# *CAN/CSA-B311-02 – Safety Code for Manlifts* Welding Requirements

This document provides an overview of the requirements of *CAN/CSA-B311-02 –Safety code for manlifts* with respect to welding. It is designed to provide guidance for individuals and organizations involved in the design, construction, installation, operation, inspection, testing, alteration, and maintenance of permanently installed manlifts for the vertical transportation of authorized personnel and, where authorized, their tools and equipment.

This document is only for general guidance purposes; reference to the full text of CSA B311 should be made. For further information, please contact the CWB at 1-800-844-6790 or info@cwbgroup.org.

## ***Introduction***

Welding is a key joining method used in the fabrication of elevating work platforms. To ensure welds of the highest quality and the safety of both the users of manlifts and the general public, CSA Standard B311 provides specific requirements around the design, construction, testing, and maintenance of manlifts, with awareness that the unit will be carrying personnel.

## Welded Fabrication

CSA B311 provides the following requirements:

***4.2 Steel Components***
*The design, fabrication, and erection of steel components and fastenings shall conform to CSA Standard CAN/CSA S16.1 or S136.*

***4.3 Welding***
*4.3.1 Welding of steel shall conform to CSA Standard W59 and W47.1 or ANSI/AWS D1.1.*
*4.3.2 Welding of aluminum shall conform to CSA standard W47.2.*

***7.42.1 Qualification of Welders***
*Where required by another clause of this Standard. Welding of parts, except for tack welds incorporated into finished welds, shall be undertaken by a fabricator qualified to the requirements of CSA Standard W47.1 and by welders qualified and by welders qualified in accordance to the requirements of CSA Standard W47.1 or Section 5 of ANSI/AWS Standard D1.1, whereby the welders shall be qualified by the manufacturer or contractor, a professional consulting engineer, or a recognized testing laboratory.*

***7.42.2 Welding Steel***
*Where required by another clause of this standard, welding shall conform to the design and procedure requirements of CSA W59, and shall conform to the design and procedure requirements of the applicable section of ANSI/AWS Standard D1.1 or AWS Standard D1.3.*

***7.42.3 Welding Metals Other Than Steel***
*Where required by another clause of this standard, welding of materials other than steel shall be done in accordance with the latest AWS or CSA requirements applicable to the specific materials used.*

CSA Standard S16 requires all fabricators and erectors responsible for welding structures fabricated or erected under this Standard to be certified by the Canadian Welding Bureau to the requirements of CSA W47.1 (Division 1 or Division 2), CSA W55.3, or both, as applicable. Part of the work may be sublet to a Division 3 fabricator or erector; however, the Division 1 or Division 2 fabricator or erector shall retain responsibility for the sublet work.

CSA Standard W47.1 and CSA Standard W47.2 provide requirements for the qualification of welders and welding operators, welding procedures and welding supervisory and engineering personnel. A company certified to CSA W47.1 or CSA W47.2 Division 1 requires having full time engineer(s) and a company certified to Division 2 requires having retained part time engineer(s).

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

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 W59.2 requires that contractors performing work to be certified under the requirements of CSA Standard W47.2.

An organization meeting the requirements of CSA Standard W47.1 and / or CSA Standard W47.2 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.

Please note that there are no domestic or international equivalents to CSA Standard W47.1 and / or CSA Standard 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. Although CSA Standards B311 recommends alternative standards for welding, 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 / or CSA Standard W47.2 and please see *www.cwbgroup.org*.

**Welding Inspection**

CSA Standard W59 and / or 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 W59 and / or CSA Standard W59.2 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 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* .