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Structural steel—Hot-rolled plates, floorplates and slabs
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Specifies requirements for the production and supply of hot-rolled structural steel plates, floorplates and slabs for general structural and engineering applications. It also specifies requirements for the production and supply of wide slabs as fully killed analysis-only steel.
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Amdt 1.

Australian Standard®

Hot-rolled structural steel plates, floorplates and slabs

Structural steel — Hot-rolled plates, floorplates & slabs (Amdt 1)

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STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee BD/23, Structural Steel. It was approved on behalf of the Council of Standards Australia on 6 October 1989 and published on 26 January 1990.

The following interests are represented on Committee BD/23:

Australian Institute of Steel Construction

Bureau of Steel Manufacturers of Australia

Confederation of Australian Industry

Institute of Steel Service Centres of Australia

Metal Trades Industry Association of Australia

National Association of Australian State Road Authorities

Railways of Australia Committee

Steel Reinforcement Institute of Australia

University of New South Wales

University of Sydney

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AS 3678—1990

Australian Standard®

Hot-rolled structural steel plates, floorplates and slabs

For history before 1989, see Preface.
Parts of AS 1204—1980, AS 1205—1980 and AS 1227—1980 revised, amalgamated and redesignated AS 3678—1990.

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PREFACE

This Standard was prepared by the Standards Australia Committee on Structural Steel. It supersedes the following Standards of which it is a revision and amalgamation in part:

AS 1204—1980 *Structural steels—Ordinary weldable grades.* (First published as part of AS A1.1—1956 and AS A33—1955. These were revised and redesignated as AS A149—1965. AS A149—1965, AS A135—1965 and AS A149—1966 revised and redesignated AS A186—1971. This was subsequently revised and redesignated as AS 1204—1972; second edition 1980)

AS 1205—1980 *Structural steels—Weather-resistant weldable grades.* (First published as AS A187—1971 and revised and redesignated AS 1205—1972; second edition 1980)

AS 1227—1980 *General requirements for the supply of hot rolled steelplates, sections, piling and bars for structural purposes.* (First published as part of AS A1—1956 which was revised and redesignated AS A147—1965; second edition 1971. AS A147 was revised and redesignated AS 1227 in 1974; second edition 1980.)

Parts of AS 1204—1980, AS 1205—1980 and AS 1227—1980 revised, amalgamated and redesignated AS 3678—1990.

Major technical changes introduced by this Standard are as follows:

(a) New Grade 400 has been included.

(b) Tensile strength on Grade 350 and WR350 has been reduced to 450 MPa. This reduction in tensile strength is expected to enable the supply of better weldable 350 and WR350 grades.

(c) Determination of compliance guidelines on Sampling, Frequency of Testing and Retests have been moved to Appendix B in line with Standards Australia policy.

It was decided to revise and amalgamate the above Standards in an effort to produce a complete product-based Standard which has been rationalized in relation to tolerance requirements.

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STANDARDS AUSTRALIA

Australian Standard

Hot-rolled structural steel 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 in accordance with Table 2.

For general structural and engineering applications, all mechanically-tested grades, and analysis grades with carbon less than 0.30, are suitable for—

(a) welding in accordance with the requirements and procedures specified in AS 1554.1; or

(b) riveting and bolting as specified in AS 1250 and AS 1511.

This Standard does not cover the following:

(i) Bars, sections and piling bars (see AS 3679).

(ii) Steel plates for boilers and pressure vessels (see AS 1548).

(iii) Structural steel hollow sections (see AS 1163).

(iv) ~~Steel plates for oil storage tank construction (see AS 2624).~~ Amdt 1

(v) ~~(v)~~ Plate, strip and sheet (see AS 1594).

NOTE: Guidelines to purchasers on requirements that should be specified by the purchaser and those that should be agreed on at the time of enquiry or order are given in Appendix A.

2 REFERENCED DOCUMENTS. The following documents are referred to in this Standard:

AS
1050 Methods for the analysis of iron and steel
1163 Structural steel hollow sections
1199 Sampling procedures and tables for inspection by attributes
1213 Iron and steel—Methods of sampling
1250 SAA Steel Structures Code
1365 Tolerances for flat-rolled steel products
1391 Methods for tensile testing of metals
1399 Guide to AS 1199, Sampling procedures and tables for inspection by attributes
1511 SAA High-strength Structural Bolting Code
1544 Methods for impact tests on metals
1544.2 Part 2: Charpy V-notch
1548 Steel plates for boilers and pressure vessels
1553 Covered electrodes for welding
1553.1 Part 1: Low carbon steel electrodes for manual metal-arc welding of carbon and carbon-manganese steels
1554 Structural steel welding
1554.1 Part 1: Welding of steel structures
1594 Hot-rolled low carbon steel plate, sheet and strip
1710 Non-destructive testing of carbon and low alloy steel plate—Test methods and quality classification
1821-23 Suppliers Quality Systems
1821 Suppliers quality systems for design, development production and installation
1822 Suppliers quality systems for production and installation
1823 Suppliers quality inspection systems
2000 Guide to AS 1821-23—Suppliers quality systems
2490 Sampling procedures and charts for inspection by variables for percent defective
2624 ~~Steel plate and strip for the construction of welded steel tanks for oil storage~~ Amdt 1
2706 Numerical values—Rounding and interpretation of limiting values
K1 Methods for the sampling and analysis of iron and steel
3679 Hot-rolled structural steel bars and sections
3900 Quality systems—Guide to selection and use
3901 Quality systems for design/development, production, installation and servicing
3902 Quality systems for production and installation
3903 Quality systems for final inspection and test
3904 Quality systems—Guide to quality management and quality system elements

ISO
2566/1 Steel—Conversion of elongation values Part 1: Carbon and low alloy steels

3 DEFINITIONS. For the purpose of this Standard, the definitions below apply.

3.1 Analysis.

3.1.1 *Cast analysis*—chemical analysis determined from test samples taken from the ladle during casting.

3.1.2 *Product analysis*—chemical analysis determined from a test sample of the finished material.

3.2 Controlled rolled—hot-rolling with control of both temperature and rolling reduction to achieve the desired mechanical properties and microstructure.

3.3 Edge conditions.

3.3.1 *Trimmed edge*—edge produced by the removal of material by mechanical means or gas cutting—also referred to as sheared, slit or gas cut edge.

3.3.2 *Untrimmed edge*—edge produced by the rolling between horizontal rolls, with or without vertical edging rolls—also referred to as mill, universal or as-rolled edge.

3.4 Floorplate—hot-rolled product supplied flat, having a rolled raised pattern at regular intervals on one surface, with width greater than or equal to