



## TEXAS DEPARTMENT OF INSURANCE

### Regulatory Policy Division - Engineering Services Program (103-3A)

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## Submittal Requirements for Product Evaluation – Roof Coverings

The Texas Department of Insurance (TDI) uses the information and product requirements requested below to develop a product evaluation report for roof coverings for use in the designated catastrophe areas along the Texas Gulf Coast. The product evaluation report will identify the product, specify the maximum design pressure limitations, specify the roof slope limitations, describe the tested assembly, specify the applicable installation methods, and specify the fastener specifications used. TDI does not charge a fee for the evaluation of the product. This evaluation is not intended to preclude a Texas licensed professional engineer from using testing information, UL or FM listings, or ICC evaluation reports that have not been submitted to the TDI for certifying compliance with the building specifications adopted by the TDI.

### Exceptions:

- Asphalt Shingles: The submittal requirements contained in this document do not apply to asphalt roof shingles. Consult with the 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 Minimum Information Required for Evaluation

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Provide the information requested in the form of a complete and organized package. Mail the package to TDI at the address shown at the top of this document. The submittal must include a cover letter and the substantiating information specified in Section 5.0. Include the following information in the cover letter:

- 1.1 The manufacturer's full name and address
- 1.2 Manufacturer's engineering or technical representative contact, including telephone number, fax number, and e-mail address
- 1.3 Manufacturer's contact phone number for local sales information
- 1.4 The name of the product(s)
- 1.5 A description of the substantiating information as specified in Section 5.0 for each product included in the submittal
- 1.6 Optional: Provide an electronic version of a draft TDI product evaluation report.
- 1.7 Optional: Electronic drawings that illustrate the construction and installation of the product(s) 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). Drawings will be included in the evaluation to provide guidance and to clarify the use of the product in the field. Provide one hard copy of the drawings and one electronic copy (PDF) saved to a CD or DVD. TDI may use the electronic copy to post the drawings on the TDI Windstorm Inspections Program Product Evaluation Index website.
- 1.8 Indicate if the information submitted is regarding a new product evaluation or the revision of an existing evaluation. If the information is for a revision, then please indicate the existing TDI evaluation report number.

### 2.0 Building Code Requirements for Products

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- 2.1 TDI will evaluate the products according to the wind load criteria of Chapter 3 of the 2006 International Residential Code (IRC); the wind load criteria of Section 1609 of the 2006 International Building Code (IBC); test standards and performance criteria referenced in the IRC and the IBC and the Texas Revisions to the IRC and the IBC; and nationally recognized test standards or procedures.

- 2.2 Basic design wind speed requirements for construction in the designated catastrophe areas along the Texas Gulf Coast are as follows:
- Inland II Zone: 110 mph, 3-second gust
  - Inland I Zone: 120 mph, 3-second gust
  - Seaward Zone: 130 mph, 3-second gust
- 2.3 Design Pressure Requirements: Refer to either Table R301.2(2) of the IRC or ASCE 7 for design wind pressure requirements. The manufacturer should consider that Exposure B and C conditions can occur in each wind zone.

### 3.0 Product Applicability and Limitations of Evaluation Report

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- 3.1 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) must exceed the required design pressure required for the specific structure.
- 3.2 The TDI will develop the product evaluation report based on the manner in which the product was tested. This includes the attachment of the product to the roof deck, underlayment, or battens and the material used for the roof deck and battens (when applicable). NOTE: *Test products as they would be installed in the field. Test products with a roof deck construction (framing members, wood structural panels) commonly used and should be attached to the roof deck construction with readily available, commonly used fasteners. Note: Minimum 7/16" OSB or 15/32 plywood is recommended.*
- 3.3 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.
- 3.4 **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 is not permitted.
- 3.5 **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 must 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 must 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 must not exceed that of the tested assembly.
- 3.6 **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.

### 4.0 Testing and Test Report Minimum Information Requirements

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- 4.1 Testing Facility- Develop test reports by testing facilities that comply with one of the following:
- 4.1.1 The test facility shall be either UL (Underwriters Laboratories) or FM (Factory Mutual);
  - 4.1.2 The test facility shall be recognized by the International Code Council Evaluation Service (ICC-ES) as specified in ICC-ES Acceptance Criteria AC85;
  - 4.1.3 Miami-Dade County, Florida must recognize the test facility; or
  - 4.1.4 The test facility shall 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 4.1.1 through 4.1.4. 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 4.1.1 through 4.1.4.

- 4.2 **Built-up, Modified Bitumen, Fully Adhered or Mechanically Attached Single-Ply, Spray-Applied Foam, Waterproofing Systems, or Other Types of Membrane Roof Coverings**: Test roof coverings in accordance with either UL 1897, UL 580, FM 4450, or FM 4470.
- 4.3 **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.
- 4.3 **Formed Metal Panels (through fastened or standing seam)**: Test roof coverings in accordance with either UL 1897, UL 580, ASTM E 1592, FM 4450, or FM 4470.
- 4.4 **Formed Shingles, Shakes, Slate, and Tiles (Metal, Polymer)**: Test roof coverings in accordance with either UL 1897, UL 580, FM 4470, or ASTM E 1592.
- 4.5 **Concrete and Clay Roofing Tiles**:
  - 4.5.1 The aerodynamic uplift moment for roofing tiles shall be determined in accordance with Section 1609.5.3 of the IBC. A Texas licensed professional engineer must sign, seal, and date the analysis to determine the aerodynamic uplift moment.
  - 4.5.2 Determine the overturning resistance (required moment of resistance) for roofing tiles in accordance with Section 1715.2.1 of the IBC.
  - 4.5.3 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: the type of fasteners required, the attachment method (number of rows, spacing, and locations on the underlayment); required underlayment design pressure (function of roof slope, mean roof height, and location); and Allowable uplift resistance (function of attachment method, fastener type used, and deck thickness. A Texas licensed professional engineer must sign, seal, and date the analysis to determine the aerodynamic uplift moment.
- 4.6 Test Reports: Develop the test report by the independent test laboratory. The test report must include the following minimum information:
  - Date of testing
  - Date of report
  - Test standards for which the product was tested
  - Description of the product (include product name)
  - Description of each component of the roof covering (include dimensions, thickness, material, available lengths for metal roof panels, ASTM standards they comply with, yield strength of metal roof panels, types of coatings for metal roofing materials, metal clips used to secured panels to roof deck)
  - Thickness of roof deck
  - Description and installation of battens
  - Underlayment type, application, and attachment (include fastener type, size, and spacing)
  - Description of fasteners or adhesive used during testing to secure the roof covering to the roof deck or to the underlayment or battens. For fasteners, include the type, size, length, and spacing. For adhesive, include the specifications of the adhesive manufacturer, the adhesive type, and the size and application location of the adhesive
  - Test result criteria as required by the applicable test standard
- 4.7 Safety Factor: The TDI will apply an appropriate safety factor to the test loads specified in the test reports or UL and FM listings.

## 5.0 Substantiating Information

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- 5.1 Include the following information as part of the submittal package for each product:
- Cover letter as described in Section 1.0.
  - Test reports in accordance with Section 4.0. **Note:** If the product is listed with either UL or with FM, submit a 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. Submit a current UL or FM listing in lieu of the test report. 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.
  - Lab stamped drawings that go with test reports.
  - Installation instructions.
  - Allowable roof slopes (minimum and maximum) for installing the products.
- 5.2 **Design Drawings:** If drawings are a part of the installation requirements, then for each type of roof covering to be listed, please provide hard copy and electronic copy (AutoCAD or PDF), on a CD or DVD of the drawings. TDI may use the electronic copy to post the drawings on the TDI Windstorm Inspections Program Product Evaluation Index website

## 6.0 Expiration and Renewal of Product Evaluation Reports

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- 6.1 The 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 the 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.
- 6.2 The TDI reserves the right to request verification from the product manufacturer that the product specified in the test report has not changed.
- 6.3 If the test report indicates an expired expiration date, then revise the test report to either remove the expiration date, change the expiration date, or add a record retention date.
- 6.4 If the test report indicates an expiration date within six months of expiring, then TDI will ask that you revise the test report to either remove the expiration date, change the expiration date, or add a record retention date.
- 6.5 For an initial product evaluation, if the test report does not indicate an expiration date or if it specifies a record retention date, then the 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.
- 6.6 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 the TDI may continue to utilize the test report if no changes have occurred in the product.
- 6.7 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, depending on the date of test specified in the test report or if the test report has an expiration date.
- 6.8 The evaluation report will indicate the month and year of the re-evaluation date.