

Heritage and Existing Buildings Challenges with Compliance

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Heritage and Existing Buildings Challenges with Compliance

What
could the
challenges
be in
adding
onto or
renovating
this
building?



Heritage and Existing Buildings Challenges with Compliance

- The regulations that govern existing buildings
- Other codes and standards to consider
- What further regulations govern Heritage buildings
- Some resources to consult

Overlapping Regulations

- Local Zoning Bylaws (example: City of Winnipeg Bylaw 200/2006)
- Manitoba Building Code (Regulation 31/2011)/
National Building Code of Canada 2010
- Manitoba Fire Code (Regulation 155/2011)/
National Fire Code of Canada 2010
- Local Building Bylaws (example: City of Winnipeg Building Bylaw 4555/87)
- The Heritage Resources Act (C.C.S.M. c. H 39.1)

Zoning Bylaws Control Use of Land in Two Ways

By Use - categorized

Open Space (Agricultural)

Parks & Rec

Residential

Commercial

Education & Institutional

Industrial

Parks

Built Form - dimensions

Setbacks

Floor Area Ratio

Heights

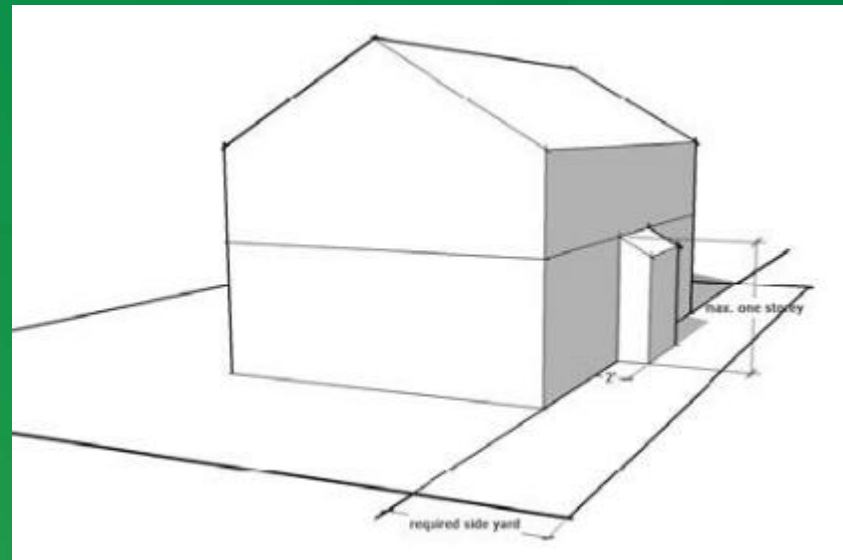


Table 4-1: Principal Use Table

P=Permitted | C=Conditional | *=Use Specific Standard Applies in this Zoning District

ZONING DISTRICT	A	PR1	PR2	PR3	RR5	RR2	R1	R2	RMF	RMU	RMH	C1	C2	C3	C4	CMU	EI	MMU	M1	M2	M3	Use Specific Standards (Section)	Parking Category
USE CATEGORY / TYPE																							
Animal hospital or veterinary clinic	p											p*	p	p	p	p		p	p	p	p	81	20
Kennel	p											p*	p*	p*	p	p*		p	p	p	p	85	20
Food and Beverage Service																							
Drinking establishment			C	C						C			p*	p	p	C		p*	p*	p*		84	22
Restaurant			C	P						p*		p*	p*	p	p	p		p	p	p		92	22
Office																							
Call centre														p	p	p		p	p	p			19
Office										p*		p*	p	p	p	p	p	p	p	p		87	18
Research institution														p	p		p	p	p	p			18
Personal Services																							
Personal services (unless otherwise listed) <i>amended 95/2014</i>										p*		p*	p*	p	p	p	C	p	p	C*		89	20
Body modification establishment													C	C	C			C					20
Cheque-cashing facility													C*	C*	C*			C*	C*			83	21
Funeral chapel or mortuary <i>amended 95/2014</i>													C	C	C			p	p	p			6
Medical/dental/optical/ counselling clinic										p*		p*	p	p	p	p	p	p	p	p		86	20
Retail Sales																							

National Building Code 2010

NBC Division A, 1 .1.1.1. Application of this Code

This Code applies to the design, construction and *occupancy* of all new *buildings*, and the *alteration*, reconstruction, demolition, removal, relocation and *occupancy* of all existing *buildings*. (See Appendix A.)

This Code applies to both site-built and factory-constructed *buildings*. (See Appendix A.)

Application of the Manitoba Building Code to Heritage and Existing Buildings

It is essential to understand:

- the Building Code provisions
- the intent behind those provisions

Building rehabilitation requires judgment concerning:

- risks and hazards in buildings,
- the Code's role in limiting these risks and hazards

NBC Div 1 Appendix A Guidance - Excerpts

It is not intended that the NBC be used to enforce the retrospective application of new requirements to existing *buildings* or existing portions of relocated *buildings*, unless specifically required by local regulations or bylaws.

“Grandfathering”

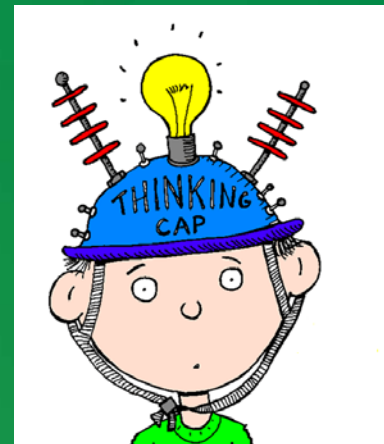


NBC Div 1 Appendix A Guidance - Excerpts

... Code application to existing or relocated buildings requires careful consideration of the level of safety needed for that building. This consideration involves an analytical process similar to that required to assess alternative design proposals for new construction.

By both

- Design Professionals
- AHJ's



The Building Code is ever-evolving

The National Building Code of Canada 2015 (NBC), published by NRC and developed by the Canadian Commission on Building and Fire Codes, sets out technical provisions for the design and construction of new buildings. It also applies to the alteration, change of use and demolition of existing buildings.

Over 360 technical changes have been incorporated in this new edition.

Source - Canadian Codes Centre Website

NBC Div 1 Appendix A Guidance - Excerpts

Benefit Cost Analysis

In applying the Code requirements to an existing building, the benefits derived are the same as in new buildings.

On the other hand, the increased cost of implementing in an existing building a design solution that would normally be intended for a new building may be prohibitive.

NBC Div 1 Appendix A Guidance - Excerpts

The successful application of Code requirements to existing construction becomes a matter of balancing the cost of implementing a requirement with the relative importance of that requirement to the overall Code objectives.



The degree to which any particular requirement can be relaxed without affecting the intended level of safety of the Code requires considerable judgment on the part of both the designer and the authority having jurisdiction.

Manitoba Building Code Requirements

Five Clauses Added

- 1.3.5.1. Alterations and Repairs
- 1.3.5.2. Horizontal Additions
- 1.3.5.3. Increase in Number of Storeys
- 1.3.5.4. Moving a Building
- 1.3.5.5. Demolition
- 1.3.5.6. Damaged Building
- 1.3.5.7. Unsafe Condition
- 1.3.5.8. Change in Occupancy

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

1.3.5.1. Alterations and Repairs

- 1) This Code applies to the part of an existing *building* that is altered and repaired. If, in the opinion of the authority having jurisdiction, the alteration will affect the degree of safety of a part of the existing *building* not altered or repaired, those parts of the existing *building* shall be improved as required by the authority having jurisdiction.
- 2) If a *building* is altered or repaired, the level of life safety and *building* performance shall not be decreased.

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

Alterations can include or involve:

- Voluntary upgrades that owner wants to perform
- Renovation due to a new tenant or a new use by a current tenant
- Renovation may be basic or extensive

Important items to consider:

- An upgrade or repair may cause an unintended consequence that results in an unsafe condition
- A Change in use within an occupancy can result in a change in occupant load - up or down.
- A change in use within an occupancy can cause an increase or a decrease in fire load

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

Important items to consider:

- A change in use within the same Occupancy type can still result in changes having to be made



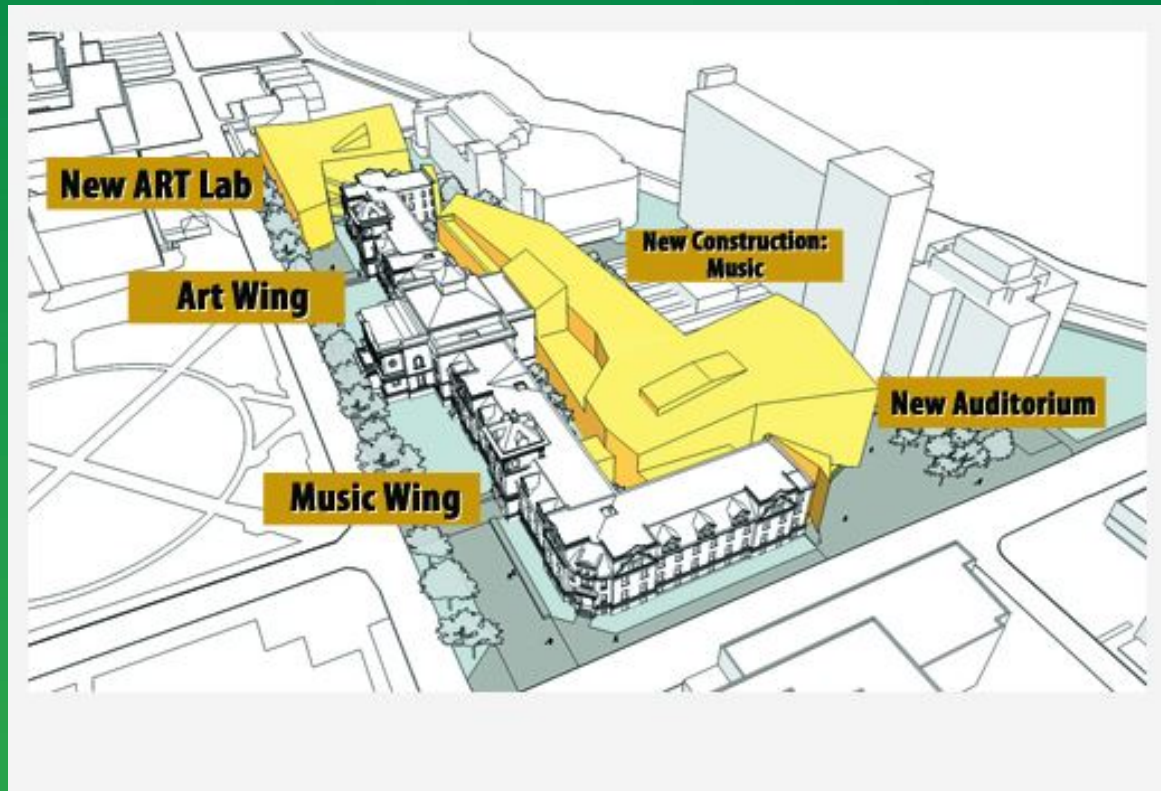
Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

1.3.5.2. Horizontal Additions

- 1) Horizontal *additions* may be made to an existing *building* or structure if
 - a) the *building* and the *addition* conform to this Code, or
 - b) a *firewall* of the required *fire-resistance rating* separates the *building* from the *addition*, and acceptable access for a fire department is provided to the addition.

What are issues involved in ensuring that both the addition and the existing building will comply (or can be made to comply)?



Situations to consider for horizontal additions

- Building size related to occupancy
- Sprinklered vs. non-sprinklered
- Non-combustible vs. combustible construction
- Fire ratings of assemblies – walls, roof, floors
- Limiting distance / spatial separation criteria
- Exiting – exit travel path, access to exits, total exit width
- Accessibility requirements

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

1.3.5.3. Increase in Number of Storeys

- 1) The number of storeys of an existing *building* shall not be increased unless the entire *building* conforms to this Code.

Situations to consider for vertical additions

A vertical addition is probably the most challenging

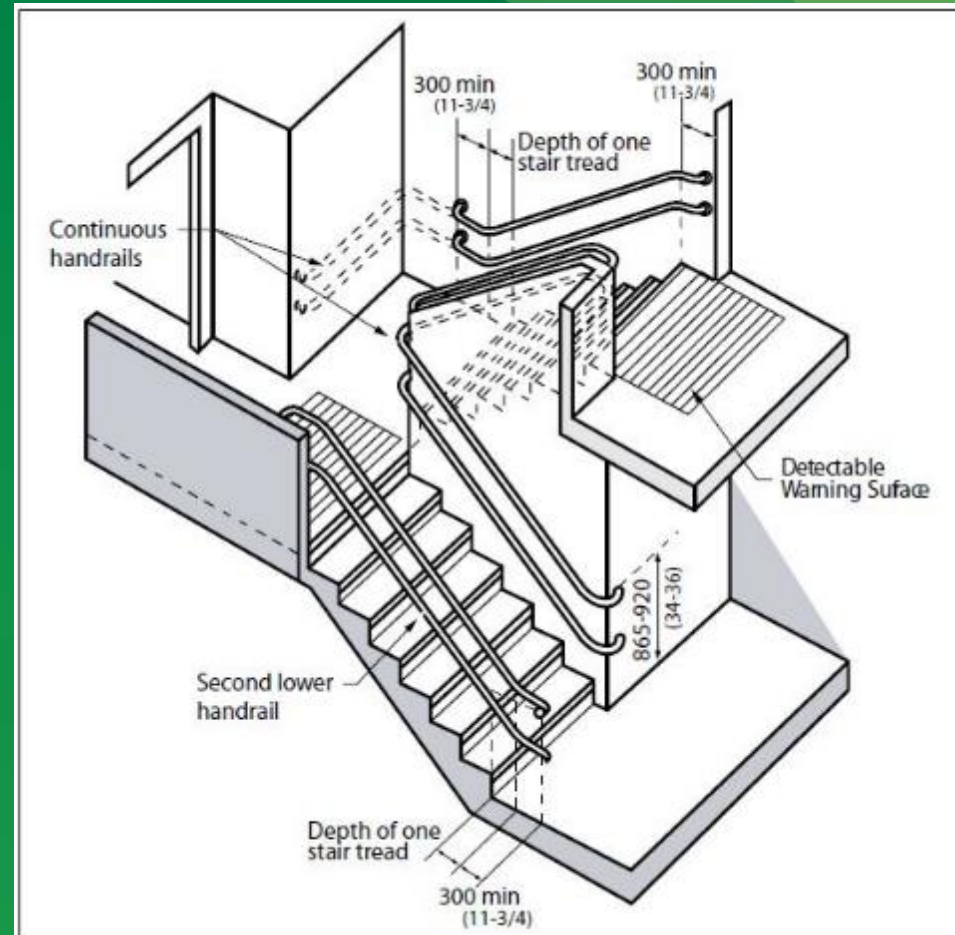
Considerations include:

- Building size related to occupancy; number of storeys
- Sprinklered vs. non-sprinklered
- Non-combustible vs. combustible construction
- Fire ratings of assemblies – walls, roof, floors
- Exiting – exit travel path, access to exits, total exit width

Situations to consider for vertical additions

STAIRS

- width in general
- width due to occupant load
- railings and guards
- tread and riser dimensions
- Nosings
- Existence of winders
- Non-conforming ratings of stairwells



Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

1.3.5.4. Moving a Building

- 1) This Code applies to the whole or any part of an existing building that is moved to a new location.

1.3.5.5. Demolition

- 1) This Code applies to the work involved in demolishing the whole or any part of a building and to the work required to correct a deficiency in any part of the building remaining after demolition.

Situations to consider – Moving and Demolition

Moving a building:

- Foundations
- Spatial Separation / Limiting Distance / Fire Ratings

Demolition of part of a building:

- Structural stability
- Exit criteria

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

1.3.5.6. Damaged Building

- 1) This Code and the Manitoba Fire Code apply to the work necessary to reconstruct an existing building that is damaged by fire or other cause.

Damage due to calamity includes

- Fire
- Flood / sewer backup
- Collapse / over-stressing
- Collision (usually by a vehicle)

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

1.3.5.7. Unsafe Condition

- 1) This Code and the *Manitoba Fire Code* apply to the work necessary to correct an *unsafe condition* in or near a building.

Unsafe condition is a defined term

Unsafe condition means any condition that could cause undue hazard to the life, limb or health of any person authorized or expected to be on or about the premises.

Unsafe Condition

Unsafe conditions could be the result of:

- Registered complaints.
- Fire inspections.
- Occupancy inspections.
- Due diligence engineering reports.
- Unintended consequences.
- Upgrades that may be required under other legislation (Federal, Provincial, and/or Municipal).

A non-conforming condition is not necessarily an unsafe condition

Some examples of unsafe conditions:

- Insufficient / substandard means of egress
- Lack of emergency lighting, exit signage
- Lack of required fire separations
- Fire-stopping deficiencies
- Improper storage and handling of dangerous goods
- Lack of or substandard fire alarm system
- Sprinkler system deficiencies
- Lack of protection of foamed plastics

A non-conforming condition is not necessarily an unsafe condition

Examples of unsafe conditions:

- Flame spread ratings of interior finishes exceeding requirements
- Lack of guardrails and handrails where required
- Structural issues
- Lack of protection within a floor area that has *Barrier-Free* access
- Lack of ventilation / carbon monoxide sensors

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

1.3.5.8. Change in Occupancy

- 1) This Code applies to a building or the parts of a building affected by a change to the major occupancy of the building or part of the building.

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

Considerations related to Change in Occupancy

A change in a major occupancy could result in greater risk:

- Related to occupant load
- Related to fire load

Which could result in analysis and/or changes to:

- Fire ratings of assemblies
- Combustible versus non-combustible construction requirements
- Exit travel distance
- Quantity & width of exits

Manitoba Building Code Requirements

1.3.5. Limited Application to Existing Buildings

Considerations related to Change in Occupancy

A change in a major occupancy could result in less risk - but could still result in changes:

- Ventilation requirements
- Accessibility requirements

Manitoba Fire Code Requirements

Application of this Code

- 1) This Code applies to all new and existing *buildings* and facilities, and to *building* construction, renovation or demolition sites. (See Appendix A.)

Appendix Note

Some NBC requirements are most readily applied to new buildings and their retroactive application to existing situations as prescribed by this Code could result in some difficulty in achieving compliance. It is the intent of the NBC that an equivalent level of safety be achieved rather than necessarily achieving strict conformance to the NBC. The application of this Code to the upgrading of existing facilities should be based on the judgment of the enforcement authority, who must deal with each case on its own merits.

Manitoba Fire Code Requirements

Fire Code requirements related to buildings are contained in Part 2, which deals with

- The safety of occupants in existing buildings
- Elimination or control of fire hazards
- Installation and maintenance of certain life safety systems in buildings

2.1.3.1 Fire Alarm, Standpipe, and Sprinkler Systems

2.2.1.1 Fire Separations

2.2.2.1 Openings in Fire Separations

2.3.1.1 Interior Finish

2.7.1 Means of Egress

2.7.3.1 Emergency Lighting, Lighting for Exits & Exit Signs

Manitoba Fire Code Requirements

2.1.3.1 Fire Alarm, Standpipe and Sprinkler Systems

- 1) Fire alarm, standpipe and sprinkler systems shall be provided in all buildings where required by and in conformance with the NBC. (See Appendix A)
- 2) When changes in the use of buildings or floor areas create a hazard exceeding the criteria for which the fire protection systems were designed, such fire protection systems shall be upgraded to accommodate the increased hazard.

NFC Appendix Guidance Regarding Sprinkler Systems

A -2.1.3.1.(1) ... Although the NFC could be interpreted to require the installation of fire alarm, standpipe and hose and automatic sprinkler systems in an existing building for which there were no requirements before the National Building Code of Canada 2005 was issued, it is the intent of the Canadian Commission on Building and Fire Codes that the NFC not be applied in this manner to these buildings...



NFC Appendix Guidance Regarding Sprinkler Systems

Sentence 2.1.3.1.(1) is intended to address the installation of fire alarm, sprinkler and standpipe systems in existing buildings presently not so equipped, and in existing buildings that do not provide an acceptable level of safety to meet the current installation standards specified in the NBC. It is not intended that existing fire protection systems that provide an acceptable level of life safety be upgraded with each new edition of the NBC or in conjunction with the inclusion of new requirements not in force at the time that a building was constructed. The authority having jurisdiction is expected to use discretion in enforcing this requirement.

Manitoba Fire Code Requirements

Revisions in the Manitoba Fire Code

2.1.3.9 Additional requirements for CO detectors

2.15 Residential Care Facilities – additional requirements for Means of Egress

Manitoba Fire Code Requirements

Fire Code requirements related to indoor and outdoor storage are contained in Part 3

- 3.1.3 Industrial Trucks
- 3.2 Indoor Storage
 - 3.2.4 Indoor Tire Storage
 - 3.2.5 Indoor Storage of Aerosol Products
 - 3.2.6 Indoor Storage of Combustible Fibres
 - 3.2.7 Indoor Storage of Dangerous Goods
 - 3.2.8 Indoor Storage of Compressed Gases
 - 3.2.9 Indoor Storage of Ammonium Nitrate

Other Codes and Standards

Overlap in many other codes and standards

- Canadian Electrical Code contains building regulations
- Ventilation standards like NFPA 96 contain requirements for fire ratings



Heritage Buildings

Heritage Buildings are a small but important subset of Existing Buildings

Existing Buildings

“Old” Buildings

Historic Buildings

Heritage Buildings



http://www.winnipeg.ca/ppd/historic/historic_conservlist.stm#b

Two Competing Perspectives

The Heritage
Building
Advocate:

Building Codes
are considered
to be the
“Enemy” of
Historic
Preservation



The general
public and some
Code Officials:

Old Buildings are
regarded as
inherently
Hazardous

Heritage and Historic Buildings rarely meet current standards

Open stairways

Dead-end corridors

Unrated materials / Difficulty in assessing fire-resistance of materials

Inadequate guards and railings

Inadequate fire separations

Lack of Fire Protection / Fire Alarm Systems

Heritage Building Principals

Understanding

Why is the building important
Research

Statement of Significance

Planning

Coordination with Conservation

Using

Finding a Compatible Use

Intervening

Minimizing Intervention

Heritage Building Treatment

Preservation
Stabilization

“Museum”

Restoration

Returning to a period in History
Can result in Significant Changes

Rehabilitation

Adapting to a new use
Upgrading to suit an existing use
Additions or alterations to suit use

Designated Buildings must obtain a Heritage Permit in addition to a building permit

Suggested Resources – Other Codes & Documents to Consult

Ontario Building Code Part 10 (Change of Use)

Ontario Building Code Part 11 (Renovation)

Nova Scotia Building Code 2012

City of Vancouver Building Bylaw, Part 10

City of Vancouver Appendix to Part 10

Suggested Resources - Other Codes & Documents

International Existing Building Code (US)

NFPA 101 Life Safety Code

HUD Guideline on Fire Ratings of Archaic Materials and Assemblies

NBC 2010 Intent Statements Published online

<http://codes-guides.nrc.ca/IA/10NBC/intentframe.html>

Questions

