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 Building Code as an optional method of determining performance for certain types of shingles.

2. Proposed change is to:

Document IBC
Section IBC 1504.1.1, 1507.2.7, 1609.7.2, Chapter 35
Table New table 1507.2.7
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:

1504.1.1 Wind resistance of asphalt shingles.
Asphalt shingles shall be designed for wind speeds in accordance with section 1507.2.7.1 or section 1609.7.2 ~~For roofs where the basic wind speed in accordance with Figure 1609 is 110 mph and greater, asphalt shingles shall be tested in accordance with ASTM D3161, Class F. As an alternative, loads and wind resistance of asphalt shingle roof coverings shall be determined in accordance with section 1609.7.2~~

1507.2.7 Attachment. (Delete existing section in its entirety and replace with the following:
1507.2.7 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. Where the roof slope, exceeds 21 units vertical in 12 units horizontal (21:12), shingles shall be installed as required by the manufacturer.

1507.2.7.1 Wind Resistance.

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Asphalt shingles shall be tested in accordance with either ASTM D3161 or ASTM D7158 for wind resistance. Asphalt shingles shall be meet the classification requirements of Table 1507.2.7 for the appropriate Maximum Basic Wind Speed. Asphalt shingle packaging shall indicate compliance with the required classification in Table 1507.2.7.

Add table as follows:

TABLE 1507.2.7
CLASSIFICATION OF ASPHALT ROOF SHINGLES [a]

Maximum Basic Wind Speed From Figure 1609	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.

Modify language as follows:

~~IBC 1609.7.2 Asphalt Shingles installed over a roof deck complying with 1609.7.1 are permitted to be designed using Underwriters Laboratory Test Standard UL2390 to determine appropriate uplift and force coefficients applied to the shingle. Asphalt shingles that are installed over a roof deck complying with IBC section 1609.7.1 are to be tested to determine the resistance of the sealant to uplift forces using ASTM D6381.~~

1609.7.2 Asphalt Shingles installed over a roof deck complying with 1609.7.1 shall be permitted to be designed using ASTM D 7158 to determine wind resistance.

Add text as follows:

CHAPTER 35
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

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

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 IBC 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 1507.2.7. 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.
The referenced standard has been accepted by the Florida Building Commission Structural TAC for adoption into the Florida Building Code. The clarification to Section 1609.7.2 provides consistency to the reference of ASTM D 7158.

Cost impact: This proposal will not increase the cost of construction.

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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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