This is a free page sample. Access the full version online.

AS/NZS 1554.5:1995

Australian/New Zealand Standard

Structural steel welding

Part 5: Welding of steel structures subject to high levels of fatigue loading

This is a free page sample. Access the full version online.

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee WD/3, Welding of Structures. It was approved on behalf of the Council of Standards Australia on 18 October 1994 and on behalf of the Council of Standards New Zealand on 8 November 1994. It was published on 5 January 1995.

The following interests are represented on Committee WD/3:

Association of Consulting Engineers, Australia

Australia Chamber of Commerce and Industry

Australian Institute of Steel Construction

Bureau of Steel Manufacturers of Australia

Department of Defence, Australia

Electricity Supply Association of Australia

Heavy Engineering Research Association, New Zealand

Institution of Engineers, Australia

Metal Trades Industry Association of Australia

Railways of Australia Committee

Steel Reinforcement Promotion Group, Australia

University of Sydney

Welding Technology Institute of Australia

Review of Standards. To keep abreast of progress in industry, Joint Australian/New Zealand Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Joint Standards and related publications will be found in the Standards Australia and Standards New Zealand Catalogue of Publications; this information is supplemented each month by the magazines 'The Australian Standard' and 'Standards New Zealand', which subscribing members receive, and which give details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Joint Standards, addressed to the head office of either Standards Australia or Standards New Zealand, are welcomed. Notification of any inaccuracy or ambiguity found in a Joint Australian/New Zealand Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 93284.

This is a free page sample. Access the full version online.

AS/NZS 1554.5:1995

Australian/New Zealand Standard

Structural steel welding

Part 5: Welding of steel structures subject to high levels of fatigue loading

First published as AS 1554.5—1989.
Jointly revised and designated as Joint Standard AS/NZS 1554.5:1995.

Incorporating:
Amdt 1—1998

PUBLISHED JOINTLY BY:

STANDARDS AUSTRALIA
1 The Crescent,
Homebush NSW 2140 Australia

STANDARDS NEW ZEALAND
Level 10, Radio New Zealand House,
155 The Terrace,
Wellington 6001 New Zealand

ISBN 0 7262 9399 7

This is a free page sample. Access the full version online.

PREFACE

This edition of this Standard was prepared by the Joint Australian/New Zealand Committee WD/3 on Welding of Structures to supersede AS 1554.5—1989.

The objective of this Standard is to provide rules for the welding of steel structures subject to high levels of fatigue loading.

This edition incorporates the following changes to the 1989 edition:

(a) The scope has been expanded to provide for steel structures complying with AS 4100, *Steel Structures* and NZS 3404.1, *Steel Structures Standard*.

(b) Requirements for safety precautions have been added (Clause 1.6).

(c) Section 3 has been revised to rectify some anomalies in the previous edition.

(d) Tables 4.5.1(B), 4.5.1(C) and 5.3.4 have been revised to reflect changes in standards for steels, and to accommodate new steel types and New Zealand steels.

(e) Appendix B has been revised to align with AS 4100, and NZS 3404.1.

(f) Requirements for repair of stop/starts have been included (Clause 5.8.3).

(g) Methods of radiographic examination have been revised.

(h) Necessary changes were made throughout the Standard to accommodate New Zealand conditions.

(e) Editorial changes and adjustments, including the following:

  (i) Update of referenced Standards.

  (ii) Alignment with current Standards Australia and Standards New Zealand policies.

The Standard is basically in line with AS 1554.1, *Structural steel welding*, Part 1: *Welding of steel structures*; however, it specifically applies to welds subject to fatigue loading in excess of the range covered by AS 1554.1 and hence it should not be specified where AS 1554.1 is acceptable.

It is expected that welds covered by this Standard will not normally occur with structures such as buildings, tanks, or silos, but only in certain classes of machinery and transport equipment.

The Standard requires that weld preparation, 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.

Statements expressed in mandatory terms in notes to Tables and Figures are deemed to be requirements to 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.

This is a free page sample. Access the full version online.

CONTENTS

Page

SECTION 1 SCOPE AND GENERAL
1.1 SCOPE 5
1.2 INNOVATION 6
1.3 REFERENCED DOCUMENTS 6
1.4 DEFINITIONS 6
1.5 BASIC WELDING REQUIREMENTS 6
1.6 SAFETY PRECAUTIONS 6

SECTION 2 MATERIALS OF CONSTRUCTION
2.1 PARENT MATERIAL 7
2.2 BACKING MATERIAL 7
2.3 WELDING CONSUMABLES 7

SECTION 3 DETAILS OF WELDED CONNECTIONS
3.1 GENERAL 8
3.2 BUTT WELDS 8
3.3 FILLET WELDS 9
3.4 COMPOUND WELDS 11

SECTION 4 QUALIFICATION OF PROCEDURES AND PERSONNEL
4.1 QUALIFICATION OF WELDING PROCEDURE 14
4.2 METHOD OF QUALIFICATION OF WELDING PROCEDURE 14
4.3 PREQUALIFIED WELDING PROCEDURES 14
4.4 PREQUALIFIED JOINT PREPARATIONS 14
4.5 QUALIFICATION OF WELDING CONSUMABLES 30
4.6 QUALIFICATION OF WELDING PROCEDURE BY TESTING 32
4.7 EXTENSION OF QUALIFICATION 37
4.8 COMBINATION OF PROCESSES 37
4.9 RECORDS OF TESTS 37
4.10 REQUALIFICATION OF WELDING PROCEDURES 37
4.11 QUALIFICATION OF WELDING PERSONNEL 37

SECTION 5 WORKMANSHIP
5.1 PREPARATION OF EDGES FOR WELDING 42
5.2 ASSEMBLY 42
5.3 PREHEATING AND INTERRUN CONTROL 43
5.4 WELDING UNDER ADVERSE WEATHER CONDITIONS 44
5.5 TACK WELDS 44
5.6 WELD DEPTH-TO-WIDTH RATIO 44
5.7 CONTROL OF DISTORTION AND RESIDUAL STRESS 44
5.8 REPAIR OF DEFECTS IN WELDS 49
5.9 TEMPORARY ATTACHMENTS 50
5.10 ARC STRIKES 50
5.11 CLEANING OF FINISHED WELDS 50
5.12 DRESSING OF BUTT WELDS 50

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation