

Manufactured & Modular Housing Update

BOABC Webinar Presentation Monday, September 23,2024





What to cover

- 1. MHABC & Who We Are
- 2. Manufactured & Modular Housing Standards
- 3. Energy Efficiency & Step Code
- 4. BCBC Building Code 2024 Factory Constructed Building Guidance
- 5. Developing a Modular Permitting Check list
- 6. Developing an Inspection Check List
- 7. MHABC 2025 Modular Housing Summit
- 8. 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
- This presentation is a condensed version of the hour-long presentation made to the BOABC 2023 Spring Conference attendees on May 30,2023. This presentation (25 plus slides) provided significantly more details and can provided upon request.



Manufactured & Modular Housing Standards

- CSA Z240MH-21: 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 A277-21: modular home, plant standards, requires homes to be built to current BC Building Code, subject to 3rd party inspection, full time occupancy
- CSA Z241-18: Park Model built on steel frame, maximum 50 square meters, 50 amp service, 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



Z240 MH Series-16



A277-16

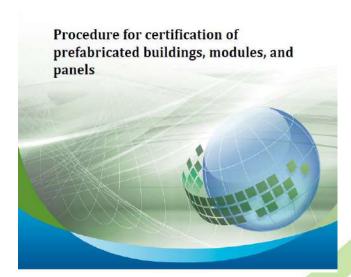


CAN/CSA-Z241 SERIES-18 National Standard of Canada





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Manufactured & Modular Housing Standards

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.
- CSA Z240MH homes utilize steel frame for anchoring purposes utilizing blocking, cable anchors, "duck-bill" anchors, etc. for ensuring stability.
- CSA produces an anchoring standard: CSA Z240.10.1:19
 which establishes practices for anchoring all "deformation
 resistant" buildings
- CSA Z240.10.1 is considered a "permanent" foundation



CSA Z240.10.1:19 National Standard of Canada



Site preparation, foundation, and installation of buildings





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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







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:

- 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.
- 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.





MHABC

MODULAR HOME BLOWER
DOOR TESTING AND
MODELING FOR STEP CODE









MHABC/Total Home Solutions

MODULAR HOME BLOWER DOOR TESTING AND MODELING FOR STEP CODE

Table of Contents

Summary	
Purpose	,
Scenarios	
Upgrade Selection	
Testing	4
Mid-construction Testing	
Final Testing	
Results	(
Recommendations	-
Biography	
Appendix A	10
Table A1(Construction Assemblies)	10
Table A2 (Mechanical Equipment Description)	10
Table A3 (Modular Unit Description)	10
Table A4 (Climatic Data)	1:

Appendix B - Single Wide Data

Appendix C - Double Wide Data



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BCBC Building Code 2024 – Factory Constructed Building Guidance

Division A – Compliance, Objectives and Functional Statements – 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 certification of prefabricated buildings, modules, and panels" 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. Most of the individual standards in the series contain requirements regarding many issues also covered in this Code. Some of these **Z240 MH** Series provisions are performance requirements with no quantitative criteria, some simply reference the applicable British Columbia Building Code requirements, while others contain requirements that differ from those in the British Columbia Building Code. One of the individual standards in the **Z240 MH** Series deals 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.

Therefore, labeling that indicates that a factory-constructed house complies with the **Z240 MH** Series standards can NOT be taken as an indication that the house necessarily complies with the building code in effect for the location where the house will be sited.

The British Columbia Building Code does reference **CSA Z240.10.1**, "Site preparation, foundation, and installation of buildings" 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."





Developing a Modular Permitting Check List

Project
Planning,
Design, and
Budget

Site Prep & Foundation

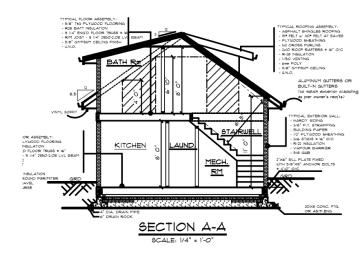
Transportation
Installation

Inspections

Final
Steps

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 Completed in September 2023



ZONING: RS-1	PERMITTED	PROPOSEI		
LOT AREA:	4 024.00 s.f.			
LANEWAY F.S.R.:	643.00 s.f.	590.00 s.i		
STORAGE:	40.00 s.f.	13.00 s.f		
MAIN FLOOR LWH:	N/A	387.00 s.		
HALF STOREY:	248.00 s.f.	203.00 s		
Low Ceiling Exempt	l .			
(10%):		64.00 s.		
Stairway exempt:	29.00 s.f.	29.00 s.f		
TOTAL EXEPMT (25%):	147.50 s.f.	93.00 s.I		
OPEN DECKS:	86.00 s.f.	23.00 s.		
FOOT PRINT:	561.00 s.f.	413.00 s.		
LOT COVERAGE:	1 609.00 s.f.	1 603.00 s		
IMPERMEABLE SITE COVERAGE				
PERMITTED (60%):	2 414.0	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:	2 326.0	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 Completed in September 2023



Developing a Modular Permitting Check List CSA Z240-21 (Truncated Version from 10 Pages)

MODULAR BUILDING PERMIT CHECKLIST - A277-21

This guide has been developed in conjunction with industry partners, including the Building Officials Association of BC (BOABC), to provide a consistent approach in the building permit applications and site inspections process for manufactured homes constructed and placed under CSA A277 in British Columbia. Please note that this guide will only references standard requirements for single family homes (and with secondary suites). Remember that each jurisdiction (Authority Having Jurisdiction – AHJ) might have specific requirements, so be sure to confirm with the local authorities and review the Building Permit application in detail.

1. A277 Background - Codes and Standards

For the purpose of permit applications and inspections for residential buildings in BC, it is important to understand the requirements outlined by the local government regulations where the project is to be located, such as zoning and building & plumbing bylaws, and the BC Code with the applicable referenced standards.

The British Columbia Building Code applies the same requirements to site-built and factoryconstructed buildings. However, it can often be difficult to determine whether a factoryconstructed 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 certification of prefabricated buildings, modules, and panels" was developed to address this problem with regard to residential, commercial and industrial buildings. (Refer to Attachment A for more information)

2024 BC Building Code - A277

Additional clarification bulletins from the province can be found here at Defined terms Authority having jurisdiction (

Dwelling unit

Manufactured home

Prefabricated building (CSA standard) a building partially or fully constructed in a factory.

Factory Built Home Standards

Standard	Title of Document	Code Reference(s)
CSA A277-16 (Reaffirmed 2021)	Procedure for certification of prefabricated buildings, modules, and panels	A-1.1.1.(3) ⁽⁴⁾

⁽⁴⁾ Code reference is in Division A.

Please note that in this guide will only reference to residential buildings for single family homes (and with secondary suites) – prefabricated building. For multi-unit projects please also refer to:

- *CSA Z250:21- Process for delivery of volumetric modular buildings, and
- *CSA 7252:23 Volumetric modular construction Guide to compliance and approval processes

Div A - Section 1.1. General

1.1.1. Application of this Code

3) This Code applies to both site-built and factory-constructed buildings. (See Note A-1.1.1.1.(3).) Refer to Attachment A

1

^{*}These standards are currently not referenced in the BC Building Code.



Developing a Modular Permitting Check List CSA Z240-21 (Truncated Version from 10 Pages)

2. Design and Pre-Application Review

It is highly recommended that the manufacturers, owners, transporters, and permit applicants (retailers) be fully versed in the local government's permit requirements and local regulations. A phone call or office visit while you are planning out your project prior to permit application will help avoid miscommunication, application rejections or on-site delays.

Additional requirements that may affect your project:

- a. State of Title -
- b. Development Permit
- c. Wildfire Protection Zones -
- d. Driveways and Fire Department Access Sprinkler Bylaws -
- e. Solar Requirements -
- Placement of new units in existing parks.
- Relocation of Z240MH units –
- h. Transportation a number of communities have established trucking routes within their jurisdiction
 ensure the necessary transportation permits are in place.

3. Permit Application Requirements

Typically, Z240MH building permits are referred to as "placement" or "relocation" permits. Ensure that the permit application is reviewed in detail and that you are aware of the AHJ Building Bylaw, Zoning Bylaw and other regulations or policies related to placement of a Z240 unit(s) within that jurisdiction. An incomplete application* will most likely not be accepted by the local building authority, which will delay your project. Important items to ensure are reviewed as part of the application.

- a. Owner or Agent information involved in construction (see item references below),
- b. Correct civic and legal address.
- c. CSA number & Manufactured Home Registration,
- Current Title Search (30 days), which will confirm ownership and any charges on title such as covenants, Rights-of-Ways, and Easements,
- e. Manufacturer of units and general contractor completing installation,
- f. Type of manufactured unit and types of works to be completed onsite,
- g. Climatic data (refer to the AHJ Building Bylaw and or the Code),
- Start date and Estimated cost of construction, which typically includes all hard and soft costs associated with the project including site-built structures.
- Confirmation of On-Site Wastewater, Potable Water, and Site Drainage in areas where local government servicing is not provided,
- Geotechnical Letters of Assurance (Schedule 1) and report (if applicable).

References

- a. Agency Agreement
- b. Licensing and Consumer Service Registration (Home Protection Act (Act))
- c. Owners Acknowledgement
- d. BC Energy and Zero Step Code requirements
- e. Radon Provisions



Developing a Modular Permitting Check List CSA Z240-21 (Truncated Version from 10 Pages)

4. Building Drawing Package:

The following drawings will be required in most jurisdictions for the placement of Z240MH residential units. Please refer to the local AHJ application checklist and Drawings may require metric and Imperial units) on site plans and drawings. Any site-built works such as decks or carports will require detailed structural and materials information. All site works shall be independently supported - not attached the modular unit (even when placed on permanent foundations)

- a. SITE PLAN:
- b. FLOOR PLANS:
- c. ELEVATIONS
- d. CROSS SECTIONS
- e. DETAILS
- f. OTHER RELATED ITEMS Professional Documents & Drawings

Check your local Jurisdiction for specific Professional document and schedule requirements.

Additional requirements:

- Sprinkler design drawings (NFPA 13D) in areas with limited fire department servicing, infill properties
 with spatial protection challenges, or where the AHJ has established fire sprinkler bylaws
- Schedule B Letters of Assurance for Geotechnical* and or Structural designs.
 *In some jurisdictions a full Geotechnical report may be required in areas where flooding and or land slippage can occur. At times the AHJ may also require a Geotechnical Covenant to be registered prior to the issuance of a permit.
- Environmental reports (Riparian) or approved Development Permit or Variances.

Modular Inspection Checklist Guide

The following checklist includes the most common types of inspections and requirements for on-site works leading towards final Occupancy approvals for Z240MH modular units.

Building permit inspections may vary and be sure to review your Permit Condition Letter/Drawings prior to construction. Any changes to the approved permit drawings should be reviewed with your local Building Official as soon as possible.

Note – Please ensure you are ready for the required inspection prior to requesting. It is also critical to have a copy of the permit package, including approved drawings, always on site. Failure to have these documents on site at the time of the required inspection may result in failed inspection.

- 1. Site Orientation and Site Preparation Inspection
- 2. Modular Unit placement Foundation Support Inspection
- 3. 3. Water Service Inspection
- 4. Sewer Service Inspection
- 5. Framing
- 6. Final Plumbing, Electrical and Gas signoffs
- 7. Documentation Required Prior to Occupancy Inspection
- 8. Occupancy Inspection

In conclusion, we thank our industry partners in the development of this guide to provide a consistent approach for building permit applications and site inspections for manufactured homes constructed and placed under Z240 in British Columbia. Remember that each jurisdiction (Authority Having Jurisdiction – AHJ) may have specific requirements, so be sure to confirm with the local authorities and review the Building Permit application and permit condition letter in detail.



Developing a Modular Permitting Check List CSA A277-21 (Truncated Version from 11 pages)

MODULAR BUILDING PERMIT CHECKLIST - A277-21

This guide has been developed in conjunction with industry partners, including the Building Officials Association of BC (BOABC), to provide a consistent approach in the building permit applications and site inspections process for manufactured homes constructed and placed under CSA A277 in British Columbia. Please note that this guide will only references standard requirements for single family homes (and with secondary suites). Remember that each jurisdiction (Authority Having Jurisdiction – AHJ) might have specific requirements, so be sure to confirm with the local authorities and review the Building Permit application in detail.

1. A277 Background - Codes and Standards

For the purpose of permit applications and inspections for residential buildings in BC, it is important to understand the requirements outlined by the local government regulations where the project is to be located, such as zoning and building & plumbing bylaws, and the BC Code with the applicable referenced standards.

The British Columbia Building Code applies the same requirements to site-built and factoryconstructed buildings. However, it can often be difficult to determine whether a factoryconstructed 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 certification of prefabricated buildings, modules, and
panels" was developed to address this problem with regard to residential, commercial and
industrial buildings. (Refer to Attachment A for more information)

2024 BC Building Code - A277

Additional clarification bulletins from the province can be found here at Defined terms Authority having jurisdiction (

Dwelling unit

Manufactured home

<u>Prefabricated building (CSA standard)</u> a building partially or fully constructed in a factory.

Factory Built Home Standards

Standard	Title of Document	Code Reference(s)	
CSA A277-16 (Reaffirmed 2021)	Procedure for certification of prefabricated buildings, modules, and panels	A-1.1.1.(3) ⁽⁴⁾	

⁽⁴⁾ Code reference is in Division A.

Please note that in this guide will only reference to residential buildings for single family homes (and with secondary suites) – prefabricated building. For multi-unit projects please also refer to:

- *CSA 7250:21- Process for delivery of volumetric modular buildings, and
- *CSA 7252:23 Volumetric modular construction Guide to compliance and approval processes

*These standards are currently not referenced in the BC Building Code.

Div A - Section 1.1. General

1.1.1. Application of this Code

3) This Code applies to both site-built and factory-constructed buildings. (See Note A-1.1.1.(3).) Refer to Attachment A

1



Developing a Modular Permitting Check List CSA A277-21 (Truncated Version from 11 pages)

2. Pre-Application Review

It is highly recommended that the manufacturers, owners, transporters, and permit applicants (retailers) be fully versed in the local government's permit requirements and local regulations. A phone call or office visit while you are planning out your application will help avoid miscommunication, application rejections or on-site delays.

Additional requirements that may affect your project:

- a. State of Title
- b. Development Permit
- c. Wildfire Protection Zones
- d. Sprinkter Bylaws
- e. Driveways and Fire Department Access
- Solar
- g. Relocation of CSA A277 units (house move)
- h. Alterations to existing homes built to
- i. Transportation
- a. Climatic Zones ensure that you are designing the home for the correct climatic zone and orientation of the building on the property. It is encouraged to connect with a certified Energy Advisor as soon as possible in the design phase. Please also note that some local authorities have also introduced lowcarbon restrictions. See 2024 Provincial update – StepCodes, Guidebnok, v3.0. pdf (anergystopcode.ca)



3. Permit Application Requirements

Homes constructed with CSA A277 units are to be treated as Part 9 homes (refer to Attachment A for an outline found in Dir A = 1.1.1.1.(3) of the Building Code) and ensure that the permit application is reviewed in detail and that you are aware of the AHJ Building Bylaw, Zoning Bylaw and other regulations or policies related single family construction within that jurisdiction. An incomplete application* will most likely not be accepted by the local building authority, which will delay your project. Important items to ensure are reviewed as part of the application.

- a. Owner or Agent information involved in construction (see item references below),
- b. Correct civic and legal address,
- c. CSA number & Manufactured Home Registration,
- Current Title Search (30 days), which will confirm ownership and any charges on title such as covenants, Rights-of-Ways, and Easements.
- e. Manufacturer of units and general contractor completing installation,
- f. Type of manufactured unit and types of works to be completed onsite,
- g. Climatic data (refer to the AHJ Building Bylaw and or the Code),
- Start date and Estimated cost of construction, which typically includes all hard and soft costs associated with the project including site-built structures.
- Confirmation of On-Site Wastewater, Potable Water, and Site Drainage in areas where local government servicing is not provided.

^{*}Please also note that some AHJ have moved to online permit processing only - .



Developing a Modular Permitting Check List CSA A277-21 (Truncated Version from 10 pages)

Code References:
Agency Agreement
Licensing and Consumer Service Registration (Home Protection Act (Act))
Owners Acknowledgement
BC Energy Step Code (Section 9.36 – Energy Efficiency)
Zero Carbon Code (Section 9.37 – Greenhouse Gas Emissions)
Adaptability (2025)
Radon

4. Building Drawing Package:

The following drawings will be required in most jurisdictions for single family homes using A277 units. Please refer to the local AHJ application checklist and Drawings may require metric and Imperial units on site plans and drawings.

Ensure North Arrows and Civic Addresses on all pages. Ensure also that drawing details and assemblies correspond to the information outlined within the Step Code Pre-Construction Report (when applicable)

- a. SITE PLAN:
- b. FLOOR PLANS:
- c. ELEVATIONS
- d. CROSS SECTIONS:
- e. DETAILS:

OTHER RELATED ITEMS - Professional Documents & Drawings - please review with AHJ.

Common requirements for permit application:

- · Floor, Truss and Engineered beam drawings and specifications
- Heat loss and Ventilation checklists,
- Pre-Construction Step Code report (note Zero Carbon Code),
- Fire Flow calculations for larger projects (duplexes),
- Sprinkler design drawings (NFPA 13D) in areas with limited fire department servicing, infill
 properties with spatial protection challenges, or where the AHJ has established fire
 sprinkler bylaws
- Schedule B Letters of Assurance for Geotechnical may also require Geotech report.
 - *In some jurisdictions a full Geotechnical report may be required in areas where flooding and or land slippage can occur. At times the AHJ may also require a Geotechnical Covenant to be registered prior to the issuance of a permit
- Schedule B Letters of Assurance for Structural design including sealed drawings.
- Environmental reports (Riparian) or approved Development Permit or Variances.



Developing a Modular Permitting Check List CSA A277-21 (Truncated Version from 10 pages)

Modular Inspection Checklist Guide - A277

The following checklist includes the most common types of inspections and requirements for onsite works leading towards final Occupancy approvals. Building permit inspections may vary and be sure to review your Permit Condition Letter/Drawings prior to construction. Any changes to the approved permit drawings should be reviewed with your local Building Official as soon as possible.

Note – Please ensure you are ready for the required inspection prior to requesting. It is also critical to have a copy of the permit package, including approved drawings, always on site. Failure to have these documents on site at the time of the required inspection may result in failed inspection.

- 1. Site Orientation and Site Preparation Inspection
- 2. Footing & Forms Inspection
- 3. Damp-proofing/Waterproofing & Drain Tile Inspection
- 4. Water Service Inspection
- 5. Sewer Service Inspection
- 6. Below Slab Plumbing Inspection
- 7. Radon Provisions Inspection
- 8. Framing
- 9. Fire and Sound Separations
- 10. Insulation-Air/Vapour Barriers Inspection
- 11. Final Plumbing and Gas Inspection
- 12. Final Electrical Inspection
- 13. Documentation Required Prior to Occupancy
- 14. Occupancy Inspection

In conclusion, we thank our industry partners in the development of this guide to provide a consistent approach for building permit applications and site inspections for manufactured homes constructed under A277 in British Columbia.

Remember that each jurisdiction (Authority Having Jurisdiction – AHJ) may have specific requirements, so be sure to confirm with the local authorities and review the Building Permit application and permit condition letter in detail. For more information contact:

For More Information:



Phone: 604-977-5818 E-mail: Info@mhabc.com

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www.mhabc.com



sponsorship partners, has accessed resources to offset the direct costs of attending the MHABC Annual Summit for BOABC Members. Education credits are possible

You are encouraged to attend. Please register at MHABC.com



Summit 2025
May 5-7,2025
Penticton Lakeside Resort and
Conference Centre

Thank You

FOR MORE INFORMATION

Email: Info@mhabc.com or Visit: www.MHABC.com







