

Australian Standard™

**Glass in buildings—
Selection and installation**



S t a n d a r d s Australia

This Australian Standard was prepared by Committee BD/7, Glazing and Fixing of Glass. It was approved on behalf of the Council of Standards Australia on 29 August 1994 and published on 17 October 1994.

The following interests are represented on Committee BD/7:

Architectural Aluminium Association of New Zealand
Australian Aluminium Fabricators Association
Australian Building Codes Board
Australian Chamber of Commerce and Industry
Australian Chamber of Manufactures
Building Research Association of New Zealand
CSIRO Division of Building Construction and Engineering, Australia
Flat Glass Council of Australia
Housing Industry Association, Australia
Housing Industry Association, Australia
Master Builders Australia
New Zealand Plastics Glazing Materials Suppliers
New Zealand Safety Glass Association
Plastics and Chemicals Industry Association, Australia
Timber Merchants Association of Australia
University of New South Wales
University of Sydney

Keeping Standards up-to-date

Standards are living documents which 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 Standards may also be withdrawn.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 which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Australia web site at www.standards.com.au and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Australian Standard*, has a full listing of revisions and amendments published each month.

We also welcome suggestions for the improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.com.au, or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

AS 1288—1994
(Incorporating Amendment Nos 1 and 2)

Australian Standard™

**Glass in buildings—
Selection and installation**

First published as AS CA26—1957.
Revised and redesignated AS 1288—1973.
Revised and redesignated AS 1288.1—1979, AS 1288.2—1979 and AS 1288.3—1979.
Revised, amalgamated and redesignated AS 1288—1989.
Third edition AS 1288—1994.
Reissued incorporating Amendment Nos 1 and 2 (December 2000).

COPYRIGHT

© Standards Australia International

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.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 9265 6

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD/7 on Glazing and Fixing of Glass as an Australian Standard, and is the result of a consensus among the Australian and New Zealand representatives on the Joint Committee to produce it as an Australian Standard.

This Standard incorporates Amendment 1 (September 1997) and Amendment 2 (December 2000). The changes arising from the Amendments 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 a new edition of AS 1288—1989 and incorporates Amendment No. 1 of that Standard as well as further amendments, specifically to Clauses 1.4.33, 2.2.2, 2.2.3, 3.7, 4.3.1, 5.1, 5.3, 5.9.1, 5.9.3, 5.10, 5.12, 5.13.3.1, 5.15, 5.16, 5.18, Figures F1, F4 and F8, Table F7 and Appendix I.

This Standard incorporates the following significant changes from the previous edition:

- (a) Addition of the definition of a chair rail.
- (b) Change in allowable deflection of frames under an appropriate design load to reflect the values in the relevant window frame Standards.
- (c) Additional information on defining unimpeded path of travel.
- (d) Addition of requirements for louvres in side panels allowing 5 mm toughened safety glass under specific circumstances.
- (e) Changes in the definition of 'associated' windows for bathrooms and other refinements.
- (f) Addition of expanded flow charts.

The objectives of the Standard are to provide uniform direction for the use and installation of glazing throughout Australia, to allow this Standard's use in legislation, and to clarify technical definitions.

The Committee considers that this Standard represents the best compromise which can be presented at this time. It makes recommendations for design and installation practice based upon proven techniques, but does not restrict the adoption of materials or methods of design which can be shown to the satisfaction of the responsible authority to provide no lesser standard of materials, designs or constructions than obtained by using the procedures specified herein.

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.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 APPLICATION	5
1.3 REFERENCED DOCUMENTS	5
1.4 DEFINITIONS	6
1.5 NOTATION	9
SECTION 2 MATERIALS	
2.1 GLASS	9
2.2 OTHER GLAZING MATERIALS	10
SECTION 3 GENERAL REQUIREMENTS	
3.1 DIMENSIONAL REQUIREMENTS	11
3.2 FRAMING REQUIREMENTS	11
3.3 STANDARD NOMINAL THICKNESS OF GLASS	11
3.4 NON-STANDARD NOMINAL THICKNESS OF GLASS	11
3.5 DESIGN REQUIREMENTS FOR SPECIAL SITUATIONS	13
3.6 FIRE RESISTANCE	13
3.7 CHAIR RAIL	14
SECTION 4 WIND LOADING REQUIREMENTS	
4.1 GENERAL	15
4.2 DESIGN WIND PRESSURE	15
4.3 ORDINARY ANNEALED GLASS OF STANDARD NOMINAL THICKNESSES	15
4.4 ORDINARY ANNEALED GLASS NOT OF A STANDARD NOMINAL THICKNESS	15
4.5 GLASS OTHER THAN ORDINARY ANNEALED GLASS	16
SECTION 5 HUMAN IMPACT SAFETY REQUIREMENTS	
5.1 GENERAL	20
5.2 FRAMING OF DOORS AND PANELS	20
5.3 EXPOSED EDGES	20
5.4 SUBSTITUTION OF SAFETY GLASSES	20
5.5 USE OF SAFETY GLASSES OF NON-STANDARD THICKNESSES	21
5.6 SEALED INSULATING GLASS UNITS	21
5.7 IDENTIFICATION OF SAFETY GLAZING MATERIALS	21
5.8 DOORS	21
5.9 SIDE PANELS	21
5.10 GLAZED PANELS NOT DEFINED AS DOORS OR SIDE PANELS, WHICH ARE CAPABLE OF BEING MISTAKEN FOR AN UNIMPEDED PATH OF TRAVEL	22
5.11 GLAZED PANELS, NOT DEFINED AS DOORS OR SIDE PANELS, ON THE PERIMETER OF ROOMS OF RESIDENTIAL BUILDINGS	23

	<i>Page</i>
5.12 SHOWER DOORS, SHOWER SCREENS AND BATH ENCLOSURES	23
5.13 SHOPFRONTS AND INTERNAL PARTITIONS	26
5.14 BALUSTRADES	27
5.15 LOW-LEVEL GLASS IN SCHOOL AND CHILD-CARE BUILDINGS	27
5.16 GLASS FOR BUILDINGS DESIGNED FOR SPECIAL ACTIVITIES	27
5.17 LEADLIGHT GLAZING	27
5.18 OPERABLE WINDOWS	27
 SECTION 6 REQUIREMENTS FOR LOUVRES AND SLOPED OVERHEAD GLAZING	
6.1 GENERAL	28
6.2 LOUVRES	28
6.3 SLOPED OVERHEAD GLAZING (INCLUDING ROOFLIGHTS)	28
 SECTION 7 INSTALLATION	
7.1 GENERAL	31
7.2 DIMENSIONAL REQUIREMENTS	31
7.3 USE OF GLAZING MATERIALS	32
7.4 PREPARATION OF REBATES, GROOVES, AND BEDS	33
 SECTION 8 UNFRAMED TOUGHENED GLASS ASSEMBLIES	
8.1 GENERAL	36
8.2 DESIGN CONSIDERATIONS	36
8.3 GLAZING TECHNIQUES	38
 APPENDICES	
A DETERMINATION OF SURFACE AND EDGE COMPRESSION STRESSES FOR HEAT-STRENGTHENED AND TOUGHENED GLASS	40
B DETERMINATION OF MAXIMUM AND MINIMUM THICKNESS	40
C BASIS FOR DETERMINATION OF THICKNESS OR AREA OF GLASS IN ACCORDANCE WITH THE REQUIREMENTS FOR WIND LOADING	41
D SIMPLIFIED METHOD OF DETERMINING DESIGN WIND PRESSURES	45
E DESIGN CHARTS AND TABLES FOR WIND LOADING FOR THE COMMONLY USED GLASS TYPES	47
F INTERPRETATION OF THE MOST COMMON HUMAN IMPACT SAFETY REQUIREMENTS	79
G ASPECTS FOR CONSIDERATION IN THE SELECTION OF GLASS FOR SLOPED OVERHEAD GLAZING	97
H BASIS FOR DETERMINATION OF FIN DESIGN TO PREVENT BUCKLING	98

STANDARDS AUSTRALIA

Australian Standard

Glass in buildings—Selection and installation

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out procedures for the selection and installation of glass in buildings, according to the type of material and the minimum thickness allowable for a given area (or maximum area allowable for a given thickness) for a single panel not exceeding 15 m² glazed area and for unidirectional glazing spans not exceeding 4 m.

A2 For materials other than glass and for the construction and installation of windows, sliding doors, adjustable louvres, shopfronts and window walls with one-piece framing elements, refer to AS 2047.

NOTES:

- 1 This Standard does not preclude the use of materials or methods of design and installation where such materials or methods of design can be demonstrated to be equal to or superior to those specified in this Standard.
- 2 This Standard will be referenced in the Building Code of Australia by way of BCA Amendment 7 intended for publication in November 1994, thereby superseding the previous edition, AS 1288—1989, which will be withdrawn 6 months from the date of issuance of BCA Amendment 7. Users are advised that when BCA Amendment 7 is issued, it will not necessarily be gazetted in each State/Territory at the time of printing.

1.2 APPLICATION The thickness of glass (see Clause 3.1.1) required for a given area (or the area of glass for a given thickness) shall be determined on the basis of the criteria given in Sections 3, 4, 5 and 6 as follows:

- (a) For installations subject to wind loading, the thickness or area shall be determined according to Section 4.
- (b) For special situations other than those covered in Sections 3, 4 and 5, the thickness or area shall be determined according to Section 6.
- (c) For human impact considerations, the thickness or area shall be determined according to Section 5.

Glass shall be installed in accordance with Section 7.

Unframed toughened glass assemblies shall be designed and glazed in accordance with Section 8.

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

- | | |
|--------|---|
| AS | |
| 1170 | Minimum design loads on structures (known as the SAA Loading Code) |
| 1170.1 | Part 1: Dead and live loads and load combinations |
| 1170.2 | Part 2: Wind loads |
| 1527 | Two-part polysulphide-based sealing compounds for the building industry |
| 1530 | Methods for fire tests on building materials, components and structures |
| 1530.4 | Part 4: Fire resistance tests of elements of building construction |
| 1639 | The design and installation of corrugated fibre-reinforced cement roofing and wall cladding |