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Australian Standard 1684–1979

SAA TIMBER FRAMING CODE

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

THE FOLLOWING SCIENTIFIC, INDUSTRIAL, PROFESSIONAL AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Institute of Builders

CSIRO Division of Building Research

Experimental Building Station

Forestry Commission of N.S.W.

Forestry and Timber Bureau

Housing Trusts and Commissions

Local Government Departments

Institute of Timber Engineering

Queensland Timber Board

Registry of Co-operative Societies of N.S.W.

Royal Australian Institute of Architects

Rural Bank of N.S.W.

Sawmillers and Timber Merchants Associations

State Departments of Public Works

Timber Advisory Council of N.S.W.

Timber Development Associations

University of Melbourne

University of N.S.W.

This standard, prepared by Committee TM/6, Light Timber Framing, was approved on behalf of the Council of the Standards Association of Australia on 12 April 1979, and was published on 1 July 1979.

This code is intended to establish a minimum standard for the material and construction of light structural timber frames in residential or small commercial or industrial buildings which will be acceptable under all building codes but does not purport to comprise all the necessary provisions of a contract.

To keep abreast of progress in industry and research, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

AUSTRALIAN STANDARD

CODE OF PRACTICE FOR

CONSTRUCTION IN TIMBER FRAMING

known as the

SAA TIMBER FRAMING CODE

AS 1684—1979

First published (as AS CA38)	1971
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PREFACE

This standard was prepared by the Committee on Light Timber Framing as a revision of AS 1684—1975.

A number of changes have been made including alteration of the title, deletion of provision for the use of ungraded timber and inclusion of a number of new diagrams designed to make the standard more explicit.

This standard is intended to provide the basic essentials for a uniform code of practice for the framing of conventional type timber structures that will be acceptable to building authorities throughout Australia.

The tables of spans and spacings, which are issued as Supplements to the standard (see list below), where prepared by the CSIRO Division of Building Research using metric member sizes as designated by the various sections of the timber industry. The basis for design used in the preparation of this standard was AS 1720, SAA Timber Engineering Code.

As a result of a demand from users of the standard, tables are provided for seasoned timbers, both softwoods and hardwoods, in a range of stress grades. This was made possible by the development of an additional strength grouping system using the same basis of assessment as for unseasoned timber but utilizing the structural properties of each species as determined in the seasoned condition.

The dry strength groups are called SD1, SD2, . . . SD 8 in order of decreasing strength properties. Attention is drawn to the fact that the term 'seasoned' as defined in AS 1720, SAA Timber Engineering Code, means the condition of a piece of wood when the maximum moisture content anywhere within that piece does not exceed 15 percent,

Alternative sizes given in Supplements Nos 17 to 20, were introduced to cope with a range of imported scantling sizes, but may be used for any species of appropriate stress grade.

Supplements Nos 9 to 16 and 21 and 22 differentiate between seasoned softwood and seasoned hardwood to accommodate the different sizes. These tables may be interchanged where appropriate sizes and stress grades are available.

In accordance with Standards Association policy it is not the intention that the advisory notes included in this standard should be mandatory. This applies particularly where such recommendations conflict sharply with local practice which experience has shown to give satisfactory performance. Local authorities may require evidence of the soundness of the proposed construction.

Under the authority of the Association's Timber Standards Board a permanent committee has been formed to study all future comment on the standard and to make the necessary revisions as the need arises. The committee comprises a central group together with one representative from other committees formed in each of the six States. Considerable success has been achieved in securing representation on the State committees from a wide cross-section of organizations, authorities and individuals throughout the country. Correspondence should be directed to this reviewing committee through the Director of SAA.

This standard makes reference to a number of Australian standard specifications and codes for timber, timber products and working practices, details of which are given in the relevant sections of the standard. In addition, reference may be necessary to the following standards:

AS 1148	Nomenclature of Commercial Timbers Imported into Australia
AS 1170	SAA Loading Code Part 1—Dead and Live Loads Part 2—Wind Forces
AS 1250	SAA Steel Structures Code
AS 1475	SAA Blockwork Code Part 1—Unreinforced Blockwork
AS 1529	Installation of Household Type Hot Water Supply Systems
AS 1538	SAA Cold-formed Steel Structures Code
AS 1604	Preservative-treated Sawn Timber, Veneer and Plywood
AS 1640	SAA Brickwork Code
AS 1691	SAA Domestic Oil-fired Appliances Installation Code
AS 1694	Code of Practice for Soil Treatment for Protection of Buildings Against Subterranean Termites
AS 1720	SAA Timber Engineering Code
AS 1748	Mechanically Stress-graded Timber
AS 1749	Rules for Mechanical Stress Grading of Timber
AS 1859	Flat Pressed Particleboard
AS 1860	Code of Practice for Installation of Particleboard Flooring
AS 2057	Code of Practice for Soil Treatment for Protection of Buildings Against Subterranean Termites
AS O1	Terms Used in Timber Standards
AS O2	Nomeclature of Australian Timbers
SAA Int. 324,	Metal Wall Ties for Brickwork

The following Supplements have been prepared for use in conjunction with the code; others may be forthcoming. Not all the supplements will be required by designers. It is unlikely that more than four stress grades of structural timber will be available in any particular district.

Supp. No 1 Unseasoned Timber — Stress Grade F4

Supp. No 2 Unseasoned Timber — Stress Grade F5

Supp. No 3 Unseasoned Timber — Stress Grade F7

Supp. No 4 Unseasoned Timber — Stress Grade F8

Supp. No 5 Unseasoned Timber — Stress Grade F11

Supp. No 6 Unseasoned Timber — Stress Grade F14

Supp. No 7 Unseasoned Timber — Stress Grade F17

Supp. No 8 Unseasoned Timber — Stress Grade F22

Supp. No 9 Seasoned Softwood — Stress Grade F5

Supp. No 10 Seasoned Softwood — Stress Grade F7

Supp. No 11 Seasoned Softwood — Stress Grade F8

Supp. No 12 Seasoned Softwood — Stress Grade F11

Supp. No 13 Seasoned Hardwood—Stress Grade F11

Supp. No 14 Seasoned Hardwood—Stress Grade F14

Supp. No 15 Seasoned Hardwood—Stress Grade F17

Supp. No 16 Seasoned Hardwood—Stress Grade F27

Supp. No 17 Unseasoned Timber (Alternative Sizes)—Stress Grade F4

Supp. No 18 Unseasoned Timber (Alternative Sizes)—Stress Grade F5

Supp. No 19 Unseasoned Timber (Alternative Sizes)—Stress Grade F8

Supp. No 20 Unseasoned Timber (Alternative Sizes)—Stress Grade F11

Supp. No 21 Seasoned Softwood — Stress Grade F4

Supp. No 22 Seasoned Softwood — Stress Grade F14

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
CODE OF PRACTICE FOR CONSTRUCTION IN TIMBER FRAMING

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Code provides rules for the selection, placement and fixing of the various structural timber members used in the construction of conventional building frames intended to be used for residential and light commercial or industrial purposes and similar structures. It describes procedures which are designed to prevent misuse of timber or creation of an environment which might adversely affect the durability of the structure.

1.2 APPLICATION.

1.2.1 Framing and Fastening Methods. The stresses used in the calculation of maximum spans shown in the tables were derived specifically for conventional timber framing and are not applicable generally to other forms of construction.

Notwithstanding the above, this Code does not restrict the introduction of other framing and fastening methods or materials where it can be shown, to the satisfaction of the Building Authority, that these satisfy the performance requirements met by the materials and methods described herein.

In all cases the program of calculations used to obtain the maximum permissible spans for timber sections listed in the various tables was designed to obtain the greatest economy of timber consistent with the strength and stiffness required for the given use or purpose of that member. In consequence, when selecting members, particularly those of smaller cross-section, from tables of maximum span, the user is warned that it may be necessary to give close attention to factors other than load-carrying ability. The need to provide room for drillings or notchings by service trades and adequate width of grounds for jointing or fixing of linings, together with the need to ensure that sufficient width and thickness of timber are available at joints and bearings to accept the required gauge and number of fixing nails, may require the selection of members greater in size than those which are needed for structural strength alone.

1.2.2 Tables of Spans and Spacings for Stress Grades. Tables of spans and spacings according to size of timber for the individual stress grades (see Rule 1.4.3) are given in Supplements to this Code. For the purposes of this Code, such Supplements shall be deemed to form part of this Code. Where referred to in the text of this Code, the tables in the Supplements have the suffix letter 'S'.

1.2.3 Use of Tables for Two-storey Constructions. Except in the case where the headings to tables of spans and spacings indicate that sections listed are specifically for use in a particular storey of two-storey constructions, it may be assumed that tables are applicable generally either to single-storey constructions or to the top storey of two-storey constructions.

1.3 PERFORMANCE. This Code defines a standard for structural framing which has been shown by experience to ensure long life and a low level of maintenance and to provide a satisfactory degree of protection and comfort for occupants of buildings to which it applies.

The design loads recommended in AS 1170, SAA Loading Code, Part 1—Dead and Live Loads, were taken into account in the computations for these tables, but allowance was also made for the ability of the described methods of timber framing to distribute laterally the concentrated or localized loads given in that code so that they will be shared by a number of members. The design wind velocity used in computations was 33 m/s

NOTE: For an explanation of design wind velocity reference should be to AS 1170, SAA Loading Code—Part 2, Wind Forces. See also Appendix D for precautions against wind effects.

1.4 TERMS AND DEFINITIONS.

1.4.1 General. Terms used in describing timber in this Code shall have meanings as defined in AS O1 or as defined hereunder. Standard trade common names shall be those listed either in AS O2 or in AS 1148. Figs 1(A) to 1(C), give the nomenclature used throughout this Code to identify the various timber framing members.

In the use of tables for permissible span which form Supplements to this Code, the interpretation of the various terms used shall be as given in Rules 1.4.2 to 1.4.7.

1.4.2 Grade. 'Grade' shall mean the structural quality (grade) of a timber section which has herein been determined in accordance with the Australian Standard visual grading rules appropriate to its species, as listed in Table A1 of Appendix A. Where no grading rules exist for seasoned timber, such material shall be graded in accordance with the visual grading rules for unseasoned timber of the same species.