

Australian/New Zealand Standard™

**Structural steel—Hot-rolled plates,  
floorplates and slabs**



## **AS/NZS 3678:2011**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-023, Structural Steel. It was approved on behalf of the Council of Standards Australia on 17 December 2010 and on behalf of the Council of Standards New Zealand on 17 December 2010.  
This Standard was published on 21 February 2011.

---

The following are represented on Committee BD-023:

Austroads  
Australian Chamber of Commerce and Industry  
Australian Industry Group  
Australian Steel Association  
Australian Steel Institute  
Bureau of Steel Manufacturers of Australia  
Business New Zealand  
Steel Construction New Zealand  
The University of New South Wales  
The University of Sydney

---

### **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 Standards may also be withdrawn.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.saiglobal.com.au](http://www.saiglobal.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://www.standards.co.nz) and looking up the relevant Standard in the on-line catalogue.

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.

---

# Australian/New Zealand Standard™

## **Structural steel—Hot-rolled plates, floorplates and slabs**

Originated in Australia as part of AS A1—1925.  
Previous and first joint edition AS/NZS 3678:1996.  
Third edition 2011.

### **COPYRIGHT**

© Standards Australia Limited/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, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-023, Structural Steel, to supersede AS/NZS 3678:1996.

The objective of this Standard is to specify requirements for hot-rolled plates, floorplates and slabs for general structural and engineering applications.

This edition incorporates the following changes:

- (a)  $R_{eH}$  and  $R_m$  have been added to Table 9.
- (b) Steel making manufacturing process has been included.
- (c) Layout and clause numbering have been changed.
- (d) Referenced Standards have been updated.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements 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.

## CONTENTS

	<i>Page</i>
1 SCOPE .....	4
2 NORMATIVE REFERENCES .....	4
3 DEFINITIONS .....	5
4 NOTATION .....	7
5 DESIGNATION .....	8
6 MANUFACTURING PROCESS.....	9
7 CHEMICAL COMPOSITION.....	10
8 MANUFACTURING TOLERANCES .....	13
9 FREEDOM FROM DEFECTS .....	13
10 TESTING .....	16
11 MECHANICAL PROPERTIES.....	18
12 IDENTIFICATION AND CERTIFICATION.....	21
13 ROUNDING OF NUMBERS .....	23
14 SAMPLING AND TESTING TO DEMONSTRATE PRODUCT CONFORMITY...	23
 APPENDICES	
A PURCHASING GUIDELINES.....	24
B PRODUCT CONFORMITY .....	26
C COLD-BENDING AND HOT-FORMING OF PLATE DURING FABRICATION..	31
D STEEL FOR SEISMIC AND FRACTURE CRITICAL APPLICATIONS (NEW ZEALAND ONLY).....	32
 BIBLIOGRAPHY .....	 34

## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard****Structural steel—Hot-rolled plates, floorplates and slabs****1 SCOPE**

This Standard specifies requirements for the production and supply of hot-rolled structural steel plates and floorplates for carbon and carbon-manganese mechanically-tested steels, fully-killed analysis-only steels, and low-alloy (weathering) mechanically-tested steels. This Standard also specifies requirements for the production and supply of wide slabs as fully-killed analysis-only steel.

For general structural and engineering applications, all grades specified in this Standard are suitable for—

- (a) welding in accordance with AS/NZS 1554; or
- (b) riveting and bolting as specified in AS/NZS 4600, AS 3990, AS 4100 and NZS 3404.1.

This Standard does not cover the following:

- (i) Structural steel—Hot-rolled bars and sections (AS/NZS 3679.1), and welded I sections (AS/NZS 3679.2).
- (ii) Steel plates for pressure equipment (AS 1548).
- (iii) Structural steel hollow sections (AS/NZS 1163).
- (iv) Hot-rolled steel flat products (AS 1594).
- (v) Structural and pressure vessel steel—Quenched and tempered plate (AS 3597).

Means for demonstrating compliance with this Standard are specified in Appendix B.

## NOTES:

- 1 Guidelines to purchasers on requirements that should be specified by the purchaser and those that should or may be agreed on at the time of enquiry and ordering are given in Appendix A.
- 2 Guidelines on cold-bending and hot-forming of plate during fabrication are given in Appendix C.

**2 NORMATIVE REFERENCES**

The following are the normative documents referenced in this Standard.

NOTE: References for information purposes are included in the Bibliography.

## AS

1365	Tolerances for flat-rolled steel products
1391	Metallic materials—Tensile testing at ambient temperature
1544	Methods for impact tests on metals
1544.2	Part 2: Charpy V-notch
1733	Methods for the determination of grain size in metals
2706	Numerical values—Rounding and interpretation of limiting values
3990	Mechanical equipment—Steelwork
4100	Steel structures