

TEXAS DEPARTMENT OF INSURANCE

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Proposed Change to Windstorm Building Requirements or Procedures in the Texas Windstorm Insurance Association Plan of Operation

Name Michael Fischer Date June 12, 2006
Organization/Company The Kellen Company, on behalf of ARMA
The Asphalt Roofing Manufacturers Association Telephone 315-420-8208
Address 121 Richmond Circle Fax No. _____
City, State, Zip Chittenango, NY 13037

Please complete the following for each proposed change:
(A separate form must be submitted for each proposed change.)

1. Proposed change to the following building requirement or procedure:

The proposed change is to add an additional requirement for testing of asphalt shingles to ASTM D 7158 into the TDI version of the 2006 International Residential Code as an optional method of determining performance for certain types of shingles.

2. Proposed change is to:

Document IRC
Section R905.2.4.1, R905.2.6, Chapter 35
Table New table R905.2.4.1
Figure _____
Appendix _____

3. Please use the following format to present the proposed change:

LINE THROUGH LANGUAGE TO BE DELETED UNDERLINE NEW LANGUAGE TO BE ADDED

4. Proposed Change. Please specify change. Attach additional sheets if needed.

Modify text as follows:

R905.2.4.1 Wind resistance of asphalt shingles. Asphalt shingles shall be installed in accordance with Section R905.2.6. ~~Shingles classified using ASTM D 3161 are acceptable for use in wind zones less than 110 mph (49 m/s). Shingles classified using ASTM D 3161, Class F, are acceptable for use in all cases where special fastening is required.~~ Asphalt shingles shall be tested for wind resistance in accordance with one of the following test standards:

- a.) ASTM D 3161
- b.) ASTM D 7158

Asphalt shingles shall meet the classification requirement of Table 905.2.4.1 for the applicable maximum basic wind speed. Asphalt shingle packaging shall bear a label to indicate compliance with one of the above ASTM test standards and the appropriate classification from Table 905.2.4.1.

Add table as follows:

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TABLE 905.2.4.1
CLASSIFICATION OF ASPHALT ROOF SHINGLES ^a

Maximum Basic Wind Speed From Table R301.2(1)	ASTM D 3161	ASTM D 7158 b
85	A,D, or F	D,G or H
90	A,D, or F	D,G or H
100	A,D, or F	G or H
110	F	G or H
120	F	G or H
130	F	H
140	F	H
150	F	H

- a. Asphalt Shingles shall be tested in accordance with ASTM D 3161 or ASTM D 7158. Refer to this table for selection of the appropriate product classification(s).
- b. The standard calculations contained in ASTM D 7158 assume exposure category B or C and building height of 60 feet or less. Additional calculations are required for conditions outside of these assumptions.

R905.2.6 Attachment. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer, but not less than four fasteners per strip shingle or two fasteners per individual shingle. For normal application, asphalt shingles shall be secured to the roof with not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 20 21 units vertical in 12 units horizontal (167 21:12, 175 percent slope), shingles shall be installed as required by the manufacturer. special methods of fastening are required. For roofs located where the basic wind speed per Figure 301.2(4) is 110 mph (49 m/s) or higher, special methods of fastening are required. Special fastening methods shall be tested in accordance with ASTM D 3161 Class F. Asphalt shingle wrappers shall bear a label indicating compliance with ASTM D 3161 Class F.

Add text as follows:

**CHAPTER 43
REFERENCED STANDARDS**

ASTM

D 7158-05 Standard Test Method for Wind Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method)R905.2.4.1

5. Reason for Change. Please state purpose and reason for change. Attach additional sheets if needed.

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Reason: This proposal will revise requirements for the testing of asphalt shingles to demonstrate resistance to wind forces, and provide clarifications to the attachment requirements for steep slope conditions. The IRC lacks a reference to ASTM D 7158, which provides a method of testing that is appropriate for sealed asphalt shingles. The current reference to ASTM D 3161 is necessary for unsealed shingles, so that reference remains in this proposal. In order to clearly communicate the proper application of the two standards, the proponent is adding Table 905.2.4.1. The table will assist in the proper selection of asphalt shingles based upon the appropriate basic wind speed and the applicable standard.

Changes in the attachment section provide consistency with the industry installation guidelines, but continue to provide minimum fastener quantities. Reformatting the code sections provides a clear line of compliance. The shingle shall be tested, labeled, selected, and attached, and the code will now follow that sequence in the requirements.

The referenced standard has been accepted by the Florida Building Commission Structural TAC, for adoption into the Florida Building Code Residential, and has been submitted to the ICC for the 2007 IRC supplement.

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- 6. Attach supporting written or printed information, including, but not limited to, test data, structural calculations, and/or documentation that the proposed change complies with the minimum wind load criteria and design standards specified in the building requirements adopted by the Texas Department of Insurance. Attach supporting written or printed information relating to the proposed changes to the building requirements or procedures contained in the Texas Windstorm Insurance Association Plan of Operation.**

From the scope of ASTM D 7158:

1.1 This test method covers the procedure for calculating the wind resistance of asphalt shingles when applied in accordance with the manufacturer's instructions, and sealed under defined conditions. The method calculates the uplift force exerted on the shingle by the action of wind at a specified velocity, and compares that to the mechanical uplift resistance of the shingle. A shingle is determined to be wind resistant at a specified basic wind speed when the measured uplift resistance exceeds the calculated uplift force for that velocity (3-second gust, ASCE 7).

The inclusion of ASTM D 7158 as an alternate path of compliance is consistent with current methods of determining appropriate performance of materials due to its reliance on ASCE-7 as the basis for evaluating calculated forces from wind events.

Pursuant to Article 21.49, §6C of the Insurance Code, this proposal form must be complete and submitted to the address specified above not later than the 30th day before the date of a scheduled advisory committee meeting for the proposal to be considered at that meeting.

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