

Australian/New Zealand Standard™

Cold-formed steel structures



AS/NZS 4600:2018

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-082, Cold-formed Steel Structures. It was approved on behalf of the Council of Standards Australia on 27 April 2018 and by the New Zealand Standards Approval Board on 2 May 2018.

This Standard was published on 15 May 2018.

The following are represented on Committee BD-082:

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Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Steel Association
Australian Steel Institute
Bureau of Steel Manufacturers of Australia
Engineers Australia
National Association of Steel Framed Housing, Australia
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This Standard was issued in draft form for comment as DR AS/NZS 4600:2017.

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Originated in Australia as AS 1538—1974.
AS 1538—1988 jointly revised and redesignated AS/NZS 4600:1996.
Previous edition 2005.
Third edition 2018.

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Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, PO Box 1473, Wellington 6140.

ISBN 978 1 76072 061 2

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-082, Cold-formed Steel Structures. AS/NZS 4600:2005 will also remain current for 12 months after the date of publication of this Standard and after this time it will be superseded by AS/NZS 4600:2018. Regulatory authorities that reference this Standard in regulation may apply these requirements at a different time. Users of this Standard are advised to consult with these authorities to confirm their requirements.

The objective of this Standard is to provide designers of cold-formed steel structures with specifications for cold-formed steel structural members used for load-carrying purposes in buildings and other structures.

This edition incorporates the following major changes to the previous edition:

- (a) Inclusion of G500 and G550 steels in Clause 1.5.1.3 for steels where the effects of welding do not need to be tested.
- (b) Inclusion of reference to first order elastic, second order elastic and advanced analyses in Clause 1.6.2.
- (c) Earthquake design for Australia in Clause 1.6.4.1 based on structural ductility index and structural performance factor to align with latest edition of AS 1170.4.
- (d) Earthquake design for New Zealand in Clause 1.6.4.2 allows structural ductility factors up to 6.
- (e) Non-circular holes added to uniformly compressed stiffened elements in Clause 2.2.2.
- (f) New Clause 2.2.5 on intermittent connections in uniformly compressed elements.
- (g) Elastic buckling moments in Clause 3.3 moved to Paragraph D2.1, Appendix D, for members subject to bending.
- (h) Elastic buckling stresses in Clause 3.4 moved to Paragraph D1.1, Appendix D, for concentrically loaded compression members.
- (i) New Clause 3.7 for sections subject to combined bending and torsional loading.
- (j) New Clause 4.1.2 for compression members composed of two sections in contact.
- (k) Old Clause 4.3.3.3 for bracing of cleatless roof systems under gravity load deleted.
- (l) Revised Clause 4.3.3.3 (old Clause 4.3.3.4) for neither flange connected to sheeting has improved equations and a new diagram.
- (m) New equation for net section tension in Clause 5.3.3 has improved shear lag factor.
- (n) Bolted connections in bearing in Clause 5.3.4 now includes oversize and short-slotted holes.
- (o) Screws in shear and tension now allow the limit state based on testing of the screws.
- (p) Screwed connections in tension in Clause 5.4.3.2 now include round head, hex head, pancake screw washer head, hex washer head and domed head.
- (q) New rules in Clause 5.4.3.2 for screwed connections attaching roof battens.
- (r) New rules for screwed connections in combined bending and tension.
- (s) Design of power-actuated fasteners (PAFs) now included in Clause 5.5.
- (t) Revised equations for block shear rupture in Clause 5.7.3 based on active shear planes.

- (u) Range of prequalified members in Clause 7.1.1 (Table 7.1) for the direct strength method (DSM) extended to a wider range of sections with multiple intermediate stiffeners and return lips.
- (v) Compression and flexural members with holes and flexural members with inelastic reserve capacity now included in the DSM Clauses 7.2.1 and 7.2.2.
- (w) Shear and combined bending and shear added to the DSM in Clause 7.2.3.
- (x) Combined compression/tension and bending added to the DSM in Clause 7.2.4.5 respectively.
- (y) Design values based on prototype testing in Clause 8.4.1 can now use the average test value.
- (z) Strength prediction model from testing based on verification model BV1 of National Construction Code (NCC).
- (aa) New Section 9, Fire design, added for steel sections made from AS 1397, steel and with a fire resistant barrier.
- (bb) New Appendix B, Paragraph B2, First order elastic analysis, Paragraph B3, Second order elastic analysis and Paragraph B4, Advanced analysis, added.
- (cc) Appendix D extended to buckling stresses and actions for sections in compression, bending and shear including sections with holes.
- (dd) Informative Appendix G added for members subject to non-uniform temperature distribution.

Notes to the text contain information and guidance. They are not an integral part of the Standard.

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Standards Australia thanks NASH (National Association of Steel-framed Housing) for permission to reproduce sections of NASH Standard—*Residential and Low-rise Steel Framing, Part 1: Design Criteria* in Clause 1.6 and Clause 8.4 of this Standard.

A statement expressed in mandatory terms in a note to a table is deemed to be a requirement of this Standard.

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.

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