STANDARDS Australia

AS 1684.2—2010

Residential timber-framed construction

(Incorporating Amendment Nos 1 and 2)

Part 2: Non-Cyclonic Areas

Australian STANDARD

AS

This Australian Standard® was prepared by Committee TM-002, Timber Framing. It was approved on behalf of the Council of Standards Australia on 21 December 2009.
This Standard was published on 21 June 2010.

The following are represented on Committee TM-002:

- A3P
- Association of Consulting Engineers, Australia
- Australian Building Codes Board
- Australian Institute of Building
- Building Research Association of New Zealand
- CSIRO Manufacturing and Infrastructures Technology
- Engineered Wood Products Association of Australasia
- Engineers Australia
- Forest Industries Federation (WA)
- Frame and Truss Manufacturers Association Australia
- Housing Industry Association
- Master Builders, Australia
- New Zealand Timber Industry Federation
- Scion
- South Australian Housing Trust
- Timber and Building Materials Association, NSW
- Timber Development Association, NSW
- Timber Queensland

Additional Interests:

- Mr Peter Juniper

This Standard was issued in draft form for comment as DR AS 1684.2.

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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Australian Standard®

Residential timber-framed construction

Part 2: Non-cyclonic areas

First published as AS O56—1946.
Second edition 1948.
Revised and redesignated as AS CA38—1971.
Revised and redesignated as AS 1684—1975.
Third edition 1992.
Revised and redesignated in part as AS 1684.2—1999.
Third edition 2010.
Reissued incorporating Amendment No. 1 (June 2013).
Reissued incorporating Amendment No. 2 (October 2013).

ISBN 978 0 7337 9433 9

PREFACE

This Standard was prepared by the Joint Standards Australian/Standards New Zealand Committee TM-002, Timber Framing, to supersede AS 1684.2—2006.

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.

This Standard incorporates Amendment No. 1 (June 2012) and Amendment No. 2 (October 2013). 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.

The objective of this Standard is to provide the building industry with procedures that can be used to determine building practice, to design or check construction details and to determine member sizes, and bracing and fixing requirements for timber-framed construction in non-cyclonic areas.

The objectives of this revision are to—

(a) include editorial amendments and some technical changes to correct mistakes, clarify interpretation and enhance the application of the document;

(b) incorporate the outcomes of recent research projects that considered the role and function of wall noggings (Clause 6.2.1.5) and alternative simplified tie-down systems for higher wind areas in particular using rim beam construction methods;

(c) include information on generic building practices for EWPs (engineered wood products), which are being widely used in timber-framed construction (see Appendix J); and

(d) provide some adjustments to the span table values in the Supplements for stress grades MGP 10, MGP 12 and MGP 15 in response to changes to the design characteristic values for these stress grades in AS 1720.1.

NOTE: These adjustments have been made recognizing that MGP stress grades represent the major product usage in the marketplace. Further work is required to assess and more fully respond to existing and expected changes to the related loading, design, and design criteria Standards, and this may result in a future revision of Span Tables in the Supplements for all stress grades.

This Standard is a companion publication to the following:

AS
1684 Residential timber-framed construction
1684.1 Part 1: Design criteria
1684.3 Part 3: Cyclonic areas
1684.4 Part 4: Simplified—Non-cyclonic areas

This Standard provides detailed design, bracing and connection procedures for wind classifications N1 to N4.

Prior to using this Standard, it is necessary to establish the design gust wind speed and wind classification (see Clause 1.4.2).

Alternatively, for wind classifications N1 and N2, AS 1684.4 provides a simpler set of design solutions derived from this Standard. It should be noted that a more economical design may be obtained by following the design procedures given in this Standard.

It should also be noted that AS 1684.4 includes additional differences to AS 1684.2 and 1684.3.

The following Supplements form an integral part of, and must be used in conjunction with, this Standard:

Supplement	0	General introduction and index
N1/N2 Supp.	1	Wind classification N1/N2—Seasoned softwood—Stress grade F5
N1/N2 Supp.	2	Wind classification N1/N2—Seasoned softwood—Stress grade F7
N1/N2 Supp.	3	Wind classification N1/N2—Seasoned softwood—Stress grade F8
N1/N2 Supp.	4	Wind classification N1/N2—Seasoned softwood—Stress grade MGP 10
N1/N2 Supp.	5	Wind classification N1/N2—Seasoned softwood—Stress grade MGP 12
N1/N2 Supp.	6	Wind classification N1/N2—Seasoned softwood—Stress grade MGP 15
N1/N2 Supp.	7	Wind classification N1/N2—WA seasoned hardwood—Stress grade F14
N1/N2 Supp.	8	Wind classification N1/N2—Seasoned hardwood—Stress grade F17
N1/N2 Supp.	9	Wind classification N1/N2—Seasoned hardwood—Stress grade F27
N1/N2 Supp.	10	Wind classification N1/N2—Unseasoned softwood—Stress grade F5
N1/N2 Supp.	11	Wind classification N1/N2—Unseasoned softwood—Stress grade F7
N1/N2 Supp.	12	Wind classification N1/N2—Unseasoned hardwood—Stress grade F8
N1/N2 Supp.	13	Wind classification N1/N2—Unseasoned hardwood—Stress grade F11
N1/N2 Supp.	14	Wind classification N1/N2—Unseasoned hardwood—Stress grade F14
N1/N2 Supp.	15	Wind classification N1/N2—Unseasoned hardwood—Stress grade F17
N3 Supp.	1	Wind classification N3—Seasoned softwood—Stress grade F5
N3 Supp.	2	Wind classification N3—Seasoned softwood—Stress grade F7
N3 Supp.	3	Wind classification N3—Seasoned softwood—Stress grade F8
N3 Supp.	4	Wind classification N3—Seasoned softwood—Stress grade MGP 10
N3 Supp.	5	Wind classification N3—Seasoned softwood—Stress grade MGP 12
N3 Supp.	6	Wind classification N3—Seasoned softwood—Stress grade MGP 15
N3 Supp.	7	Wind classification N3—WA seasoned hardwood—Stress grade F14
N3 Supp.	8	Wind classification N3—Seasoned hardwood—Stress grade F17
N3 Supp.	9	Wind classification N3—Seasoned hardwood—Stress grade F27
N3 Supp.	10	Wind classification N3—Unseasoned softwood—Stress grade F5
N3 Supp.	11	Wind classification N3—Unseasoned softwood—Stress grade F7
N3 Supp.	12	Wind classification N3—Unseasoned hardwood—Stress grade F8
N3 Supp.	13	Wind classification N3—Unseasoned hardwood—Stress grade F11
N3 Supp.	14	Wind classification N3—Unseasoned hardwood—Stress grade F14
N3 Supp.	15	Wind classification N3—Unseasoned hardwood—Stress grade F17
N4 Supp.	1	Wind classification N4—Seasoned softwood—Stress grade F5
N4 Supp.	2	Wind classification N4—Seasoned softwood—Stress grade F7
N4 Supp.	3	Wind classification N4—Seasoned softwood—Stress grade F8
N4 Supp.	4	Wind classification N4—Seasoned softwood—Stress grade MGP 10
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N4 Supp.	13	Wind classification N4—Unseasoned hardwood—Stress grade F11
N4 Supp.	14	Wind classification N4—Unseasoned hardwood—Stress grade F14
N4 Supp.	15	Wind classification N4—Unseasoned hardwood—Stress grade F17

Span tables in Supplements for unseasoned hardwood F8 and F11 may be used for unseasoned F8 and F11 softwood as well.

A CD-ROM, which contains the above Supplements, is attached to this Standard.

This Standard does not preclude the use of framing, fastening or bracing methods or materials other than those specified. Alternatives may be used, provided they satisfy the requirements of the Building Code of Australia.

Statements expressed in mandatory terms in Notes to tables and figures deemed to be requirements of this Standard.

Notes to the text contain information and guidance. They are not an integral part of the Standard.

Statements expressed in mandatory terms in Notes to the Span Tables are deemed to be requirements of this 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 AND APPLICATION

1.1.1 Scope

This Standard specifies requirements for building practice and the selection, placement and fixing of the various structural elements used in the construction of timber-framed Class 1 and Class 10 buildings as defined by the Building Code of Australia and within the limitations given in Clause 1.4. The provisions of this Standard also apply to alterations and additions to such buildings.

This Standard also provides building practice and procedures that assist in the correct specification and determination of timber members, bracing and connections, thereby minimizing the risk of creating an environment that may adversely affect the ultimate performance of the structure.

This Standard may also be applicable to the design and construction of other classes of buildings where the design criteria, loadings and other parameters applicable to those classes of building are within the limitations of this Standard.

NOTES:

1 See AS 1684.1 for details of design criteria, loadings and other parameters.

2 Whilst this Standard may be used to design Class 10 buildings, less conservative levels of design for this building class may be permitted by building regulations and other Australian Standards.

3 Advisory information on the construction and specifications of timber stairs, handrails and balustrades is provided in the FWPA's publication (see the Bibliography).

1.1.2 Application

Throughout this Standard, reference is made to the Span Tables in the Supplements. The Supplements are an integral part of, and shall be used in conjunction with, this Standard.

1.2 COMPANION DOCUMENTS

This Standard is a companion publication to the following:

AS
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1684.1 Part 1: Design criteria
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1684.4 Part 4: Simplified—Non-cyclonic areas