

Australian Standard®

Windows—Methods of test

Method 4: Air infiltration 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 air infiltration.

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
- 4420 Windows—Methods of test
- 4420.1 Method 1: Test sample, preparation for tests, and test sequence

BS

- 1042 Measurement of fluid flow in closed conduits
- 1042.1.1 Part 1.1: Pressure differential devices—Specification for square-edged orifice plates, nozzles and Venturi tubes inserted in circular cross-section conduits running full
- 1042.1.2 Part 1.2: Pressure differential devices—Specification for square-edged orifice plates and nozzles (with drain holes, in pipes below 50 mm diameter, as inlet and outlet devices) and other orifice plates

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 an air infiltration 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) *Orifice plate airflow meter*—manufactured in accordance with BS 1042.1.1 or BS 1042.1.2, or equivalent.
- (d) *Fluid or electronic manometer*—capable of measuring air pressure to an accuracy better than $\pm 5\%$ of design wind pressure.

6 PROCEDURE

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

6.2 Test procedure Test procedures and loading sequence shall be as follows:

- (a) Operation and pre-loading as described in AS 4420.1.
- (b) The face of the test sample shall then be sealed airtight by covering it with an impervious film. If this is not practicable, all joints, weepholes, and glazing or sealant lines of the test sample shall be sealed with impervious adhesive tape.
- (c) Positive and negative test pressures shall then be applied, and the base air infiltration rates through the test apparatus shall be determined by air flow meter.
- (d) The sealing film or tape shall be removed from the test sample and the air infiltration rates determined. The air infiltration through the test sample shall be the difference between the base and total readings.

7 TEST REPORT The following information shall be reported:

- (a) Reference to this Standard, i.e. AS 4420.4.
- (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) Air infiltration, in both directions, through the test sample.
- (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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