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To: GAF Residential Sales, GAF Contractors, Field Services, AIS, CARE
From: Technical Services
No: TAB-R-138

Wind Resistance Of Asphalt Shingles

What Are The Wind Resistance Requirements For Asphalt Shingles?

Asphalt shingles must meet the requirements of **ASTM D7158** or **ASTM D3161...** depending on where the building the shingles are being installed on is located and what the applicable building code requires for wind resistance.

What Do The International Building Code (IBC) And International Residential Code (IRC) Require?

The 2018 IBC... requires that asphalt shingles be tested in accordance with **ASTM D7158**. Asphalt shingles shall meet the classification requirements of Table 1504.1.1 for the appropriate **maximum basic wind speed**. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D7158 and the required classification Table 1504.1.1.

Exception: Asphalt shingles that are not included in the scope of ASTM D7158 shall be tested and labeled to indicate compliance with **ASTM D3161** and the required classification in Table 1504.1.1.

1504.1.1 Wind resistance of asphalt shingles.

Asphalt shingles shall be tested in accordance with ASTM D7158. Asphalt shingles shall meet the classification requirements of Table 1504.1.1 for the appropriate maximum basic wind speed. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D7158 and the required classification in Table 1504.1.1.

Exception: Asphalt shingles that are not included in the scope of ASTM D7158 shall be tested and labeled to indicate compliance with ASTM D3161 and the required classification in Table 1504.1.1.

TABLE 1504.1.1 CLASSIFICATION OF ASPHALT SHINGLES

MAXIMUM BASIC WIND SPEED, V_{ult} FROM FIGURE 1609.3(1), 1609.3(2), 1609.3(3) OR ASCE 7	MAXIMUM BASIC WIND SPEED, V_{asst} , FROM TABLE 1609.3.1	ASTM D7158 ^a CLASSIFICATION	ASTM D3161 CLASSIFICATION
110	85	D, G or H	A, D or F
116	90	D, G or H	A, D or F
129	100	G or H	A, D or F
142	110	G or H	F
155	120	G or H	F
168	130	H	F
181	140	H	F
194	150	H	F

For SI: 1 foot = 304.8 mm; 1 mph = 0.447 m/s.

a. The standard calculations contained in ASTM D7158 assume Exposure Category B or C and building height of 60 feet or less. Additional calculations are required for conditions outside of these assumptions.

The 2018 IRC... requires that asphalt shingles be tested in accordance with **ASTM D7158**. Asphalt shingles shall meet the classification requirements of Table R905.2.4.1 for the appropriate **ultimate design wind speed**. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D7158 and the required classification Table R905.2.4.1.

What Do The International Building Code (IBC) And International Residential Code (IRC) Require? (Cont'd)

Exception: Asphalt shingles that are not included in the scope of ASTM D7158 shall be tested and labeled to indicate compliance with **ASTM D3161** and the required classification in Table R905.2.4.1.

R905.2.4.1 Wind resistance of asphalt shingles.

Asphalt shingles shall be tested in accordance with ASTM D 7158. Asphalt shingles shall meet the classification requirements of Table R905.2.4.1 for the appropriate ultimate design wind speed. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D 7158 and the required classification in Table R905.2.4.1.

Exception: Asphalt shingles not included in the scope of ASTM D 7158 shall be tested and labeled to indicate compliance with ASTM D 3161 and the required classification in Table R905.2.4.1.

TABLE R905.2.4.1 CLASSIFICATION OF ASPHALT ROOF SHINGLES

MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult} FROM FIGURE R301.2(4)A (mph)	MAXIMUM BASIC WIND SPEED, V_{ASD} FROM TABLE R301.2.1.3 (mph)	ASTM D 7158 ^a SHINGLE CLASSIFICATION	ASTM D 3161 SHINGLE CLASSIFICATION
110	85	D, G or H	A, D or F
116	90	D, G or H	A, D or F
129	100	G or H	A, D or F
142	110	G or H	F
155	120	G or H	F
168	130	H	F
181	140	H	F
194	150	H	F

For SI: 1 foot = 304.8 mm; 1 mph = 0.447 m/s.

a. 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.

How Do I Know Which Code Is Applicable?

Contact your local building official... they will let you know what is the code that is required for your locale. It is up to local jurisdictions as to if and when they adopt updated model building codes.

How Do I Know That My GAF Shingles Are Code Compliant?

First – check the label on the shingles! GAF labels all of its asphalt shingles that are tested in accordance with both ASTM D3161 and ASTM D7158. Because compliance is plant specific and to avoid any confusion, it is always best to check the label for the class of performance for the product you are going to install.

Questions?

GAF Technical Services Can Assist You... with these and other questions you may have regarding your new roof installation. Technical Support Services can be contacted at 800-766-3411. The GAF website is a great resource for just about any question you may have or for additional information you may require. Please visit www.gaf.com to find the latest information on our products and their installation.

Important: This document supersedes any prior GAF Technical Advisory Bulletins on this topic. Please always check www.gaf.com to make sure you have the most up to date information.