Designation: E2357 – 11

Standard Test Method for Determining Air Leakage of Air Barrier Assemblies[1]

This standard is issued under the fixed designation E2357; 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 test method covers the determination of the air leakage rate of air barrier assemblies that are used in building enclosures. This procedure measures the air leakage of a representative air barrier assembly before and after exposure to specific conditioning cycles and then assigns a rating dependent upon the results. Although this is a laboratory procedure, the method may also be applied to site mockups.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *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:*[2]

E283 Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

E330 Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference

E631 Terminology of Building Constructions

E783 Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors

E1677 Specification for Air Barrier (AB) Material or System for Low-Rise Framed Building Walls

E2178 Test Method for Air Permeance of Building Materials

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of general terms related to building construction used in this test method, refer to Terminology E631.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *air barrier*—a designated "plane" of reduced air flow between different environments.

3.2.2 *air barrier accessory*—a transitional component of the air barrier that provides continuity.

3.2.3 *air barrier assembly*—the air barrier materials and accessories that provide a continuous designated plane to the movement of air through portions of building enclosure assemblies.

3.2.4 *air barrier material*—a primary element that provides a continuous barrier to the movement of air.

3.2.5 *air barrier system*—a combination of air barrier assemblies installed to provide a continuous barrier to the movement of air through building enclosures.

3.2.6 *air leakage rate*—the quantitative measure of air passage through a set surface area of an assembly within a given time period under a pressure differential between the two sides of the assembly.

3.2.7 *building enclosure*—a system of building components and materials designed and installed in such a manner as to provide a barrier between different environments, including dissimilar interior environments.

3.2.8 *continuity*—an uninterrupted succession of an air barrier materials, accessories and assemblies.

3.2.9 *durability*—the ability of a building component to perform its required functions over a period of time within the environment to which it is exposed.

3.2.10 *negative pressure*—air pressure on one side of a building enclosure lower than on the other side.

3.2.11 *positive pressure*—air pressure on one side of a building enclosure higher than on the other side.

4. Summary of Test Method

4.1 This test method establishes a specimen preparation protocol with which an air barrier assembly may be evaluated. A test specimen is constructed and tested in separate pressures.

[1] This test method is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.41 on Air Leakage and Ventilation Performance.

Current edition approved Sept. 1, 2011. Published October 2011. Originally approved in 2005. Last previous edition approved in 2005 as E2357–05. DOI: 10.1520/E2357-11.

[2] 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.

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