CAN/CSA-S37-01 – Antennas, Towers and Antenna-Supporting Structures

This document provides an overview of the requirements of *CAN/CSA- S37-01 –Antennas, Towers and Antenna-Supporting Structures* with respect to welding. It is designed to provide guidance for individuals and organizations involved in design, fabrication, and erection of new structures, and the modification of existing structures of antennas and towers in Canada. This Standard applies to structural antennas, towers, antenna-supporting structures, and roof- and wall-mounted structures, including their components, such as guys and foundations.

This document is only for general guidance purposes; reference to the full text of CSA Standard S37 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 antennas and towers. To ensure welds of the highest quality and the safety of both the users of antennas and towers and the general public, CSA Standard S37 provides specific requirements around the design of steel structures and welded fabrication and erection of antennas and towers.

Structural Steel

6.1.1 Scope
The requirements of this Clause relate to structural steel for the types of structures covered by this Standard. The relevant clauses of CSA Standard CAN/CSA-S16 are referenced in Clause 6.1.2. when the requirements in referenced clauses differ, this Standard shall govern. Some clauses of CAN/CSA-S16 have been reproduced for continuity and convenience.

8. Other Structural Materials
8.3.2 The construction and testing of concrete structures and components shall conform to the requirements of CSA Standards A23.1/A23.2.

8.4 Structural Aluminum
The factored resistances and construction of components made of aluminum shall conform to the requirements of CSA Standard S157.

CSA Standard S16 requires fabricators and erectors responsible for welding 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-A23.3 “Design of Concrete Structures” requires fabricators responsible for welding of reinforced steel fabricated under this Standard to be certified by the Canadian Welding Bureau to the requirements of CSA W186.

CSA Standard S157 “Strength Design in Aluminum” requires fabricators and erectors responsible for welding to be certified by the Canadian Welding Bureau to the requirements of CSA W47.2.

Welded Fabrication

6.6 Welding
6.6.1 General
Welding design and practice shall conform to CSA Standard W59.

CSA Standard W47.1 and / or CSA Standards 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 Division 1 requires having full time engineer(s) and a company certified to Division 2 requires having retained part time engineer(s).

CSA Standard W55.3 provides requirements for the qualification of welding operators, welding procedures and welding supervisory and engineering personnel. A company certified to CSA W55.3 Division 1 requires having full time engineer(s) and a company certified to Division 2 requires having retained part time engineer(s). All companies certified to CSA W55.3 require to have in place a quality system for resistance welding.

An organization meeting the requirements of CSA Standard W47.1, CSA Standard W47.2, CSA Standard W186 and / or CSA Standard W55.3 will have qualified welders, operators, 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 W186 provides requirements for the qualification of welders and welding operators, welding procedures and welding supervisory and engineering personnel. All companies certified to CSA W186 require having full time engineer(s) or having retained part time engineer(s). This standard also provides guidance on weld design, fabrication techniques, inspection and other key considerations around welding for steel.

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

Please note that there are no domestic or international equivalents to CSA Standard W47.1, CSA Standard W47.2, CSA Standard W186 and / or CSA Standard W55.3. 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 contravene the intent of CSA S37and place public safety at risk.

For a listing of all organizations that currently meet the requirements of CSA Standard W47.1, CSA Standard W47.2, CSA Standard W186 and / or CSA Standard W55.3 please see *www.cwbgroup.org*.

Welding Inspection

CSA Standard W59, CSA Standard W59.2 and CSA Standard W186 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, CSA Standard W59.2 and CSA Standard W186 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* .