

## **CAN/CSA-S826.1-01 – Ferry Boarding Facilities -Design**

This document provides an overview of the requirements of *Welding Requirements CSA-S826.1 – Ferry Boarding Facilities -Design* with respect to welding. It is designed to provide requirements that are consistent with current practice for the design of new, or the replacement of existing, boarding facilities, including vehicular and foot passenger ramps and support structures, access interfaces between shore / ramp and ramp / vessel and operating systems.

This document is only for general guidance purposes; reference to the full text of CSA S826.1 should be made. For further information, please contact the CWB at 1-800-844-6790 or [info@cwbgroup.org](mailto:info@cwbgroup.org).

### **Introduction**

Welding is a key joining method used in the fabrication of transformers. To ensure welds of the highest quality and the safety of both the users of ferry boarding facilities and the general public, CSA Standard S826.1 provides specific requirements around the design and fabrication of ferry boarding facilities, with awareness that the transformers are used by people.

### **Welded Fabrication**

CSA S826.1 provides the following requirements:

#### **5.10 Welding**

*5.10.1.1 All welding and welding-related design of steel shall conform to the requirements of CSA Standard CSA-S6.*

*5.10.1.2 Where aluminum is used, design shall be in accordance with CSA Standard CAN3-S157. Fabrication shall be performed by companies certified to CSA Standard W47.2, and quality of work shall conform to CSA Standard W59.2.*

#### **5.10.2 Symbols**

*Complete and clear welding symbols conforming to the latest editions of CSA Standards W59 and W59.2 shall be included in all contract drawings.*

#### **C5.10 Welding**

*The requirement for conformance to CSA Standard CAN/CSA-S6 means that all structural, hydraulic, and mechanical components specified by the engineer of record must be welded by a company certified to CSA Standard W47.1, Division 1 or 2. It also means that the acceptance criteria for welding must, unless specified to the contrary by the engineer of record, be in accordance with CSA Standard W59 requirements for dynamically loaded structures.*

CSA Standard S6 requires all fabricators and erectors to be certified to CSA Standard W47.1, Division 1 or 2. An organization meeting the requirements of CSA Standard W47.1 will have qualified welders, accepted welding procedures and accepted supervisory / engineering personnel. All elements of the welding operation will be independently verified by the Canadian Welding Bureau on an on-going basis.

CSA Standard W59 requires that contractors performing work under this standard be certified under the requirements of CSA Standard W47.1 unless the Engineer of record approves the contractor for the work to be undertaken. CSA Standard W47.1 provides requirements for the qualification of welders and welding operators, welding procedures and welding supervisory and engineering personnel.

CSA Standard W59.2 requires that contractors performing work under this standard be certified under the requirements of CSA Standard W47. CSA Standard W47.2 provides requirements for the qualification of welders and welding operators, welding procedures and welding supervisory and engineering personnel.

CSA Standard W59 and CSA Standard W59.2 provide guidance on weld design, fabrication techniques, inspection and other key considerations around welding for steel respective aluminum.

Please note that there are no domestic or international equivalents to CSA Standard W47.1 or CSA Standards W47.2. Other national systems, such as that of the American Welding Society (AWS) do not include key concepts such as independent and on-going verification and welding supervisors/engineers. The CWB strongly cautions the reader around accepting substitutions; doing so may place public safety at risk.

For a listing of all organizations that currently meet the requirements of CSA Standard W47.1 and CSA Standard W47.2 please see [www.cwbgroup.org](http://www.cwbgroup.org).

### **Welding Inspection**

CSA Standard W59 and CSA Standard W59.2 require that all welds be visually inspected. In addition, when required by contract weld inspection must be completed by certified welding inspectors or a welding inspection organization following the requirements of CSA Standard W178.2 or CSA Standard W178.1 respectively. It also requires that CSA Standard W186 and CSA Standard W59 be followed for the acceptance criteria for all welds. It should be noted that CSA Standard W178.2 has individual “product categories” that inspectors may qualify to, including one for CSA Standard W59 and one for CSA Standard W59.2.

For a listing of all organizations and individuals who currently meet the requirements of CSA Standard W178.1 and CSA Standard W178.2, please see [www.cwbgroup.org](http://www.cwbgroup.org).