Australian Standard™

Installation of nailplated timber roof trusses

This Australian Standard was prepared by Committee TM-002, Timber Framing. It was approved on behalf of the Council of Standards Australia on 7 April 2004 and published on 1 June 2004.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM/2, Timber Framing, to supersede AS 4440—1997, *Installation of nailplated timber trusses*.

The Standard is the result of a consensus among Australian and New Zealand representatives on the Joint Committee to produce it as an Australian Standard.

The objective of this Standard is to provide basic performance requirements and specifications for the bracing, connection and installation of nailplated timber trusses.

The objective of this revision is to incorporate latest technical information and performance criteria, which resulted from the continued development of timber framing systems in Australia and overseas. Reflected in this Standard, the following have been included in this revision:

(a) Provision for limit state design methods.

(b) Requirement for fixing to non-loadbearing external walls (Clause 2.2.3(d)).

(c) Amendment to the definitions of bow (Clause 3.4.2) and plumb (Clause 3.4.3).

(d) Provision for intermediate ceiling joists (Clause 3.6 and Appendix D).

(e) Provision for internal top chord ties for north-light trusses (Clause 4.2.2.2) and top-hat trusses (Clause 4.2.2.3).

(f) Deletion of the informative Appendix for the permanent bottom chord ties (the original Appendix G).

This Standard is intended to promote an agreement across different industries, and to replace the various installation manuals and inconsistent bracing details currently in use. It provides a unique method of bracing, connection and installation yet does not preclude the use of other methods that are approved and authorized.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the bracing, connection and installation of nailplated timber trusses in roof structures for typical application.

1.2 APPLICATION

This Standard is intended to apply to nailplated timber roof trusses within the following general limitations:

(a) Residential structures (BCA Classes 1, 2, 3 and 10) and light commercial structures.

(b) Maximum roof pitch of 45° (100:100).

NOTE: For roof pitch greater than 35°, supporting structure may need special consideration.

(c) Shape in plan view to be rectangular or near rectangular, or a series or combination of rectangular shapes or near-rectangular shapes, including splayed-end and boomerang-shaped buildings and the like, and projections such as bay windows.

(d) Maximum truss span of 16 m.

(e) Maximum truss spacing of—

(i) 900 mm; or

(ii) 1200 mm, for lightweight roofs (e.g., metal sheet roofs) in wind classification N3 or lower.

(f) Maximum design gust wind speed of 74 m/s (wind classification C3) for ultimate limit state method in accordance with either AS/NZS 1170.2 or AS 4055.

This Standard may also be applicable to the design and construction of other classes of buildings where the design criteria, loadings and other parameters applicable to those classes of building are within the limitations of this Standard.

NOTES:

1 Additional limitations are also included in the relevant Clauses of this Standard.

2 Subject to approval, this Standard may be used for other structures similar to those specified herein.

3 AS 1720.1 provides for the design of timber elements within nailplated timber trusses, which is not covered by this Standard.

4 Roof bracing and truss connection specified in this Standard does not cover nailplated timber truss subjected to snow load.

5 Specifications in this Standard are applicable for use in conjunction with non-trussed hip-end components.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS
1170 Minimum design loads on structures
1170.4 Part 4: Earthquake loads

1397 Steel sheet and strip—Hot-dipped zinc-coated or aluminium/zinc-coated

1684 Residential timber-framed construction (all parts)

1720 Timber structures
1720.1 Part 1: Design methods

4055 Wind loads for housing

AS/NZS
1170 Structural design action
1170.0 Part 0: General principles
1170.1 Part 1: Permanent, imposed and other actions
1170.2 Part 2: Wind actions

4491 Timber—Glossary of terms in timber related Standards

ABCB
BCA Building Code of Australia

1.4 USE OF ALTERNATIVE MATERIALS OR METHODS

This Standard does not preclude the use of materials or methods of bracing, fixing and installation other than those specified in this Standard, provided it can be shown that these satisfy the performance requirements met by the materials and methods described herein.

1.5 DEFINITIONS

For the purpose of this Standard, the definitions given in AS/NZS 4491, AS 1684 series, and those below apply.

NOTES:

1 The names of the various timber truss members used in this Standard are given in Figures 1.1 to 1.7.

2 The following abbreviations are used in this Standard:

(a) BC—bottom chord.

(b) HTC—horizontal top chord.

(c) TC—top chord.

(d) TG—truncated girder (truss).

(e) TS—truncated standard (truss).

1.5.1 Approved

As approved by the regulatory authority.

1.5.2 Approved specification

Documentation approved by regulatory authority.

1.5.3 Boxed eaves

Eaves that form a horizontal plane below the rafter or truss overhang; also called flat eaves.

1.5.4 Camber

A curvature built into a truss intended to compensate for the long-term deflection due to dead loads.