STANDARDS Australia

AS 1684.4—2006

Residential timber-framed construction

(Incorporating Amendment No. 1)

PART 4

SIMPLIFIED—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 9 November 2005.
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The following are represented on Committee TM-002:

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

This Standard was issued in draft form for comment as DR 04275.

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 public comment period.

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Australian Standard®

Residential timber-framed construction

Part 4: Simplified—Non-cyclonic areas

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PREFACE

This Standard was prepared by the Joint Standards Australian/Standards New Zealand Committee TM-002, Timber Framing, to supersede AS 1684.4—1999.

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 (November 2006). 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Standard will be referenced in the Building Code of Australia 2006; thereby superseding AS 1684.4—1999, which will be withdrawn 12 months from the date of publication of this Standard.

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 wind classifications N1 and N2.

The objective of this revision is to —

(a) address issues and practices that have been raised by some states building industry interests to better reflect their needs and construction practices, and include editorial amendments and some technical changes to correct mistakes and enhance the application of the document; and

(b) improve the ability of building certifiers to assess and approve applications in accordance with deemed to satisfy documents and to provide more economical deemed to satisfy details.

The continued development of timber framing systems and the need to cater for a widening variety of materials and design conditions have led to a total revision of structural framing design. These developments include —

(i) provision for limit state design methods;

(ii) revised/new structural grades for timber;

(iii) provisions catering for open plan living—larger spans, wider openings and bigger rooms, which need more rational approach to bracing design;

(iv) special 'engineered' and fabricated timber products;

(v) recognition of a wider range of high wind and cyclonic design; and

(vi) computer-aided design software for member sizes, bracing and tie-down.

The increased scope and application of this Standard to cater for these conditions has also led to the need to perform a more rigorous design check on a wider range of members and construction practices including window sill trimmers and roof bracing.

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

This Standard is a companion publication to the following:

AS
1684 Residential timber-framed construction
1684.1 Part 1: Design criteria
1684.2 Part 2: Non-cyclonic areas
1684.3 Part 3 Cyclonic areas

This Standard has been derived from AS 1684.2 to provide a simpler design procedure for lower wind classification areas where details of bracing and tie-down are not as complicated. It should be noted that this Standard differs from AS 1684.2 in a number of areas in order to achieve the simplification. Some of the differences are as follows:

(A) Input to the Span Tables requiring references to span and spacing;

(B) The geometric limits of the house are more restricted, e.g., 12.0 m maximum width and 30° maximum roof pitch.

(C) Span Tables are provided for a more limited range of stress grades.

(D) Design of bracing is simplified.

(E) Design of tie-down, where required, is simplified.

Alternatively, for wind classifications N1 and N2, more economical design may be obtained by following the design procedures given in AS 1684.2. For wind classifications N3 and N4 for non-cyclonic areas, see AS 1684.2.

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.

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 in Appendix A as deemed to 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

This Standard specifies requirements for building practice and for 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 the Standard also apply to alterations and additions to these 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.

Member Span Tables are given in Appendix A.

1.2 COMPANION DOCUMENTS

This Standard is a companion publication to the following:

AS
1684 Residential timber-framed construction
1684.1 Part 1: Design criteria
1684.2 Part 2: Non-cyclonic wind areas
1684.3 Part 3: Cyclonic wind areas