

Australian/New Zealand Standard™

**Structural laminated veneer lumber
(LVL)**

**Part 2: Determination of structural
properties—Test methods**



AS/NZS 4357.2:2006

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee TM-008, Plywood Timber Products. It was approved on behalf of the Council of Standards Australia on 10 February 2006 and on behalf of the Council of Standards New Zealand on 17 February 2006.

This Standard was published on 11 April 2006.

The following are represented on Committee TM-008:

Australian Building Codes Board
Engineers Australia
Forests NSW
New Zealand Plywood Manufacturers Association
Plywood Association of Australasia
Scion
Timber Development Association (NSW)

Additional Interests:

Mr Kevin Lyngcoln

Keeping Standards up-to-date

Standards are living documents which 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 Standards may also be withdrawn.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 which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 05247.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION

OF

AS/NZS 4357.2:2006

Structural laminated veneer lumber (LVL)

Part 2: Determination of structural properties—Test methods

RECONFIRMATION NOTICE

Technical Committee TM-011 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 27 April 2016.

Approved for reconfirmation in New Zealand on behalf of the Standards Council of New Zealand on 18 May 2016.

The following are represented on Technical 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
Furntech-AFRDI
Glued Laminated Timber Association of Australia
Master Builders Australia
Monash University
New Zealand Plywood Manufacturers Association
New Zealand Timber Industry Federation
Timber Design Society
Wood Processors & Manufacturers Association of New Zealand

NOTES

Australian/New Zealand Standard™

**Structural laminated veneer lumber
(LVL)**

**Part 2: Determination of structural
properties—Test methods**

First published as AS/NZS 4357.2:2006.
Reissued incorporating Amendment No. 1 (July 2006).

COPYRIGHT

© Standards Australia/Standards New Zealand

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.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 7367 2

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM-008, Plywood Timber Products.

This Standard incorporates Amendment No. 1 (July 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.

The objective of this Standard is to provide test methods for the determination of structural properties of structural laminated veneer lumber (LVL), which will replace the methods used in the past specified in AS/NZS 4063, *Timber—Stress-graded—In-grade strength and stiffness evaluation*, for sawn timber.

This Standard specifies test methods only. Characteristic structural properties will be determined using the test results generated by the test methods specified in this Standard and processed through the methods specified in the companion Standard AS/NZS 4357.3, *Determination of structural properties—Evaluation method*.

This Standard development has relied upon proven test methods for solid section timber and glue laminated timber products specified in AS/NZS 4063, prEN 408, *Timber structures—Structural timber and glued laminated timber—Determination of some physical and mechanical properties*, ASTM D198, *Standard Test Methods of Static Tests of Lumber in Structural Sizes*, and ASTM D143, *Standard Test Methods for Small Clear Specimens of Timber*.

This Standard is Part 2 of the AS/NZS 4357 series, Structural laminated veneer lumber, which is comprised of the following parts:

AS/NZS

- 4357 Structural laminated veneer lumber
- 4357.0 Part 0: Specifications (Revision of AS/NZS 4357:1995)
- 4357.1 Part 1: Method of test for measurement of dimensions and shape
- 4357.2 Part 2: Determination of structural properties—Test methods (this Standard)
- 4357.3 Part 3: Determination of structural properties—Evaluation methods
- 4357.4 Part 4: Determination of formaldehyde emissions

The test methods are currently being prepared for compression and tension perpendicular to grain, and bearing. While these test methods are under development, other recognized Standards, e.g., ASTM D 143, may be used.

CONTENTS

	<i>Page</i>
1 SCOPE	4
2 REFERENCED DOCUMENTS	4
3 DEFINITIONS	4
4 NOTATION	5
5 SAMPLING.....	5
6 DETERMINATION OF DIMENSION OF TEST PIECES.....	5
7 DETERMINATION OF MOISTURE CONTENT OF TEST PIECES	6
8 CONDITIONING OF TEST PIECES	6
9 DETERMINATION OF APPARENT MODULUS OF ELASTICITY (<i>E</i>) IN BENDING	7
10 DETERMINATION OF TRUE BENDING MODULUS AND SHEAR MODULUS OF ELASTICITY FOR BEAMS	9
11 DETERMINATION OF BENDING STRENGTH.....	11
12 DETERMINATION OF MODULUS OF ELASTICITY IN TENSION PARALLEL TO GRAIN.....	12
13 DETERMINATION OF TENSILE STRENGTH PARALLEL TO GRAIN	14
14 DETERMINATION OF MODULUS OF ELASTICITY IN COMPRESSION PARALLEL TO GRAIN	15
15 DETERMINATION OF COMPRESSION STRENGTH PARALLEL TO GRAIN	16
16 DETERMINATION OF SHEAR STRENGTH.....	17
17 TEST REPORT	20

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Structural laminated veneer lumber (LVL)

Part 2: Determination of structural properties—Test methods

1 SCOPE

This Standard specifies test methods for determining the following properties of structural laminated veneer lumber (LVL) manufactured in accordance with AS/NZS 4357.0:

- (a) Apparent modulus of elasticity.
- (b) True bending modulus and shear modulus of elasticity for beams.
- (c) Bending strength.
- (d) Modulus of elasticity in tension parallel to the grain, and tension strength parallel to the grain.
- (e) Modulus of elasticity in compression parallel to the grain, and compression strength parallel to the grain.
- (f) Shear strength.

NOTES:

- 1 This Standard does not specify test methods for the determination of joint characteristics, which should be carried out in accordance with AS 1649.
- 2 The test methods specified in this Standard may be used for quality control testing.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1649 Timber—Methods of test for mechanical fasteners and connectors—Basic working loads and characteristic strengths

1720 Timber structures

1720.1 Part 1: Design methods

AS/NZS

2098 Methods of test for veneer and plywood

2098.1 Moisture content of veneer and plywood

4357 Structural laminated veneer lumber (LVL)

4357.0 Part 0: Specification

4491 Timber—Glossary of terms in timber-related Standards

NZS

3603 Timber Structures Standard

3 DEFINITIONS

For the purpose of this Standard the definitions in AS/NZS 4491 apply.