AS/NZS ISO 10984.2:2015
ISO 10984-2:2009

AS/NZS ISO 10984.2:2015

Australian/New Zealand Standard™

Timber structures—Dowel-type fasteners

Part 2: Determination of embedding strength

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee TM-010, Timber Structures and Framing. It was approved on behalf of the Council of Standards Australia on 24 July 2015 and on behalf of the Council of Standards New Zealand on 21 July 2015.
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The following are represented on Committee TM-010:

Australian Building Codes Board
Australian Forest Products Association
Australian Institute of Building
Building Research Association of New Zealand
Engineered Wood Products Association of Australasia
Engineers Australia
Forest and Wood Products Australia
Frame and Truss Manufacturers Association Australia
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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.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM-010, Timber Structures and Framing.

The objective of this Standard is to provide a standardized test method to obtain material characteristics which can be used to estimate the behaviour of laterally loaded timber joints. These material characteristics will facilitate the future adoption of internationally accepted timber joint design methodology, referred to as the 'European Yield Model'. The 'European Yield Model' is not included in current Australian/New Zealand timber design codes, however future revisions may enable its inclusion.

This Standard includes tension tests with the fastener inserted into a hole in the timber, and a compression test with the fastener embedded in a shaped groove in the member. The results of the compression test are the values that are appropriate for use with the planned adoption of the 'European Yield Model' in future revisions of the Australian/New Zealand timber design codes.

Reporting requires the offset limit based on 5% of the fastener diameter, but as well, the ultimate load (the maximum load attained in the test) should also be reported to enable brittle fracture of connections to be predicted.

The testing of complete timber joints is not covered by this Standard. This Standard is to be read in conjunction with ISO 6891:1983, *Timber structures—Joints made with mechanical fasteners—General principles for the determination of strength and deformation characteristics* and AS 1649—2001, *Timber—Methods of test for mechanical fasteners and connectors—Basic working loads and characteristic strengths*.

This Standard is identical with, and has been reproduced from ISO 10984-2:2009, *Timber structures—Dowel-type fasteners*, Part 2: *Determination of embedding strength*.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this part of ISO 10984' should read 'this Australian/New Zealand Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

None of the normative references in the source document have been adopted as Australian or Australian/New Zealand Standards.

CONTENTS

INTRODUCTION

Dowel-type fasteners are those mechanical fasteners that are most widely used for timber structures. Their characteristics, such as yield moment, have a great effect on the mechanical performance of joints made with dowel-type fasteners under loads.

The purpose of this part of ISO 10984 is to define methods to measure the embedding strength for fasteners as one of the basic parameters to interpret the behaviour of joints under loads. The requirements are necessary to replicate the same conditions as those for timber structures in the field. Loads can be applied to the specimen either by compression or tension, whichever is relevant. This part of ISO 10984 is based on EN 383 and ASTM D5764.

ISO 10984-1 provides the test method to obtain other basic information on the behaviour of mechanical joints under loads.

AUSTRALIAN/NEW ZEALAND STANDARD

Timber structures—Dowel-type fasteners

Part 2:
Determination of embedding strength

1 Scope

This part of ISO 10984 specifies laboratory methods for determining the embedding strength of solid timber, glued laminated timber and wood-based sheet products with dowel-type fasteners.

Descriptors: timber construction, fasteners, nails (fasteners), bolts, tests, compression tests, determination, compressive strength.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3130, *Wood — Determination of moisture content for physical and mechanical tests*

ISO 3131, *Wood — Determination of density for physical and mechanical tests*

3 Terms and definitions

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

3.1
dowel-type fastener
bolt, nail, screw, dowel or the like with plain or patterned surfaces

3.2
embedding strength
average compressive stress at maximum load in a piece of timber or wood-based sheet product under the action of a stiff linear fastener

NOTE The fastener's axis is perpendicular to the surface of the timber. The fastener is loaded perpendicular to its axis.

3.3
maximum load
Maximum load measured before the deformation of the specimen has reached the deformation limit equal to $(w_0 + 5)$ mm

3.4 Fastener section dimension

3.4.1
fastener section dimension
⟨plain round or profiled fastener⟩ diameter of the shank without coating