.
- 4.2 **Lab Stamped Drawings.** Provide copies that reference the test report number.
- 4.3 **Installation Instructions.** Provide a copy of the installation instructions.
- 4.4 **Roof Slope.** Allowable roof slopes (minimum and maximum) for installing the products.
- 4.5 **Draft Evaluation Report (Optional).** Provide an electronic WORD version of a draft TDI product evaluation report.

EXCEPTION: For membrane roof coverings, either a sample draft report or an itemized list of the assemblies to be included in an evaluation report must be provided. For each assembly to be listed by TDI, a summary of the test reports used must be provided. The summary must reference the section from the source material that is used to justify the performance of the roof covering assembly and any alternative component. RoofNAV is not an acceptable source material.

- 4.6 **Drawings (Optional).** that illustrate the construction and installation of the product and are consistent with the submitted test data or evaluation information requested by the manufacturer (example: cross section of a metal roof panel that includes the fastener pattern). The drawings do not need to be sealed by an engineer. Drawings will be included in the product evaluation report to provide guidance and to clarify the use of the product in the field. Provide one electronic copy (PDF, JPEG, or CAD).

5.0 Expiration and Renewal of Product Evaluation Reports

- 5.1 TDI will utilize a test report as long as the test report is current, the test standards that the product was tested to have not changed, the test standards for the product required by the building specifications adopted by TDI have not changed and, the product specified in the test report has not changed.

Exception: If the product evaluation report is based on a UL or FM listing for the product, then the product evaluation report will continue to be renewed as long as the UL or FM listing is current. Verification of current listing with UL or FM is required.

- 5.2 TDI reserves the right to request verification from the product manufacturer that the product specified in the test report has not changed.
- 5.3 If the test report indicates an expiration date and the test report is expired, then the test report shall be revised to either (1) remove the expiration date, (2) change the expiration date, or (3) add a record retention date.
- 5.4 If the test report indicates an expiration date and the test report is within six months of expiring, then TDI reserves the right to request that the test report be revised to either (1) remove the expiration date, (2) change the expiration date, or (3) add a record retention date.
- 5.5 For an initial product evaluation, if the test report does not indicate an expiration date or if it specifies a record retention date, then TDI reserves the right to refuse to utilize the test report if the test laboratory is not able to provide information relative to the testing of the product specified in the test report.
- 5.6 For the renewal of an existing product evaluation, if the test report does not indicate an expiration date or if it specifies a record retention date, then TDI may continue to utilize the test report if no changes have occurred in the product.
- 5.7 The evaluation report will be subject to re-evaluation a maximum of four years from the effective date of the evaluation report. The re-evaluation date in the evaluation report could be less than four years from the effective date of the evaluation report if the test report has an expiration date that is less than four years from the effective date of the evaluation report.
- 5.8 The evaluation report will indicate the month and year of the re-evaluation date.