

AS 1720.1—1997
(Incorporating Amendment Nos 1, 2, 3 and 4)

AS 1720.1—1997

Australian Standard[®]

Timber structures

Part 1: Design methods



This Australian Standard® was prepared by Committee TM-001, Timber Structures. It was approved on behalf of the Council of Standards Australia on 5 September 1997. This Standard was published on 5 November 1997.

The following are represented on Committee TM-001:

- The Association of Consulting Engineers Australia
 - Australian Building Codes Board
 - Building Research Association of New Zealand
 - CSIRO Division of Building, Construction and Engineering
 - Curtin University of Technology
 - Monash University
 - National Association of Forest Industries
 - New Zealand Forest Research Institute
 - New Zealand Timber Industry Federation
 - New Zealand Timber Suppliers Group
 - Pine Australia
 - Plywood Association of Australia
 - University of Technology, Sydney
-

This Standard was issued in draft form for comment as DR 94276.

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Standards may also be withdrawn.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.

AS 1720.1—1997
(Incorporating Amendment Nos 1, 2, 3 and 4)

Australian Standard[®]

Timber structures

Part 1: Design methods

Originated as part of AS CA65—1972.
Previous edition AS 1720.1—1988.
Second edition 1997.
Reissued incorporating Amendment No. 1 (July 1998).
Reissued incorporating Amendment No. 2 (May 2000).
Reissued incorporating Amendment No. 3 (May 2001).
Reissued incorporating Amendment No. 4 (November 2002).

COPYRIGHT

© Standards Australia

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 GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 1493 5

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM/1, Timber Structures, to supersede AS 1720.1—1988.

This Standard incorporates Amendment Nos 1 (July 1998), 2 (May 2000), 3 (May 2001) and 4 (November 2002). The changes required by 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 the result of a consensus among representatives on the Joint Committee to produce it as an Australian Standard.

The objective of this Standard is to provide designers and manufacturers of timber structures with limit state design methods, design data and testing procedures for such structures.

This Standard is a ‘soft conversion’ of the working stress design (WSD) version to the limit state design (LSD) format. The term ‘soft conversion’ implies that average similar design solutions would be obtained from WSD and LSD codes. This approach was taken to ensure a smooth transition from WSD format to the LSD format. Hence only essential changes have been made to facilitate this conversion, and the contents of the LSD code remain substantially the same as the WSD code. New clauses and appendices have been added and the existing text has been thoroughly revised and updated to accommodate the conversion to LSD format.

Differences from the 1988 edition include the following:

- (a) Conversion from WSD to LSD.
- (b) Requirements for design data and details on drawings (Clauses 1.6.2, 1.6.3).
- (c) The properties assigned to each strength group and F-grade multiplied by a factor to reflect the change to LSD.
- (d) Joint types introduced for shear and withdrawal loadings.
- (e) In-plane bending for plywood.
- (f) Glulam grades, including characteristic strengths and elastic moduli.
- (g) New Section on structural laminated veneer lumber.
- (h) Section properties for plywood diaphragms.
- (i) Guidance on appropriate deflection limits for various applications.
- (j) Clauses on beam and column design and on curved and tapered members.
- (k) Design properties for monitored, in-grade tested material.
- (l) An appendix detailing the method for the assignment of capacity factors.

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 AND APPLICATION.....	5
1.2 REFERENCED DOCUMENTS	5
1.3 NEW MATERIALS AND METHODS	5
1.4 TIMBER.....	6
1.5 GENERAL DESIGN CONSIDERATIONS.....	7
1.6 DESIGN AND SUPERVISION.....	10
1.7 WORKMANSHIP AND MAINTENANCE.....	10
1.8 DEFINITIONS	11
1.9 NOTATION	15
1.10 UNITS	15
SECTION 2 DESIGN PROPERTIES OF STRUCTURAL TIMBER ELEMENTS	
2.1 GENERAL	16
2.2 DESIGN PROPERTIES	16
2.3 CAPACITY FACTOR.....	22
2.4 MODIFICATION FACTORS.....	26
SECTION 3 DESIGN CAPACITY OF BASIC STRUCTURAL MEMBERS	
3.1 GENERAL	34
3.2 BEAM DESIGN	34
3.3 COLUMN DESIGN.....	42
3.4 TENSION MEMBER DESIGN	46
3.5 DESIGN CAPACITY IN TENSION PERPENDICULAR TO GRAIN	46
3.6 COMBINED BENDING AND AXIAL ACTIONS	47
SECTION 4 DESIGN CAPACITY OF JOINTS IN TIMBER STRUCTURES	
4.1 GENERAL	49
4.2 DESIGN OF NAILED JOINTS.....	51
4.3 DESIGN OF SCREWED JOINTS.....	60
4.4 DESIGN OF BOLTED JOINTS	66
4.5 DESIGN OF COACH SCREWED JOINTS	80
4.6 DESIGN OF SPLIT-RING FASTENER JOINTS.....	84
4.7 DESIGN OF SHEAR-PLATE FASTENER JOINTS.....	87
SECTION 5 PLYWOOD	
5.1 GENERAL	89
5.2 DESIGN PROPERTIES	89
5.3 MODIFICATION FACTORS.....	90
5.4 LOADING NORMAL TO THE PLANE OF THE PLYWOOD PANEL.....	91
5.5 LOADING IN THE PLANE OF THE PLYWOOD PANEL.....	93
5.6 JOINTS IN COMPOSITE PLYWOOD TO TIMBER CONSTRUCTION	96
SECTION 6 ROUND TIMBERS	
6.1 GENERAL	99
6.2 CHARACTERISTIC STRENGTHS AND ELASTIC MODULI	99
6.3 DESIGN	99
6.4 ADDITIONAL MODIFICATION FACTORS.....	101
6.5 DESIGN DETAILS	102

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-