

AS/NZS 8008:2022



Australian/New Zealand Standard™

Timber — Finger-jointed structural timber — Performance requirements



AS/NZS 8008:2022

This Joint Australian/New Zealand Standard™ was prepared by Joint Technical Committee TM-011, Engineered Timber Products. It was approved on behalf of the Council of Standards Australia on 18 February 2022 and by the New Zealand Standards Approval Board on 2 March 2022.

This Standard was published on 25 March 2022.

The following are represented on Committee TM-011:

- Australian Building Codes Board
- Australian Forest Products Association
- Australian Timber Importers Federation
- Australian Wood Panels Association
- Building Research Association of New Zealand
- Engineered Wood Products Association of Australasia
- Forest and Wood Products Australia
- Glued Laminated Timber Association of Australia
- New Zealand Plywood Manufacturers Association
- New Zealand Timber Industry Federation
- Timber Design Society
- Timber Queensland
- University of Melbourne
- Wood Processors and Manufacturers Association of New Zealand

This Standard was issued in draft form for comment as DR AS/NZS 8008:2020.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

www.standards.govt.nz

ISBN 978 1 76113 695 5

Australian/New Zealand Standard™

Timber — Finger-jointed structural timber — Performance requirements

First published as AS/NZS 8008(Int):2014.
Revised and redesignated as AS/NZS 8008:2022.

© Standards Australia Limited/the Crown in right of New Zealand, administered by the New Zealand Standards Executive 2022

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, unless otherwise permitted under the Copyright Act 1968 (Cth) or the Copyright Act 1994 (New Zealand).

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM-011, Engineered Timber Products to supersede AS/NZS 8008(Int):2014.

The objective of this document is to provide specifications for finger-jointed structural timber, which can be used by manufacturers, designers and users, to facilitate the safe use of this product in structures.

The major changes in this edition include updates to the verification methods and performance requirements to enhance useability of this standard for the industry.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

Australian and New Zealand building regulations include structural strength and stiffness provisions that apply to finger-jointed timber used internally in buildings.

[Appendix H](#) sets out the clauses that are equivalent to ISO 18100:2017 alongside the new content included in this document.

Standards Australia thanks ISO for permission to reproduce the clauses listed in Appendix H from ISO 18100. Reproduced clauses are copyright of ISO. All rights reserved.

Contents

Preface	ii
Introduction	v
Section 1 Scope and general	1
1.1 Scope.....	1
1.2 Normative references.....	1
1.3 Terms and definitions.....	1
1.4 Symbols.....	2
Section 2 Quality system requirements	4
2.1 General.....	4
2.2 Manufacturing specifications.....	4
Section 3 General requirements	5
3.1 Structural properties of finished finger-jointed timber.....	5
3.1.1 General.....	5
3.1.2 Grading and verification methods.....	5
3.2 Durability.....	5
3.2.1 General.....	5
3.2.2 Adhesive bond performance.....	5
3.2.3 Finger-joint glue bond integrity.....	5
3.3 Utility.....	6
3.4 Moisture content.....	6
3.5 Product identification and labelling requirements.....	6
Section 4 Qualification requirements	7
4.1 Qualification of structural properties.....	7
4.1.1 Properties required to be declared.....	7
4.1.2 Methods for determination of structural properties.....	7
4.2 Adhesive.....	7
4.3 Qualification of glue bond quality.....	7
4.3.1 Sampling.....	7
4.3.2 Testing.....	8
4.3.3 Acceptance criteria.....	8
4.4 Manufacturing process.....	8
4.5 Changes affecting qualification.....	8
Section 5 Verification requirements	9
5.1 Structural properties.....	9
5.1.1 General.....	9
5.1.2 Analytical method.....	9
5.1.3 Empirical method.....	9
5.1.4 Proof-loading method.....	9
5.2 Verification of finger-joint glue bond quality.....	9
5.2.1 Sampling.....	9
5.2.2 Testing.....	9
5.3 Utility, moisture content and identification requirements.....	10
Appendix A (normative) Factory production control — Strength verification of finger-jointed timber	11
Appendix B (normative) Verification of the strength of finger-joints by double-bending proof loading	14
Appendix C (normative) Verification of the strength of finger-joints by tension proof loading	17
Appendix D (normative) Finger-joint glue bond quality by visual assessment of wood fibre failure	19

Appendix E (normative) Verification of finger-joint bond quality by cyclic delamination testing	23
Appendix F (normative) Basis of adjustment factor k_{ff}	25
Appendix G (normative) Qualification of manufacturing process	27
Appendix H (informative) Comparison table of ISO and AS content	29
Bibliography	30

Introduction

Finger-jointed timber is viewed as an alternative and substitute for sawn timber and engineered wood products. Finger-jointed timber makes use of timber of various lengths and enables localized defects, particularly knots, to be docked out of otherwise high-quality timber and lengths of timber longer than primary processing length capacity.

Initial type testing and factory production control are specified to determine if the components and manufacturing procedures used conform to the requirements of this document. A representative sample of the production is evaluated for tension or bending strength and finger-joints are evaluated for bond quality using delamination or wood fibre failure tests.

NOTES

Australian/New Zealand Standard

Timber — Finger-jointed structural timber — Performance requirements

Section 1 Scope and general

1.1 Scope

This document specifies product, performance requirements and test methods for finger-jointed structural timber, laminated veneer lumber (LVL) and glued laminated timber elements.

This document does not apply to products made using impressed (die-formed) joints, or finger-jointed laminations for glued laminated timber, which are covered in AS/NZS 1328.1.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 1720.1, *Timber structures, Part 1: Design methods*

AS 2082, *Timber — Hardwood — Visually stress-graded for structural purposes*

AS 2858, *Timber — Softwood — Visually stress-graded for structural purposes*

AS 5068, *Timber — Finger-joints in structural products — Production requirements*

AS/NZS 1328.1, *Glued laminated structural timber, Part 1: Performance requirements and minimum production requirements*

AS/NZS 1491, *Timber — Finger-joints in structural products — Production requirements*

AS/NZS 1748.1, *Timber — Solid — Stress-graded for structural purposes, Part 1: General requirements*

AS/NZS 4063.1, *Characterization of structural timber, Part 1: Test methods*

AS/NZS 4063.2, *Characterization of structural timber, Part 2: Determination of characteristic values*

AS/NZS 4357.0, *Structural laminated veneer lumber, Part 0: Specifications*

AS/NZS 4364, *Timber — Bond performance of structural adhesives*

AS/NZS 4490, *Timber — Solid — Stress-graded for structural purposes — Verification of properties*

NZS 3603, *Timber structures standard*

NZS 3631, *New Zealand timber grading rules*

1.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

1.3.1

finger-joint

end joint formed by machining a number of similar, tapered, symmetrical fingers in the ends of timber pieces that are then bonded together

[SOURCE: ISO 18100:2017, 3.1]

1.3.2**finger-jointed timber**

timber that contains two or more component pieces end-joined by *finger-joints* (1.3.1)

Note 1 to entry: All pieces are of a single species or recognized species group, have the same nominal cross-section and the finger-joints are formed using a common adhesive and production method.

[SOURCE: ISO 18100:2017, 3.2]

1.3.3**may**

indicates the existence of an option

1.3.4**production batch**

finger-jointed timber (1.3.2) made during a continuous run on one production line

[SOURCE: ISO 18100:2017, 3.3]

1.3.5**qualification**

testing and evaluation of a new or modified finger-jointed structural timber product to determine:

- (a) the characteristic strength and stiffness values of the assembled finger-jointed structural timber in relation to the properties of the product stress grade; and
- (b) the durability performance of the adhesive bonds against specified criteria.

1.3.6**Service Class**

environmental service classification as defined in AS/NZS 4364

1.3.7**shall**

indicates that a statement is mandatory

1.3.8**should**

indicates a recommendation

1.3.9**standard length**

length used in testing to determine characteristic values

[SOURCE: ISO 18100:2017, 3.8]

1.3.10**stress grade**

population of timber having a set of structural properties and utility requirements

[SOURCE: ISO 18100:2017, 3.4, modified term]

1.3.11**verification**

provision of objective evidence that a given item fulfils specified requirements

[SOURCE: AS ISO/IEC 17025:2018, 3.8]

1.4 Symbols

The following symbols are used in this document:

a	shear span, in millimetres
b	width of finger-jointed timber in millimetres
d	depth of finger-jointed timber in millimetres
E	characteristic modulus of elasticity in bending
f'_b	characteristic strength in bending
f'_t	characteristic strength in tension
f'_s	characteristic shear strength in beam
f'_p	characteristic bearing perpendicular to grain
f'_c	characteristic compression strength parallel to grain
f_{01}	1st-percentile strength value of test data
f_i	i -th strength value in the test data, in megapascals
$f_{b,PL}$	applied bending proof stress, in megapascals
$f_{t,PL}$	applied tension proof stress, in megapascals
k_{ff}	factor that allows for the effect of multiple finger-joints in a standard length
k_{01}	factor to determine 1-percentile target value
L	test span, in millimetres
M	number of finger-joints that occur in a standard length
N	number of fingers or surfaces examined
n	sample size
P	proof load, in newtons
S_y	standard deviation of the logarithms of the complete test data
V_R	coefficient of variation of strength values
WF_{av}	average wood fibre failure of fingers, in percentage
WF_i	wood fibre failure of a surface or finger, in percentage
X_i	strength of a randomly chosen finger-joint based on single finger-joint testing
X_{05}	characteristic strength of finger-joints tested singly and making all adjustments for sample size

NOTE Factor k_{ff} makes allowance for the negative impact of multiple finger-joints on characteristic strengths and is used with the analytical method of assigning characteristic strengths. With the empirical method, the allowance is unnecessary.

Section 2 Quality system requirements

2.1 General

Products conforming to this document shall be manufactured to a formalized manufacturing specification as described in [Clause 2.2](#) covering all relevant process variables, under a quality system that includes —

- (a) in plant process control;
- (b) in plant internal review of production, process and quality;
- (c) verification of end product properties; and
- (d) control of non-conforming product.

2.2 Manufacturing specifications

The manufacturing specifications shall document all variables that affect or correlate with final product conformance, including —

- (a) materials (incoming wood and timber materials for jointing, adhesives);
- (b) glue bond quality;
- (c) manufacturing process variables;
- (d) product verification;
- (e) labelling and marking; and
- (f) secondary processes and treatment, when applicable.

NOTE The above list is not necessarily exhaustive.