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NBC/NFC Fire-Resistance & Fire Separations
Canadian Code Requirements
NFPA – 2018 US Fire Statistics

1,345,000 Fires reported in the US

- Structure fires, 37%
- Outside and other fires, 48%
- Other vehicle fires, 2%
- Highway vehicle fires, 13%
US Fire Loss Clock

A fire department responded to a fire every 24 seconds.

One highway vehicle fire was reported every 182 seconds.

One outside fire was reported every 48 seconds.

One structure fire was reported every 66 seconds.

One civilian fire injury was reported every 34 minutes.

One home structure fire was reported every 90 seconds.

One civilian fire death occurred every 2 hours and 35 minutes.
497,650 structure fires in the US (37% of total), resulting in:

- 3,655 civilian fire deaths (83% of all)
- 15,200 civilian fire injuries (84% of all)
- 11.1 billion in property damage (82%) (excluding $12B from Californian Wildfires)
- One structural fire every 63 sec

Source: NFPA Records
Summary of 2002 Canadian Fire Problem

Table 1 - Canada Fire Losses, Fire Deaths and Fire Injuries

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated Population*</th>
<th>Number of Fires</th>
<th>$ Loss</th>
<th>Per Capita $ Loss</th>
<th>Fire Deaths</th>
<th>Fire Death Rate**</th>
<th>Injuries</th>
<th>Injuries Rate**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>28 703 142</td>
<td>65 877</td>
<td>1 181 892 872</td>
<td>41.18</td>
<td>417</td>
<td>1.45</td>
<td>3 463</td>
<td>12.06</td>
</tr>
<tr>
<td>1994</td>
<td>29 035 981</td>
<td>66 719</td>
<td>1 151 546 461</td>
<td>39.66</td>
<td>377</td>
<td>1.30</td>
<td>3 539</td>
<td>12.19</td>
</tr>
<tr>
<td>1995</td>
<td>29 353 854</td>
<td>64 251</td>
<td>1 110 839 184</td>
<td>37.84</td>
<td>400</td>
<td>1.36</td>
<td>3 551</td>
<td>12.10</td>
</tr>
<tr>
<td>1996</td>
<td>29 671 892</td>
<td>60 138</td>
<td>1 163 336 515</td>
<td>39.21</td>
<td>374</td>
<td>1.26</td>
<td>3 152</td>
<td>10.62</td>
</tr>
<tr>
<td>1997</td>
<td>30 003 955</td>
<td>56 292</td>
<td>1 291 640 983</td>
<td>43.05</td>
<td>416</td>
<td>1.39</td>
<td>3 149</td>
<td>10.50</td>
</tr>
<tr>
<td>1998</td>
<td>30 300 422</td>
<td>57 602</td>
<td>1 175 553 135</td>
<td>38.80</td>
<td>337</td>
<td>1.11</td>
<td>2 697</td>
<td>8.90</td>
</tr>
<tr>
<td>1999</td>
<td>30 464 255</td>
<td>55 169</td>
<td>1 231 936 723</td>
<td>40.44</td>
<td>388</td>
<td>1.27</td>
<td>2 287</td>
<td>7.51</td>
</tr>
<tr>
<td>2000</td>
<td>30 737 179</td>
<td>53 720</td>
<td>1 185 233 793</td>
<td>38.56</td>
<td>327</td>
<td>1.06</td>
<td>2 490</td>
<td>8.10</td>
</tr>
<tr>
<td>2001</td>
<td>31 081 887</td>
<td>55 323</td>
<td>1 420 779 985</td>
<td>45.71</td>
<td>338</td>
<td>1.09</td>
<td>2 310</td>
<td>7.43</td>
</tr>
<tr>
<td>2002</td>
<td>31 485 263</td>
<td>53 589</td>
<td>1 489 012 263</td>
<td>47.29</td>
<td>304</td>
<td>0.97</td>
<td>2 547</td>
<td>8.09</td>
</tr>
</tbody>
</table>

10-Year Average | 59 936 | 1 222 238 193 | 40.61 | 374 | 1.25 | 3 072 | 10.26

* Source: 2002 Census, Statistics Canada

** Fire deaths rate and fire injuries rate - number of deaths/injuries per 100 000 population per annum
NONCOMBUSTIBLE CONSTRUCTION
Combustibility in the Building Codes

ASTM dictionary Definition of “Noncombustible”:

not capable of undergoing combustion under specified conditions.
Combustibility in the Building Codes

**Noncombustible** means that a material meets the acceptance criteria of CAN/ULC-S114, “Test for Determination of Non-Combustibility in Building Materials.”

**Noncombustible construction** means that type of construction in which a degree of fire safety is attained by the use of noncombustible materials for structural members and other building assemblies.

**Combustible** means that a material fails to meet the acceptance criteria of CAN/ULC-S114, “Test for Determination of Non-Combustibility in Building Materials.”

**Combustible construction** means that type of construction that does not meet the requirements for noncombustible construction.

This is expanding in 2020 NBCC
Combustibility of Building Materials

3.1.5.1 Noncombustible Materials

1) Except as permitted by Sentences (2) to (4) and Articles 3.1.5.2. to 3.1.5.24., 3.1.13.4. and 3.2.2.16., a building or part of a building required to be of noncombustible construction shall be constructed with noncombustible materials. (See also Subsection 3.1.13. for the requirements regarding the flame-spread rating of interior finishes.)

These represent exception…
- 24 Articles,
- 96 clauses, and
- 243 individual requirements !!!
2020 NBCC will add 3rd type of Construction:

**Encapsulated Mass Timber (EMTC)**

*Encapsulated mass timber construction* means that this type of construction in which a degree of fire safety is attained by the use of encapsulated mass timber elements with an encapsulation rating and minimum dimensions for the structural timber members and other building assemblies.
FIRE RESISTANCE RATINGS
Fire Resistance

Common Terminology:

- **Fire Resistance**
  - Time in minutes that a material or assembly withstands passage of flame, temperature and retain structural integrity under conditions of CAN/ULC-S101 test

- **Fire Protection Rating**
  - Time in minutes that a closure withstands passage of flame, and retain structural integrity under Standard test conditions (various test Standards for closures)

- **Fire Compartment**
  - In a building, an enclosed space separated by vertical & horizontal fire separations (driven by Codes)
Fire Resistance

Common Terminology:

- **Fire Resistant Floor or Wall Assembly**
  - “Listed” fire-rated assemblies or
  - generic fire rated floor or wall as determined by the National/Provincial Building Codes (i.e. Appendix D NBC, Tables for Part 9 only)

- **Closures**
  - *Closure means a device or assembly for closing an opening through a fire separation or an exterior wall, such as a door, a shutter, wired glass or glass block, and includes all components such as hardware, closing devices, frames and anchors.*
Fire Resistance

➢ A "fire separation" is a construction assembly that acts as a continuous barrier to the spread of fire and/or smoke.

➢ A fire separation may or may not need to have a Fire Resistance Rating.
Fire Separations

Purpose of “Fire Separations”

(a) Impede movement of fire in order to Limit the potential fire size and inhibit movement of smoke

(b) Contain the fire long enough to evacuate occupants and allow fire department to gain access

(c) Act as components of a “fire compartment”
Fire Separations

Fire Compartments

Usually, several “fire separations” are used in combination to surround a given space to contain fire within it.
Fire Separations

Evaluation of “Fire Resistance”

Fire Performance Testing

Typical “real world” Fire Exposure Curves
Fire Performance Testing

CAN/ULC-S101 Standard
Fire Exposure Curve
ASTM E119 Fire Resistance Curve

- Copper melts at 1,980 °F (1,082 °C).
- Plate glass melts at 1,510 °F (815 °C).
- Aluminum melts at 1,220 °F (660 °C).
- Zinc melts at 790 °F (421 °C).
- Cellulose pyrolyzes at 450 °F (232 °C).
- Spray foam flash point at 392 °F (200 °C).
- Rigid foam melts at 300 °F (149 °C).

Not for service operation at this temperature. Refer to appropriate literature, which states recommended maximum service temperature limits or individual products. Time-temperature curve from ASTM E119-81: Standard Test Methods for Fire Tests of Building Construction and Materials.
Fire Resistance Criteria

**Generalized Acceptance Criteria (CAN/ULC-S101)**

- No passage of flames or hot gases
- Temperature rise on the unexposed side limited to - 140° C average or 180°C individual – Includes “Roving TC” per ISO.
- Assembly must remain in place & not collapse under design loads
- No through openings created during the fire or hose stream test (up to 45 psi water pressure).
- Maximum temperature of steel structural supporting elements (floors, ceilings, beams, columns) of 593°C average, 704°C indiv.
FIRESTOPPING SERVICE PENETRATIONS
Mechanisms of Fire Spread
PATHS OF FIRE PROPAGATION

Leap-Frog Effect (New ASTM E2874 Standard 2019)
3.1.9.1. **Fire Stopping of Service Penetrations**

1) Except as provided in Sentences (2) to (5) and Article 3.1.9.4., penetrations of a fire separation or a membrane forming part of an assembly required to have a fire-resistance rating shall be

   a) sealed by a fire stop that, when subjected to the fire test method in CAN/ULC-S115, “Fire Tests of Firestop Systems,” has **an F rating not less than the fire-protection rating required for closures** in the fire separation in conformance with Table 3.1.8.4., or

   b) cast in place (see Note A-3.1.9.1.(1)(b)).
Fire Resistance & Closures

Up to NBCC 2015 ....

*Firestopping has been considered to be a closure, meaning....*
## Closure Systems

### Rating of Closures:

**Table 3.1.8.4.**

Fire-Protection Rating of Closures

Forming part of Sentence 3.1.8.4.(2)

<table>
<thead>
<tr>
<th>FRR of Fire Separation</th>
<th>Required FR of Closure</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 min</td>
<td>45 min</td>
</tr>
<tr>
<td>1 h</td>
<td>45 min</td>
</tr>
<tr>
<td>1.5 h</td>
<td>1 h</td>
</tr>
<tr>
<td>2 h</td>
<td>1.5 h</td>
</tr>
<tr>
<td>3 h</td>
<td>2 h</td>
</tr>
<tr>
<td>4 h</td>
<td>3 h</td>
</tr>
</tbody>
</table>
NBCC & Firestopping

3.1.9.1. Fire Stops

2) Penetrations of a firewall or a horizontal fire separation that is required to have a fire-resistance rating in conformance with Article 3.2.1.2. shall be sealed at the penetration by a fire stop that, when subjected to the fire test method in CAN/ULC-S115, “Fire Tests of Firestop Systems,” has an FT rating not less than the fire-resistance rating for the fire separation.

3) Penetrations of a fire separation in conformance with Sentence 3.6.4.2.(2) shall be sealed by a fire stop that, when subjected to the fire test method in CAN/ULC-S115, “Fire Tests of Firestop Systems,” has an FT rating not less than the fire-resistance rating for the fire separation of the assembly.

(Note: Applies to limited condition for horizontal service space)
Continuity of “fire separations”:

• 3.1.8.1. General Requirements
  1) Any wall, partition or floor assembly required to be a fire separation shall
     a) except as permitted by Sentence (2), be constructed as a continuous element, and
     b) as required in this Part, have a fire-resistance rating as specified (see Appendix A).

     2) Openings in a fire separation shall be protected with closures, shafts or other means in conformance with Articles 3.1.8.4. to 3.1.8.17. and Subsections 3.1.9. and 3.2.8. (See Appendix A.)

• Openings and gaps must be protected with a closure, or be effectively fire stopped.
Requirements for Protection of Joints

- Any wall, partition or floor assembly required to be a fire separation shall:
  a) ... be constructed as a continuous element
  b) ... have a fire resistance rating as specified

- Only real Code Basis for Joint FS & Perimeter Barrier FS systems is general continuity requirement in 3.1.8.1
Section 3.2.3 of the NBCC addresses the construction of the exterior face of a building, and its impact on adjacent properties or buildings by introducing requirements for separation distance of buildings and structures from one another, based on:

1) combustibility of the exterior wall of the building,
2) distance between adjacent buildings,
3) fire resistance rating of the exterior wall assembly, and
4) percentage of unprotected openings, if any.
Generally, the fire-resistance rating, construction and cladding for exposing building faces of buildings or fire compartments are shown in Table 3.2.3.7.

- Where max area of unprotected openings are permitted to be per column 2 of the Table, the FRR, Construction Type, and Cladding Type are as summarized below:

<table>
<thead>
<tr>
<th>Occupancy Classification of Building or Fire Compartment</th>
<th>Maximum Area of Unprotected Openings Permitted, % of Exposing Building Face Area</th>
<th>Minimum Required Fire-Resistance Rating</th>
<th>Type of Construction Required</th>
<th>Type of Cladding Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A, B, C, D, or Group F, Division 3</td>
<td>0 to 10</td>
<td>1 h</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 to 25</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 25 to 50</td>
<td>45 min</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 50 to &lt; 100</td>
<td>45 min</td>
<td>Combustible or Noncombustible</td>
<td>Combustible or Noncombustible</td>
</tr>
<tr>
<td>Group E, or Group F, Division 1 or 2</td>
<td>0 to 10</td>
<td>2 h</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 10 to 25</td>
<td>2 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 25 to 50</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td></td>
<td>&gt; 50 to &lt; 100</td>
<td>1 h</td>
<td>Combustible or Noncombustible</td>
<td>Combustible or Noncombustible</td>
</tr>
</tbody>
</table>
ASTM Standards Activity

ASTM “Leap Frog” Standard E2874-19

- Draft standard evaluates the fire performance of an exterior wall assembly, principally the building perimeter spandrel system, for its ability to prevent the spread of fire to the interior of a room one adjacent storey above via fire spread from the exterior of a building.

- The test sample includes the exterior wall spandrel panel assembly, fasteners, structural supports and any glazed openings.

- Simulates a post flashover fire exposure within a compartment venting to the exterior of the building and spreading to the floor immediately above via the exterior of the building.

- The test facility described in this Standard is modelled on that prescribed in ASTM E2307.
NBCC 2020 Code Changes
Canada’s Code Development System

The National Research Council:
– Canada’s Science and Technology Institution
  – NRC Institute for Research in Construction (IRC)
  – NRC-IRC Canadian Codes Centre (CCC)

Provides research and administrative support to the overall system
NBCC Code Change Process

Process for making Code changes

Change requested → Standing Committee reviews → CCBFC workplan approval → Standing Committee prepares PCF → P/T Review → Public Review

Publication → Editing, translation, ... → CCBFC PCF approval → P/T Review → Standing Committee revises PCF

PCF = Proposed Change Form
P/T = Provinces/Territories
Canada’s Code Development System

The Governing Principles:

– code users drive the code change process
– provinces and territories are involved at every step
– public review is key “check and balance”

The CCBFC does not approve a change unless due process has taken place.
Ontario Signs Canada-wide Agreement on Construction Codes

On August 27, 2020, Ontario signed the Reconciliation Agreement on Construction Codes under the Canadian Free Trade Agreement.

In taking this important step, Ontario is committed to further harmonizing the Ontario Building Code and Ontario Fire Code with the National Construction Codes. The harmonization of codes will help reduce barriers related to trade, product manufacturing, and building design and maintenance.

The Agreement was jointly signed by the Minister of Municipal Affairs and Housing, with responsibility for Ontario’s Building Code, and the Solicitor General, with responsibility for Ontario’s Fire Code.

Key elements of the Agreement include:

• Greater alignment of technical requirements in Ontario’s Codes with the National Construction Codes meaning that Ontario’s Codes will be more harmonized with those in effect in other provinces and territories.
• Timely and consistent adoption of Construction Codes across Canada so that the same rules are in place at the same time.
• A transformed national code development system, including a new governance structure that will be more responsive to provinces and territories.
• Access to free National Construction Codes across Canada (in digital format).

Ontario’s Building Code and Fire Code establish fire, health, safety, accessibility and energy efficiency standards for buildings in the province. While signing the Agreement means that the technical content of Ontario’s Building and Fire Codes will begin to more closely reflect that of the National Construction Codes and Codes across the country, Ontario intends to maintain certain variations and exceptions in its Building Code and Fire Code that will differ from the National Construction Codes.
NBCC 2020 Final Public Review

Final public review ended March 13th 2020
*Release date expected end of 2021 due to COVID-19*

Standing committee on Fire Protection has conducted nine 3 hour conference calls on penetration proposals.

- All 17 IFC proposals have been recommended by SCFP for publications
- One additional penetration proposal under development for Part 9
IFC NBCC Firestopping Code Change Requests processed previously for 2020 NBCC Cycle

4 Proposals Approved for 2020 NBCC Publication through SC’s

1. 3.1.8.3. Continuity of Fire Separations, Joints, ASTM E2307
   - This proposed change adds a reference to Article 3.1.8.3. for the continuity of fire separations and clarifies the requirements applicable to abutting fire separations.

2. 3.1.9.1 Required Rating for Firestop Systems
   - This proposed change revises the rating of firestopping to match the fire resistance ratings of the penetrated assembly.

3. 3.1.9.1 (1) Limiting "cast-in-place"
   - This proposed change adds qualifications on the use of cast-in-place protection for pipes, ducts, electrical outlet boxes, totally enclosed raceways and other similar service equipment.

4. 3.1.9.5 Combustible Piping Transitions
   - Description: This proposed change allows transitions between combustible and noncombustible piping at fire separations, provided the piping is sealed at the penetration by a fire stop with an F rating.

One Item Approved Editorially

- Revise terminology - the term ‘Firestop’ has been submitted to replace the word ‘Fire Stop’. (The ULC Standard, CAN/ULC S-115, is named, “The Standard Method of Fire Tests of Firestop Systems”).
# IFC NBCC Firestopping Code Change Requests

<table>
<thead>
<tr>
<th>Code</th>
<th>Item # / Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBC</td>
<td>1361 - Required Rating for Fire Stop Systems</td>
</tr>
<tr>
<td>NBC</td>
<td>1499 - Firestopping of Penetrations by Service Equipment</td>
</tr>
<tr>
<td>NBC</td>
<td>1505 - Fire Stopping of Penetrations</td>
</tr>
<tr>
<td>NBC</td>
<td>1508 - Rating of Fire Stops in Service Equipment Penetrations</td>
</tr>
<tr>
<td>NBC</td>
<td>1523 - Rating of Fire Stops in Concealed Spaces</td>
</tr>
<tr>
<td>NBC</td>
<td>1517 - Firestopping of Combustible Outlet Boxes</td>
</tr>
<tr>
<td>NBC</td>
<td>1502 - Penetration by Outlet Boxes</td>
</tr>
<tr>
<td>NBC</td>
<td>1501 - Combustible Piping Penetrations</td>
</tr>
<tr>
<td>NBC</td>
<td>1576 - Penetrations through Fire Separations (Part 9)</td>
</tr>
<tr>
<td>NBC</td>
<td>1500 – Continuity of Fire Separations (Appendix on E2307)</td>
</tr>
<tr>
<td>NBC</td>
<td>1515 – Penetrations by Single Conductor Sheathed Cable</td>
</tr>
<tr>
<td>NBC</td>
<td>1526 – Firestopping Individual Wire &amp; Cable Penetrations</td>
</tr>
<tr>
<td>NBC</td>
<td>1506 – Integrity of Fire Blocks</td>
</tr>
<tr>
<td>NBC</td>
<td>1590 - Part 9 – Penetrations through Fires Separations</td>
</tr>
</tbody>
</table>
Proposals under Consideration for 2020

Firestop related proposals in the current 2020 cycle

- F-rating to be equal to FRR (not FPR)
- Cast-in place penetration seals to be acceptable only for noncombustible penetrations
- Two Changes - Exceptions to T-ratings for penetrations of firewalls and horizontal fire separations
- Clarifying (requiring?) that a penetration by a noncombustible raceway containing cables must be firestopped
- Remove apparent waiver of firestopping for single conductor cables in unlimited sized holes
- Remove blanket allowance for combustible outlet boxes without any protection
- Allow putty pads as an alternative to 24 inch outlet box separation
- Combustible pipe penetrations: 50 Pa rule limited to 4 stories and above, waived when building is sprinklered
- Appendix text to better describe the role of FRR joint systems
Perimeter Joint Systems

- Floor and/or wall construction type and thickness
- Joint width
- Movement requirements
- Rating requirement
- Firestopping materials
3.1.8.3. Continuity of Fire Separations

1) Except as permitted by Sentence 3.6.4.2.(2), a horizontal service space or other concealed space located above a required vertical fire separation, including the walls of a vertical shaft, shall be divided at the fire separation by an equivalent fire separation within the service space.

4) Except as provided in Sentence (5)-2020, the continuity of a fire separation shall be maintained where it abuts another fire separation, a floor, a ceiling, or a roof, or an exterior wall assembly. shall be maintained by a fire stop conforming to Sentence (3)-2020. (See Note A-3.1.8.3.(4).)

5) The fire stop required in Sentence (2)-2020 shall have an FT rating not less than the fire-resistance rating of the abutting fire separation when subjected to the fire test method in CAN/ULC-S115, “Fire Tests of Firestop Systems.”

6) Joints located in a horizontal plane between a floor and an exterior wall shall be sealed by a fire stop that, when subjected to the fire test method in ASTM E 2307 “Determining Fire Resistance of Perimeter Fire Barrier System Using Intermediate Scale, Multi-Storey Test Apparatus,” has an F rating not less than the fire-resistance rating of the horizontal fire separation.

7) Joints between ceilings and walls, between floors and walls, and between walls at corners need not comply with Sentence (2)-2020 where such joints consist of gypsum board that is attached to framing members and arranged so as to restrict the passage of flame and smoke through the joints.
2020 NBCC code brings new era for Canadian wood construction

Encapsulated Mass Timber Construction (NBC Part 3 and NFC Part 5)

- Introduction and definition of encapsulated mass timber construction (EMTC) as a third construction type permitted for buildings up to 12 storeys in building height
## EMTC Minimum Dimensions

### Table 2
Minimum Dimensions of Structural Mass Timber Elements in Encapsulated Mass Timber Construction
Forming Part of Item 2.3

<table>
<thead>
<tr>
<th>Structural Wood Elements</th>
<th>Minimum Thickness, mm</th>
<th>Minimum Width x Depth, mm x mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls that are <em>fire separations</em> or exterior walls</td>
<td>96</td>
<td>-</td>
</tr>
<tr>
<td>(1-sided exposure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walls that require a <em>fire-resistance rating</em>, but are not <em>fire separations</em> (2-sided exposure)</td>
<td>192</td>
<td>-</td>
</tr>
<tr>
<td>Floors and roofs (1-sided exposure)</td>
<td>96</td>
<td>-</td>
</tr>
<tr>
<td>Beams, columns and arches (2- or 3-sided fire exposure)</td>
<td>-</td>
<td>192 x 192</td>
</tr>
<tr>
<td>Beams, columns and arches (4-sided fire exposure)</td>
<td>-</td>
<td>224 x 224</td>
</tr>
</tbody>
</table>
Pipe Transition FS System
PROPOSED - 3.1.9.5 Combustible Piping Penetrations

7) Transitions between vertical *non-combustible* drain, waste and vent piping and *combustible* branches for drain, waste and vent piping are permitted where a combustible pipe transitions to a non-combustible pipe on either side of a *fire separation* provided they are not located in a *vertical service space*.

8) Except as permitted by Sentences (7), penetrations of a fire separation that incorporate transitions between *combustible* and *non-combustible* drain waste and vent piping shall be tested in accordance with sentence 3.1.9.5 (4)(a), where the penetrating pipe is combustible, or Article 3.1.9.1 where the penetrating pipe is non-combustible.

A-3.1.9.5.(7) the permission to use combustible piping also permits the use of combination systems consisting of both combustible and non-combustible piping. Combustible branches for drain, waste and vent are permitted to be used to connect to a plumbing fixture within a fire compartment. The integrity of the fire separation is maintained through the use of a fire stop system where the vertical stack piping penetrates the fire separation.
Proposals Approved by SC’s in the 2020 NBCC/NFCC

**Fire Alarm and Detection Systems (Part 3 and Part 9)**
- Introduces performance criteria that permit the use of wireless interconnected smoke alarms.

**Home-Type Care Occupancies (Part 9)**
- Introduces provisions on a new type of occupancy classification called “home-type care occupancy” (Group B, Division 4), which allows affordable care accommodation in a single housekeeping building for residents who require in-home-type care without compromising fire and life safety.

**Solar Collectors (Part 4)**
- Introduces provisions for roof-mounted solar panels that are based on guidance from the Structural Commentaries (User's Guide – NBC 2015: Part 4 of Division B) to ensure that the additional loads due to the installation of solar panels are accounted for in the design of the building structure and that a harmonized method is used for the design.
Proposals in the 2020 NBCC/NFCC

**Combustible Construction (Part 3)**
- Introduces an additional compliance option for street access requirements in mid-rise combustible construction and reduces the 25% perimeter access to only 10% provided the exterior cladding is noncombustible.

**Residential Sprinklers (Part 3)**
- Expands application of NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, to row houses, thus ensuring more economical designs and consistent approaches.

**Fire Alarm and Detection Systems (Part 3)**
- Expands requirements for fire alarms to require a low frequency audible signal as well as a visible signal in 10% of sleeping guest suites in hotels and motels.
Other Proposals under Consideration for 2020

NATIONAL BUILDING CODE OF CANADA

- Clarification of limitations on factory-assembled exterior wall panels
- Thermal Barriers - Proposed addition of CAN/ULC-S145, “Standard Method of Test for the Evaluation of Protective Coverings for foamed plastic insulation – Full-Scale Room Test” (e.g. thermal barriers)
- Significant changes to Part 9 Fire & Sound Tables that could effect some exterior wall assemblies (e.g. EW1 & EW2)
- Safety Glazing – potentially major restrictions on use of wired glass
- Updating of Farm Building Code
- Permission to use combustible (wood) windows in Part 3 buildings
- Limitations on installation of combustible cladding on 12-storey EMTC buildings
- Criteria for percentage of exposed mass timber on walls and ceilings within suites
The First Building Codes

Socrates – 341 BC

- He shall set the joists against each other, fitting, and before inserting the dowels he shall show the architect all the stones to be fitting, and shall set them true and sound and dowel them with iron dowels, two dowels to each stone…”

Codes of Hammurabi – 2000 BC

- “In the case of collapse of a defective building, the builder is to be put to death if the owner is killed by accident; and the builder’s son if the son of the owner loses his life…”

The importance of proper DIIM has always been understood ... and that has not changed !!
Thank You

QUESTIONS?

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