



MHABC UPDATE ON BUILDING STANDARDS & BY-LAWS

BOABC Conference Presentation
Tuesday, May 30, 2023



Presentation Topics

1. MHABC & Who We Are
2. Manufactured & Modular Housing Standards Refresher
3. Energy Efficiency & Step Code
4. Foundation Standards
5. Current Housing Challenges Facing BC
6. BC Modular 2020 – 2022 Provincial Consultation
7. By-Laws - Removing Barriers
8. Developing a Modular Permitting Check list
9. Inspection Check List
10. Why Modular?
11. Thank you & Questions

MHABC & Who We Are

- Established in 1972 and honouring 50 years of service
- A trade association serving the companies that manufacture, sell, transport and provide services to the factory-built housing industry
- Works in the areas of Government Relations, Code and Standards, Marketing, Public Relations and Members Services
- Fields numerous call every month from the general public, real estate professionals, mortgage brokers and provincial and local government agency personnel requesting information on our homes

Manufactured & Modular Housing Standards Refresher

- CSA Z240MH – manufactured homes, established circa 1972, built on steel frames, stand-alone building code, subject to 3rd party inspection, requires meeting current energy efficiency standards, full-time occupancy
- CSA A277 – modular home, plant standards, requires homes to be built to current BC Building Code, subject to 3rd party inspection, full time occupancy
- CSA Z241 Park Model – built on steel frame, maximum 50 square meters, subject to 3rd party inspection, 3 season occupancy, not recognized in BC Building Code for full-time occupancy
- CSA Z240RV – standard for bumper-pull trailers, 5th wheel trailers, motor-homes, not recognized in BC Building Code for full-time occupancy, in some cases, Tiny Homes are being constructed to this standard.

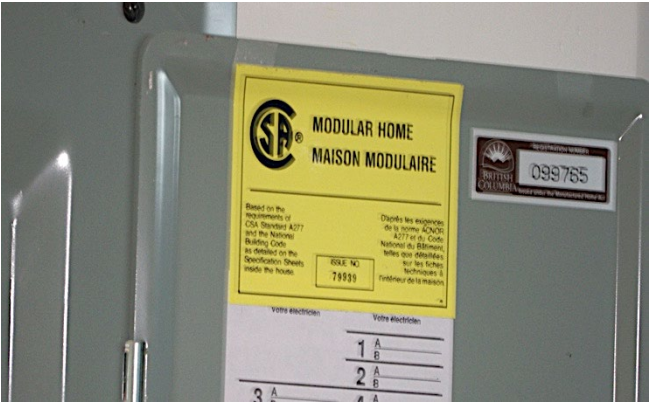
Manufactured & Modular Housing Standards Refresher



Manufactured Housing Association of British Columbia

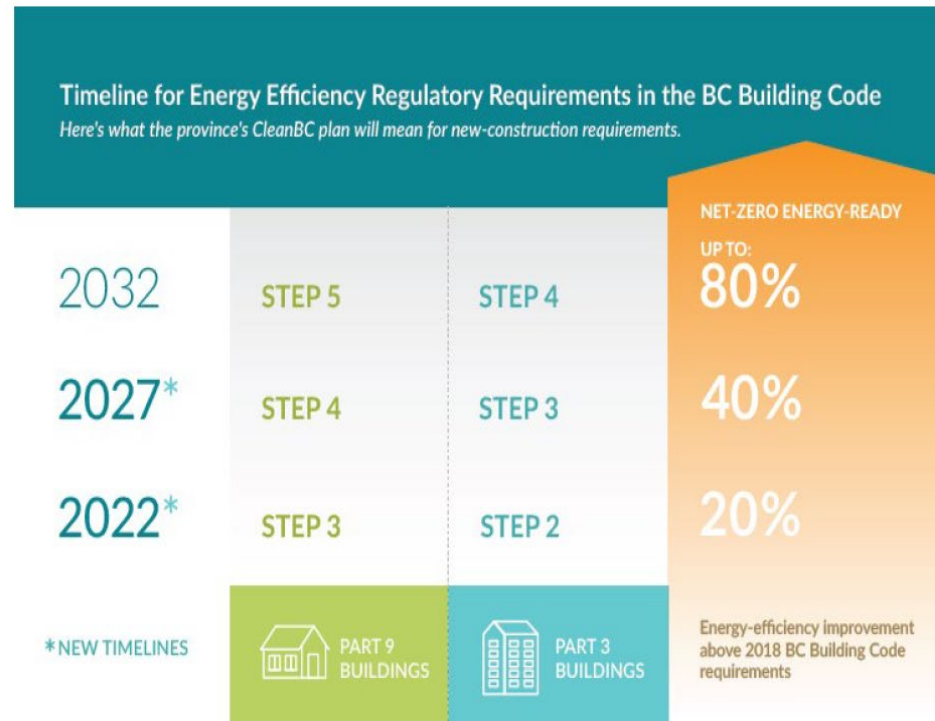


Manufactured & Modular Housing Standards Refresher



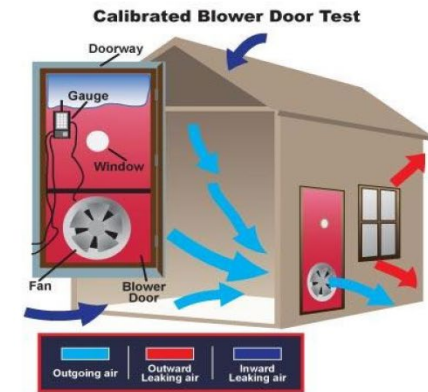
Energy Efficiency & Step Code

2021 Updated Implementation of BC Step Code



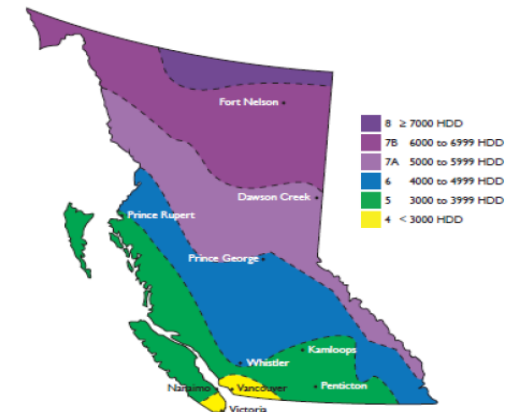
Airtightness Testing

- Airtight construction minimizes air leaks through holes, cracks or gaps in the building
- Airtight construction involves maintaining a continuous air barrier around the building where possible
- This requires intense detail during the construction process to reduce or eliminate holes or gaps in the buildings air barrier
- Required in both BCBC and NBC – but no requirement to test it



BC Building Code

- Most recent revision 2018 (published in 2017)
- 2018 revision sought to bring BCBC in line with NBC
- First implementation of 9.36
 - Included degree days
 - Included prescriptive path to compliance
- A277 identified with BCBC as a standard of adherence to BCBC
- Z240 not recognized with BCBC, with Z240 remaining a separate code outside of purview of AHJ



Energy Efficiency & Step Code



<https://vimeo.com/823438851/6f38aa36a9?share=copy>

Energy Efficiency & Step Code



Z240 MH Series-16

13 Energy efficiency

13.1 Compliance

Manufactured homes shall comply with

- a) NBC Section 9.36, Energy Efficiency;
- b) building energy efficiency requirements in force at the installation location; or
- c) Clauses 13.2 to 13.4.

Notes:

- 1) *NBC Section 9.36, Energy Efficiency, and provincial-territorial requirements based on NBC 9.36., are more stringent than the prescriptive requirements in Clauses 13.2 to 13.4, but provide trade-offs and a performance compliance path which allow more flexibility in design compared to the prescriptive requirements in this Standard.*
- 2) *Some authorities having jurisdiction have regulations that apply more stringent energy efficiency requirements to manufactured homes. These include, for example, the British Columbia Energy Efficiency Standards Regulation with respect to appliance efficiencies and the Nova Scotia Building Code Regulations which applies NBC Section 9.36. to all homes. Manufacturers should be aware of all applicable requirements.*

Foundation Standards

- Modular homes (A277) generally built on perimeter cement foundation but can also be placed on other type foundations including cement piers and piles.
- Manufactured homes utilize steel frame for anchoring purposes utilizing blocking, cable anchors, “duck-bill” anchors, etc for ensuring stability.
- CSA produces an anchoring standard: CSA Z240.10.1 which establishes practices for anchoring all “deformation resistant” buildings
- CSA Z240.10.1 is considered as a permanent foundation standard



MODULAR FOR BC

A Coordinated Provincial Program



Manufactured
Housing Association
of British Columbia

Current Housing Challenges Facing BC

The high cost of land, housing supply, by-laws and regulations are outside the sphere of influence of the factory-constructed housing industry and need to be addressed by Government agencies at all levels.

In 2020, the MHABC and its members initiated an advocacy program which involved engagement with multiple government and industry organization to better understand and develop a plan on how it can support and help solve the Provincial housing issues.

- 1st Step - Province Wide Consultation – Understand Barriers
- 2nd Step - Engagement with Strategic Stakeholders and partners
- 3rd Step - Develop and Implement Plan

The Need Across BC is Clear

1. Increase the supply of quality housing in growing communities across the province
2. Provide more affordable, energy efficient homes
3. Decrease carbon emissions and environmental impacts in Residential Construction
4. Bring quality, sustainable jobs to BC communities
5. Build value-added products in BC, with BC workers, utilizing our provincial natural resources



BC Modular 2020 - 2022 Provincial Consultation

GOALS – A better understanding of:

- Perceived Benefits of Modular
- Barriers to increased inclusion of Modular manufacturing
- Level of knowledge about Provincial Modular Industry
- Barriers to Modular in their jurisdiction
- Industry and Government Issues, concerns, barriers
- By Law issues, outdated reference or lack of process understanding
- Alignment - Municipality Process - Planning, Permitting, Inspections

Findings from Consultation

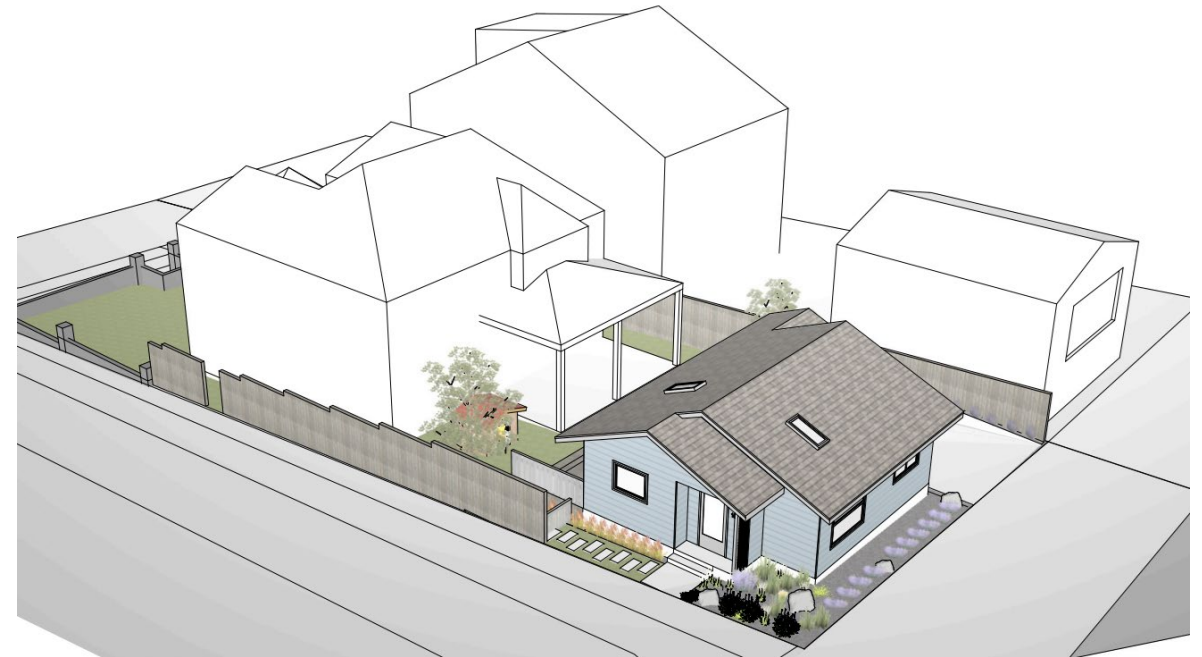
Current Barriers:

- Stigma of Modular
- By-laws outdated, Not inclusive of Modular
- Permitting process unclear,
- Understanding of Modular in Planning Departments
- Inspection process requires clarity in some cases
- Overall Education and Familiarity



By-Laws – Removing Barriers

Modular Inclusive by-law specific to Modular Manufacturing.



By-Laws – Removing Barriers

Division A: Compliance, Objectives and Functional Statements

Notes to Part 1 – Compliance

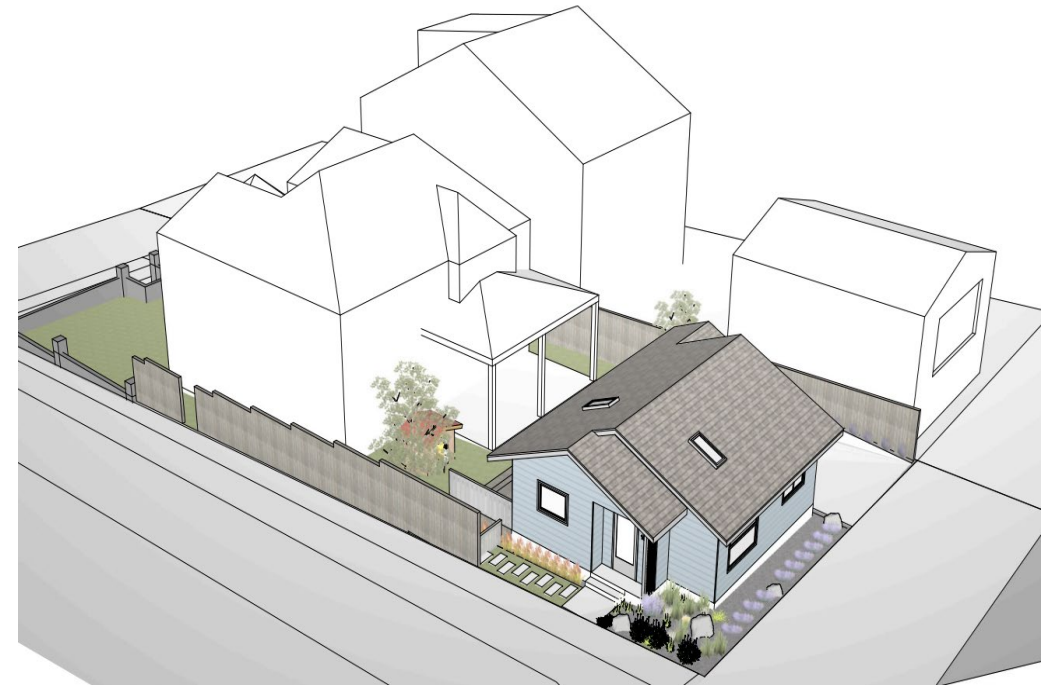
Notes to Part 1

Compliance

A-1.1.1.1.(3) Factory-Constructed Buildings. The British Columbia Building Code applies the same requirements to site-built and factory-constructed buildings. However, it can often be difficult to determine whether a factory-constructed building complies with the Code once it has been delivered to the construction site because many of the wall, roof and floor assemblies are closed in and so their components cannot be inspected. CSA A277, “Procedure for Factory Certification of Buildings,” was developed to address this problem with regard to residential, commercial and industrial buildings. This standard 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. The standard is not a building code, only a procedure for certifying compliance of factory-constructed components with a building code or other standard. If a factory-constructed building bears the label of an accredited certification agency indicating that compliance with the National Building Code has been certified using the CSA A277 procedure, the accepting authority will have some assurance that the concealed components do not require re-inspection on site.

On the other hand, standards in the CSA Z240 MH Series, “Manufactured Homes,” do resemble a building code. These portions contain requirements in many of the areas where the British Columbia Building Code also has requirements and frequently the requirements are different. Other portions of these requirements are different. Other portions of the Z240 standards deal with special requirements for manufactured homes related to the fact that these houses must be moved over roads, which is an issue the British Columbia Building Code does not address. The British Columbia Building Code considers mobile homes certified to the Z240 standard as acceptable housing and they are permitted under Clause 1.1.1.1.(2)(g).

The British Columbia Building Code does reference CSA Z240.10.1, “Site Preparation, Foundation, and Anchorage of Manufactured Homes,” which is not actually part of the CSA Z240 MH Series. This standard contains requirements for surface foundations where buildings – not just houses – comply with the deformation resistance test provided in CSA Z240.2.1, “Structural Requirements for Manufactured Homes.”



This is What We Found – By-Laws

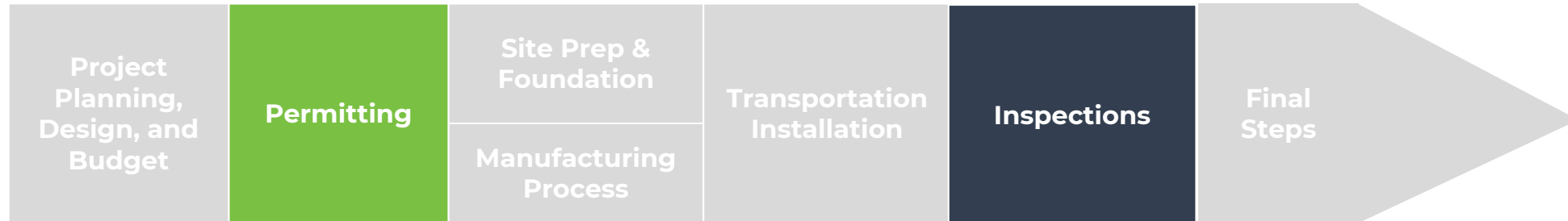
- The CSA A277 standard is generally defined as the “modular” standard with homes required to be constructed to the current requirements of the BC Building Code which was most recently updated in 2018 and is due for a complete review and update in 2022 and 2023. CSAA277 was last updated in 2016 with updating scheduled for 2023-24.
- It is the MHABC’s request that any references to the actual update period be omitted from future by-laws. With regards to building permits, only those components constructed on-site are subject to building permit requirements with all factory-constructed components built in the factory already subject to inspection by the third-party inspection agencies.

This is What We Found – By-Laws

By-law Part 4: Definitions (Page 5 of 55)

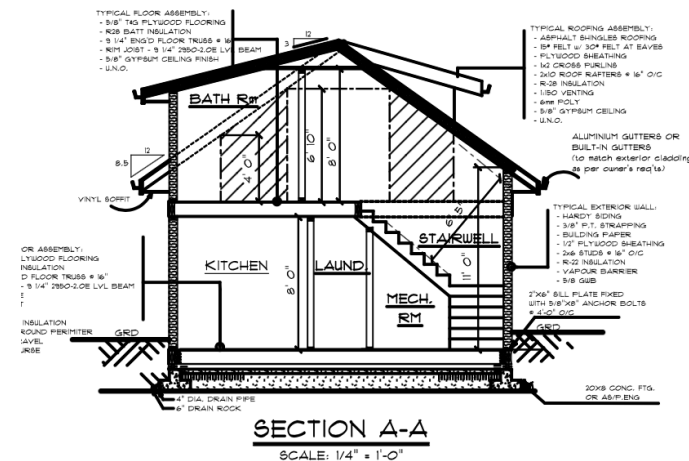
- “manufactured home means a mobile home or modular home as defined in the by-law”
- “mobile home means a manufactured home constructed to the requirements of the CSA National Standard CAN/CSA -Z240MH Series-09 or an preceding or replacement standard”
- “modular home means a manufactured home conforming to the requirements of the CSA National Standard CAN/CSA-A277-08 or any preceding or replacement standard for certified factory-built homes”
- MHABC Critique: the term “mobile home” arises from an era when these type of homes came with their own wheels and axles. The original CSA Z240 home standard was established circa 1972 when homes were constructed in the range of 12-14 feet wide and were light enough to be moved with their own transport resources. Overtime, the CSAZ240 standard has evolved to be termed CSA Z240MH with the MH standing for “manufactured home” with a continuing requirement to be constructed on a steel frame.

Developing a Modular Permitting Check List



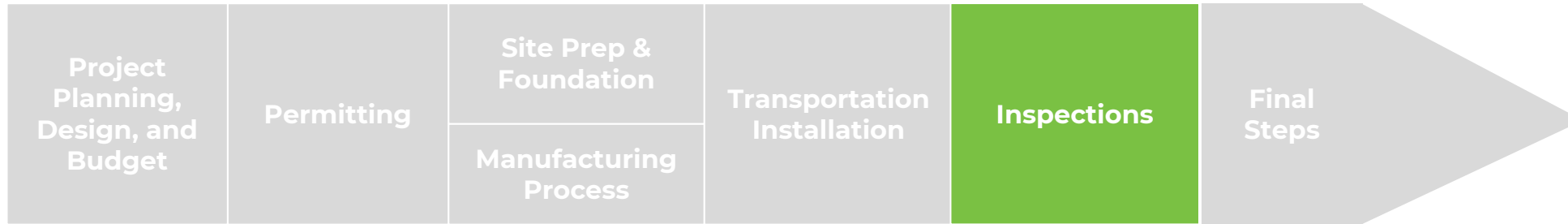
PERMITTING CHECK LIST

- Clearly Communicating Expectations and Data to Simplify and expedite the Process
- Provide Education and Standardization to a Base Model Checklist – specific to Modular Manufacturing and A277 / Z240
- First Draft in September of this Year



LEGAL ADDRESS: LOT 14 OF LOT 2 BLK 152, DL 540 NEW WESTMINSTER DISTRICT, PLAN 3431			
ZONING:	AS-1	PERMITTED	PROPOSED
LOT AREA:	4 024.00 s.f.	590.00 s.f.	590.00 s.f.
LANEWAY F.S.R.:	643.00 s.f.	13.00 s.f.	13.00 s.f.
STORAGE:	40.00 s.f.	387.00 s.f.	387.00 s.f.
MAIN FLOOR LUWH:	N/A	203.00 s.f.	203.00 s.f.
HALF STOREY:	248.00 s.f.	64.00 s.f.	64.00 s.f.
LOW CEILING EXEMPT (10%):	64.00 s.f.	29.00 s.f.	29.00 s.f.
STAIRWAY EXEMPT:	29.00 s.f.	147.50 s.f.	93.00 s.f.
TOTAL EXEMPT (25%):	147.50 s.f.	64.00 s.f.	64.00 s.f.
OPEN DECKS:	86.00 s.f.	23.00 s.f.	23.00 s.f.
FOOT PRINT:	561.00 s.f.	413.00 s.f.	413.00 s.f.
LOT COVERAGE:	1 609.00 s.f.	1 603.00 s.f.	1 603.00 s.f.
IMPERMEABLE SITE COVERAGE			
PERMITTED (60%):	2 414.00 s.f.		
DWELLING:	1 190.00 s.f.		
LANEWAY:	413.00 s.f.		
DECK & STAIRS:	58.00 s.f.		
DRIVEWAY:	27.00 s.f.		
SIDEWALKS:	470.00 s.f.		
OUTDOOR SPACE:	100.00 s.f.		
TIRE STRIPS:	68.00 s.f.		
TOTAL COVERAGE:	2 326.00 s.f.		

Inspection Check List



- Developing an Inspection Check list Clearly Communicating what and when inspections should occur
- Provide an Information document that gives the same communication to Industry and Building Officials
- Standardized Checklist - specific to Modular Manufacturing A277 / Z240. with Photos and descriptions
- First Draft in September of this Year

WHY MODULAR



Manufactured
Housing Association
of British Columbia

Environmental Benefits

43%

Up to 43% reduction in CO2 emissions waste when compared to site built construction.

70%

Construction site waste reduction of up to 50 - 70% less than when building on site.

Less

Less disruption to neighbourhood, community, and municipal infrastructure.

Dr. Mohamed Al-Hussein, PHD, PEng University of Alberta, North Ridge CO2 Analysis Report - Comparison between Modular and On-Site Construction. Available on the MHABC website.

Modular Benefits

1

Less Disruption

- Neighbourhoods
- Homeowner
- Community
- Seniors

2

Project Certainty

- Schedule
- Cost
- Reduced Risk
- Quality

3

Quality & Affordability

- Standardized Plans
- Volume
- Streamline Factory Process
- Quality Assurance Program

4

Environmentally Sustainable

- Less Emissions
- Less Traffic/Noise
- 50 - 70% Less Waste
- Energy Efficient and Step Code Compliant

Thank You

FOR MORE INFORMATION

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