CSA W59:24

# Welded steel construction

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# ***Welded steel construction***




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**Dedication**

This edition of CSA W59 is dedicated to the memory of Neil Paolini. Neil will be remembered by the welding community in Canada for his valuable contributions in the field of welding and structural steel. He was an active member on the CSA W59 Technical Committee for over 55 years, leading initiatives that resulted in the introduction of numerous provisions related to the advancement of welding design. Neil also played a central role in the development of CSA W47.1 and CSA S473. His work on the welding of fixed-steel offshore structures was subsequently incorporated as Annex U in CSA W59. He also served as an active member of the Canadian Welding Society (CWS), the International Institute of Welding (IIW), and the Welding Institute of Canada among others. Neil was a recipient of the CSA Award of Merit in 1996.

# Preface

This is the eleventh edition of CSA W59, *Welded steel construction*. It supersedes the previous editions published in 2018, 2013, 2003, 1989, 1984, 1982, 1977, 1970, 1946, and 1940.

The following are the most significant changes to this edition of the Standard:

a) Clause 3 has been revised to add several steels to the prequalified list.
b) Clause 5 has been updated to add clarification on the requirements related to hydrogen designators.
c) Clause 7 has been reworked to provide clarity on roles and responsibilities for welding inspection.
d) Clause 8 includes corrections related to terminology, equipment, and flaw length sizing. Calibration requirements have been revised to reflect digital instrumentation. Allowances for the use of an alternative ultrasonic technique and radiographic imaging systems have been added.
e) In Clause 10, all the figures have been reworked into a new format which arranges prequalified joint-by-joint type rather than by welding process.
f) As this Standard contains no commentary, various non-mandatory annexes have been included to generate a better understanding of certain aspects of welded steel construction. The annexes of the previous edition of this Standard have generally been reviewed for clarity. In addition,
    i) Annex O has been added to define welding of cast steels for structural applications;
    ii) Annex W has been added to provide additional requirements for welding consumables, welded fabrication techniques, weld repairs, demand critical welds and welding inspection for seismic-force resisting system (SFRS) of structures; and
    iii) Annex X has been added to define an alternative ultrasonic examination technique for manual conventional and manual phased array ultrasound. New acceptance criteria were developed for equivalent sensitivity to the fixed attenuation (Clause 8.2) technique.
g) Annex Y has been added to define ultrasonic examinations of groove welds using time-corrected gain technique with encoded phased array ultrasonic testing.

This Standard was prepared by the Technical Committee on Welding of Bridges, Buildings, and Machinery and the Offshore Welding Task Group, under the jurisdiction of the Strategic Steering Committee on Construction and Civil Infrastructure, and has been formally approved by the Technical Committee.

**Notes:**

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
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