
CWB
cwbgroup
A Guide to
CSA A660 Certification Requirements of Manufacturers of Steel Building Systems
for Authorities Having Jurisdiction
cwbgroup.org

A Guide to CSA A660 Certification Requirements

Introduction:

What is the CWB Office of Public Safety?

The CWB 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 Office of Public Safety is also a resource for Authorities Having Jurisdiction and industry to better understand the 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 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 is a common construction material used in industrial, commercial, and even residential buildings. Welding is one of the most common methods of joining structural steel and AHJ must be aware of the requirements of the Building Code related to structural steel 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 for steel building systems, also known as “pre-engineered buildings.”

What is the connection between the NBCC and CWB?

The national and 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 4.3.4.3 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

Therefore, where steel building systems are used in building construction, AHJ are obligated to verify that those companies/ manufacturers involved in their design and construction are certified to the relevant standard(s).

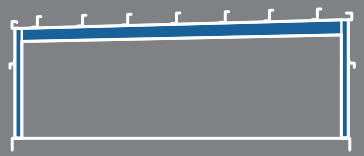
At present, the CWB is the only certification body that provides certification services to CSA Standard A660.

What is a steel building system?

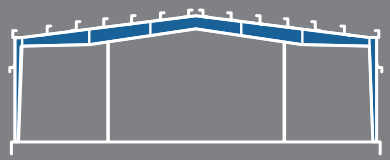
A steel building system is an integrated assembly of manufactured steel primary structural components, secondary structural components of any material, and cladding of any material, specifically designed by the manufacturer to support and transfer loads and provide a complete or partial building shell.

Unlike traditional steel delivered by the steel manufacturers in standard shapes and lengths, the structural components for the steel building systems are designed and manufactured to non-standard shapes and sizes specifically to carry non-traditional loads and to close up the building.

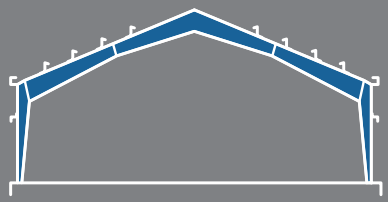
Clearspan with straight columns



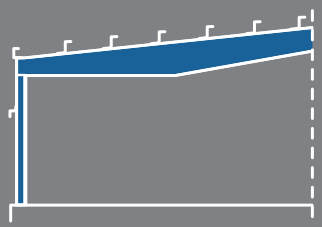
Single slope clearspan



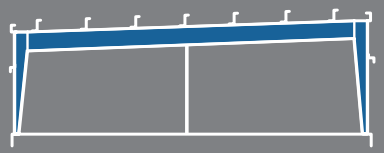
Modular building
with 2 interior columns
(3 Modules)



Clearspan with tapered columns



Lean-to



Single slope modular building
with 1 interior column (2 modules)

Does the manufacturer have to be certified separately for its welding operations?

Yes. The requirements for certification of the manufacturers of steel building systems are done via a mandatory requirement in the CSA Standard A660:

Clause 8.2 of CSA Standard A660 states "The manufacturer shall demonstrate to the satisfaction of the certification agency that:

a. the manufacturer is certified under CSA W47.1, Division 1 or 2 for welded fabrication;

b. if resistance welding is used, the manufacturer is certified in accordance with CSA W55.3;

c. fabrication conforms to the requirements of CAN/CSA-S16 and CAN/ CSA-S136, as applicable to the steel building system; and

d. arc welding conforms to CSA WS9 and CAN/CSA-S136, as applicable to the steel building system"

CSA Standards W47.1, and W55.3 have similar provisions for the certification of fabricators and erectors. **Certification means that five main components are in place:**

1. The company employs qualified welders and welding operators
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

For additional details, review the brochure titled A Guide to Welding Certification Requirements.

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

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.

What are the benefits of A660 certification?

Companies which hold A660 certification are required to have and maintain a quality management system similar to the more generic ISO 9001 certification. However, A660 certification is much more detailed and specific to the manufacture of steel building systems.

Maintaining a quality management system involves independent and on-going verification by the CWB of the manufacturer's design systems to ensure compliance to Canadian standards. In addition, through periodic audits, CWB personnel review the manufacturer's fabrication procedures starting from incoming raw material right through to the finished product.

There are numerous "dealers" which resell steel building systems. The certification of the dealer is not required provided all design and fabrication is done by a Certified Manufacturer. Note that some dealers may work with multiple manufacturers - some certified, others not.

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 AHJ may verify certification:

1

Verify company status on the CWB website

Visit www.cwbgroup.org/safety to search our database of CWB certified clients

2

Certification of Registration for steel building systems manufacturers and Letter of Validation for steel fabricators and erectors

During the permit or inspection process, you can request that the manufacturer provide their current CWB "Certificate of Registration" (pg.8) for steel building system manufacturers and a CWB "Letter of Validation" (pg.9) for steel fabricators and erectors. Be sure to verify expiry dates and the scope of certification.

3

Call the CWB

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

In addition, for A660 certification, each steel building system supplied must be identified by a certificate of design and manufacturing conformance prepared, signed, and sealed by a professional engineer licensed to practice in the jurisdiction concerned. Read on (see pg. 10) for an illustration of a certificate of design and manufacturing conformance.

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 A660 or to CSA Standard W47.1.

The CWB strongly cautions AHJ around accepting substitutions; doing so may contravene the intent of the 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 investigation
- Complimentary presentations on CWB certification

Certificate of Registration

Certificate of Registration

This is to certify that QUASAR *has certified:*

BRIGHTWELD Ltd.

Plant: 123 Arcweld Way, Teejoint, ON
Design Office: 456 Arcstrike Ave, Teejoint, ON

to the Certification Standard:

CSA A660-10

"Certification of Manufacturers of Steel Building Systems"

Initial Registration	Date of Issue	Date of Expiry	Certificate Number
21 May 2007	30 November 2012	30 November 2013	BRIGW0

Scope: Metal building manufacturer

QUASAR

Registrar

QUASAR

Refer to www.cwbgroup.org for current certification status.

A660 Cer – 2012-08 QUASAR, A Division of the CWB Group, 8260 Park Hill Drive, Milton, Ontario, Canada, L9T 5V7, Tel: 1-800-844-6790 / (905)-542-1312, Fax: (905) 542-1318, Web: www.cwbgroup.org

Letter of Validation

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.

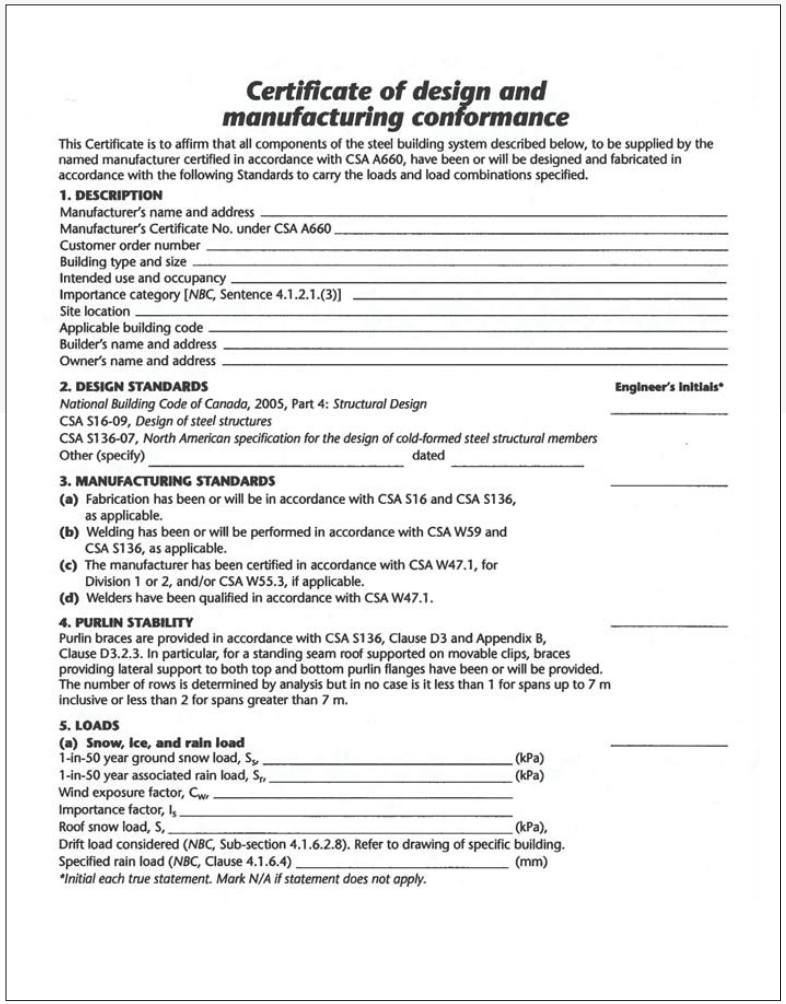
Reason for Issue: Renewal Payment Received
Issue Date: April 23, 2021

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

Design and manufacturing conformance



Certificate of design and manufacturing conformance

This Certificate is to affirm that all components of the steel building system described below, to be supplied by the named manufacturer certified in accordance with CSA A660, have been or will be designed and fabricated in accordance with the following Standards to carry the loads and load combinations specified.

1. DESCRIPTION

Manufacturer's name and address _____
Manufacturer's Certificate No. under CSA A660 _____
Customer order number _____
Building type and size _____
Intended use and occupancy _____
Importance category [*NBC*, Sentence 4.1.2.1.(3)] _____
Site location _____
Applicable building code _____
Builder's name and address _____
Owner's name and address _____

2. DESIGN STANDARDS **Engineer's initials*** _____

National Building Code of Canada, 2005, Part 4: *Structural Design*
CSA S16-09, *Design of steel structures*
CSA S136-07, *North American specification for the design of cold-formed steel structural members*
Other (specify) _____ dated _____

3. MANUFACTURING STANDARDS _____

(a) Fabrication has been or will be in accordance with CSA S16 and CSA S136, as applicable.
(b) Welding has been or will be performed in accordance with CSA W59 and CSA S136, as applicable.
(c) The manufacturer has been certified in accordance with CSA W47.1, for Division 1 or 2, and/or CSA W55.3, if applicable.
(d) Welders have been qualified in accordance with CSA W47.1.

4. PURLIN STABILITY _____

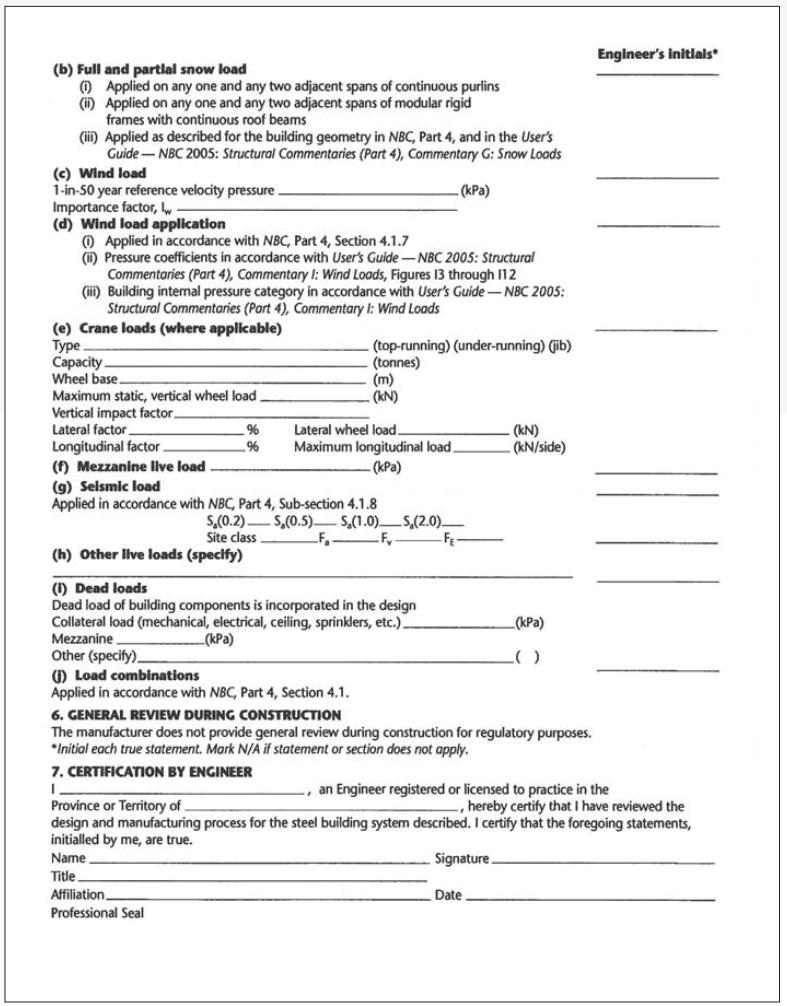
Purlin braces are provided in accordance with CSA S136, Clause D3 and Appendix B, Clause D3.2.3. In particular, for a standing seam roof supported on movable clips, braces providing lateral support to both top and bottom purlin flanges have been or will be provided. The number of rows is determined by analysis but in no case is it less than 1 for spans up to 7 m inclusive or less than 2 for spans greater than 7 m.

5. LOADS

(a) Snow, Ice, and rain load _____

1-in-50 year ground snow load, S_s, _____ (kPa)
1-in-50 year associated rain load, S_r, _____ (kPa)
Wind exposure factor, C_w, _____
Importance factor, I_s _____
Roof snow load, S, _____ (kPa),
Drift load considered (*NBC*, Sub-section 4.1.6.2.8). Refer to drawing of specific building.
Specified rain load (*NBC*, Clause 4.1.6.4) _____ (mm)

**Initial each true statement. Mark N/A if statement does not apply.*



Engineer's initials*

(b) Full and partial snow load _____

(i) Applied on any one and any two adjacent spans of continuous purlins
(ii) Applied on any one and any two adjacent spans of modular rigid frames with continuous roof beams
(iii) Applied as described for the building geometry in *NBC*, Part 4, and in the *User's Guide — NBC 2005: Structural Commentaries (Part 4), Commentary G: Snow Loads*

(c) Wind load _____

1-in-50 year reference velocity pressure _____ (kPa)
Importance factor, I_w _____

(d) Wind load application _____

(i) Applied in accordance with *NBC*, Part 4, Section 4.1.7
(ii) Pressure coefficients in accordance with *User's Guide — NBC 2005: Structural Commentaries (Part 4), Commentary I: Wind Loads*, Figures I3 through I12
(iii) Building internal pressure category in accordance with *User's Guide — NBC 2005: Structural Commentaries (Part 4), Commentary I: Wind Loads*

(e) Crane loads (where applicable) _____

Type _____ (top-running) (under-running) (jib)
Capacity _____ (tonnes)
Wheel base _____ (m)
Maximum static, vertical wheel load _____ (kN)
Vertical impact factor _____
Lateral factor _____ % Lateral wheel load _____ (kN)
Longitudinal factor _____ % Maximum longitudinal load _____ (kN/side)

(f) Mezzanine live load _____ (kPa) _____

(g) Seismic load _____

Applied in accordance with *NBC*, Part 4, Sub-section 4.1.8
$S_a(0.2)$ ___ $S_a(0.5)$ ___ $S_a(1.0)$ ___ $S_a(2.0)$ ___
Site class _____ F_a _____ F_v _____ F_E _____ _____

(h) Other live loads (specify) _____

_____

(i) Dead loads _____

Dead load of building components is incorporated in the design
Collateral load (mechanical, electrical, ceiling, sprinklers, etc.) _____ (kPa)
Mezzanine _____ (kPa)
Other (specify) _____ ( )

(j) Load combinations _____

Applied in accordance with *NBC*, Part 4, Section 4.1.

6. GENERAL REVIEW DURING CONSTRUCTION

The manufacturer does not provide general review during construction for regulatory purposes.
**Initial each true statement. Mark N/A if statement or section does not apply.*

7. CERTIFICATION BY ENGINEER

I _____, an Engineer registered or licensed to practice in the Province or Territory of _____, hereby certify that I have reviewed the design and manufacturing process for the steel building system described. I certify that the foregoing statements, initialled by me, are true.

Name _____ Signature _____
Title _____
Affiliation _____ Date _____
Professional Seal

cwbgroup

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**