

**MODULAR CONSTRUCTION**

*Council*



*Conseil de la*  
**CONSTRUCTION MODULAIRE**

**Canadian  
Home Builders'  
Association**

**Association  
Canadienne  
Des Constructeurs  
D'Habitations**



Photo courtesy of: Royal Homes



Photo courtesy of: Triple M Housing



[CHBA.CA/MODULAR](https://CHBA.CA/MODULAR)

Photo courtesy of: Triple M Housing



Photo courtesy of: Royal Homes, Kohn Shnier Architects

# WORKING WITH MODULAR

CHBA Webinar Series 2022/2023

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**1. MODULAR CONSTRUCTION 101 (APR 28 2022)**

**2. MODULAR AND THE ENVIRONMENT (MAY 26 2022)**

**3. THE FACTORY-BUILT PROCESS (DEC 15 2022)**

**4. CODE COMPLIANCE FOR MODULAR (JAN 26 2023)**

**5. FINANCING FOR FACTORY-BUILT (MAR 2023)**

**6. INDUSTRY TRENDS, DATA & SHOWCASE (TBD)**

Photo courtesy of: Triple M Housing

Photo courtesy of: Royal Homes

Photo courtesy of: Triple M Housing

**CHBA.CA/MODULAR**



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[chba.ca/modular](http://chba.ca/modular)



Photo courtesy of: Royal Homes, Kohn Shnier Architects

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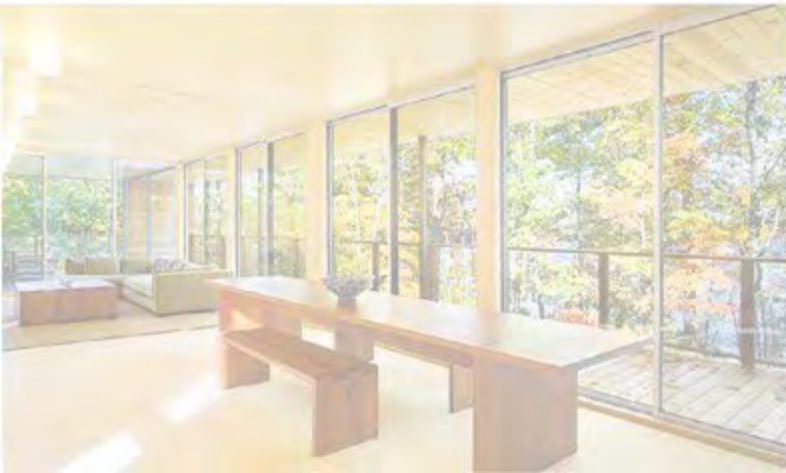
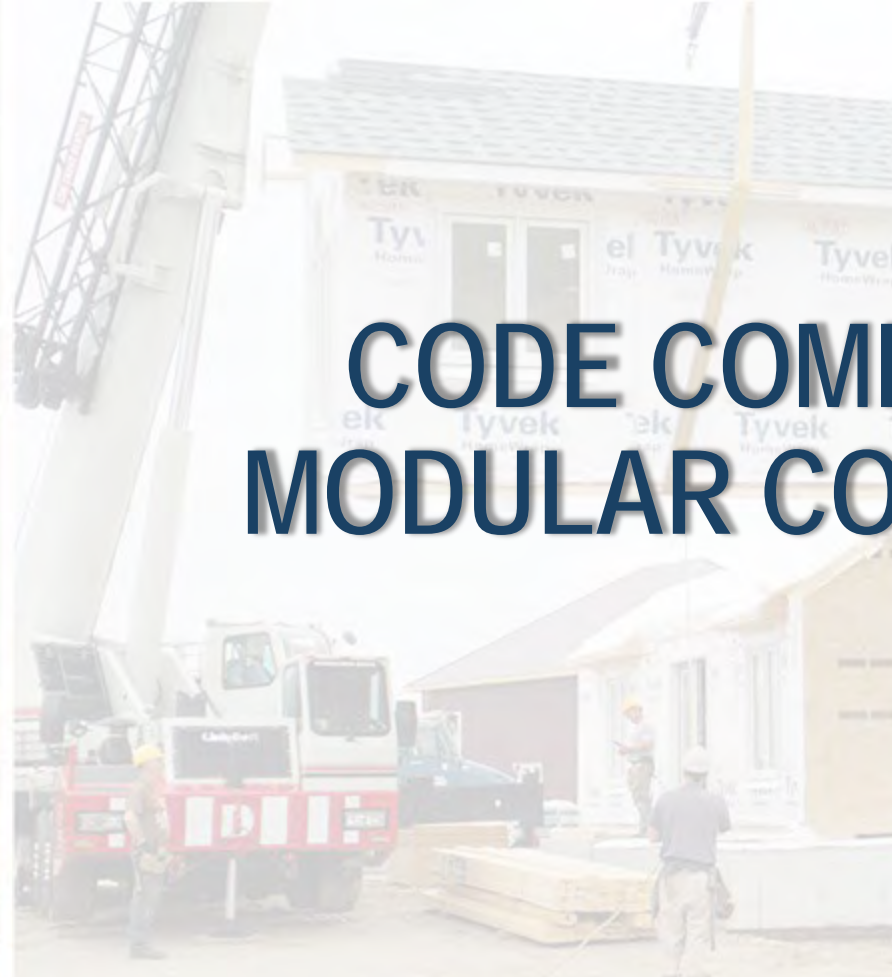


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# CODE COMPLIANCE FOR MODULAR CONSTRUCTION



- 1 Building Codes
- 2 Standards
- 3 In-Factory Compliance

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Simarjit Bains



Kathleen Maynard



Frank Lohmann

# CODE COMPLIANCE FOR MODULAR CONSTRUCTION

## Today's Speakers:

- Simarjit Bains, Triple M Housing
- Kathleen Maynard, CHBA
- Frank Lohmann, CHBA





## Building Codes

- Construction Process
- National Codes
- Regional Differences



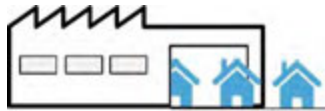
**2.2.7.5.**

**2.2.7.5.**

**Off-Site Review**

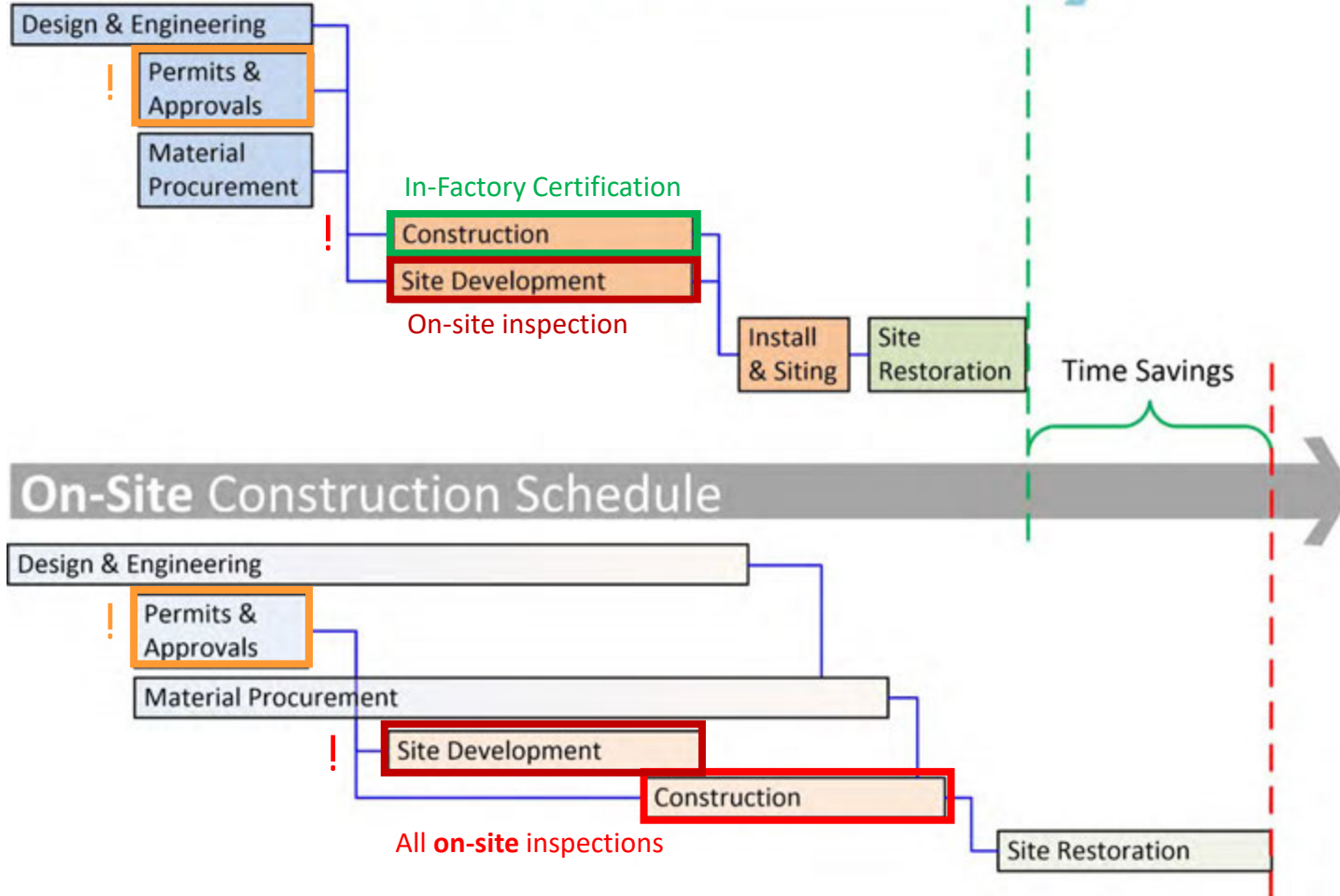
1) Where a *build*  
such a manner that it  
determine complian





# Construction Schedules

## Factory Construction Schedule



# 2020 National Building Code

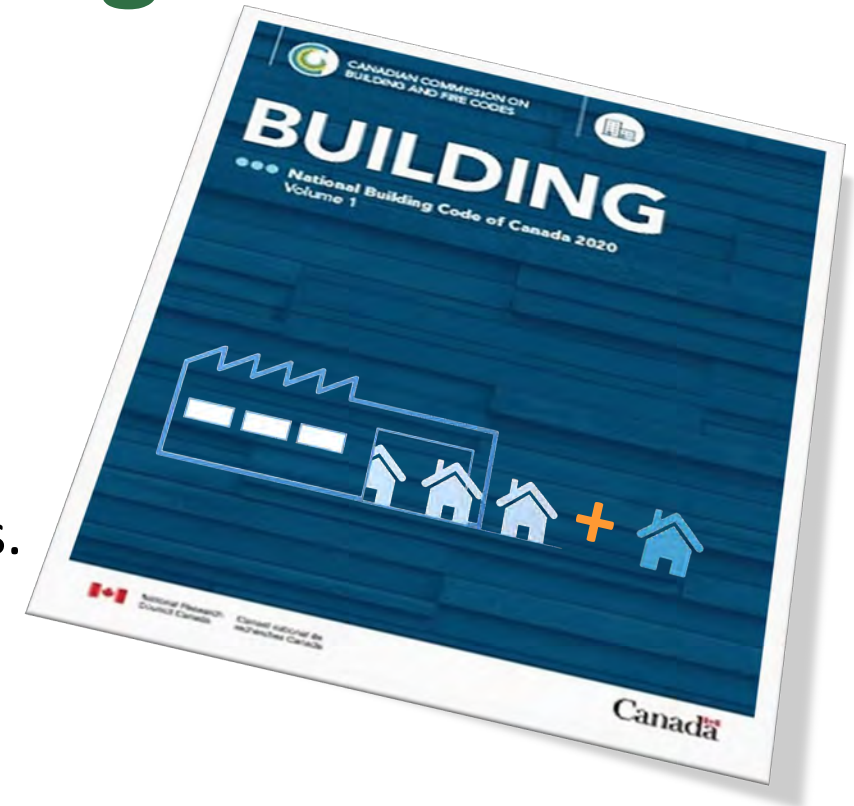
## Division A of the NBC

### 1.1.1.1. Application of this Code

[...]

2) Except for farm buildings, this Code applies to both site-built and factory-constructed buildings. (See Note A-1.1.1.1.(2).)

- “Factory-constructed” is not defined in the NBC
- CSA A277 defines “factory” as: “a manufacturing facility that provides protection of construction materials, components, equipment, and products against adverse environmental effects during storage and fabrication.”



# 2020 National Building Code



## Division C of the NBC

### 2.2.7.5. Off-Site Review

1) Where a building or component of a building is assembled off the building site in such a manner that it cannot be reviewed on site, off-site reviews shall be provided to determine compliance with this Code.





# Regional References



CSA A277 references  
in building codes and regulations

	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	YT	NT	NU
REQUIRED		✓				✓					✓		
RECOGNIZED	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓

## Excerpt from National Building Code: **Alberta 2019 Edition – Division C**

### **2.4.5. Off-Site Review**

#### **2.4.5.1. Factory-Built Assemblies**

**1)** Where a component of a *building* is assembled off the *building* site in such a manner that it cannot be reviewed on site, off-site reviews shall be carried out to determine compliance with this Code.

**2)** Except as provided in Sentence (3), factory-constructed and other off-site-constructed *buildings* that are constructed after 01 April 2019 shall be certified in accordance with CSA A277, “Procedure for Certification of Prefabricated Buildings, Modules, and Panels,” by an organization accredited for this purpose by the Standards Council of Canada, to confirm that the *building* complies with the technical requirements, or objectives and functional statements, of this Code.

**3)** Every relocatable industrial camp *building* that is constructed after 01 April 2019 shall be certified by an organization approved for this purpose by the *Provincial Building Administrator*, to confirm that the *building* complies with the objectives and functional statements of this Code.



## Excerpt from **Quebec Construction Code**: Chapter I : Building (amended) (published in 2015)

### DIVISION III PREFABRICATED BUILDINGS

- 1.06. In this Division, "prefabricated building" means any building all of whose sections or panels are manufactured.
- 1.07. A prefabricated building must not be sold, rented, exchanged or acquired, **unless it has been certified** to Standard CAN/CSA-A277, "Procedure for Factory Certification of Buildings", published by the Canadian Standards Association.
- 1.08. Every prefabricated building manufactured by a plant that has received certification by a certification organization accredited by the Standards Council of Canada and whose certification seal or label attests to compliance with Standard CAN/CSA-A277, "Procedure for Factory Certification of Buildings", **is deemed to be certified.**



# 2022 Ontario Amendment



## Ontario Regulation 451/22 - effective July 1, 2022

- recognizes CSA A277 certification for factory-built buildings
- applies to Part 3 and Part 9 occupancies
- applies to both residential and non-residential
- Includes amendments to
  - 9.1.1.9.(1) of Division B (deemed-to-comply for residential Part 9 occupancies)
  - 1.12.1.1.(1) of Division C (deemed-to-comply for Part 3)
  - 3.1.1.1.(2) of Division C (exempts in-factory inspection personnel)
  - 3.2.4.1.(3) of Division C (exempts in-factory design personnel)

# Regulations – New Brunswick

## NB Regulation under the Building Code Administration Act 2021-2

### REQUIREMENTS APPLICABLE THROUGHOUT THE PROVINCE

#### 9 Stages of construction

(1) For the purposes of subsection 9(2) and section 10 of the Act, at least one inspection shall be made at each of the following stages of construction:

- (a) on the completion of the footings and foundations, but before the commencement of any backfilling;
- (b) or **substantial completion of structural framing;** and
- (c) on completion of construction or before occupation of the building.

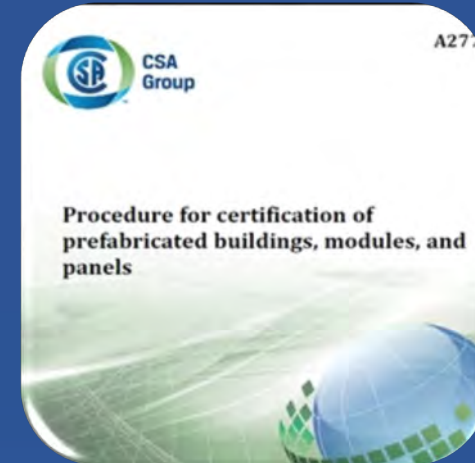
2) **Factory-built homes, modular homes and manufactured homes that are constructed to the following standards are not subject to inspection at the stage of construction referred to in paragraph (1)(b):**

- (a) the National Standard of Canada CAN/CSA A277-16 Procedure for certification of prefabricated buildings, modules, and panels; and
- (b) the National Standard of Canada CAN/CSA-Z240 MH Series-16 Manufactured Homes.



## Standards/Guides

- **CSA A277**
- **CSA Z240 MH Series**
- **CSA Z240.10.1**
- **CSA Z250**
- **CSA Z252**



# Standards/Guides—Administrative

## Compliance Assurance

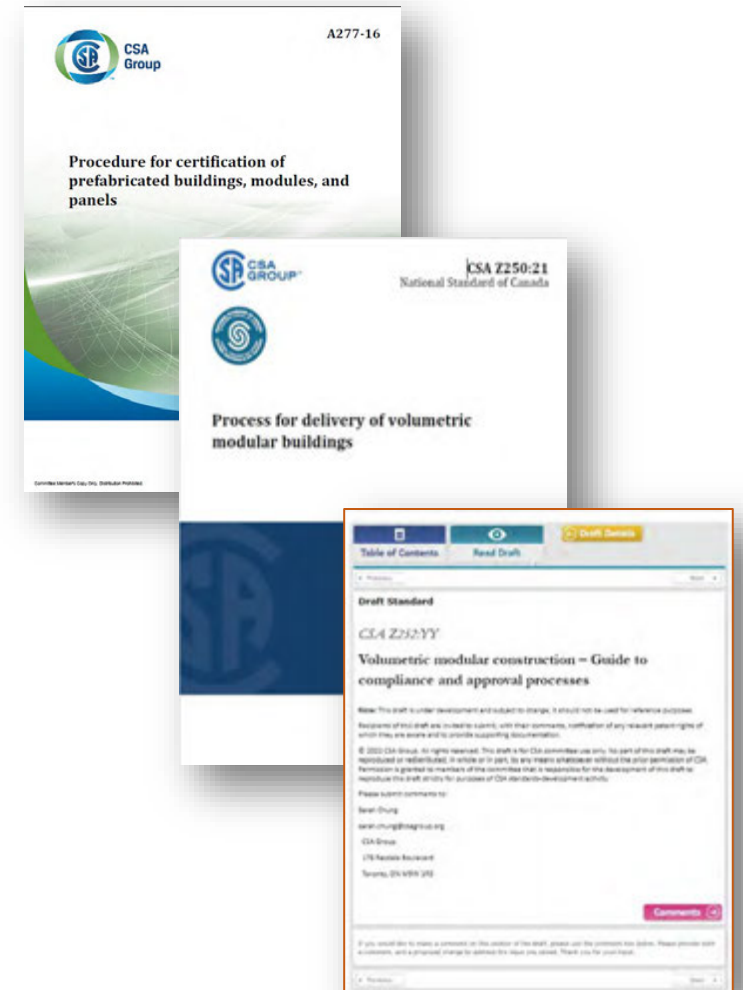
- CSA A277, *Procedure for Certification of Prefabricated Buildings, Modules and Panels*

## Delivery Process

- CSA Z250, *Process for Delivery of Volumetric Modular Buildings*

## Compliance Information Guide

- CSA Z252, “Volumetric modular construction—guide to compliance and approval processes”  
(Draft—currently in public review)



# Standards—Technical

## Single-storey homes

- CSA Z240 MH Series, *Manufactured homes*

## Surface-mount foundations

- CSA Z240.10.1, *Site Preparation, Foundation and Installation of Buildings*



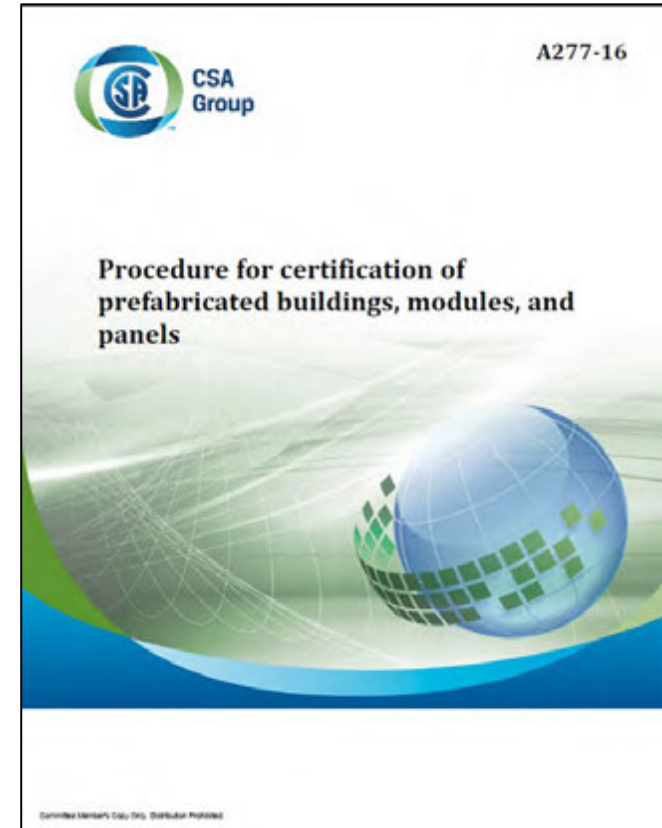


# CSA A277—Compliance Assurance

## *CSA A277 Procedure for Certification of Prefabricated Buildings, Modules and Panels*

- Provides a framework for certification programs
- Enables conformity assessment
- Applies to residential and non-residential buildings
- Consistent with CAN/CSA-ISO 9001
- Discussed in NBC A-1.1.1.1.(2) Division A

**CSA A277 certification may be relied on to confirm compliance**



# CSA A277—Compliance Assurance

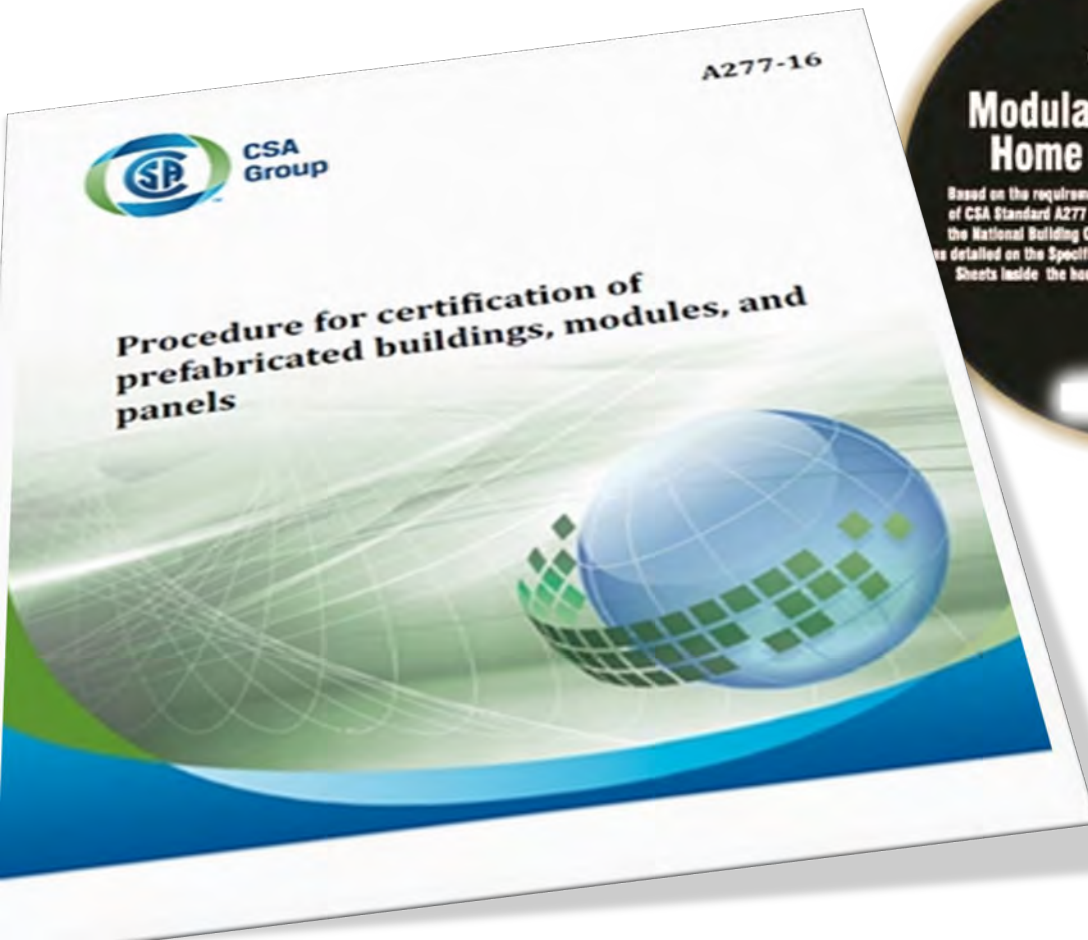
## Certification to CSA A277

### 4.1.1 Local codes or regulations in force

Where codes or other regulations addressing building design and construction are in force at the installation location, prefabricated buildings, prefabricated modules, and prefabricated panels shall be designed and constructed to comply with those codes and regulations as applicable.

### 4.1.2 No local codes in force

Meet National Building Code or CSA Z240 MH Series and other applicable national codes.





# CSA A277—Compliance Assurance

## Specification sheet

- design snow load
- design wind pressure
- design seismic load
- capillary break
- energy efficiency
- appliances
- electrical rating
- deformation-resistance test

**MODULAR HOMES SPECIFICATION NAMEPLATE**  
**PLAQUE SIGNALÉTIQUE POUR MAISON MODULAIRE**

DATE OF MANUFACTURE / DATE DE FABRICATION: \_\_\_\_\_  
 MANUFACTURER / FABRICANT: \_\_\_\_\_  
 FACTORY ADDRESS / ADRESSE DE L'USINE: \_\_\_\_\_  
 MODEL NUMBER / NUMÉRO DE MODÈLE: \_\_\_\_\_  
 SERIAL NUMBER / NUMÉRO DE SÉRIE: \_\_\_\_\_

CERTIFICATION LABEL SERIAL NUMBER / ÉTIQUETTE DE CERTIFICATION QAI NUMÉRO: \_\_\_\_\_

ROOF DESIGN SNOW LOAD / Charge de neige de conception de toit: \_\_\_\_\_  
 GROUND SNOW LOAD / Charge de neige au sol: \_\_\_\_\_  
 THERMAL RESISTANCE OF INSULATION / Résistance thermique d'isolation: \_\_\_\_\_

WINDOW RATINGS (STRUCTURAL / THERMAL) Fenêtre Spécification (Structural / Thermique): \_\_\_\_\_  
 FLOOR / Plancher: \_\_\_\_\_  
 WALL / Mur: \_\_\_\_\_  
 CEILING / Plafond: \_\_\_\_\_

OUTSIDE DESIGN TEMPERATURE / La température extérieure de conception: \_\_\_\_\_

APPLIANCES / APPAREILS	MAKE / MARQUE	MODEL / MODÈLE	FUEL / COMBUSTIBLE
Furnace / Fournaise à Air Chaud			
Water Heater / Chauffe-Eau			
Range / Cuisinière			
Refrigerator / Réfrigérateur			
Air Conditioner / Climatiseur			
Microwave Oven / Micro-Onde			
Dishwasher / Lave-vaisselle			
Clothes Washer / Laveuses			
Clothes Dryer / Sécheuses			
Other Appliance / L'autre Appareil			

ELECTRICAL SYSTEM / INSTALLATION ÉLECTRIQUE: \_\_\_\_\_  
 PLUMBING SYSTEM / PLOMBERIE: \_\_\_\_\_

Note: 1. Any additions or modifications to factory installed systems must be authorized by the appropriate provincial or municipal authorities having jurisdiction. Toute adjonction ou modification aux installations d'usine doit être autorisée par les autorités provinciales ou municipales compétentes.  
 2. QAI Listing only covers the systems noted above only when installed by the modular home manufacturer. La certification QAI englobe les installations indiquées ci-dessus uniquement si leur placement est effectué par le fabricant du maison modulaire.  
 3. (NA) Under the heading "Factory Installed Appliances" indicates that appliances are not factory installed. (NA) Sous l'en-tête « Appareils installés à l'usine » indique des appareils non installés à l'usine.  
 4. This specification plate and the exterior QAI label provide the only evidence of Listing. Cette plaque signalétique ainsi que l'étiquette extérieure QAI constituent les seules preuves de la certification QAI.  
 5. Those portions of the Modular Home to be completed on site are subject to inspection by local building inspectors (A277 A1.2). Les parties de la maison modulaire qui doivent être complétées sur l'emplacement sont sujettes à l'inspection par les inspecteurs des bâtiments locaux (A277 A1.2).

Pressure system tested at 700 kPa (100psi) / Installation sous pression approuvée à 700 kPa (100 psi)  
 Volts: \_\_\_\_\_ Hertz: **60** Amps: \_\_\_\_\_

**WARNING:**  
 This system is designed for use with either propane or natural gas. Ventilation around propane cylinders requires periodic removal of debris.  
 Be certain appliances are suitable for the gas to be used. Refer to the nameplate on each gas appliance for correct data.  
 Make certain all gas connections have been made tight, all appliance valves are turned off, and any unconnected outlets are capped.  
 All connections, including those at the appliances and cylinders, should be leak tested periodically with soapy water by the occupant. Never use a lighted match or other flame when checking for leaks.  
 Do not leave system turned on or containers connected until system has been proven to be gas tight.  
 Light all pilots.  
 Securely cap gas inlet into modular home.

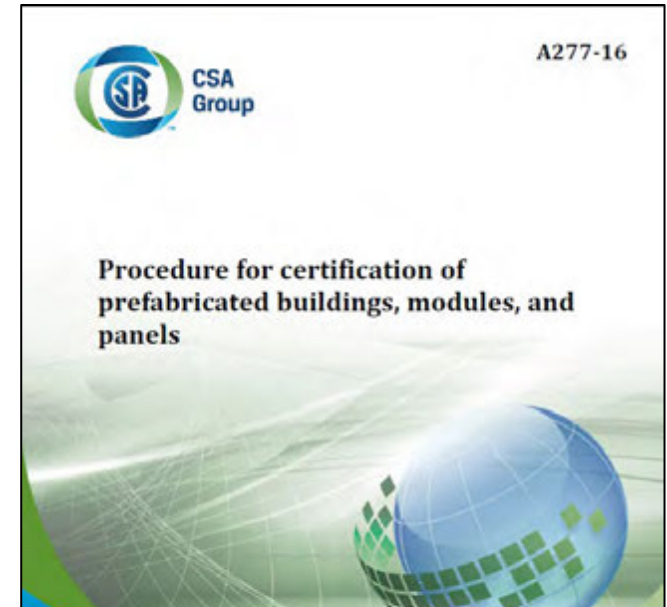
**AVERTISSEMENT:**  
 Cette installation est conçue pour le propane ou le gaz naturel. La ventilation autour des bouteilles de propane nécessite l'enlèvement périodique des déchets.  
 S'assurer que les appareils conviennent au gaz qui doit être utilisé. Consulter la plaque signalétique de chaque appareil pour les renseignements appropriés.  
 Vérifier l'étanchéité de tous les raccords de gaz, la fermeture de tous les robinets d'appareils et l'obturation de toutes les sorties non raccordées.  
 L'occupant doit vérifier périodiquement l'étanchéité de tous les raccords, y compris ceux des appareils et des bouteilles, en y appliquant de l'eau savonneuse.  
 Ne pas laisser l'alimentation de gaz allumée ou d'une flamme.  
 Assurez-vous de capoter l'entrée de gaz dans la maison modulaire.

**BEFORE TURNING ON PROPANE OR NATURAL GAS / AVANT D'OUVRIR LE GAZ:**  
**AFTER TURNING ON PROPANE OR NATURAL GAS / APRÈS AVOIR OUVERT LE GAZ:**  
**WHEN GAS SUPPLY IS DISCONNECTED / LORSQUE L'ALIMENTATION DE GAZ EST DÉCONNÉE:**

# CSA A277—Compliance Assurance

## Application

- buildings of all types/sizes/occupancies/materials
- what is certified depends only on
  - scope of the plant certification, for example
    - Part 9 single family houses
    - all Part 9 buildings
    - Part 9 buildings and Part 3 assembly occupancy
  - certification body accreditation



# CSA A277 Compliance Assurance

## Certification Bodies

- accredited by the Standards Council of Canada
- oversee the in-plant quality process
- conduct annual audits and random inspections

## Finding Certification Bodies for CSA A277

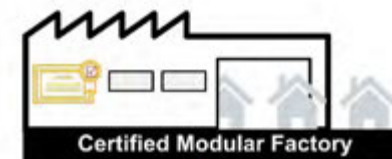
- ICS code used for CSA A277: **91.040.99**
- [https://www.scc.ca/en/search/accredited\\_bodies/91.040.99](https://www.scc.ca/en/search/accredited_bodies/91.040.99)



Accreditation



Certification



Labelling



# CSA Z240 MH—Single-storey Homes

## Application

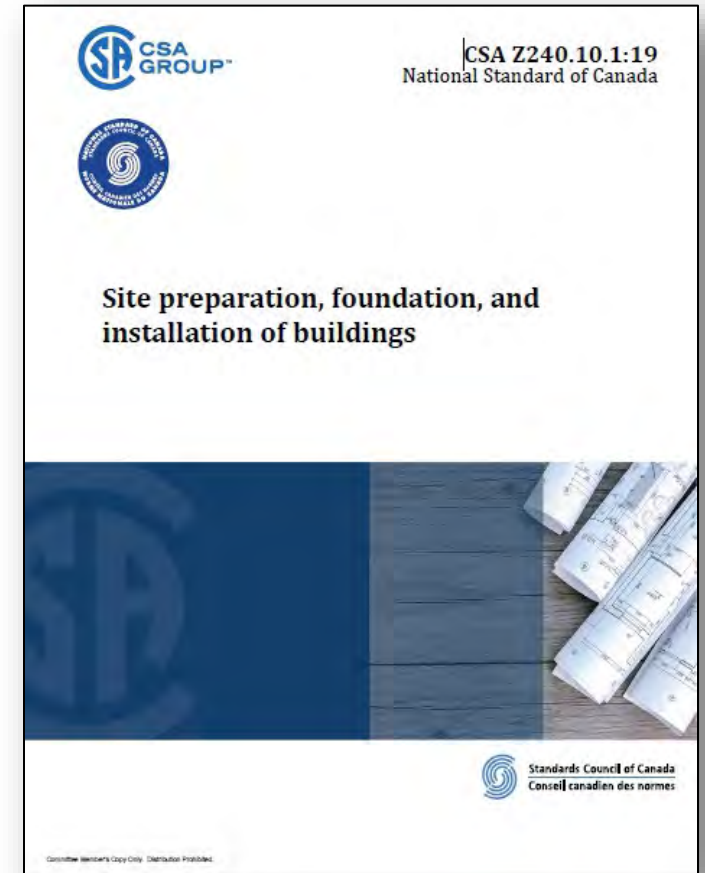
- single-family detached houses
- one-storey
- one or more modules
- constructed to withstand transport and installation loads
  - with inherent strength and stiffness
  - on longitudinal beam, or on a chassis
- may be installed on any code-compliant foundation



# CSA Z240.10.1—Foundations

## CSA Z240.10.1 *Site Preparation, Foundation and Installation of Buildings*

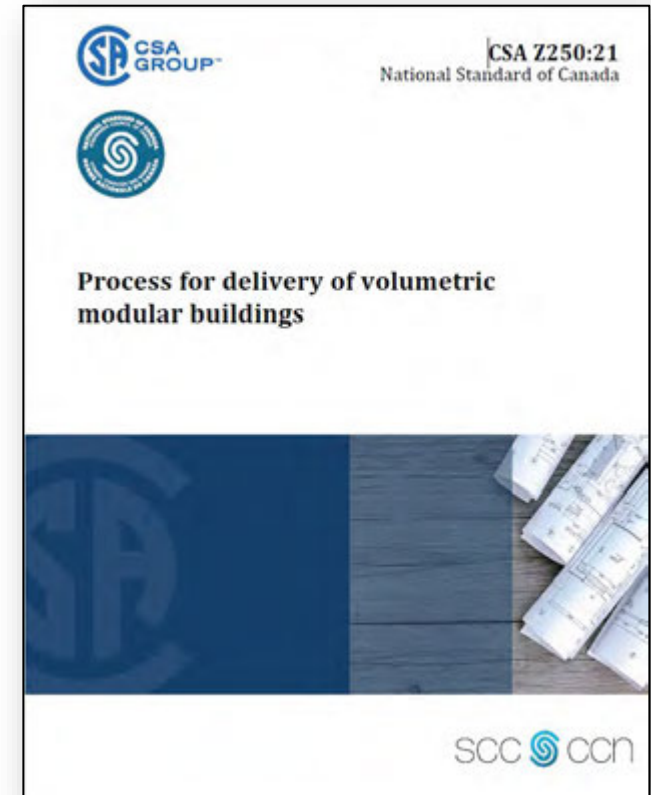
- Application and Scope
  - For buildings installed on surface-mount foundations:
    - site preparation
    - foundations
    - anchorage
    - skirting
  - For buildings on full-perimeter foundations:
    - references the NBC
  - For any multi-module building:
    - connection of modules



# CSA Z250—Delivery Process

## Process for delivery of volumetric modular buildings

- Specifies procedures for
  - design, quality control and approvals
  - logistics, transportation and storage
  - non-modular and modular sitework
  - lifting, placement and setting
  - installation and finishing
  - commissioning and handover
- Does not cover in-factory certification—this is covered in CSA A277

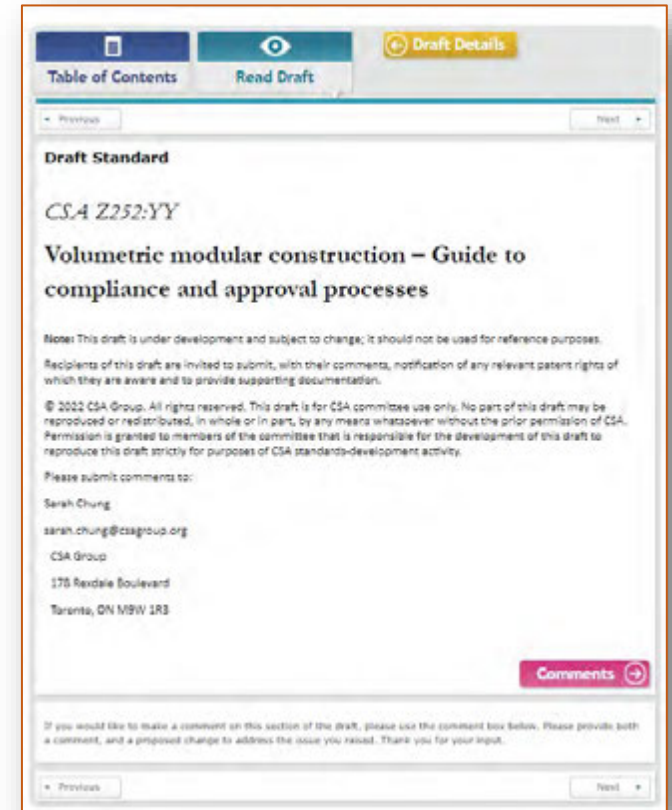




# CSA Z252—Compliance Information

“Volumetric modular construction—guide to compliance and approval processes”

- Best practices for inspecting and approving modular construction projects
- Public review closes February 18, 2023
- <https://publicreview.csa.ca/Home/Details/4793>





## In-Factory Compliance

- Code Checks
- Certification
- Quality checks



# Before we zoom into factory inspection

## Modular Construction

- Built inside-out vs outside-in
- Construction process lends itself to creating airtight building
- If change is requested, factory setting allows for a solution to be properly implemented without compromising building envelope
- Factory is temperature-controlled



FACTORY  
PROCESS  
WEBINAR



# In-Factory Inspections

Factory built product is inspected by 3rd Party inspection agencies as required by the CSA A277 Quality Assurance Program



# In-Factory Inspections



As the label confirms the product is compliant, the local authority can concentrate only on those items completed on site.





# Documentation

Every unit built has a unique serial number assigned to it

- It identifies the unit
- Noted on all documentation of the unit
- Listed on the label for the unit

Documentation includes

- Travel log with factory checklist
- Inspection and Testing completed
- Shipping Documentation

Design Documents include and not limited to:

- Roof truss design
- Floor truss design
- Ridge beam design
- Foundation details
- Plumbing schematics
- Electrical schematics and circuit locations
- Heatloss calculation
- Ventilation
- Cross sectional construction details
- Floorplans and construction drawings



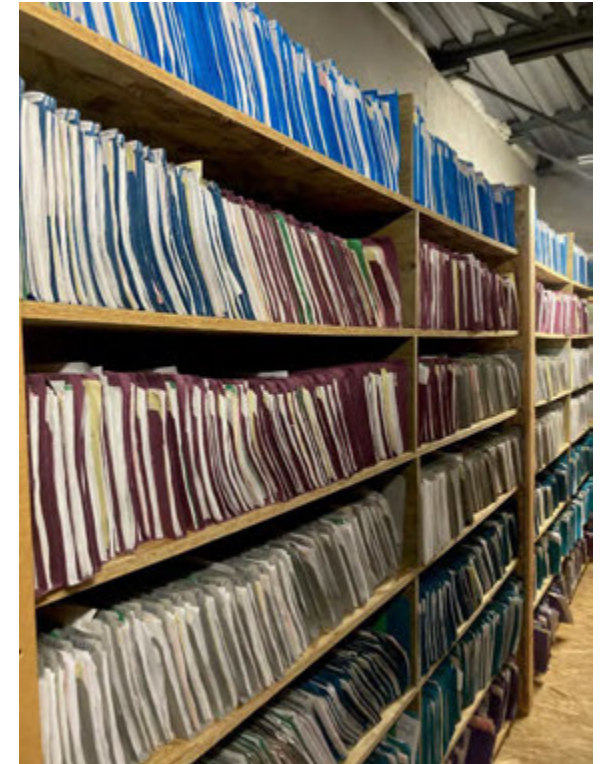
# Documentation

Any change orders are documented and must follow proper process to ensure it is properly implemented

All documentation of unit when completed is stored digitally along with original copies for a minimum of 5 years

\\dc2 (l:) > 10.) Triple M Central > 2022 > S60011180

Name	Date
1.) Web Order	9/3/2021
2.) Quote costing sheet (if applicable)	3/24/2021
3.) Proposal & Confirmation out	9/10/2021
4.) Confirmed Order (Signed HC, Floorpla...	9/16/2021
5.) PCO & Communication	11/15/2021
6.) Released to Production	10/15/2021
7.) Customer Set	10/22/2021
8.) Heat Loss	9/3/2021
9.) Service and Foundation with Calcs	9/29/2021
10.) Stamped Drwg Set (if applicable)	3/24/2021
11.) BOM	3/24/2021
12.) Special Order Procurment Products	3/24/2021
13.) QC Checklist, Signed HC and Tests	7/19/2021
14.) Shipping Report Document	3/24/2021
15.) Pre-Occupancy	3/24/2021
16.) WAWO	3/24/2021
17.) DPO	5/1/2017
18.) Warranty Communication	5/1/2017
19.) Ship Kit Document	11/4/2021



# In Factory Checklist

Checklist are used in factories to ensure proper procedures and processes are used and checked at each workstation

## INSPECTION POINTS

	<u>EMPLOYEE DOING WORK</u>	<u>OBSERVATIONS</u>
<b>STEEL FRAMES</b>		
Check the main rails are straight		
Check they are the specified size and material		
Check that cross members, outriggers and hitch are welded		
Check all lag tabs are welded securely and in specified		
Extra lag tabs needed in Bogey area of 20 wides (Every 16		
Are the out riggers installed under bay window if needed		
Is width and length of frame correct as per hard card?		
Actual Steel Frame		
LENGTH _____ WIDTH _____		
Does this match the Hard card? YES or NO		
<u>Supervisor has checked the work the crew has completed</u>		_____
<b>TRUSSES</b>		
Actual Floor Truss		
HEIGHT _____ LENGTH _____		
Does this match the Hard card? YES or NO		
Actual Roof Truss		
LENGTH _____ HEIGHT _____		
Does this match the engineered drawing? YES or NO		
<u>Supervisor has checked the work the crew has completed</u>		_____
<u>Quality Inspector confirms process is complete</u>		_____

## INSPECTION POINTS

	<u>EMPLOYEE DOING WORK</u>	<u>OBSERVATIONS</u>
<b>FLOOR FRAMING (MANUFACTURED)</b>		
Check repairs to ducts are made of metal		
Have S-cleats been installed along bottom of the plenum?		
Are all main heat trunks and plenums min. 26 gauge sheet		
Have all heat ducts been secured with metal straps in the middle of the branches as well as at the boots? (Bsmt.		
Circle R-value of insulation installed in the floor		
R-26 R28 R33 R40 Other _____		
Has insulation been installed between the floor joists and the main duct? (12 feet each side of plenum)		
Has belly bag material been predrilled to allow drainage of water out of the belly?		
Check insulation is DRY, and installed with no VOIDS		
Check floors are waterproofed in the appropriate areas		
Check under belly bag is secured on all houses (Every 4 feet along joists)		
Does floor sheathing have certification stamp?		
Check floor sheathing has been glued and secured		
Pressure test waterlines before floor is sheeted at 100LBS. PSI for 15 minutes.		
Is floor decking staggered every 4 feet min?		
Units 20 feet and wider need belly paper strapped at the		
Has DWV system been installed as per blue prints?		
<u>Supervisor has checked the work the crew has completed</u>		_____
<u>Quality Inspector confirms process is complete</u>		_____



# In Factory Checklist

The checklist is over a 100 points and covers all parts of construction, including floor framing, wall framing, ceilings, roofing, insulation, plumbing, electrical, final finish

## INSPECTION POINTS

<b>FLOOR FRAMING (MANUFACTURED)</b>	<b>EMPLOYEE DOING WORK</b>	<b>OBSERVATIONS</b>
Have all DWV and waterline systems been checked for certification stamp?		
Has DWV system installed been graded and secured to meet code requirements? (MIN. 1/8 " PER FOOT)		
Has waterline system been installed as per blue prints?		
Has waterline system been secured every 4 feet?		
If the floor is built with joists, are F.F. tap waterlines installed along side of a heat duct?		
Have heat duct register holes been cut through decking as per blue print?		
Have heat duct boots been stapled flush to the top of the floor surface? (With no combustible material showing)		
Have all high screws or staples been removed or set flush?		
Have all flooring joints been filled and sanded smooth in		
Have waterlines, water closets and vents been cut out?		
Check only stainless steel fasteners are used on treated		
For dryers not on exterior walls, venting hole must be cut through floor		
(2 story Construction) Floor cavity between levels needs to be properly insulated with rigid foam and sealed to finish the		
Have waterlines been pulled up through the decking and stapled to the floor?		
Was System Visual DVW inspection done and by who?		
Was System DVW air test been done & by who?		
Is System DVW test signed off on back of Hard card		
<b>Supervisor has checked the work the crew has completed</b>		_____
<b>Quality Inspector confirms process is complete</b>		_____

## INSPECTION POINTS

<b>PARTITIONS &amp; PANELS</b>	<b>EMPLOYEE DOING WORK</b>	<b>OBSERVATIONS</b>
Were the partitions squared while installing panels?		
Are panels fastened every 8" o.c. on perimeter and glued in the middle?		
Drywall fastened 8" apart on butt joints		
Is drywall fastened 24" o.c. in the middle of sheet?		
Is drywall glued on all studs in the middle of the sheet?		
When securing partitions together use min. 7 screws		
When securing partitions to the floor secure every 12"		
Have partition walls been set straight (up & down)		
Has access for taps/wash center been cut out (min. 10x10)		
Has access for whirlpool been cut out (min. 16X16)		
<b>Supervisor has checked the work the crew has completed</b>		_____
<b>Quality Inspector confirms process is complete</b>		_____

# Inspecting incoming materials

- Materials used in homes must be approved to be used in Canada
- Purchasers, Material Receivers, and Quality Inspectors check to ensure proper certification labels are visible on the product, along with making sure they are not damaged
- Materials found to be substandard shall be tagged, and held for disposition. Supplier will be notified



## Rough in Plumbing Test: Optional for Factories

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- Many factories do this test voluntarily, to detect a leak immediately in the potable lines
- If factories wait to do it when unit is fully completed, very disruptive to do the repair
- Test is done once the potable lines have been installed in the floor station
- Conduct an air test
  - System is plugged and is subjected to 100psi of air for 15 minutes
  - If pressure maintained, then there are no leaks, and unit can continue on the assembly line
  - If pressure drops, must find leak, repair, and re-test and ensure pressure holds
- Document results



# Drainage, Waste and Vent Test

- Cap all lines, then add 5psi of air into the system for 15 min and ensure there is no loss
- Alternative test is to
  - cap all lines,
  - fill entire system with water,
  - then add a 10-foot head water for 15 min.
  - Ensure no water has been lost
- Document results





# Moisture Test

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Random checks will be done on lumber to ensure moisture content is acceptable and documented



## Electrical Tests: Insulation Resistance and Operational Tests

- Test done when unit is complete
- Insulation Resistance: Equipment used is a 3000V (AC) Dielectric tester. An AC Dielectric strength test is performed in which an AC voltage of 1080 V is applied for 1 second between all live parts and non-current carrying metal parts without breakdown occurring
- Document results



## Electrical Tests: Insulation Resistance and Operational Tests

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- Operational Tests
  - Test done when unit is complete
  - Continuity test is done by seeing that all the fixtures and appliances connected to them operate correctly and for receptacles a receptacle tester is used at each receptacle to determine if the receptacle circuit is continuous
  - Document results



# Final Plumbing Test

- Test done when unit is complete
- The potable water system is tested by plugging all openings and subjecting the system to air or water at 100 psi for 2 hours with leakage or loss of pressure
- Document results





**QAI LABORATORIES**  
CERTIFICATION TESTING INSPECTION

**SPECIFICATION NAMEPLATE**  
PLAQUE SIGNALÉTIQUE

**MANUFACTURER INFORMATION / INFORMATION DU MANUFACTURIER:**

MANUFACTURER / Fabricateur: TRIPLE M HOUSING PROJECT NAME OR MODEL NUMBER / Nom du projet ou numéro de modèle: TMH0010887-1  
 DATE OF MANUFACTURE / Date de fabrication: DECEMBER 1, 2021 MODULE SERIAL NUMBER OR PRODUCT CODE / Numéro de série du module ou code de produit: 880-011-161  
 FACTORY ADDRESS / Adresse de l'usine: LETHBRIDGE, ALBERTA CSA A277 CERTIFICATION LABEL NUMBER / CSA A277 Numéro de certification QAI associé: 2449-010472

**DESIGN DATA / DONNÉES DE CONCEPTION**

PRODUCT TYPE / Type de produit (voir en ved):  
 PREFABRICATED BUILDING / Module Préfabriqué  
 PREFABRICATED MODULE / Module Préfabriqué  
 PREFABRICATED PANELS / Panneaux  
 ELECTRICAL FEATURES ONLY / Structures des accès électriques désignées  
 RELOCATABLE UNIT (ALBERTA PART 10) / Unité Rélocatable

FOUNDATION TYPE / Type de Fondation (voir en ved):  
 PERIMETER FOUNDATION WALL / Mur de fondation périmétrique  
 PIER / Pilier  
 ANCHORAGE / Ancrage

FLOOR LIVE LOAD / Charge au plancher: 1.92 (kPa)  
 SPECIFIED SNOW LOAD (WS) / Charge de neige spécifiée: 3.27 (kPa)  
 BASIC RESPONSE (S<sub>0.2</sub>) / Réponse sismique: 0.131  
 HOURLY WIND PRESSURE (HW) / (Par résistance au vent) (voir en ved): 3.4 (kPa)  
 WINDWALLS / DOORS / WINDOWS / Thermal Characteristics / Caractéristiques thermiques des fenêtres, portes, et unités de climatisation:  
 MAX. U-VALUE / Valeur U maximale: 1.13 (W/m<sup>2</sup>·K)  
 ENERGY RATING / Cote énergétique: 28  
 OUTSIDE DESIGN TEMPERATURE / Température extérieure de conception: N/A (°C)  
 HEAT LOSS / Perte thermique: 85.21 @ 40 (°C)  
 HEAT GAIN / Gain thermique: N/A (°C)

**FACTORY INSTALLED APPLIANCES / APPAREILS INSTALLÉS À L'USINE**

APPLIANCE TYPE	MAKE / MARQUE	MODEL / MODÈLE	FUEL / COMBUSTIBLE
FURNACE	INTERTECH	M228-D72F2ABM1	GAS
WATER HEATER	BRADFORD	ROL3M-H07EN	CONV.
FRIIDGE	GENERAL ELECTRIC	FNE24HJLNK3S	ELECTRIC
RANGE	GENERAL ELECTRIC	JOSSESC01M3S	ELECTRIC
DISHWASHER	GENERAL ELECTRIC	GBF5553SP3S	ELECTRIC
MICROWAVE	GENERAL ELECTRIC	EL32P-AFT	ELECTRIC
FIRE PLACE	HEAT & GLO	N/A	GAS
N/A	N/A	N/A	N/A

**SITE INSTALLED COMPONENTS, ASSEMBLIES, AND SYSTEMS**  
COMPOSANTES, ASSEMBLAGES ET SYSTÈMES INSTALLÉS SUR PLACE

**COMPLIANCE / CONFORMITÉ**

Units bearing this label were manufactured in the factory indicated factory address and have been constructed in the following building codes and standards:  
 L'unité portant cette étiquette a été fabriquée à l'adresse de l'usine indiquée sur l'étiquette et a été construite conformément aux normes et standards de bâtiment suivants:

HOMEBUILT TO COMPLY TO CSA 1 (SAGINAW ACT), ALBERTA BUILDING CODE (2018), NATIONAL BUILDING CODE OF CANADA (2015), CANADIAN ELECTRICAL CODE (2015), NATIONAL PLUMBING CODE OF CANADA (2015)

ELECTRICAL SYSTEM / ÉLECTRIQUE: Voltage: 120/240 V Phase: 20/30kV Amps: 100 A

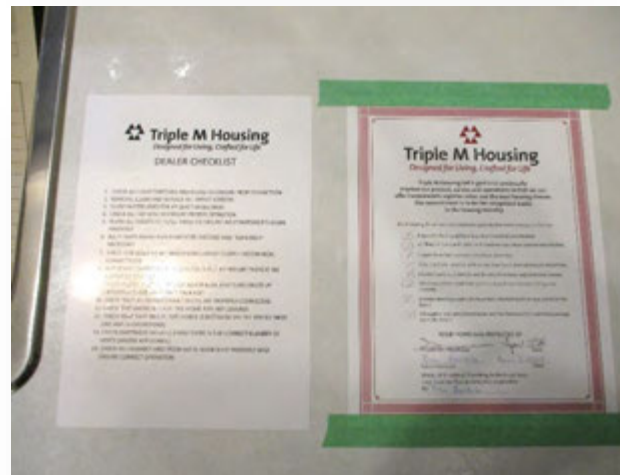
PLUMBING SYSTEM / PLUMBERIE: Supply water system heated at 200 kPa (150 PSI) / Installation sous pression Approx. à 200 kPa (150 PSI)  
 Drinking water system heated at 30 kPa (2 PSI) / Installation sous pression Approx. à 30 kPa (2 PSI)

**NOTES:**

- Any additions or modifications to factory installed systems must be performed by the responsible person in accordance with applicable building legislation. Toute addition ou modification aux installations doit être effectuée conformément à la réglementation applicable en matière de construction ou municipale compétente.
- QAI Label only covers the systems noted above only when installed by the manufacturer in the factory / L'étiquette de QAI ne couvre que les systèmes mentionnés ci-dessus et seulement lorsque installés en usine par le fabricant.
- QAI Label the leading "Factory Installed Appliance" indicates that appliances are not factory installed. (QAI) L'étiquette de QAI ne signifie pas que les appareils sont installés en usine.
- The specification complete and the factory QAI label provide the only evidence of Listing. Cette étiquette signalétique ainsi que l'étiquette QAI constituent les seules preuves de la conformité QAI.
- These portions of the Modular Building to be completed on site are subject to inspection by local building inspectors (A277 A1.2). Les parties de la maison modulaire qui doivent être complétées sur le terrain sont soumises à l'inspection des inspecteurs locaux (A277 A1.2).
- It is recommended that highway authorities be consulted on regulations applicable to items into which this unit may be moved, especially in regard to permits and maximum allowable lengths and widths. Il est recommandé de consulter les autorités provinciales de transport en matière de réglementation applicable aux unités qui sont transportées, particulièrement en ce qui concerne les longues restrictions admissibles.
- Warranty must be applied to a location that is clearly visible other components of the building / QAI doit être appliqué à toutes les parties externes visibles après la fin de l'installation.
- In the case of re-tiling or re-plumbing in buildings, each unit or units shall have this label / Dans le cas de réaménagement à unités multiples, chaque unité ou unités doivent avoir cette étiquette.

**DO NOT REMOVE**  
**NE PAS ENLEVER**

NAMEPLATE SERIAL #: TMH0010887



# Labelling Unit

- Inspectors do a final walk, look at entire unit, and "red-tag" any cosmetic deficiencies that do not visually meet quality standard
- Inspectors review all documentation to ensure if any repairs were required, they were done correctly, and all testing documents are completed
- If unit is acceptable, label is placed on the electrical panel along with unit information (specification plate), and any other information required by the end user
- As the label confirms the product is compliant, the local authority can concentrate only on those items completed on site

## Summary

Every building must meet local code requirements

CSA A277 certification may be relied on to confirm compliance of buildings, modules and panels built off-site with local requirements

Factory-construction offers distinct benefits



Images courtesy of: Maple Leaf Homes Brookfield, Supreme

**MODULAR CONSTRUCTION**

*Council*



*Conseil de la*  
**CONSTRUCTION MODULAIRE**

**Canadian  
Home Builders'  
Association**

**Association  
Canadienne  
Des Constructeurs  
D'Habitations**

**QUESTIONS?**

**[chba.ca/modular](http://chba.ca/modular)**

Photo courtesy of: Triple M Housing

Photo courtesy of: Royal Homes

Photo courtesy of: Triple M Housing

**WORKING WITH MODULAR**

CHBA Webinar Series 2022/2023



Photo courtesy of: Royal Homes, Kohn Shnier Architects