



Windows, external glazed, timber and composite doors—Methods of test

Part 1: Test sequence, sampling and test methods



This Australian Standard® was prepared by Committee BD-021, Doors and Windows. It was approved on behalf of the Council of Standards Australia on 14 October 2016. This Standard was published on 1 December 2016.

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 Window Association
 - Building Research Association of New Zealand
 - CSIRO
 - 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
-

This Standard was issued in draft form for comment as DR AS/NZS 4420.1:2016.

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.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting **www.standards.org.au**

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at **mail@standards.org.au**, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

Australian Standard®

Windows, external glazed, timber and composite doors—Methods of test

Part 1: Test sequence, sampling and test methods

Originated as AS 4420.0—1996, AS 4420.1—1996, AS 4420.2—1996, AS 4420.3—1996, AS 4420.4—1996, AS 4420.5—1996 and AS 4420.6—1996.
Revised, amalgamated and redesignated (in part) as AS/NZS 4420.1:2016.
Reissued and redesignated incorporating Amendment No. 1 (October 2019) as AS 4420.1:2016.

COPYRIGHT

© Standards Australia Limited

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968.

ISBN 978 1 76035 607 1

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-021, Doors and Windows, to supersede the following documents:

- (a) AS 4420.0—1996, *Windows—Methods of test*, Part 0: *General introduction and list of methods*.
- (b) AS 4420.1—1996, *Windows—Methods of test*, Method 1: *Test specimen, preparation for tests, and test sequence*.
- (c) AS 4420.2—1996, *Windows—Methods of test*, Method 2: *Deflection test*.
- (d) AS 4420.3—1996, *Windows—Methods of test*, Method 3: *Operating force test*.
- (e) AS 4420.4—1996, *Windows—Methods of test*, Method 4: *Air infiltration test*.
- (f) AS 4420.5—1996, *Windows—Methods of test*, Method 5: *Water penetration resistance test*.
- (g) AS 4420.6—1996, *Windows—Methods of test*, Method 6: *Ultimate strength test*.

A1

Amendment No. 1 to this Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MS-049, Retroflective Devices. As a consequence of Amendment No. 1, which is published as an Australian-only amendment, this Standard will be redesignated from AS/NZS 4420.1:2016 to AS 4420.1:2016.

This Standard incorporates Amendment No. 1 (October 2019). 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.

This Standard is referenced by AS 2047—2014 and NZS 4211—2008 to provide uniform direction for the essential requirements and methods to test for windows designed for installation in all classes of buildings.

CONTENTS

	<i>Page</i>
1 SCOPE AND GENERAL	4
2 TEST SPECIMEN, PREPARATION FOR TESTS, AND TEST SEQUENCE	5
3 DEFLECTION TEST	7
4 OPERATING FORCE TEST	8
5 AIR INFILTRATION TEST	11
6 WATER PENETRATION RESISTANCE TEST	12
7 ULTIMATE STRENGTH TEST	14

STANDARDS AUSTRALIA

Australian Standard

Windows, external glazed, timber and composite doors—Methods of test

Part 1: Test sequence, sampling and test methods

1 SCOPE AND GENERAL**1.1 Scope**

This Standard sets out methods of test for determining the following performance aspects of windows, external glazed, timber and composite doors designed for installation in all classes of buildings:

- (a) Deflection test.
- (b) Operating force test.
- (c) Air infiltration test.
- (d) Water penetration resistance test.
- (e) Ultimate strength test.

This Standard also addresses the requirements for test specimens, the methods of preparation, and the test sequence.

The objective of this Standard is to provide window designers and manufacturers with the essential requirements and deemed-to-comply solutions to test windows designed for installation in all classes of buildings.

During the preparation of the methods of test, cognizance was taken of the latest test information and performance criteria in Australia, New Zealand and overseas.

1.2 Normative references

The following documents are referred to in this Standard:

AS	
2047	Windows and external glazed doors in buildings
NZS	
4211	Specification for performance of windows
ASTM	
E331	Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference

1.3 Definitions

A1 | For the purpose of this Standard, the definitions given in AS 2047, and the following, apply:

1.3.1 Shall

Indicates that a statement is mandatory.

1.3.2 Should

Indicates a recommendation.

A1 | 2 LABORATORY REQUIREMENTS, TEST SPECIMEN, PREPARATION FOR TESTS, AND TEST SEQUENCE

2.1 Scope

A1 | This Clause specifies the requirements for testing laboratories, test specimens, their methods of preparation for test, and the test sequence.

A1 | 2.1A Laboratory requirements

Laboratories that perform the tests outlined in this Standard shall meet the requirements of AS ISO/IEC 17025.

NOTE: By way of example, accreditation bodies which are signatories to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for testing laboratories may be able to offer accreditation against the requirements of AS ISO/IEC 17025. A listing of ILAC signatories is available from the ILAC website (www.ilac.org). In Australia and New Zealand, the National Association of Testing Authorities (NATA), Joint Accreditation System of Australia and New Zealand (JAS-ANZ) and International Accreditation New Zealand (IANZ) are signatories to the ILAC MRA.

2.2 Test specimen

2.2.1 Requirements for test specimen

The test specimen, with components, shall be representative both in size and configuration of either—

- (a) the largest standard assembly of the product type;
- (b) the largest assembly of the product type to be used on the specific building project; or
- (c) the Window Association of New Zealand (WANZ) range of standard test sizes (applicable in New Zealand only).

Product type is a designation used to distinguish between the method of operation of the window, as well as associated materials and components, for example, awning, casement, sliding.

The materials and components of the test specimen assembly shall be of the same type and size, and shall have identical methods of construction as those to be used in production.

NOTE: It is recommended that in the case of a timber specimen the manufacturer may present the specimen in a finished state, that is, painted or stained, subject to the notation on the test report.

2.2.2 Documentation of test specimen

Technical drawings and any other relevant information shall be made available to the test laboratory prior to the installation of the test specimen. These documentations shall include the following:

- (a) Expected rating or wind pressure capacity of test specimen assembly in accordance with AS 2047 for Australia and NZS 4211 for New Zealand.
- (b) Assembly drawing showing elevations and sections of test specimen.
- (c) Details uniquely identifying all parts comprising the window system, including all weather-seals, gaskets, joint sealants and hardware.
- (d) Details of support fixing of test specimen.
- (e) Details of drainage including drainage hole dimensions, spacing and location.
- (f) Glazing materials, including glass type and thickness.
- (g) A statement certifying that these documents accurately represent the test specimen in all respects.
- (h) Date the document was generated.