AS/NZS 1554.7:2006

Australian/New Zealand Standard™

Structural steel welding

Part 7: Welding of sheet steel structures

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee WD-003, Welding of Structures. It was approved on behalf of the Council of Standards Australia on 7 September 2006 and on behalf of the Council of Standards New Zealand on 15 September 2006.
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The following are represented on Committee WD-003:

Australian Chamber of Commerce and Industry
Australian Industry Group
AUSTROADS
Bureau of Steel Manufacturers of Australia
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WD-003, Welding of Structures.

The objective of this Standard is to provide rules for the welding of a wide range of light gauge steel constructions designed in accordance with the requirements of AS/NZS 4600, although this Standard has been specifically prepared for steel structures, it may be usefully applied to machine frames and other types of steel constructions.

Given the historical links between the requirements of AS/NZS 4600, *Cold-formed steel structures* and the American Welding Society's AWS D1.3, *Structural Welding Code—Sheet Steel*, this Standard takes cognizance of the requirements and practices associated with AWS D1.3, and the similar requirements contained within AS/NZS 1554.1, *Structural steel welding* Part 1: *Welding of steel structures,* for category GP quality welds.

The Standard requires that weld preparations, welding consumables and welding procedures be qualified before commencement of welding. Prequalified joint preparations, welding consumables and welding procedures are also given in the Standard.

The Standard caters specifically for statically loaded structures and, similarly to AS/NZS 4600, does not consider brittle fracture requirements. Under circumstances where brittle fracture is considered likely, the user is instead referred to AS/NZS 1554.1. Whilst AS/NZS 4600 now caters for dynamic loading conditions, both AS/NZS 4600 and this Standard also refer the user to the more appropriate requirements of AS/NZS 1554.1 Category SP, or for high levels of dynamic loading (fatigue), to AS/NZS 1554.5, *Structural steel welding* Part 5: *Welding of steel structures subject to high levels of fatigue loading*. This will ensure that appropriate levels of supervision and inspection will be applied to the relevant parts of the structure.

Statements expressed in mandatory terms in notes to tables and figures 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.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the arc welding of steel structures made up of combinations of steel plate, sheet or sections, including pipe, hollow sections and built-up sections (collectively referred to herein as sheet steels) up to 4.8 mm in thickness by the following processes:

(a) Manual metal-arc welding (MMAW).

(b) Submerged arc welding (SAW).

(c) Gas metal-arc welding (GMAW or MIG), including pulsed mode.

(d) Gas tungsten-arc welding (GTAW or TIG).

(e) Flux-cored arc welding (FCAW).

The Standard is limited to the welding of steel parent material with a specified minimum yield strength not exceeding 550 MPa.

1.2 APPLICATION

The Standard applies to the welding of steelwork in structures complying with AS/NZS 4600. The following limitations apply:

(a) For other than fatigue conditions, where welded joints are governed by dynamic loading conditions, all welding shall comply with AS/NZS 1554.1 category SP.

(b) For welded joints subject to fatigue conditions (i.e., weld categories higher than detail category 118 of AS/NZS 4600), welding shall comply with AS/NZS 1554.5.

Consistent with AS/NZ 4600, brittle fracture provisions have not been included in this Standard. For service temperatures colder than –10°C (see Appendix B), the brittle fracture provisions of AS/NZS 1554.1 for materials and welding consumables shall apply.

In addition to the abovementioned structures, the Standard applies to the welding of steelwork in applications other than structural.

Provided approval has been obtained from the Principal, the Standard may be applied to the welding of sheet steels up to 4.8 mm thickness in structures designed in accordance with AS 4100 and NZS 3404.1, where category GP is specified. The welding of sheet steels thicker than 4.8 mm, shall comply with the requirements of AS/NZS 1554.1.

When stud welding through the flat portion of decking or roofing onto supporting structural members, the weld procedure shall comply with the requirements of AS/NZS 1554.2.

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