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A Guide to
**Welding Certification
Requirements For
Authorities Having
Jurisdiction**



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A close-up photograph of a welder wearing a black protective helmet and gloves, working on a metal piece. The welder is holding a welding torch and a rod, with a bright blue and purple light emanating from the welding point. The background is slightly blurred, showing an industrial setting.

A Guide to Welding Certification Requirements

Introduction:

What is the CWB Office of Public Safety?

The Office of Public Safety was created to educate and advocate for both public safety and Canadian industry, while ensuring the Canadian Welding Bureau's (CWB) accreditations are maintained and executed to the highest standard. The CWB Office of Public Safety is also a resource for Authorities Having Jurisdiction and industry to better understand standards related to welding and construction - and how the effective implementation of these standards can assist industry to become more competitive, maintain the highest quality, reduce risk and uphold public safety.



Authorities Having Jurisdiction and Welded Steel and Aluminum Construction

Authorities Having Jurisdiction (AHJ) are key contributors to ensuring that our infrastructure is constructed in accordance with our national and provincial building codes. Their oversight ensures that our infrastructure is safe, and the public is protected.

Steel and aluminum are common construction materials used in industrial, commercial, and even residential buildings. Welding is one of the most common methods of joining structural steel and aluminum, and AHJ must be aware of the requirements of the building code related to structural steel and aluminum and welding.

This guide is intended to provide AHJ with a summary of the requirements of welding and welding certification as related to the National Building Code of Canada (NBCC) and provincial building codes.





What is the connection between the NBCC and CWB?

The national and the provincial building codes do not have any direct reference to welding requirements. The NBCC requires the CSA Standard S16, S157, S136, A23, and CSA A660 be used for all structural steel and aluminum which in turn includes references to welding requirements.

Section 4.3.4.1 of the NBCC states “Buildings and their structural members made of structural steel shall conform to CAN/CSA S16, Design of Steel Structures.”

Section 4.3.4.2 of the NBCC states “Buildings and their structural members made of cold formed steel shall conform to CAN/CSA S136 North American Specification for the Design of Cold Formed Steel Structural Members.”

Section 4.3.5.1 of the NBCC states “Buildings and their structural members made of aluminum shall conform to CSA S157 Strength Design in Aluminum.”

Section 4.3.3.1 of the NBCC states “Buildings and their structural members made of plain, reinforced or prestressed concrete shall conform to CSA A23.3 Design of Concrete Structures.”

Note that Section 1.1.1.1, subsection 3 states "Farm Buildings used for agricultural occupancies within specific requirements shall conform to the requirements of the National Farm Building Code of Canada 1995 (FBCC) where the FBCC is provincially endorsed."

Examples of welding applications:

- Structural steel and aluminum
- Miscellaneous structural steel and aluminum (platforms, guards, stairs, storage racks, etc.)
- Open web steel joists
- Roof and floor decking

Please refer to the figure on next page (Pg.5) for a visual representation of typical structural steel and aluminum components.

The NBCC also provides additional requirements for pre-engineered buildings.

Section 4.3.4.3. of the NBCC states that “Steel Building Systems shall be manufactured by companies certified in accordance with the requirements of CSA A660, Certification of Manufacturers of Steel Building Systems.”

Examples of A660 applications:

- Traditional pre-engineered buildings
- Fabric covered buildings
- Mini storage buildings

For additional details regarding A660 Steel Building systems, review the brochure titled *“A Guide to Certification Requirements of Manufacturers of Steel Building Systems”*

CSA A660, CSA S16, A23, S136 and S157 and other design standards have mandatory provisions requiring fabricators and erectors to be CWB certified to the following applicable standards:

- CSA Standard W47.1 “Certification of Companies for Fusion Welding of Steel”
- CSA Standard W47.2 “Certification of Companies for Fusion Welding of Aluminum”
- CSA Standard W186 “Welding of Reinforcing Bars in Reinforced Concrete Construction”
- CSA Standard W55.3, Certification of companies for resistance welding of steel and aluminum”

Therefore, where welded structural steel and aluminum is used in building construction, the AHJ are obligated to verify that those companies/manufacturers involved in welded construction are certified by the CWB to the relevant standard(s).

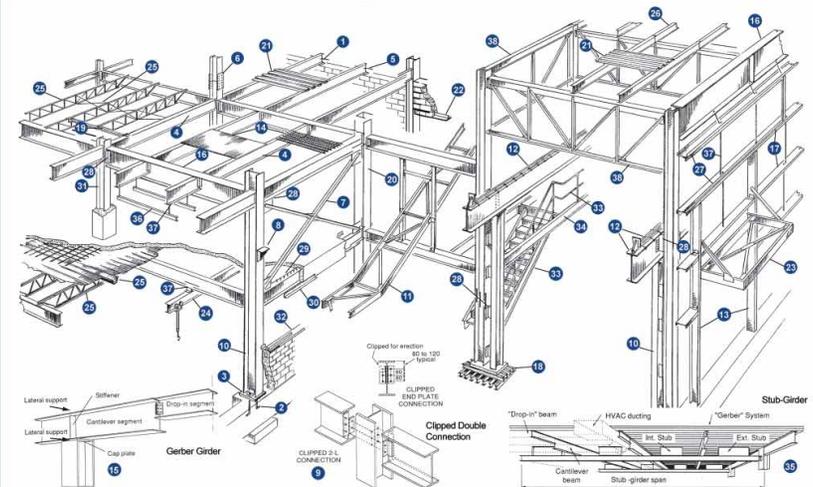
Structural steel and aluminum components

WELDED BUILDING COMPONENTS

DOES THE WELDING COMPLY WITH THE BUILDING CODE?

To comply with the Building Code, fabricators and erectors welding steel, aluminum and reinforcing bars must be certified by the Canadian Welding Bureau to CSA Standards (See Clauses 4.3.3, 4.3.4 and 4.3.5 of the National or Provincial Building Code and Clause 24 of CSA Standard S16 “Limit States Design of Steel Structures”). These companies may weld structural steel, metal piling, cladding, curtain walls, window clips, equipment supports and any other components as illustrated below.

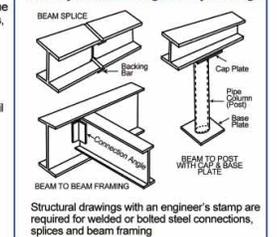
For public safety, ensure that welding meets the requirements of the building code.



LEGEND

- Most of the above components may be welded during fabrication or installation
1. Anchors (wall) for beams or open-web steel joists
 2. Anchor rods for structural steel
 3. Base plates of steel for steel columns
 4. Beams
 5. Bearing plates for structural steel
 6. Bolts
 7. Bracing for steel members or frames
 8. Brackets attached to the steel frame
 9. Clipped double connection
 10. Columns
 11. Conveyor structural steel frame work
 12. Crane, girders, rails and stops
 13. Door frames constituting part of and connected to the steel frame
 14. Floor and roof plates (raised pattern or plain), grating, connected to steel frame
 15. Gerber girder
 16. Girders
 17. Girts
 18. Grillage beams of steel
 19. Headers or trimmers for support of open-web steel joists where such headers or trimmers frame into structural steel members
 20. Hollow structural section (HSS) column
 21. Light-gauge cold formed steel used to support floor and roofs
 22. Lintels attached to steel frame
 23. Marquee or canopy (structural frame only) when forming an integral part of the steel frame
 24. Monorail beams of standard structural shapes, attached to steel frame
 25. Open-web steel joists, bridging and accessories when supplied with steel joists
 26. Purlins
 27. Sash angles connected to the steel frame
 28. Separators, angles, tees, clips and other detail fittings essential to the structural steel frame
 29. Shear connectors
 30. Shelf angles attached to the steel frame
 31. Steel cores for composite columns
 32. Steel window sills attached to the steel frame
 33. Steel stairs and handrails
 34. Struts
 35. Stub girders
 36. Suspended ceiling supports of structural steel shapes 75mm or greater in depth
 37. Ties, hangers and sag rods forming part of the structural frame

Steel Beams and Column Connections that may be used in Single Family dwellings



Structural drawings with an engineer's stamp are required for welded or bolted steel connections, splices and beam framing



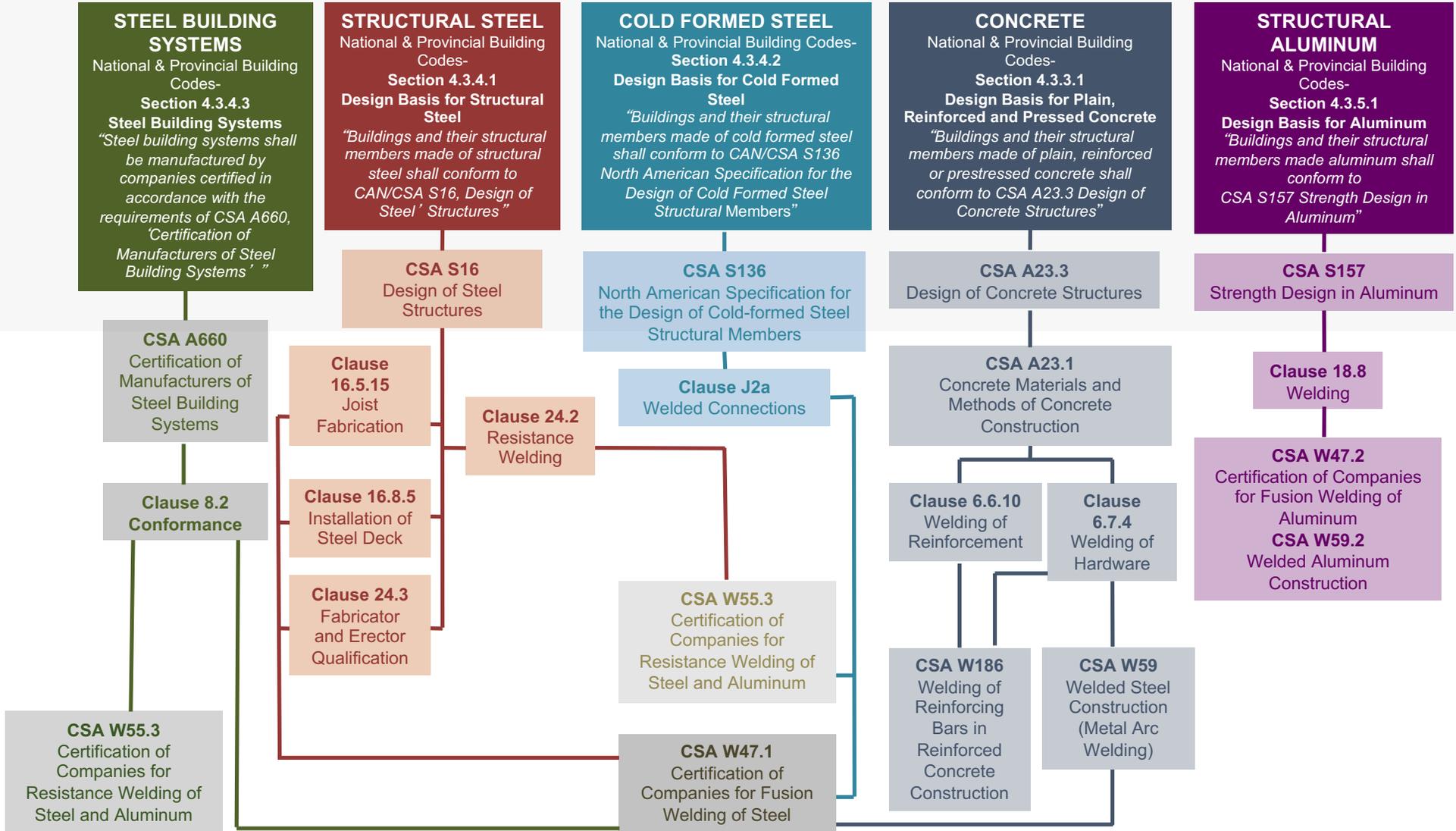
To verify the welding certification status of any fabricator/erector, or for training in structural steel welding inspection, call the Canadian Welding Bureau at 1-800-844-9246

www.cwbgroup.org



Other linkages between the NBCC, design requirements and CWB certification requirements

Building Codes and CWB





What does it mean to be CWB certified?

CSA Standard W47.1, CSA Standard W47.2, CSA Standard W186 and CSA Standard W55.3 have similar provisions for certification of fabricators and erectors.

Certification means that five main components are in place:

1. The company employs qualified welders
2. The company employs qualified welding engineers and welding supervisors
3. The company follows approved welding procedures
4. The company follows a quality management system
5. The company has competent inspection personnel

The nature of welding requires that demonstrated competence of those involved in the welding operation, along with competent oversight and proven fabrication methods be in place. Certification ensures that this is the case. In addition, the CWB provides ongoing oversight of a certified company's welding operation to ensure that the requirements are consistently applied.



Verification: How can I verify CWB certification?

Certification is an ongoing process. Care must be exercised to ensure that an organization's certification is both current and appropriate for the type of work being completed.

There are several methods by which an Authority Having Jurisdiction may verify certification:

1

Verify company status on the CWB website

Visit www.cwbgroup.org to search our database of CWB-certified clients. Be sure to verify that the scope of certification matches the work on the specific project.



2

Letter of Validation

Prior, or during the permit or inspection process, you can request that the steel fabricator and erector provide their current CWB “Letter of Validation” (see right). Be sure to verify expiry dates, the division of certification and the scope of certification.

Note that CSA S6 does not have allowance for Division 3 certified companies and CSA S16 mandates if Division 3 companies are in use that they must be sublet by a division 1 or 2 certified company and the Division 1 or 2 company shall retain responsibility for the work.

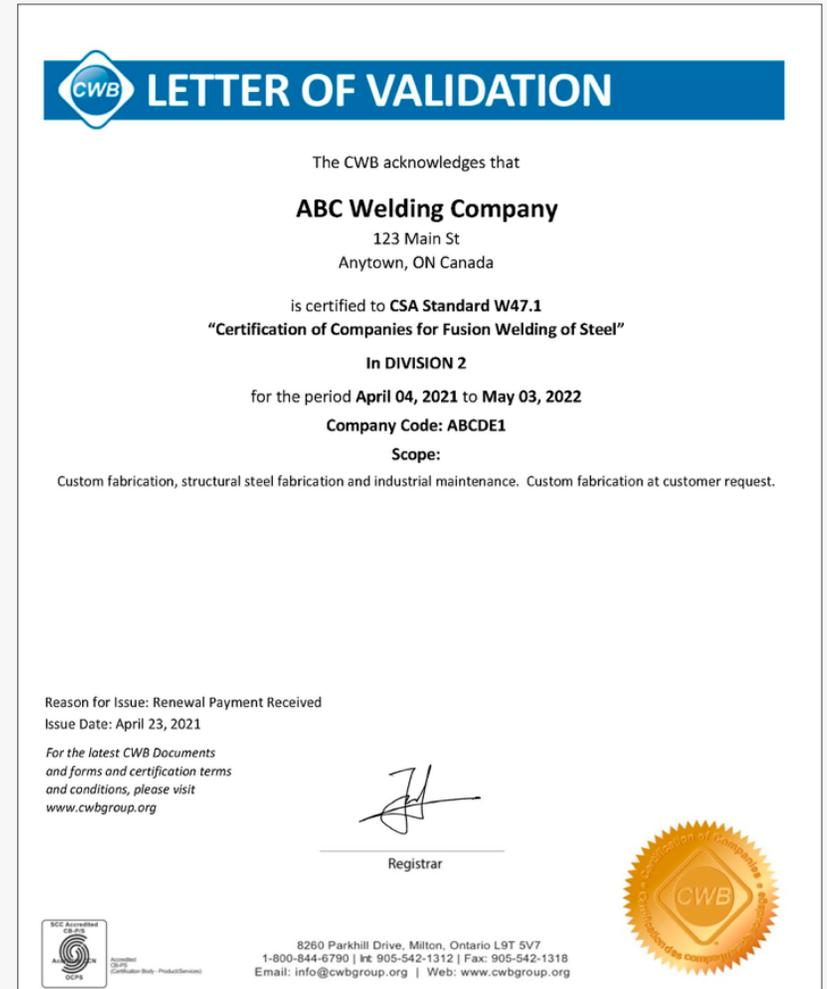
Note that for pre-engineered buildings, each steel building system must be supplied with a “certificate of design and manufacturing conformance.” This is a mandatory requirement of CSA A660 certification.

3

Call the CWB

You can call the CWB at 1-800-844-6790 to verify any claim of certification. The company name and address are needed to verify their status and scope of certification.

Letter of Validation - for welding inspection organizations



CWB LETTER OF VALIDATION

The CWB acknowledges that

ABC Welding Company
123 Main St
Anytown, ON Canada

is certified to **CSA Standard W47.1**
“Certification of Companies for Fusion Welding of Steel”

In DIVISION 2
for the period **April 04, 2021 to May 03, 2022**
Company Code: ABCDE1
Scope:
Custom fabrication, structural steel fabrication and industrial maintenance. Custom fabrication at customer request.

Reason for Issue: Renewal Payment Received
Issue Date: April 23, 2021

For the latest CWB Documents and forms and certification terms and conditions, please visit www.cwbgroup.org


Registrar

 8260 Parkhill Drive, Milton, Ontario L9T 5V7
1-800-844-6790 | Int 905-542-1312 | Fax: 905-542-1318
Email: info@cwbgroup.org | Web: www.cwbgroup.org





Other Documentation

It should be noted that the following items are not proof of certification on their own.

- Welder Tickets
- Welding Procedures
- Wall Certificates
- Welding Supervisor Certificates

Although these documents are part of the certification program, none can be used on their own to prove certification.

Equivalency: Is there any Equivalent System for Certification?

The CWB is often asked if there are equivalent certification programs that meet the requirements of the NBCC. 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 qualified welding supervisors and engineers.

The CWB strongly cautions AHJ around accepting substitutions; doing so may contravene the intent of NBCC and place public safety at risk.

How Can I Get More Help from CWB's Office of Public Safety?

The CWB is here to help, and can assist AHJ through:

- Assistance with CWB certification verification
- Response to any aspect of CWB certification requirements
- Job site visits
- Complaints investigations
- Complimentary presentations on CWB certification



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Get in touch

Phone: 1.800.844.6790 ext. 717

Email: publicsafety@cwbgroup.org

Online: cwbgroup.org/safety/assistance

8260 Parkhill Drive Milton, ON L9T 5V7

**For more information and resources,
visit us online at:**

cwbgroup.org/safety

cwbgroup.org/safety/resource-library

