AS 2047—2014
(Incorporating Amendment Nos 1 and 2)

Windows and external glazed doors in buildings

This Australian Standard® was prepared by Committee BD-021, Doors and Windows. It was approved on behalf of the Council of Standards Australia on 22 August 2014.
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The following are represented on Committee BD-021:

- Australasian Institute of Surface Finishing
- Australian Building Codes Board
- Australian Glass and Glazing Association
- Australian Industry Group
- Australian Institute of Building Surveyors
- Australian Window Association
- Building Research Association of New Zealand
- CSIRO Materials Science and Engineering
- Glass Association of New Zealand
- Housing Industry Association
- Master Builders Australia
- Master Locksmiths Association of Australasia
- National Association of Testing Authorities Australia
- New Zealand Joinery Manufacturers Federation
- Window and Door Industry Council
- Window Association of New Zealand

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-021, Doors and Windows, to supersede, AS 2047—1999, *Windows in buildings*. After allowing sufficient time for adjustment (nominally 12 months from publication), the superseded document will be withdrawn.

This Standard incorporates Amendment No. 1 (February 2016) and Amendment No. 2 (June 2017). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide window designers and manufacturers with a generic requirement for windows in buildings, setting out the performance requirements and specifications in the design and manufacture of all windows, regardless of materials.

This edition differs from the previous edition as follows:

(a) Hinged, pivot and bi-fold doors have been added to the scope of the Standard.

(b) Wind pressures for housing, including cyclonic regions and corner conditions, have been updated to ensure alignment with AS 4055, *Wind loads for housing*.

(c) The deflection/span ratio for housing and residential buildings has been changed to align with the new lower serviceability limit state wind pressures.

(d) Additional guidance is given for the extrapolation of test results to larger size windows and the substitution of structural members and components.

(e) Updated requirements for windows made from unplasticized PVC (uPVC).

(f) The guide to wind pressures (Appendix A) has been revised to ensure alignment with AS 1170.2.

(g) Appendix B (Environmental considerations) has been included to ensure alignment with current Standards.

In this Standard, statements expressed in mandatory terms in notes to tables and figures are deemed to be an integral part of the Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements, materials, construction, installation and glazing for external—

(a) windows;

(b) sliding and swinging glazed doors, including French and bi-fold doors;

(c) adjustable louvres;

(d) shopfronts; and

(e) window walls with one-piece framing elements.

NOTE: Window walls do not include curtain walls using stacked or vertically spliced framing systems, manufactured from any material and installed in external walls of all classes of buildings.

Throughout this Standard, the term ‘window(s)’ means window of any type, including louvre(s) and glazed door(s).

NOTES:

1 The window ratings or classifications differ from previous glass and window Standards due to the more accurate evaluation of the effect of wind conditions. They are based on either AS 1170.2, or the specific wind loading code developed for housing, AS 4055.

2 For information on wind loads applicable to windows covered by this Standard, see Appendix A.

3 Prefabricated bay windows that incorporate sloped glass are classified as windows in external walls.

4 For the performance specifications of building facades, see AS/NZS 4284. Conformance to the requirements of AS/NZS 4284 will be deemed to satisfy the requirements of this Standard, provided the windows have been tested to AS 4420.1 (operating force test). A2

5 The following are not covered by this Standard but should be checked with the National Construction Code (NCC) for compliance requirements:

(a) Internal doors.

(b) Revolving glazed doors.

(c) Fixed louvres.

(d) Skylights and roof lights and windows in other than the vertical plane.

(e) Windows in greenhouses and agricultural buildings.

(f) Frameless sliding and swinging doors.

(g) Windows constructed on site and architectural one-off windows, which are not design tested.

(h) Second-hand windows, re-used windows or recycled windows.

(i) Heritage windows for heritage buildings, as defined by the relevant State or Territory authority.

1.2 NORMATIVE REFERENCES

The following are the normative documents referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS

1231 Aluminium and aluminium alloys—Anodic oxidation coatings

1288 Glass in buildings—Selection and installation

1604 Specification for preservative treatment
1604.1 Part 1: Sawn and round timber

1720 Timber structures
1720.2 Part 2: Timber properties

1789 Electroplated zinc (electrogalvanized) coatings on ferrous articles (batch process)

1874 Aluminium and aluminium alloys—Ingots and castings

2331 Methods of test for metallic and related coatings
2331.3.1 Part 3.1: Corrosion and related property tests—Neutral salt spray test (NSS test)

2754 Adhesives for timber and timber products
2754.2 Part 2: Polymer emulsion adhesives

3715 Metal finishing—Thermoset powder coatings for architectural applications of aluminium and aluminium alloys

4055 Wind loads for housing

4145 Locksets and hardware for doors and windows (series)

4291 Mechanical properties of fasteners made of carbon steel and alloy steel
4291.1 Part 1: Bolts, screws and studs

A2 **References deleted**

4773 Masonry in small buildings
4773.2 Part 2: Construction

AS/NZS

1080 Timber—Methods of test
1080.1 Part 1: Moisture content

1167 Welding and brazing—Filler metals
1167.2 Part 2: Filler metal for welding

1170 Structural design actions
1170.2 Part 2: Wind actions

1580 Paints and related materials—Methods of test
1580.481.1.3 Part 481.1.3: Coatings—Exposed to weathering—Degree of dirt collection
1580.601.3 Part 601.3: Colour—Methods of colour measurement

1665 Welding of aluminium structures

1734 Aluminium and aluminium alloys—Flat sheet, coiled sheet and plate

AS/NZS	
1865	Aluminium and aluminium alloys—Drawn wire, rod, bar and strip
1866	Aluminium and aluminium alloys—Extruded rod, bar, solid and hollow shapes
2098	Methods of test for veneer and plywood
2098.2	Part 2: Bond quality of plywood (chisel test)
2904	Damp-proof courses and flashings
A2 4420	Windows, external glazed, timber and composite doors—Methods of test
4420.1	Part 1: Test sequence, sampling and test methods
4491	Timber—Glossary of terms in timber related Standards
ISO	
179	Plastics—Determination of Charpy impact properties
179-2	Part 2: Instrumented impact test
AAMA	
303	Voluntary Specification for Rigid Polyvinyl Chloride (PVC) Exterior Profiles
613	Voluntary Performance Requirements and Test Procedures for Organic Coatings on Plastic Profiles
615	Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Plastic Profiles
2603	Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
2604	Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
2605	Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels
ABCB	
NCC	National Construction Code
BS	
4842	Specification for liquid organic coatings for application to aluminium alloy extrusions, sheet and preformed sections for external architectural purposes, and for the finish on aluminium alloy extrusions, sheet and preformed sections coated with liquid organic coatings
BS EN	
513	Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors. Determination of the resistance to artificial weathering
12608	Unplasticized polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors. Classification, requirements and test methods
ASTM	
D4216	Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) and Related PVC and Chlorinated Poly(Vinyl Chloride) (CPVC) Building Products Compounds
G151	Standard Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources