



Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes¹

This standard is issued under the fixed designation E1996; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers exterior windows, glazed curtain walls, doors, and impact protective systems used in buildings located in geographic regions that are prone to hurricanes.

1.1.1 *Exception*—Exterior garage doors and rolling doors are governed by ANSI/DASMA 115 and are beyond the scope of this specification.

1.2 This specification provides the information required to conduct Test Method E1886.

1.3 Qualification under this specification provides a basis for judgment of the ability of applicable elements of the building envelope to remain unbreached during a hurricane; thereby minimizing the damaging effects of hurricanes on the building interior and reducing the magnitude of internal pressurization. While this standard was developed for hurricanes, it may be used for other types of similar windstorms capable of generating windborne debris.

1.4 This specification provides a uniform set of guidelines based upon currently available information and research.² As new information and research becomes available it will be considered.

1.5 All values are stated in SI units and are to be regarded as standard. Values given in parentheses are for information only. Where certain values contained in reference documents cited and quoted herein are stated in inch-pound units they must be converted by the user.

1.6 The following precautionary statement pertains only to the test method portion, Section 5, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user*

of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards:³

C719 Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)

C1135 Test Method for Determining Tensile Adhesion Properties of Structural Sealants

D3575 Test Methods for Flexible Cellular Materials Made From Olefin Polymers

E631 Terminology of Building Constructions

E1886 Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials

2.2 ASCE/SEI Standard:⁴

ASCE/SEI 7 American Society of Civil Engineers Minimum Design Loads for Buildings and Other Structures

2.3 ANSI/DASMA Standard:⁵

ANSI/DASMA 115 Standard Method for Testing Sectional Garage Doors and Rolling Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure

2.4 Other Standards:⁶

International Residential Code

3. Terminology

3.1 Definitions:

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

⁴ Available from American Society of Civil Engineers (ASCE), 1801 Alexander Bell Dr., Reston, VA 20191, <http://www.asce.org>.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁶ Available from International Code Council (ICC), 500 New Jersey Ave., NW, 6th Floor, Washington, DC 20001-2070, <http://www.iccsafe.org>.

¹ This specification is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.51 on Performance of Windows, Doors, Skylights and Curtain Walls.

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² See the Significance and Use Section of Test Method E1886.