Municipal Building Considerations for Prefabricated, Modular, and Factory-Built Developments in Ontario

BROCKVILLE
CITY OF THE 1000 ISLANDS

Sebastian Scott, CBCO

Employer:

City of Brockville – Since November 2013

Current Job Title:

Chief Building Official

Education:

Ontario Secondary School Diploma With OAC

Civil Engineering Technologist (SLC Kingston)

Professional Designations:

Certified Building Code Official (OBOA)

BCIN Certifications

Previous Relevant Job Experience:

Field Experience

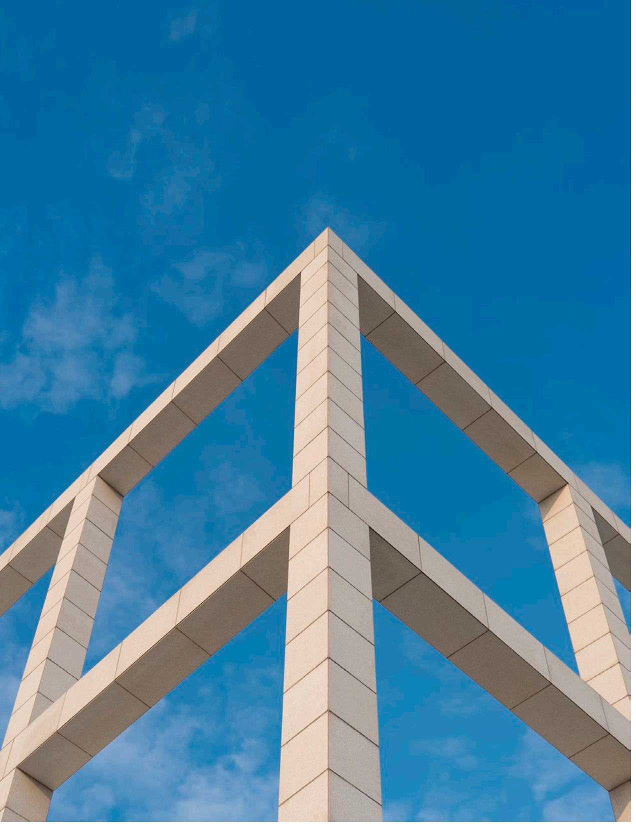
Site Supervision

Estimation

Project Management

Design Work

Quality Control
Quality Assurance



What is a Building ?

1.(1) of The Building Code Act defined “Building” as:

(a)a structure occupying an area greater than ten square metres consisting of a wall, roof and floor or any of them or a structural system serving the function thereof including all plumbing, works, fixtures and service systems appurtenant thereto,

(b)a structure occupying an area of ten square metres *or less that contains plumbing, including the plumbing appurtenant thereto,*

(c) plumbing not located in a structure,

(c.1) a sewage system, or

(d) structures designated in the building code; (“bâtiment”)

The Ontario Building Code

- The Ontario Building Code is a regulation under the Building Code Act which establishes detailed technical and administrative requirements and minimum standards for building construction.
- Ontario Building Code is a set of minimum provisions respecting the safety of buildings regarding public health, fire protection, energy efficiency, accessibility and structural sufficiency.
- Ontario Building Code is divided into 12 Parts for acceptable solutions.

Building Code Act

Division A
Compliance, Objectives and Functional Statements

Part 1
Compliance and General

Part 2
Objectives

Part 3
Functional Statements

Division B
Acceptable Solutions

Part 1
General

Part 2
Reserved

Part 3
Fire Protection, Occupant Safety and Accessibility

Part 4
Structural Design

Part 5
Environmental Separation

Part 6
Heating, Ventilating and Air-Conditioning

Part 7
Plumbing

Part 8
Sewage Systems

Part9
Housing and Small Buildings

Part 10
Change of use

Part 11
Renovation

Part 12
Resource Conservation

Division C
Administrative Provisions

Part 1
General

Part 2
Alternative Solutions, Disputes, Rulings and interpretations

Part 4
Transition, Revocation and Commencement

How Is the Building Code Organized?

Understanding the Purpose of the Building Code

- The Building Code Act and the Building Code apply to the construction of buildings, demolitions and changes of use.
- All buildings, including modular ones, must adhere to Building Code standards to ensure safety, health, weather resistance, and energy efficiency.
- Construction requirements noted in the code vary based on the use of the building and by location to account for climate conditions like temperature, wind, snow, and rain, as well as specific structural standards for earthquake resistance.

How is the construction process different for modular construction?

Site built construction follows a more linear process and is more constrained since “on-site” inspections must be completed and passed before you can move onto the next stage of construction.

Modular construction allows for various parts of construction and inspections or certifications to occur simultaneously.

Prefabricated Construction

Manufactured parts of houses (e.g., pre-assembled wall or floor panels) are transported to the site and integrated into traditional on-site construction

All required inspections take place on-site at the permanent location by the municipal Building Department having jurisdiction.

Doesn’t require third party inspection as everything is visible on site at time of mandated inspections.

Modular construction

Buildings or parts of buildings are built in a factory. Then, the pieces are moved to the building site and put together, like using giant building blocks.

Often, the interior is finished or almost finished at the manufacturing facility. For example, wiring and plumbing can be installed in the modules before being moved to the building site.

Inspection completed in the factory by either:

-Third-party inspectors accredited by the Standards Council of Canada, or

-Building officials from the municipality where the house will be installed, who may come to the factory to inspect or appoint representatives to do so.

Code Requirements
Housing & Small Building (Part 9)

OBC Article B.9.1.1.9. *"Site Assembled and Factory-built Buildings"* reads as follows:

1) *"Except as provided in Sentence (2), a manufactured building or manufactured part of a building is **deemed to comply with this Code** if it is designed and constructed in compliance with,*
   a) *CSA Z240.2.1, "Structural Requirements for Manufactured Homes", if the building is constructed in sections not wider than 4.88 m , or*
   b) *CSA A277, "Procedure for Certification of Prefabricated Buildings, Modules, and Panels".*

2) *The requirements of this Code shall apply to,*
   a) *building components designed and constructed outside the place of manufacture, and*
   b) *site installation of such buildings ."*

Code Requirements
Large & Complex Buildings (Part 3)

OBC Article C.1.12.1.*"Site Assembled and Factory-built Buildings"* reads as follows:

1) *"Except as provided in Sentence (2), a manufactured building or a manufactured part of a building within the scope of Part 3 is **deemed to comply with this Code** if it is certified in accordance with CSA A277, "Procedure for Certification of Prefabricated Buildings, Modules, and Panels".*
2) *The requirements of this Code shall apply to,*
   a) *building components designed and constructed outside the place of manufacture, and*
   b) *site installation of such buildings ."*

BGH MRI Addition Completed in 2024

Delivery and Site Assembly

https://vimeo.com/user26748437/review/150950495/1abfb7a8a2

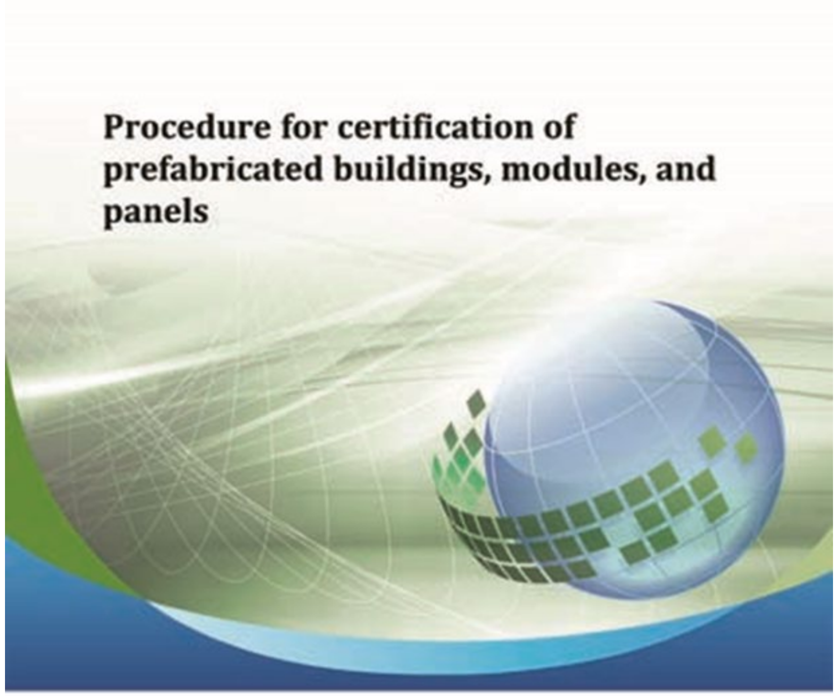
Manufacturing Process and Delivery:

https://vimeo.com/781642094/7eb3f3a893

CSA A277—Compliance

CSA Standard CAN/CSA-A277, “Procedure for factory certification of buildings”

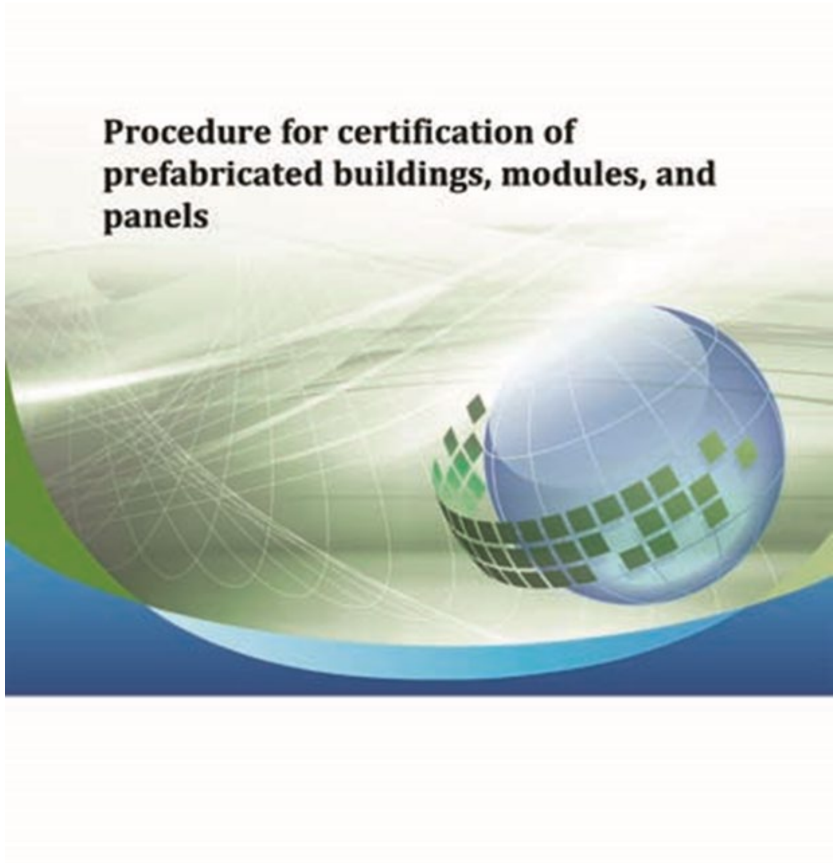
Describes a procedure whereby an independent certification agency can review the quality control procedures of a factory and make periodic, unannounced inspections of its products and thus, through suitable labeling, provide assurance to authorities at the final site that those components which cannot be inspected on site comply with the code indicated on the label.



CSA A277—Compliance

Certification to CSA A277:

- Provides a framework for certification programs
- Enables conformity assessment
- Applies to both residential and non-residential buildings
- Applies to buildings of all types, size and occupancy classification
- Does not cover portions of buildings or services that are not completed in the factory.
- Does not address transport of buildings or their erection at the building site.
- Requires that products are designed and constructed to comply with code and regulation in force at the installation location.



CSA A277—Plant Certification

- Certification bodies, accredited by the Standards Council of Canada, oversee in-plant quality processes. They conduct annual audits and random inspections to ensure compliance.
- The scope of plant certification depends on the specific certifications held.
- For CSA A277, a list of accredited certification bodies is available on the Standards Council of Canada’s website.

OBC.C.1.11.1. Tiny Houses Constructed "Off-site"

Section C.1.11 of the Ontario Building Code outlines the requirements for Tiny Houses constructed and inspected under a 2 permit system that:

- Have no more than one dwelling unit.
- Are 37 square meters or less in building area.
- Are partially constructed in one municipality and moved to another without prior occupancy or partially constructed at one location and moved to be installed at a location that is not yet know without prior occupancy.

Tiny Houses Constructed "Off-site"

Permit #1

Factory Built Portion

- Apply for and obtain a building permit from the municipality where the Tiny Home is being constructed in the factory.
- This permit is reviewed against one of the following:
  1. **Known Installation Site**:
     1. The permit application must specify the address or location of the site.
     2. It must include necessary information about the anticipated site installation for designing the house.
     3. The proposed construction must comply with the location-specific requirements of the Code for that address or location.
  2. **Unknown Installation Site**:
     1. The permit application must include a declaration of assumptions about the house's location used in its design.
     2. It must provide necessary information about the anticipated site installation for designing the house.
     3. The proposed construction must comply with the location-specific requirements of the Code for a site with the characteristics outlined in the declaration.
- Prescribed inspections must be undertaken by a building official in that municipality where the factory is located.

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Location Dependent Requirement Declaration Summary

(Tiny Houses Constructed Off-Site [Div. C1.11.1])

This form is used to summarize the assumptions related to the location of the house that have been used in the design of the tiny house constructed off-site.

For use by Principal Authority	
Permit No:	Model/Identifier Number:

A. Project Information (where is "Off-site Construction" is taking place)

Building Number, Street name	Unit Number
Municipality	Postal Code

B. Intended Installation Location (Where is the site the house is intended to be installed on)

☐ The site the house is intended to be installed on is **not** known at this time [C,D,E,F,G]

☐ The site the house is intended to be installed on is known to be: [D,E,F,G]

Building number, street name	Unit number	Lot/Con

Municipality	Postal Code	Reg. Plan number/other description

C. Climatic, Seismic & Temperature Based Design Assumptions

Allowable Soil Bearing Pressure (kPa)		S_s 1-in-50-year ground snow load (kPa)	
S_r 1-in-50-year rain load (kPa)		2.5% January Design Temperature (°C)	
Degree Days Below 18°C		Hourly Wind Pressure (1/50) kPa	
Seismic Spectral response acceleration Sa(0.2)			

D. Spatial Separation Design Assumptions

Exposing Building Face	Minimum Limiting Distance (m)	Total Area of Wall (m^2)	Total Area of Unprotected Openings (m^2)	% Unprotected Openings	Fire Resistance Rating of exposing building face	Cladding Type
						COMBUSTIBLE
						NONCOMBUSTIBLE
						NONCOMBUSTIBLE
						NONCOMBUSTIBLE
						NONCOMBUSTIBLE
						NONCOMBUSTIBLE

E. Fire Fighting Assumptions

Yes	No	
☐	☐	It is assumed that the site the house is intended to be installed on will be provided with adequate fire fighting facilities.
☐	☐	It is assumed that the site the house is intended to be installed on will be provided with access for fire department equipment by means of a street, private roadway, or yard.

F. Soil Gas Control Assumptions

Yes	No	
☐	☐	It is assumed that the site the house is intended to be installed on requires the installation of a Soil Gas mitigation.

G. Declaration of applicant

I ______________________________ **declare that:**

(print name)

1. The assumptions for "location-dependant requirements" as noted in this declaration have been used in the design of the house.
2. There is no guarantee/assurance implied that any municipality would permit the installation of the partially constructed house where the "location-dependant requirements" for the site that the house installed on do not correspond with the assumptions made in this declaration.
3. Any purchaser of the partially constructed house will be provided copies all documentation noted in Div.C.1.11.1.2(4) of the Ontario Building Code.
4. The partially constructed house shall only be installed at a site in a municipality where a permit under section 8 of the Act has been issued therefore by the chief building official of that municipality.

______________ ______________________________

Date Signature of Applicant

Tiny Houses Constructed "Off-site"

Permit # 2

Site Built Portion

- **Second Building Permit (Site Installation Portion)**:
  - Obtain a second building permit from the municipality where the Tiny Home will be located.
  - The second permit covers:
    - Services
    - Foundation
    - Anchorage
    - Grading
    - Zoning by-law and other applicable law matters
    - Requirements related to moving the Tiny Home
  - No duplication of matters reviewed, inspected, and approved through the first building permit.
  - All documentation from factory portion of permit is to be provided including but not limited to inspection reports.
  - Occupancy Permit is granted under this permit.

Questions? Comments? Concerns?