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W59.2-18
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Welded aluminum construction

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Welded aluminum construction



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Preface

This is the second edition of CSA Standard W59.2, *Welded aluminum construction*. It supersedes the previous edition published in 1991 and CSA 5244-1969, *Welded Design and Workmanship (Inert Gas Shielded Arc Processes)*, which was replaced by the 1991 edition.

This edition represents a major rework of the Standard in both format and content. The following is a brief description of some of the most significant changes to the current edition of CSA W59.2:

- the structure of this Standard has been modified to parallel CSA W59 where appropriate for ease of use;
- Clause 3 has been revised to add several new materials;
- Clause 5 includes new requirements for weld acceptance criteria;
- Clause 7 has been reworked to provide clarity on roles and responsibilities for welding inspection;
- Clause 8 has been added to provide comprehensive requirements for non-destructive testing;
- Clause 10 has been added to provide requirements for friction stir welding; and
- Annex A has been added to provide recommended joint geometries for aluminum welding.

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.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Notes:

- 1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
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- 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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 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

W59.2-18

Welded aluminum construction

1 Scope

1.1

This Standard specifies the requirements for all types of welded aluminum construction with the exception of those types listed in Clause 1.2. Common requirements that are essential to all structures, including statically-loaded structures and cyclically-loaded structures, are included in this Standard.

1.2

This Standard is not intended to apply to pressure vessels or to structures governed by special codes such as those of the American Petroleum Institute, the American Society of Mechanical Engineers, or the American Water Works Association.

1.3

This Standard includes provisions for the following:

- a) gas metal arc welding (GMAW);
- b) gas tungsten arc welding (GTAW);
- c) plasma arc welding (PAW);
- d) friction stir welding (FSW); and
- e) stud welding (SW) by arc and capacitor discharge processes.

1.4

This Standard applies to the welding of base metals 2 mm (1/16 in) and thicker.

1.5

This Standard does not address safety problems associated with welding and welding practices.

Note: *CSA W117.2 addresses safety in welding, cutting, and allied processes, and should be followed in addition to any applicable workplace health and safety legislation in effect. It is the responsibility of the user of this Standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.*

1.6

This Standard does not address underwater welding activities.

1.7

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.