

CAN/CSA-A23.4-09 – Precast Concrete - Material and Construction Welding Requirements

This document provides an overview of the requirements of *CAN/CSA-A23.4-09 – Precast Concrete Material and Construction* with respect to welding. It is designed to provide guidance for individuals and organizations involved in the manufacture, transportation, and installation of architectural, structural, and specialty precast concrete products.

This document is only for general guidance purposes; reference to the full text of CSA A23.4 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 precast concrete walls or any other precast architectural structures. To ensure welds of the highest quality and the safety of both the users of buildings and the general public, CSA Standard A23.4 provides specific requirements around the manufacture, transportation, and installation of architectural, structural, and specialty precast concrete products, with awareness that the structural precast and / or architectural precast will become part of the buildings occupied by people.

Welded Fabrication

CSA A23.4 provides the following requirements:

10.2.2 Tendon deflectors

10.2.2.2 Welding of hardware shall conform to the requirements of Clause 13.4 of CSA Standard A23.1.

14.5 Welding of Reinforcement

The welding of reinforcement (including tack welding) for precast concrete shall conform to the requirements of CSA Standard W186.

32. Installation

All bolted or welded connections shall be made in accordance with the installation drawings. Where welded connections are required, all welds shall be made in accordance with CSA Standard W47.1.

CSA Standard A23.1 requires all welding of reinforcement to be conducted in accordance to CSA Standard W186. It also requires that all welding of hardware to be conducted in accordance to CSA Standard W59.

CSA Standard W47.1 and CSA standard W186 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 and / or CSA standard W186 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 CSA standard W186 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.

An organization meeting the requirements of CSA Standard W47.1 and / or CSA Standard W186 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 W186. 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 W186 and please see www.cwbgroup.org.

Welding Inspection

CSA Standard W59 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 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.

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.