AS/NZS 4600:2005
(Incorporating Amendment No. 1)

AS/NZS 4600:2005

Australian/New Zealand Standard™

# Cold-formed steel structures


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 28 September 2005 and on behalf of the Council of Standards New Zealand on 23 September 2005.
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The following are represented on Committee BD-082:

Association of Consulting Engineers Australia
Australian Building Codes Board
Australian Chamber of Commerce and Industry
Australian Steel Institute
Bureau of Steel Manufacturers of Australia
Engineers Australia
NZ Structural Engineering Society
NZ Heavy Engineering Research Association
NZ Metal Roofing and Cladding Manufacturers Association Inc.
Queensland University of Technology
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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 BD-082, Cold-formed Steel Structures, to supersede AS/NZS 4600:1996.

*This Standard incorporates Amendment No. 1 (August 2010). 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 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) Alignment of terminology with AS/NZS 1170 series for structural design actions.

(b) The acceptance of welding of G450 steel to AS 1397 using existing rules with a minor change in capacity factors. This circumvents the confusion for welding of G450 steel.

(c) Increase in the design stress of G550 steel to AS 1397, less than 0.9 mm thick and greater than or equal to 0.6 mm thick, from 75% to 90%, and 75% for thickness less than 0.6 mm of the specified values of yield stress and tensile strength.

(d) The addition of web with holes to allow for holes in webs in shear and bearing.

(e) A new set of design rules for unstiffened elements and edge stiffeners under stress gradient.

(f) Minor modifications to the rules for uniformly compressed elements with edge and intermediate stiffeners to remove a discontinuity in the equations which formerly existed.

(g) A new approach for edge-stiffened elements with intermediate stiffeners.

(h) A new approach for multiple intermediate stiffeners in compression flanges where the stiffeners no longer need to be fully effective.

(i) The significant liberalization of the lateral buckling rules for beams to allow the AISI design curve to be used with a rational buckling analysis. This will significantly increase the capacity of purlins throughout Australia and New Zealand.

(j) The introduction of a whole new set of equations for web crippling (bearing) of webs without holes and removal of unconservatism in the previous edition which was discovered by Australian research.

(k) Bearing of nested Z-section.

(l) The removal of $l/1000$ for angle sections in compression which are fully effective.

(m) Additional design rules for fillet welds, flare welds and resistance welds.

(n) Modification of the bearing coefficient for bolts to be a function of $d/t$ for high values of $d/t$ and a separate bearing capacity given for bolts where bolt hole deformation is considered.

(o) Significant reduction in the edge distance provision from $3.0d$ to $1.5d$ for screw fasteners and blind rivets.

(p) The addition of a new section on fatigue of cold-formed members.

(q) Inclusion of new direct strength method as an alternative to the effective width method of design.

(r) Alignment of testing provisions with AS/NZS 1170.0.

This Standard will be referenced in the Building Code of Australia 2006, thereby superseding AS 4600—1996, which will be withdrawn 12 months from the date of publication of this Standard.

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