



Standard Guide for Evaluating Water Leakage of Building Walls¹

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1. Scope

1.1 This guide describes methods for determining and evaluating causes of water leakage of exterior walls. For this purpose, water penetration is considered leakage, and therefore problematic, if it exceeds the planned resistance or temporary retention and drainage capacity of the wall, is causing or is likely to cause premature deterioration of a building or its contents, or is adversely affecting the performance of other components. A wall is considered a system including its exterior and interior finishes, fenestration, structural components, and components for maintaining the building interior environment.

1.2 Investigative techniques discussed may be intrusive, disruptive, or destructive. It is the responsibility of the investigator to establish the limitations of use, to anticipate and advise of the destructive nature of some procedures, and to plan for patching and selective reconstruction as necessary.

1.3 *This practice does not purport to address all of the safety concerns, if any, associated with its use. Establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. Awareness of safety and familiarity with safe procedures are particularly important for above-ground operations on the exterior of a building and destructive investigative procedures which typically are associated with the work described in this guide.*

2. Referenced Documents

2.1 ASTM Standards:²

- [C1601 Test Method for Field Determination of Water Penetration of Masonry Wall Surfaces](#)
- [C1715 Test Method for Evaluation of Water Leakage Performance of Masonry Wall Drainage Systems](#)
- [E831 Test Method for Water Penetration of Exterior](#)

[Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference](#)

[E547 Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference](#)

[E631 Terminology of Building Constructions](#)

[E860 Practice for Examining And Preparing Items That Are Or May Become Involved In Criminal or Civil Litigation](#)

[E1105 Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference](#)

[E1188 Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator](#)

2.2 AAMA Standards:³

[AAMA 501.2 Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems](#)

[AAMA 511 Voluntary Guideline for Forensic Water Penetration Testing of Fenestration Products, Article 4.2.1.3.1 Optional Sill Dam Test \(This test method previously appeared in AAMA 502.\)](#)

3. Terminology

3.1 *Definitions*—Refer to Terminology [E631](#).

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *incidental water*—unplanned water infiltration that penetrates beyond the primary barrier and the flashing or secondary barrier system, of such limited volume that it can escape or evaporate without causing adverse consequences.

3.2.2 *water absorption*—a process in which a material takes in water through its pores and interstices and retains it wholly without transmission.

3.2.3 *water infiltration*—a process in which water passes through a material or between materials in a system and reaches a space that is not directly or intentionally exposed to the water source.

3.2.4 *water leakage*—water that is uncontrolled; exceeds the resistance, retention, or discharge capacity of the system; or causes subsequent damage or premature deterioration.

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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.

³ Available from American Architectural Manufacturers Association (AAMA), 1827 Walden Office Square, Suite 550, Schaumburg, IL 60173-4268, <http://www.aamanet.org>.