

Australian Standard®

Windows—Methods of test

Method 5: Water penetration resistance test

1 SCOPE This Standard sets out a method for determining an aspect of the performance of windows designed for installation in all classes of buildings. It addresses the resistance of the window test sample to water penetration (under static wind load).

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

2047 Windows in buildings

2047.1 Part 1: Specification for materials and performance

2047.2 Part 2: Code of practice—Construction, installation and maintenance

ASTM

E331 Standard test method for water penetration of exterior window, curtain walls, and doors by uniform static air pressure difference

3 DEFINITIONS For the purpose of this Standard the definitions in AS 2047, Parts 1 and 2, apply.

4 PRINCIPLE A sample unit is fitted as one face of a pressure chamber, sealed at its perimeter, then subjected to a water penetration test under static pressure.

5 APPARATUS The following apparatus is required:

- (a) *Pressure chamber*—of a size to fit the test sample window.
- (b) *Centrifugal fan*—with controls to pressurize the test sample.
- (c) *Water sprays*—positioned so that when the sprays are in operation, the external face of the test sample is uniformly sprayed with water.
- (d) *Fluid or electronic manometer*—capable of measuring air pressure to an accuracy better than $\pm 5\%$ of test pressure.
- (e) *Water volume flow rate measuring device*.

NOTE: A catch box system for calibrating water spray, as described in ASTM E331, is recommended.

6 PROCEDURE

6.1 Test pressure The test pressure and performance requirements shall be in accordance with AS 2047.1.

6.2 Test procedure The test sample shall be subjected to water sprayed uniformly and continuously over the exterior face of the test sample at a rate not less than $0.05 \text{ L/m}^2\cdot\text{s}$.

At the start of the test, the water sprays shall operate for 5 min with zero air pressure differential on the test sample. The test pressure shall be applied and maintained for 15 min with the water sprays still operating. The pressure and water sprays shall then be removed from the test sample.

6.3 Inspection The visible internal surfaces of the test sample shall be inspected throughout the water spray operation.

Any water appearing on the inside surfaces of the test sample shall be noted and recorded, with the extent and, if possible, the source of penetration of uncontrolled water. Uncontrolled water shall be as defined in AS 2047.1.

7 TEST REPORT The following information shall be reported:

- (a) Reference to this Standard, i.e. AS 4420.5.
- (b) The name of the laboratory, authority or organization that conducted the test.
- (c) The name of the client, sample manufacturer and installer, as appropriate.
- (d) An identification and detailed description of the test sample.
- (e) Dated drawings of the test sample showing modifications, if any.
- (f) Details of any leakages observed during the test.
- (g) Date on which the test was carried out.
- (h) Statement of compliance of the test sample with AS 2047.1.

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