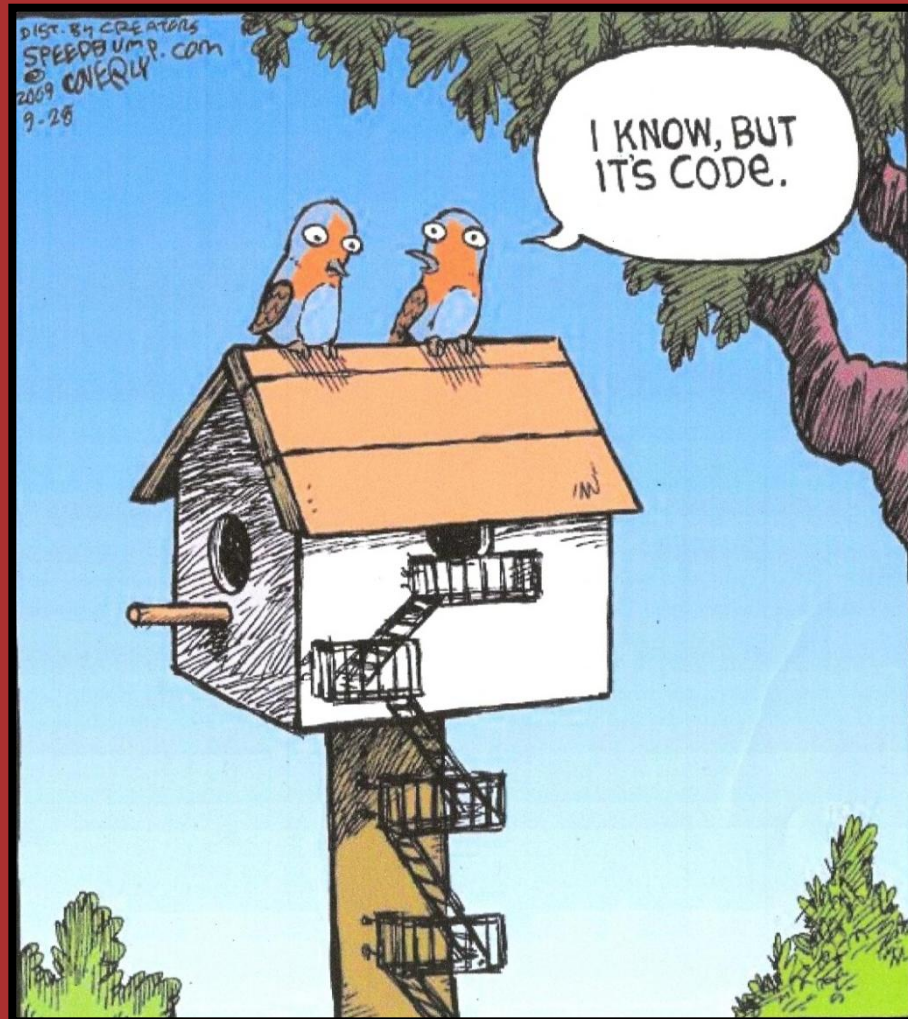




Jim Donovan

The Alternative



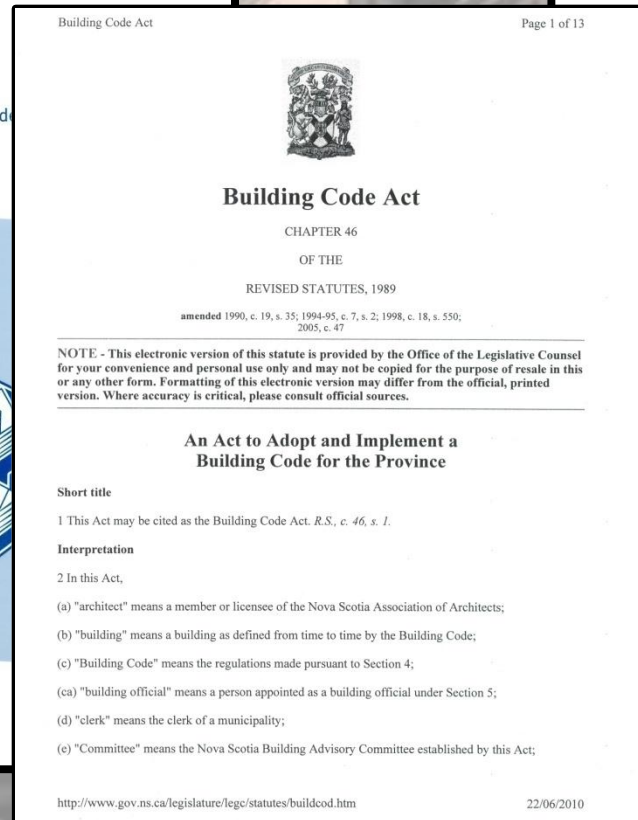
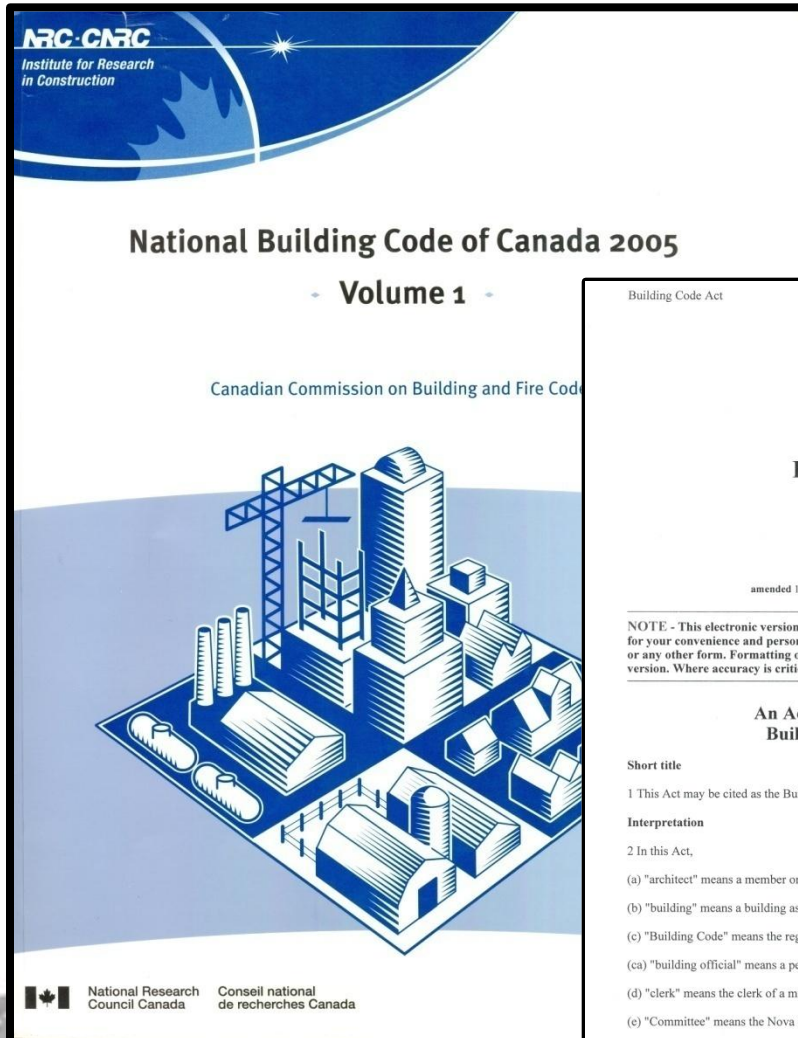
What is an Objective-Based Code?

An Objective-Based Code is a code where every technical requirement fulfills one or more objective.

NBC Objectives:

- Safety
- Health
- Accessibility
- Fire & Structural Protection of Buildings

Building Code Act and Regulations



NOVA SCOTIA BUILDING CODE REGULATIONS

Made Under Section 4

of the

BUILDING CODE ACT

R.S.N.S., 1989, c. 46

2009

NOVA SCOTIA
Labour and
Workforce Development

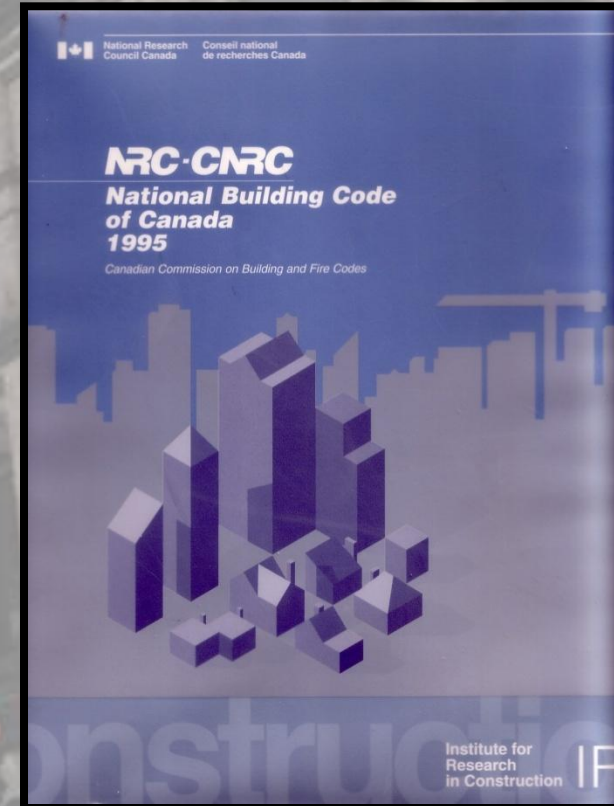
December 31, 2009

HALIFAX
REGIONAL MUNICIPALITY

What is an Objective-Based Code?

Same methods of compliance as 1995 Code:

- meet provisions, or
- provide equivalency (old term)
- equivalency new term - alternative



What is an Objective-Based Code?

- Updated 1995 Code;
- Objectives & functional statements linked to each technical requirement;
- Equivalencies (alternative solutions) compared to technical requirements using objectives & functional statements.

Division B		9.36.1.1.
Table 9.36.1.1. (Continued)		
Acceptable Solutions	Objectives and Functional Statements ⁽¹⁾	
9.20.12.2. Corbelling for Cavity Walls		
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator. [F20-OH4] Applies to floors and elements that support floors. [F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator. [F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.	
(2)	[F20-OS3.1] Applies to floors and elements that support floors. [F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator. [F20-OH4] Applies to floors and elements that support floors. [F20-OP2.1, OP2.4] [F20-OP2.3] Applies to elements that support or are part of an environmental separator. [F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.	
9.20.12.3. Corbelling for Masonry Veneer		
(1)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator. [F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator. [F20-OS2.3] Applies to elements that support or are part of an environmental separator.	
(2)	[F20-OH1.1, OH1.2, OH1.3] Applies to elements that support or are part of an environmental separator. [F20-OP2.1] [F20-OP2.3] Applies to elements that support or are part of an environmental separator. [F20-OS2.1] [F20-OS2.3] Applies to elements that support or are part of an environmental separator.	
9.20.13.1. Materials for Flashing		
(1)	[F80-OH1.1, OH1.2, OH1.3] [F80-OP2.1, OP2.3] [F80-OS2.1, OS2.3]	
(2)	[F80-OH1.1, OH1.2, OH1.3] [F80-OP2.1, OP2.3] [F80-OS2.1, OS2.3]	
9.20.13.2. Fastening of Flashing		
(1)	[F80-OH1.1, OH1.2, OH1.3] [F80-OP2.1, OP2.3] [F80-OS2.1, OS2.3] [F80-OS1.2] Applies to assemblies required to provide fire resistance.	
9.20.13.3. Location of Flashing		
(1)	[F61, F62-OH1.1, OH1.2, OH1.3] [F61, F62-OP2.1, OP2.3] [F61, F62-OS2.1, OS2.3]	
National Building Code of Canada 2005 Volume 1		Division B 9-279

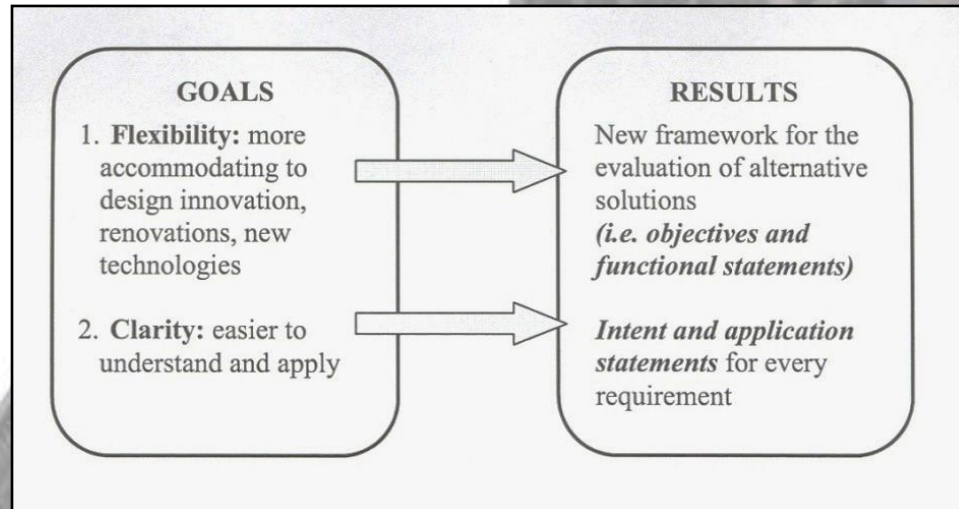
Incentive for Conversion to Objective-Based Codes

- Many changes with buildings;
- Need to meet current levels of safety;
- New products & technologies continuously introduced
 - long time until referred to in Code;
- Delays have economic impacts.

Benefits of Objective-Based Codes

- Improve relationship, through increased dialogue, between builder and building official;
- Increased understanding of the reasons for Code provisions;
- More consistent application of the code;
- Ability to apply familiar provisions of previous Code.

Benefits of Objective-Based Codes



- Enhanced opportunity for design & technology innovation;
- Increased flexibility to apply Code to existing buildings;
- Consistent format following international code trends.

Building Code Objectives

OS Safety

OH Health

OA Accessibility

**OP Fire & Structural
Protection of
Buildings**

**“New” Energy and Water
Conservation**

“Alternative Solutions”

**Replaces
“Equivalency”
(1995-Section 2.5)**

A proposed alternative solution is any proposed product, material, component, design, system, equipment or procedure that does not comply with the applicable Division B provisions.

Why Was Objective Based Code Proposed?

- Renovations of Heritage buildings.
- New products & innovative technologies;
- Renovations or changes of use in buildings that do not comply with current Codes;

Subsection 2.3: Alternative Solutions

2.3.1 Documentation of Alternative Solutions

• 2.3.1.1. Documentation

- 1) Documentation conforming to this Subsection shall be **provided by the person requesting the use of an alternative solution** to demonstrate that the proposed alternative solution complies with Code.
- 2) The documentation referred to in Sentence (1) shall include a) a Code analysis outlining the analytical methods and rationales used to determine that a proposed alternative solution will achieve at least the level of performance required by Clause 1.2.1.1.(1)(b) of Division A, and b) information concerning any special maintenance or operational requirements, including any building component commissioning requirements, that are necessary for the alternative solution to achieve compliance with the Code after the building is constructed.
- 3) The Code analysis referred to in Clause (2)(a) shall **identify the applicable objectives, functional statements** and acceptable solutions, and any assumptions, limiting or restricting factors, testing procedures, engineering studies or building performance parameters that will support a Code compliance assessment.
- 4) The Code analysis referred to in Clause (2)(a) shall include **information about the qualifications, experience and background** of the person or persons taking responsibility for the design.
- 5) The information provided under Sentence (3) shall be in sufficient detail to convey the design intent and to support the validity, accuracy, relevance and precision of the Code analysis.
- 6) Where the design of a building includes proposed alternative solutions that involve more than one person taking responsibility for different aspects of the design, the applicant for the permit shall identify a single person to co-ordinate the preparation of the design, Code analysis and documentation referred to in this Subsection.

Designer....



Architect, interior designer, residential designer, code consultant, fire protection, engineer, structural engineer, mechanical engineer, electrical engineer, team of design professionals, owner, contractor....

Division A, 1.2.1.1.(1)(b)

9.21.4.6.(4)

Application

Intent

OS2

OS1

OP1

OH1

OS3

Objective OS2 Structural Safety

Attribution [F20-OS2.3]

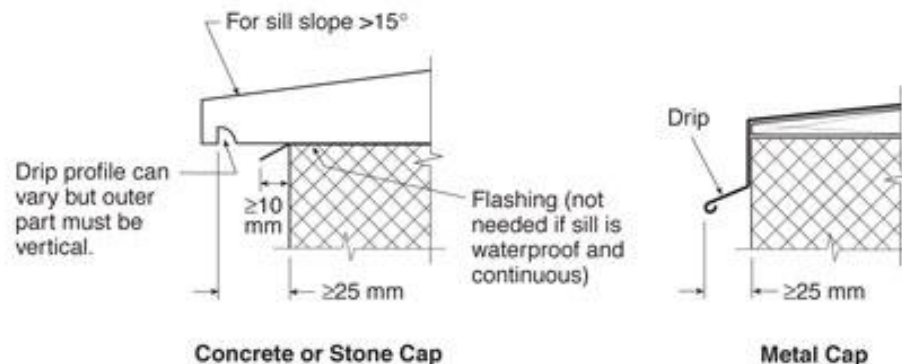
Application **Application 1:**
Jointed precast concrete or masonry *chimney* caps for rectangular *masonry or concrete chimneys* that are not more than 12 m in height and that serve fireplaces or *appliances* having a combined total rated heat output of 120 kW or less, in *buildings* to which Part 9 applies [see Sentence 1.3.3.3.(1) of Division A for application of Part 9].

Application 2:

This also applies to rectangular *masonry or concrete chimneys*, in *buildings* to which Part 6 applies [see Sentence 1.3.3.2.(1) of Division A for application of Part 6], as stated in Sentence 6.3.1.2.(1).

[Top of Page](#)

Intent **Intent 1:**
To limit the probability of water leaking through joints in precast concrete or masonry chimney caps, which could lead to water penetrating the masonry or entering between the masonry and the liner, which could lead to damage to the masonry or liner due to freeze-thaw stresses, which could lead to the collapse of the chimney, which could lead to harm to persons.

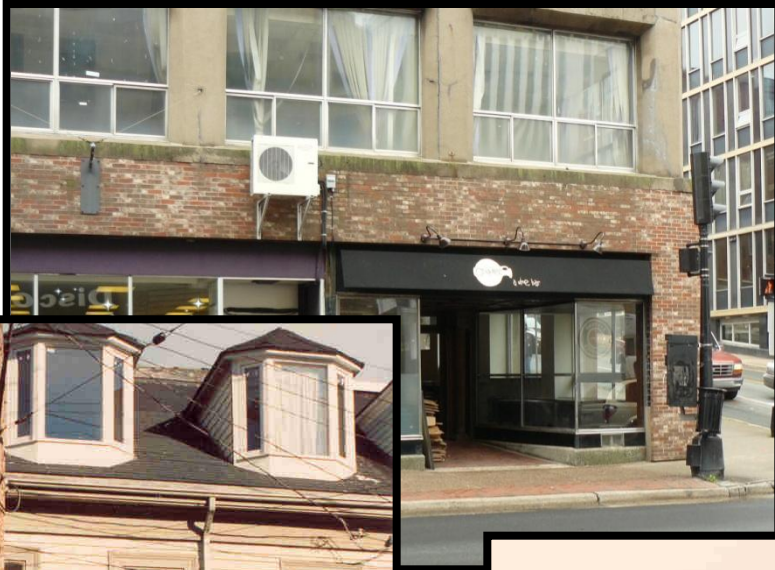


Application for Objective Based Solution

Application for an Objective Based Solution

Proponent (Name, company, contact information, company)				Approved/Comments		
Agent:						
Qualifications:						
Summary of Proposed Alternative Solution						
Applicable Division B Provisions						
Sentence		Summary of Provision				
Applicable Objectives and Functional Statements						
Sentence	Functional Statement	Objective	Minimum Performance Level Established in Submission Documentation (yes/no)			
			Division B			Proposed Alternative Solution
Supporting Documentation						

Case Studies



5147 Morris Street, Halifax

The Wired Monk



Entrances/Egress

Existing mercantile occupancy - vacant

Conversion to assembly occupancy

Heritage Incentive Grant \$10,000 for exterior renovation

2006



2009

Recessed 2nd exit



2007



Interior Egress

Issue: egress from the lower level & potential occupant load



Solution: an oversized, unenclosed stair & posted limited occupancy



Vibrant lower level was created to allow addition seating for the Cafe



1980



2005



2008

1663-65 Barrington Street

3 storey, wood framed walk-up

Full commercial occupancy



Conversion to allow residential on 2nd floor

Objective analysis permitted window as egress point



little
mysteries
BOOKS



1491 Carlton Street, Halifax

Heritage Incentive Grant for exterior restoration

Second floor use facilitated by exterior area of refuge



Café permitted through a “Heritage” Development Agreement

Flat roofed area becomes an area of refuge



Second storey window removed & replaced with a door

1980's



2009

2000



1598 Barrington Street, Halifax

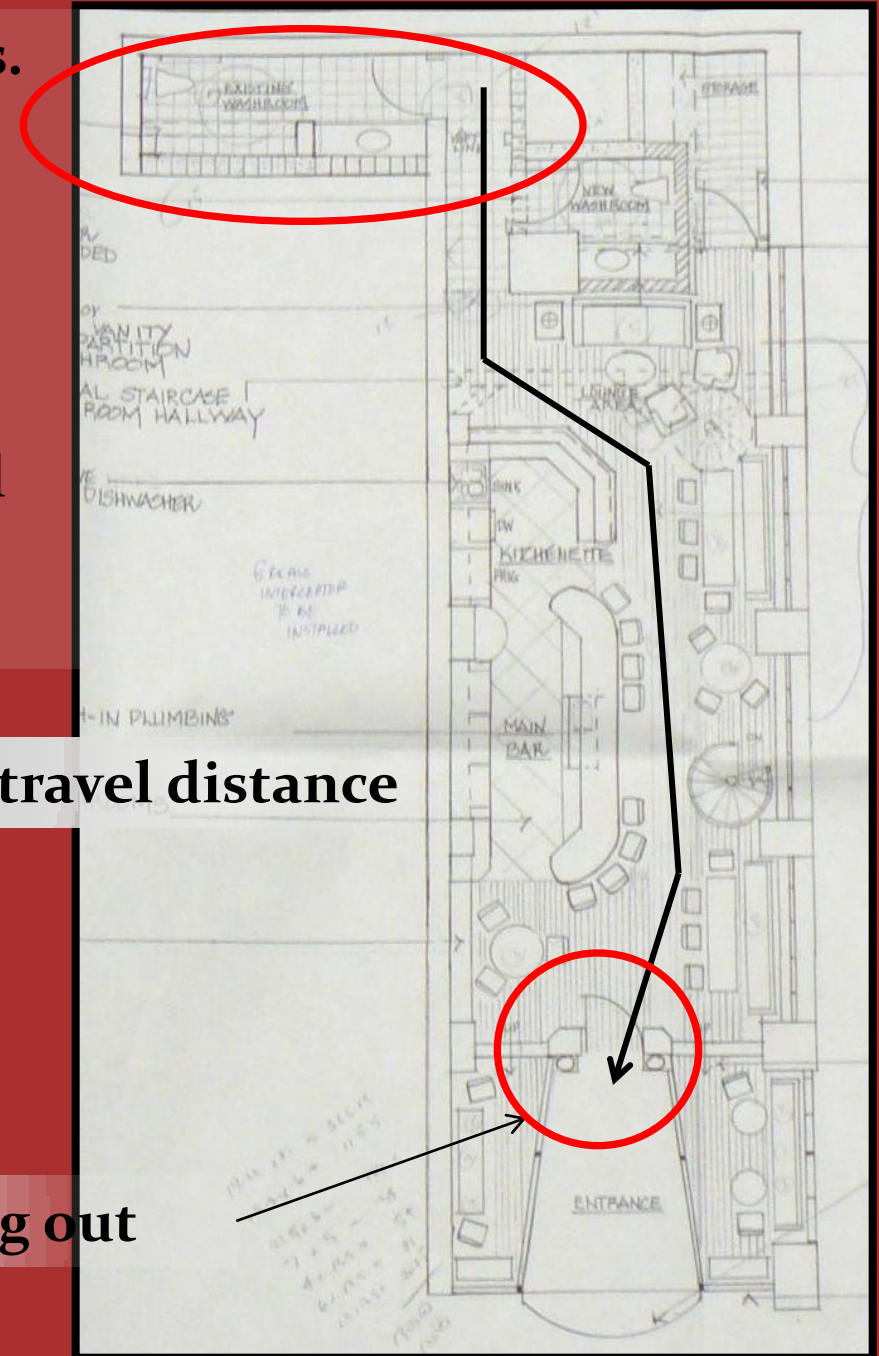


2009

- Add smoke detectors with alarms.
- An additional exit sign to be installed outside of washroom area.
- Additional fire extinguishers will be placed outside of the washrooms.

Exceeded travel distance

Entry/Exit door to swing out





A new second exit from suite is not feasible.

1879 Hollis Street, Halifax

Morse's Tea Building

6 storey, wood frame combustible building



Change of use requires full code compliance



Heavy timber construction

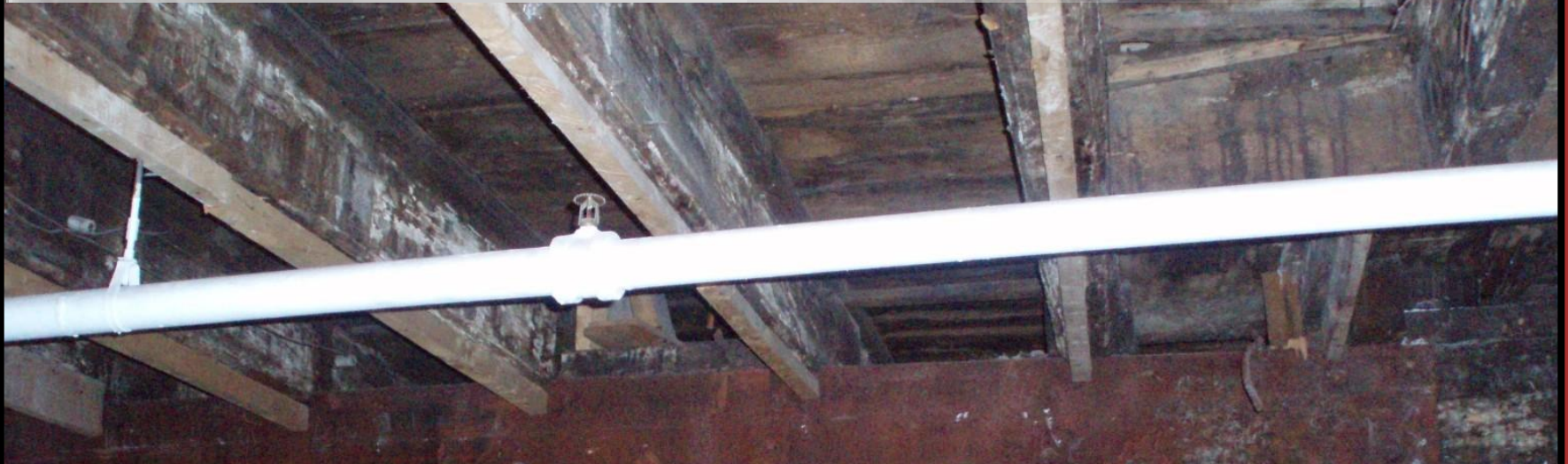


Interconnected open floor plates



Prescriptive code does not permit use or design configuration

Fire protection Engineers to design objective solutions



Use of fire modeling programs & time exit travel studies,

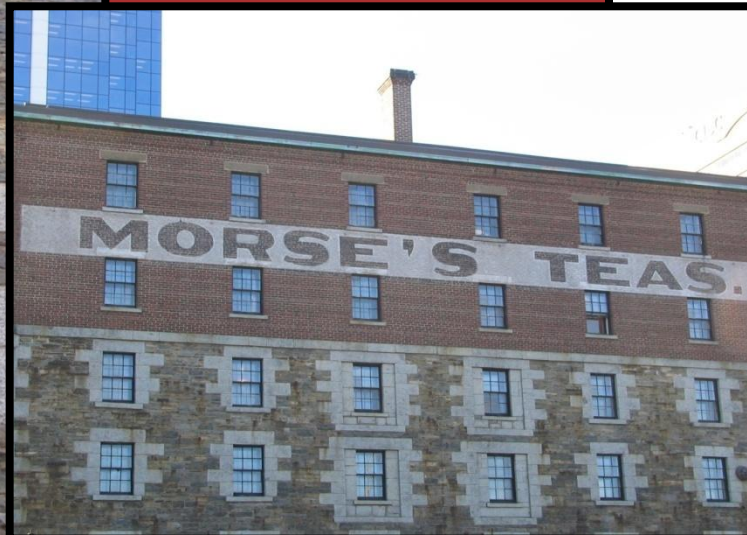


And enhanced smoke exhaust systems

1917



MUSEUM



2008



Question

"My grandfather help build this nation! But I need six permits to build my shed!"

HALIFAX
REGIONAL MUNICIPALITY