Administrative Requirements & Professional Involvement From a Building Code Perspective

Presented By:
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Building Technical Advisor

We will talk about:
• Administration
  • Chief Building Administrator
  • Information Required for Permits & Inspections
  • Occupancy Permits
  • Prohibitions
  • Notifications
  • Building Failure

• Professional Involvement
Administrative Requirements

Administration (2.2.1.)

Chief Building Administrator “Provincial Administrator” can issue the following (2.2.1.2/3/4):

• Province wide Variances “approximately equivalent or exceeds code”
• Province wide Interpretations
• BF Relaxation “unnecessary or unpractical”

Remember: there are no relaxations in the building code except for accessibility in some conditions

Administrative Requirements

Information required (2.2.2.1.):

• Sufficient information
• Drawings to scale
  • Plans
  • Rooms usage/walls/openings
• Sections
• Fixed equipment
• Dimensions
• Any changes during construction
• Specifications
Administrative Requirements

Information required (2.2.2.2/3/5/6/7.):

• Site Plans
• Site Grading
• Dimensional Tolerance 2% (**SCO decision/ life safety**)
• Fabrication and Erection of Steel (**CWB for fabricators and erectors**)
• Aquatic Facilities (**designs need to be reviewed by AHJ**)
• Water Theme Park (**discharge design reviewed by AHJ**)

Administrative Requirements

Fire protection (2.2.3.)

• Sufficient Information
• Sprinklers Plans
• Fire Alarm Plans

Structure & Foundation (2.2.4.)

• Guards/Components designed by another designer.
• Structural Calculations
• Foundation Type
Administrative Requirements

Environmental separation (2.2.5.)
- Building Assemblies
- Specifications

HVAC (2.2.6.)
- Sufficient Drawings and Specification

Administrative Requirements

Electrical (2.2.7.)
- Appliances, System, Equipment's
- Specifications

Energy (2.2.8.)
- Calculation Reports
- Sufficient Drawings and Specifications
Administrative Requirements

**Plumbing/Health (2.2.9.)**
- Commercial Kitchen (Health)
- Aquatic Facilities (registered professional)
- Private Swimming Pool

**Permits (2.2.10.)**
Neither the issuance of a permit nor inspections made by the authority having jurisdiction shall in any way relieve the owner of a building from full responsibility for carrying out the construction or having the construction carried out in accordance with the requirements of the Safety Codes Act and regulations.

Administrative Requirements

**Occupancy (2.2.11.)**
- Permits
- Occupancy Before Completion
- Tents & Air supported Structures (occupancy permit before occupancy)
- Dairy Manufacturing Plants (2.2.11.)
  - AHJ final inspections
  - Alberta Agriculture permission.
- Medical Gas Piping
  - Certified Report (inspection & testing) from a testing organization for CSA Z7396.1 compliance
  - AHJ acceptance
Administrative Requirements

Prohibitions (2.2.12.)
• Unsafe Conditions
• Misleading Information
• Change in the Scope of Work

Notification (2.2.13.)
• Owners
  • Before Starting Work/when Completed/Inspections
  • Change of Ownership/VOC
  • Asbestos Management
  • Change in Professional Involvement (owner and professional)

Orders and Appeals (2.2.17.)

Administrative Requirements

Safety During Construction (2.2.14.)
Unsafe Condition (2.2.15.)
Building Failure (2.2.16.)
• Failure versus Collapse
  • Failure (AHJ) may go to the CBA as well
  • Collapse (AHJ &CBA)

Orders and Appeals (2.2.17.)
**Administrative Requirements**

**Professional Design & Review (2.4.)**

- **Professional Involvement**

  Registered architectural professional and registered engineering professional seals and stamps are not required on plans or specifications for a building:
  
  **e.g.**
  
  3 storeys or less in building height, classified as a business and personal services occupancy, mercantile occupancy or industrial occupancy that,
  
  i) if 1 storey in building height, has a **building area** of 500 m² or less.

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**Administrative Requirements**

**Professional Design & Review (2.4.)**

- **Professional Involvement**

<table>
<thead>
<tr>
<th>“D”</th>
<th>“E”</th>
<th>“A2”</th>
<th>“D”</th>
<th>“E”</th>
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<tbody>
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<td>110 m²</td>
<td>110 m²</td>
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<td>110 m²</td>
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</tbody>
</table>

**Remember: it’s building area and not floor area!**

Registered architectural professional and registered engineering professional seals and stamps are required for each unit (see sentence 5)
Administrative Requirements

Professional Design & Review (2.4.)
• Professional Involvement

Registered architectural professional and registered engineering professional seals and stamps are not required on plans or specifications for a building:

5) For buildings other than those described in Sentences (3) and (4), the building plans and specifications must be imprinted with seals and stamps of both
   a) a registered architectural professional in the case of architectural design, and
   b) one or more registered engineering professionals qualified to engage in the appropriate combination of those branches of engineering that are applicable to building design and construction in the case of engineering design.

Administrative Requirements

Professional Design & Review (2.4.)
• Professional Involvement

Registered architectural professional and registered engineering professional seals and stamps are not required on plans or specifications for a building:

e.g.
   b) classified as a residential occupancy that is
      i) a single family dwelling, or
      ii) a multiple family dwelling that contains 4 dwelling units or less,
### Administrative Requirements

#### Professional Design & Review (2.4.)

**• Professional Involvement**

<table>
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<th>Number of Units</th>
<th>Registered Architectural Professional and Registered Engineering Professional Seals and Stamps are Required (sentence 5)</th>
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<td>□</td>
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<tr>
<td>“C” 5</td>
<td>□</td>
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</tbody>
</table>

**May Contradicts Architects/Engineers Act?**

**Plans and Specifications must be imprinted with the seals or stamps of either a registered architectural professional or one or more registered engineering professionals**

**FOR**

- 5 – 20 Single dwelling units in a single site
- Industrial occupancy with Occupant load: 28m²/person
- Major occupancy classified as industrial with Occupant load 28m²/person/other occupancies doesn’t exceed 400 m²
Administrative Requirements

Professional Design & Review (2.4.)
• Professional Involvements
  • Structural Design (preserved wood foundation)
  • Fire Suppression (design/field review/witness testing)
  • Fire Alarm (design/field review/verification)

• Schedules requirements
  • C1 goes to the AHJ
  • C2 goes to coordinating professional/AHJ!

Off-site review (CSA A277) (2.4.5.)

Thank You
Nabil Habashy

Safety Services
Safetyservices.gov.ab.ca
NOTICE

Code Updates

Planned updates for Building, Fire, Energy Efficiency and Elevating Devices Codes

The next editions of the Alberta building, fire and energy codes currently based on the 2010 editions of the National Building Code and National Fire Code, and the 2011 National Energy Code for Buildings (NECB) are planned to be updated to the 2015 national code editions including the 2017 interim changes to the NECB. Municipal Affairs is working collaboratively with Alberta’s Safety Codes Council including the elevating, building and fire sub-councils and the National Research Council to review the code content and complete the publications. Further details on dates, training, costs and other related matters will be made available throughout the year as the codes are developed and made ready for updating.

Also planned for updating are the elevating devices codes to the currently published 2013 edition.

While the NECB 2011 edition is currently the required standard in Alberta until updated by the NECB 2015 edition, there is now an added incentive for making the NECB 2015 (including the 2017 interim changes) the new required standard. The NECB in electronic form is now free of charge from the National Research Council and Natural Resources Canada at www.nrc-cnrc.gc.ca/eng/publications/codes_centre/2017_national_energy_code_buildings.html

For a single user, online access subscription for one year allows users to view the publications online from any computer connected to the Internet. It is available free of charge. For a concurrent user, online access subscription (Email: CONSTPubSales-Ventes@nrc-cnrc.gc.ca for access) allows a number of users on the same network to access Code documents simultaneously, available only to organizations. It is available free of charge.

The NECB that includes the 2017 national interim updates is an important step toward Canada’s goal for new buildings, as presented in the Pan-Canadian Framework, of achieving ‘Net Zero Energy Ready (NZER)’ buildings by 2030. The NECB 2017 supports this goal by reducing the overall thermal transmittance of roofs, fenestration and doors; reducing losses through thermal bridging in building assemblies; and, reducing the allowable percentage of skylight area. This new edition also introduces more stringent requirements for energy recovery systems and interior and exterior lighting requirements. It requires temperature controls in individual guest rooms in hotels and motels and demand control ventilation systems in commercial kitchens. In Part 4, it clarifies the lighting trade-off path requirements and in Part 8, it makes performance compliance requirements consistent with prescriptive requirements.

If you have any questions please contact James Orr, Director, Standards Development, at james.orr@gov.ab.ca or 1-866-421-6929.

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For further information contact Municipal Affairs, Community and Technical Support Branch at safety.services@gov.ab.ca or toll-free at 1-866-421-6929.
**Significant Technical Changes**

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**Discussion overview**

- Introduction (Type of changes, Editorial changes, loops)
- Changes in the NBC 2015 AB—Part 9 Housing and small buildings
  - Examples of Alberta Specifics for part 9
  - Stairs (spiral, mixed threads, ornamental guards)
  - Lateral loads (seismic)
  - Low permeance materials
  - Low-exposure doors –main entrance door
  - Snow loads
  - Corridor maximum length
  - 9.36. energy efficiency
  - Protection near cooktops –microwave
  - Airborne sound transmission
  - Roofing, dampproofing and waterproofing – standards
  - Exterior insulation and finish systems (EIFS)
  - New Residential Fire Warning Systems (ULC-S 540)

- Changes in the NBC 2015 AB—Part 3
  - Examples of Alberta Specifics for part 3
  - Minimum Fire Rating of Cables in Air Plenums
  - Penetration by Electrical and Non-Electrical Outlet Boxes
  - Self-Service Storage Buildings
  - Protection of Foamed Plastics
  - Combustible Components for Exterior Walls
  - Installation of Smoke Dampers
  - Leakage-rated door assembly
  - Mezzanines and Openings through Floor Assemblies
  - Dance hall/Bar main entrance capacity.
  - Handrails for Aisles with Steps
  - Emergency crossover access to floor areas
  - Distance between exterior discharges of exits
  - Ornamental guards/guards height/ open risers
  - Accessibility
Discussion overview

- **Changes in the NBC 2015 – Part 5**
  - Curtain Walls, Window Walls, Storefronts and Glazed Architectural Structures
  - Exterior Insulation and Finishing System (EIFS)
  - Wind Uplift Resistance of Membrane Roofing Assemblies
  - Vegetated Roofing Systems
  - Sound Transmission

- **Changes in the NBC 2015 – Part 6**
  - Drain Pans
  - Separation Distances of Exhausts and Outdoor Air Intakes

- **Changes in the NFC 2015**
  - Self-Service Storage Buildings
  - Other Changes

- **Changes in NPC 2015**
  - Water-use Efficiency: Supply Fittings and Shower Heads
  - Water-use Efficiency: Plumbing Fixtures

- **Changes in NECB 2015**
  - No more detailed trade off
  - New thermal requirements for semi-heated buildings
  - A performance level for air barrier assemblies of opaque building assemblies
  - Updated max (LPD)
  - Updated piping and duct insulation requirements
  - Heat Rejection
  - New prescriptive requirements for gas-fired outdoor packaged units
  - Updated performance requirements in the mechanical and service water tables
  - Reduced hot water discharge rate for showers and lavatories 6.2.6.
  - Demand control ventilation

- **Changes in NECB 2017**
  - Efficiency improvement %
  - Building Envelope
  - Lighting
  - HVAC

- **NRC 2020 proposed changes**

Types of changes in Building Codes:

- **Modification**: Change/Update/Relocation/Relaxation
- **Addition**: New requirements
- **Deletion**: Replace/Delete

**Note:**
This presentation is preliminary. Alberta specifics are not included unless stated. Some of the following may not be adopted.
Editorial Changes

- Appendix / Notes/Attributes - After Each Part
- All parts except 9 & Appendix C & D / Volume 1
- Part 9 / Volume 2

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Editorial Changes

- Reorganization of Section 3.8 / Regrouped into 3 Subsections: Scope, Application & Design
- Reorganization of Part 6 / Grouped by major mechanical elements (Sections instead of Subsections / General provision at the front followed by System Specific
- Relocation of Fire & Sound Resistance Tables / End of Part 9
Challenges/Changes/loops

Some of the Challenges when adopting Alberta Specific Building code:

- Cross reference conflicts as a result of renumbering/deletion/addition.
- Avoiding loops.
  
  e.g. Conflicts between Alberta specifics and NBC requirements.

Residential Occupancies - Sprinkler system:

1) Except as permitted in Sentences (2), (3) and (5) to (7), and Sentence 3.2.4.2.(4), a fire alarm system shall be installed in buildings in which an automatic sprinkler system is installed.

4) Except as permitted by Sentences (5) to (7) and Sentence 3.2.4.2.(4), a fire alarm system shall be installed in a building that is not sprinklered throughout and that contains

A residential occupancy with sleeping accommodation for more than 10 persons

A fire alarm system is not required in a hotel or motel 3 storeys or less in building height provided each suite has direct access to an exterior exit facility leading to ground level.

Changes in the NBC 2015 AB – Part 9 Housing and small buildings
Alberta Specific – Part 9

Example of Alberta specifics that might be retained/added:

- Secondary Suites (Area: no maximum or percentage limit)
- Non-openable/Openable window between attached garage and dwelling
- Rooms containing welding (3.3.1.25.)
- HIRF
- Respond time for Fire department (capable of beginning suppression).
- Deletion of 9.10.21. (camps) refer to Part 10
- Anchorage of building 2 (2x4) sill plates, blocking @1.2 m O.C.
- Insulation values for energy exempted, heated detached garage, etc.
- Chimney and Gas vents Insulation & shield clearance
- Pine Shakes CSA O118.3
- Gypsum board ASTM C 840 standard in addition to CSA A82.31M
- Ventilation rough-in (fan) for future development
- Keeping HRAI Digest as good practice

Stairs-Run width

9.8.4.2. Dimensions for Rectangular Treads (Private stairs)

<table>
<thead>
<tr>
<th></th>
<th>NBC2010/ABC2014</th>
<th>NBC2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUN (Min.)</td>
<td>210 mm (8 1/4 in.)</td>
<td>255 mm (10 in.)</td>
</tr>
<tr>
<td>RISE (Max.)</td>
<td>200 mm (7 7/8 in.)</td>
<td>200 mm (7 7/8 in.)</td>
</tr>
</tbody>
</table>

![Diagram of Stairs-Run width](image)
Stairs-Spiral stairs
9.8.4.7. Spiral Stairs

- Detailed and Clarified (New to NBC)
- Not limited to dwelling unit anymore.
- Now! Permitted use as the only means of egress when:
  - Serves not more than 3 persons.
  - Not serve as an exit.

One bedroom = 2 persons, so the spiral stairs could serve a master-bedroom with an En-suite and a small study / reading room.

Stairs-Mixed Treads
9.8.4.5. Uniformity of Runs in Flights with Mixed Treads within Dwelling Units

- ABC 2014 did not allow mixed treads between floor levels
- Now! flexibility to mix in dwelling units
- Both tapered and rectangular
- In both directions

Changes indicate that stairs should not travel from larger treads (run) to narrower ones, in the descending motion, as this could lead to misstep and falls in stairs

Result: More design options available.
**Stairs-Ornamental guards**

9.8.8.6. Design of Guards to Not Facilitate Climbing

- **Part 9**: Permitted when protecting a level not more than (4.2 m) above adjacent level, *if more* design as per 9.8.8.6.(140-900mm)
- Opening through guards shall still be of a size that prevents the passage of a spherical object having a diameter of 100 mm or 3 7/8 inch or less.

**Stairs-clarifications**

9.8.7.5. Ergonomic Design

- **Clearance and Design.**
  1) The clearance between a handrail and the surface behind it shall be not less than
     a) 50 mm, or
     b) where said surface is rough or abrasive, 60 mm.
  2) All handrails shall be constructed so as to be continually graspable along their entire length with no obstruction on or above them to break a handhold.
     (See Note A-9.8.7.5.(2).)

   Notes A-9.8.7.5.(2) Handrail Sections:
   - The graspable portion of a handrail should allow a person to comfortably and firmly grab hold by allowing their fingers and thumb to curl under part or all of the handrail.
   - Deleted appendix note that illustrate Handrail Sections.
Structural design—Lateral loads (Seismic)


High and Extreme (doesn't apply to moderate or low forces)
Enhanced lateral resistance

- Thicker sheathing
- Perpendicular blocking between wall studs
- Nailing of splices in wall top plates
- Anchor bolts
- Reduced spacing

Low:
- Sa ≤ 0.7, HWP < 0.8

High:
- Sa > 0.7, HWP < 1.2
- HWP - Pincher Creek: 0.96

Extreme:
- Sa > 1.8, HWP > 1.2

Low permeance materials

9.25.5. Properties and Position of Materials in the Building Envelope

Requirements ABC 2014

- Water vapour permeance
  < 60 ng/(Pa·s·m²)

- Air leakage characteristics
  < 0.1 L/(s·m²) @ 75 Pa

Requirements

Compliance with Article/Table 9.25.5.2.
(Position of Materials in the Building Envelope)
Low permeance materials

9.25.5. Properties and Position of Materials in the Building Envelope

Water vapour permeance for panel-type materials (ng/(Pa•s•m²))

- Polyurethane spray foam–low density
- Expanded (EPS) polystyrene Type II
- Polyurethane spray foam–medium density
- Expanded (XPS) polystyrene Type I
- Foil-faced polystyrene/expanded polystyrene Type I

Air leakage characteristic for panel-type materials (L/(s•m²) @ 75 Pa)

Table 9.25.5.2

Revised Exempt. with water vapour permeance of 30 – 60 ng

Minimum R4 insulation value

In locations with HDD ≤ 6000
Main entrance doors

Performance of Doors: Limited Water Ingress Control
A-9.7.4.2.(1) Standards Referenced for Windows, Doors and Skylights.

- Added Note (Appendix note) to clarify the requirements.
- Exterior doors must control air infiltration and precipitation ingress and conform to the Harmonized NAFS Standard and the Canadian Supplement.
- This change clarifies the requirements for main entrance doors that are protected from precipitation (i.e. located inside buildings), and clarifies the requirements for air infiltration and resistance to forced entry.
- Side-hinged doors protected from precipitation can comply with a referenced standard when tested with no pressure difference across the door. These are identified with a “Limited Water” (LW) rating on the label.

Snow loads

Appendix C- Climatic and Seismic Information for Building Design in Canada

- Snow load values remained unchanged in most locations (shown in grey),
- Decreased in 39 locations (in green), and
- Increased in 72 locations (in red).
Corridor length

9.9.7.3. Dead-End Corridors

1) Except for a dead-end corridor that is entirely within a suite and except as permitted in Sentence 9.9.9.2.(1), a dead-end corridor is permitted provided it is not more than 6 m long. Previously Alberta specific 3 m long. Harmonizing with NBC 2015

Section 9.36. Energy Efficiency

9.36.2.2. Determination of Thermal Characteristics of Materials, Components and Assemblies

4) The effective thermal resistance of opaque building assemblies shall be determined from
   a) calculations conforming to Article 9.36.2.4., or
   b) laboratory tests performed in accordance with ASTM C 1363, “Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus,” using an indoor air temperature of 21±1°C and an outdoor air temperature of –18±1°C.

5) The thermal characteristics of log walls shall be determined by calculation in accordance with Section 305 of ICC 400, “Design and Construction of Log Structures.”
   Existed in 2010 – carried over in NBC 2015
   May not be adopted in Alberta.
Section 9.36. Energy Efficiency

9.36.2.9. Airtightness

1) The leakage of air into and out of conditioned spaces shall be controlled by constructing
   a) 9.36.2.9. (2-6) / 9.36.2.10. / 9.25.3. OR
   b) 9.36.2.9. (2-6) / Tested assembly to ULC-S742 / 9.25.3. OR
   c) 9.36.2.9. (2-6) / Tested assembly to ASTM E 2357 / 9.25.3.

NEW (conditions for using option c)
   i) the building will not be subjected to sustained wind loads calculated based on a 1-in-50 hourly wind pressure that exceed 0.65 kPa, and
   ii) the air barrier assembly is installed on the warm side of the thermal insulation of the opaque building assembly.

To Prevent: Physical degradation / Structure movement.

Edmonton 0.45 / Calgary 0.48 / Red Deer 0.40 / Lethbridge 0.66 / GB 0.43 / Fort McMurray 0.35
Rocky Mountain 0.36 / Fort Macleod 0.68 / HR 0.65 / Pincher Creek 0.96 / Turner Valley 0.65 /
Taber 0.63 / Cardston 0.72 /

Section 9.36. Energy Efficiency

9.36.2.1. Scope and Application

8) The requirements of this Subsection also apply to components of a building envelope assembly that separate a heated or unheated attached garage from unconditioned space or the exterior air, where the attached garage serves
   a) not more than one dwelling unit, or
   b) a house with a secondary suite.

Move this requirements to 9.25.

Keep 9.35.4.1 (Interior Finish)

The correct intent for insulation is to limit the probability of:
Deterioration, which could lead to compromised integrity of assemblies acting as environmental separators.
Microwave ovens and range hoods
A-9.10.22. Clearances from Gas, Propane and Electric Cooktops

- This change clarifies that clearances specified in Article 9.10.22. do not apply to microwave ovens and range hood.
- (CEC c22.2 #150) This standard includes tests to confirm that the appliance will not present a hazard when installed according to the manufacturer’s instructions.
- Asbestos is not permitted for Protection anymore.

Airborne sound transmission—Direct vs. flanking
9.11.1.2. Determination of Sound Transmission Ratings

- Flanking transmission
  - The sound passes around, over the top or under the primary partition (wall, roof, floor) separating two spaces.
  - Bothersome in multi-family residential buildings.
- Dwelling units
  - 47 ATSC or
  - 50 STC + prescriptive requirements for adjoining construction.
ASTC can be calculated through Part 5 (simple/detailed method (NRC Guide) and soundPATHS — A web application.
- Dwelling unit and refuse/elevator
  - 55 STC
Roofing, waterproofing and dampproofing
Section 9.13. Dampproofing, Waterproofing and Soil Gas Control

- CGSB material standards
  - Deleted outdated standards
  - Replaced with ASTM where acceptable
  - Kept CGSB standards where no replacements are available

- CGSB installation standards
  - Delete and replace with prescriptive requirements.

9.13.2.3. Standards for Application
1) The method of application of all bituminous dampproofing materials shall conform to
   a) CAN/CGSB-37.3-M, “Application of Emulsified Asphalts for Dampproofing
      or Waterproofing,”
   b) CGSB 37-GP-13Ma, “Application of Unfilled Cutback Asphalt for
      Dampproofing,” or
   c) CAN/CGSB-37.22-M, “Application of Unfilled, Cutback Tar Foundation
      Coating for Dampproofing.”

Exterior Insulation and Finish Systems (EIFS)

9.27.13. Exterior Insulation Finish Systems

- Reference to ULC standards

- Limitations - Geometrically Defined Drainage Cavity
  - 10 mm geometrically defined drainage cavity width
  - Minimum 13% open

Geometrically defined drainage cavity

Figure A4.37.1(10) Geometrically defined drainage cavity
New Residential Fire Warning Systems (ULC-S 540)

9.10.19.8. Residential Fire Warning Systems

- An additional acceptable solution is added to address the use and installation of residential fire warning systems.
- **Smoke detectors** in lieu of Smoke alarm
  - Audible signals/interconnected
  - Same Power supply requirements.
  - Equipped with silencing device
- **Previously** has to form part of fire alarm system.
- In dwelling units and Part 3-Small care occupancies

Changes in the NBC 2015 AB –Part 3
Alberta Specific – Part 3

Example of Alberta specifics that might be retained/added:

• Remove all conflicts that claims exemptions for un-sprinklered residential occupancy.
• Firewall Offsets.
• 11 meters maximum residential occupancy floor except for 3.2.2.50.
• Deleting of occupancy classification (3.2.2.) for un-sprinklered residential occupancy.
• Respond time for Fire department (capable of beginning suppression).
• HIRF
• Visual signals requirements.
• Fire separation storage room less than 1m² / Room with welding operation
• Roof access (Hatch, Stairs)
• Water Supply calculations (instead of NBC adequate water supply)
• Hose Connection 65mm instead of 64 mm
• Sprinklers head installation above NFPA 13R requirements (attic, balconies, etc.)
• FD connection/Principal Entrance (3 and 15 meters)
• No access to exit through kitchen service room (Assembly occupancies)

Fire Protection: Minimum Fire Rating of Cables in Air Plenums

3.1.4. Combustible Construction

○ Change in the minimum rating
○ Optic fibre cables and electric cables with combustible insulation in air plenums (for voice, sound and data) in Combustible construction used to be FT4 now FT6
○ Now consistent with optical fiber cables and electrical wires and cables in noncombustible construction
Penetration by Electrical and Non-Electrical Outlet Boxes

3.1.9.4. Penetration by Outlet Boxes

- **General Rule**: Fire Stop/FT rating same as Fire separation (combustible/non-combustible).
- **Non-combustible outlet boxes (no Fire stop required)**:
  - Single maximum opening 0.016 m² (24.8 inch²) &
  - Maximum aggregate area of 0.065 m² (100 inch²) /for every 9.3 m² (100 SF) &
  - Annular space membrane /outlet not more than 3mm

Exemption not applied for Firewalls & Horizontal Fire separation

- **Opposite direction outlet boxes**:
  - Separated horizontally not less than 600 mm or
  - Fire block.

Self-Service Storage Buildings

Section 3.9. Self-service Storage Buildings

- **New Section**
  - Not more than one storey
  - External access only.
  - No basement or mezzanine
  - No other major occupancy.

Example of the requirements:

6) The floor area of self-service storage buildings shall be
   a) subdivided into compartments not more than 500 m² in area by a fire separation having a fire-resistance rating not less than 1 h, or
   b) sprinklered.

3) Subsection 3.2.3. need not apply ……, where the distance between these buildings is at least 6 m.
Protection of Foamed Plastics
3.1.4.2.(2) / 3.1.5.7. / 3.1.5.12. / 3.1.5.14. / 3.1.5.15.

- Several clarifications.
- **Combustible construction**
  - Walk-in cooler or freezer (Factory) – Foam
- **Non-combustible Construction**
  - Factory-Assembled Panels *(moved/detailed)*
  - New Article: Foamed Plastic Insulation *(split)*
- Use of Specific wording; combustible insulation versus foam plastic insulation

Combustible Components for Exterior Walls
3.1.5.5. *Combustible Cladding on Exterior Walls*
3.1.5.6. *Combustible Components in Exterior Walls*

- For non-combustible construction:
- Now two articles *(to clarify requirements)*
- **Combustible cladding / used to be within combustible components (ABC2014)*
Installation of Smoke Dampers

3.1.8.7. Location of Fire Dampers and Smoke Dampers
3.1.8.9. Smoke Dampers Waived
3.1.8.11. Installation of Smoke Dampers

- New article, previously only addresses Fire dampers only
- To Prevent smoke spreading into egress paths
- In specific locations (e.g. Public corridor)
- Waived in other locations (e.g. commercial kitchen)
- Combination of fire/smoke is also permitted

Installation of Closures

3.1.8.5. Installation of Closures

- Installation of a leakage-rated door assembly is now required:
  - Protection on floor area with Barrier free path of travel divide into 2 zones (compartments) 3.3.1.7.(1)(b),
  - B2 /B3 divided compartments -1000 m² -3.3.3.5.(2/4)
  - Public corridors serving dwelling units in storeys that are not sprinklered,
  - B1/B2/B3 Horizontal exit (compartment) in firewalls 3.3.3.5.(3).
Installation of Closures

3.1.8.5. Installation of Closures

- Leakage-rated door need not be installed where a dwelling unit served by a public corridor has
  - a) a second and separate means of egress, or
  - b) an open-air balcony.

- Installation: NFPA 105, “Smoke Door Assemblies and Other Opening Protectives.”

- Tested to: ANSI/UL-1784, “Air Leakage Tests of Door Assemblies and Other Opening Protectives.”

- Doors tested in accordance with UL 1784 are eligible to bear a mark that reads “Smoke and Draft Control Door” or the letter “S.”

Hold-Open Devices (3.1.8.13.) & Integrated Fire Protection and Life Safety Systems (3.2.9.1.)

- The provisions were clarified to facilitate understanding and application of hold-open devices on closures in fire separations,

- New article (3.2.9.1.)—Used to be commissioning (3.2.4.6)
  Where fire protection and life safety systems and systems with fire protection and life safety functions are integrated with each other, they shall be tested as a whole in accordance with CAN/ULC-S1001, “Integrated Systems Testing of Fire Protection and Life Safety Systems,” to verify that they have been properly integrated & same for:

Mezzanines and Openings through Floor Assemblies – Minor change

3.2.8.2. Exceptions to Special Protection

6) An interconnected floor space need not conform to the requirements of Articles 3.2.8.3. to 3.2.8.9. provided
   a) the interconnected floor space consists of the first storey and the storey next above or below it, but not both,
   b) the openings through the floor are used only for stairways, escalators or moving walks or the interconnected floor space is sprinklered throughout (see Appendix A),
   c) the interconnected floor space consists of the first storey and the storey next above or below it, but not both,
   d) the building area is not more than one half of the area permitted by Subsection 3.2.2., the openings through the floor are used only for stairways, escalators or moving walks (see Note A-3.2.8.2.(6)(b)), and
   d) the building area is not more than one half of the area permitted by Subsection 3.2.2.

Mezzanines and Openings through Floor Assemblies – Major change

3.2.8.3. Construction Requirements

3.2.8.1. Application

1) …….the portions of a floor area or a mezzanine that do not terminate at an exterior wall, a firewall or a vertical shaft shall
   a) terminate at a vertical fire separation …….., or
   b) be protected in conformance with the requirements of Articles 3.2.8.3. to 3.2.8.8.

3.2.8.3.(deleted)

—1) A building constructed in conformance with Articles 3.2.8.4. to 3.2.8.9. shall be of noncombustible construction, except that heavy timber construction is permitted if Subsection 3.2.2. permits the building to be constructed of combustible construction.

The limitation for noncombustible construction in the presence of interconnected floor space is removed.
Exit Width of Principal Entrances

3.4.2.6. Principal Entrances

- In a building that is **not sprinklered** ...the principal entrance serving a Dance hall/Bar ...with an occupant load **more than 250** ...shall provide at least one half of the required exit width.

- The principal entrance must account for at least one half of the required occupant load even if the building has more than 2 entrances(exits).

Handrails for Aisles with Steps- **New**

3.3.2. Assembly Occupancy
3.3.2.10. Handrails in Aisles with Steps

**Assembly Occupancy**

1) Handrails shall be provided in aisles with steps in conformance with Table 3.3.2.10

Handrails are required in **assembly occupancies in locations where aisles incorporate steps**
Emergency crossover access to floor areas
3.4.6.18. Emergency Crossover Access to Floor Areas

ABC 2014
3.4.6.18. Emergency Access to Floor Areas

- Reworded
- Updated and clarified
- Electromagnetic locks permitted

Distance between exterior discharges of exits - New
3.4.2.3. Distance between Exits

4) The distance between 2 exterior discharges of exit stairs serving the same floor area shall be
   a) not less than 9 m, or
   b) not less than 6 m, where
      i) the building is sprinklered throughout, and
      ii) the 2 exterior discharges are located within 15 m of a street.
Stairs-Ornamental guards

3.3.1.18.(4) Guards

- **Part 3**: Permitted when protecting a level not more that one storey or a level less than **4.2 m** above adjacent level, if **more** design as per 9.8.8.6.(140-900mm)
- Opening through guards shall still be of a size that prevents the passage of a spherical object having a diameter of **100 mm** or **3 7/8 inch** or less.

Stairs, Handrails and Guards

3.4.6.5. Handrails
3.4.6.6. Guards
3.4.6.8. Treads and Risers

- "graspable portion" for non-circular cross section handrails is now deleted –for clarity.
- non-circular cross-section with a graspable portion perimeter not less. . .
- The height of guards serving a flight of exit stairs in Part 3 and Part 9 is harmonized – **1070 mm** (Previously 920 mm Part 3 and 1070 mm Part 9)
- The use of open risers in public stairs is prohibited, permitted in dwelling units and industrial occupancies.
**Accessibility**

**Section 3.8. Accessibility**

3.8.1. Scope

2) *Buildings* and facilities required to be *barrier-free* in accordance with Subsection 3.8.2. shall be designed in accordance with Subsection 3.8.3.

3.8.3.1. Design Standards

1) *Buildings* or parts thereof and facilities that are required to be *barrier-free* shall be designed in accordance with
   a) this Subsection, or
   b) the provisions of CSA B651, “Accessible Design for the Built Environment,” listed in Table 3.8.3.1., in their entirety.

### Table 3.8.3.1.

- **Barrier-free Application (Code Reference):**
  - Interior accessible routes (3.8.2.2)
  - Elevator accessible routes (3.8.2.3)
  - Passenger pickup areas (3.8.4.3)
  - Ramps (3.8.5.1)
  - Doors and doorways (3.8.5.6)

- **Applicable CSA B651 Provisions:**
  - 4.3 and 5.1
  - 8.2.1 to 8.2.5 and 8.2.7
  - 9.3
  - 5.3 and 5.5
  - 5.2

### Accessibility

**Section 3.8.3.11. Accessibility**

1) Water-closet stalls and enclosures required by Sentence 3.8.2.8.(5) shall
   e) be equipped with an L-shaped grab bar that
      i) is mounted on the side wall closest to the water closet,
      ii) has horizontal and vertical components not less than 760 mm long mounted with the horizontal component 750 mm to 850 mm above the floor and the vertical component 150 mm in front of the water closet.
Accessibility

Section 3.8.5. Medical Office Accessibility

3.8.5.1. Medical Offices

3.8.5.2. General Accessibly for Exam Rooms

1) Medical examination rooms shall
   a) be designed to allow a person using a wheelchair to turn in an open space that
      has a diameter of not less than 1 500 mm,

3.8.5.3. Accessibility for Physical Exam Rooms

1) At least 1 accessible physical examination room for every 5 examination
   rooms or part thereof for….

ABC 2014 Division B Appendix A:
The intent of this subsection is met when the examination ……..is adaptable
and accessible.

Changes in the NBC 2015—Part 5
Curtain Walls, Window Walls, Storefronts and Glazed Architectural Structures

5.9.3. Other Fenestration Assemblies

5.9.3.2. Structural and Environmental Loads
5.9.3.3. Heat Transfer
5.9.3.4. Air Leakage
5.9.3.5. Water Penetration

- Minimum performance requirements
- Laboratory and in-situ testing procedures
- Notes to Part 5

Extérieur Insulation and Finishing System (EIFS)

5.9.4. Exterior Insulation Finish Systems

- New subsection
- Notes to Part 5 addresses EIFS and provides guidance on EIFS design and construction
Wind Uplift Resistance of Membrane Roofing Assemblies

5.2.2.2. Determination of Wind Load

- Existing article in ABC 2014:
- **New** standard CAN/CSA-A123.21 "Wind uplift resistance of membrane roofing"
- Dynamic nature of roof membranes.
- Applies only to membrane roofing systems whose components’ resistance to wind uplift is achieved by **fasteners or adhesives**
- It does not apply to roofing systems that use ballasts, such as gravel or pavers, to secure the membrane against wind uplift.

Vegetated Roofing Systems

5.6.1.2. Installation of Protective Materials

- **Material that provides protection from precipitation need to be tested** “for resistance to root and rhizome penetration”
- **New standard** ANSI/GRHC/SPRI VR-1
Sound Transmission
Section 5.8. Sound Transmission

- The Apparent Sound Transmission Class (ASTC) is introduced to take into account flanking sound transmission in addition to the direct sound transmission.
- Calculations of ASTC
  - Measurement to ASTM
  - Calculations
    - Detailed
    - Simplified
- Dwelling compliance
  - ASTC 47
  - or 50 STC (Tables 9.10.3.1.A/B) + Construction requirements of 9.11.1.4
- Dwelling / elevator shaft or refuse 55 STC
Changes in the NBC 2015—Part 6

Drain Pans

6.3.2.2. Drain Pans

- Drain pans beneath (for condensation)
  - Dehumidifying cooling coil assemblies
  - Condensate-producing heat exchangers

- Standard (design):
  - Section 5.11, Drain Pans, of ANSI/ASHRAE 62.1
  - Outlet that is piped to the outside of the airstream in a location where condensate can be eliminated, and
  - Water drains freely from the pan.

ANSI/ASHRAE 62.1(07)

5.11 Drain Pans. Drain pans, including their entries and outlets, shall be designed and constructed in accordance with this section.

5.11.1 Drain Pan Slope. Pans intended to collect and drain liquid water shall be sloped at least 0.125 in. per foot (10 mm per meter) from the horizontal toward the drain outlet or shall be otherwise designed to ensure that water drains freely from the pan whether the fan is on or off.

5.11.2 Drain Outlets. The drain pan outlet shall be located at the lowest point(s) of the drain pan and shall be of sufficient diameter to prevent drain pan overflow under any normally expected operating condition.

5.11.3 Drain Seal. For configurations that result in negative static pressure at the drain pan relative to the drain outlet, such as a down-sweep outlet, the drain line shall include a P-trap or other sealing device designed to maintain a seal against exfiltration of ambient air while allowing complete drainage of the drain pan under any normally expected operating condition, whether the fan is on or off.

5.11.4 Pan Size. The drain pan shall be located under the water-producing device. Drain pan widths shall be sufficient to collect water droplets across the entire width of the water-producing device or assembly. For horizontal airflow configurations, the drain pan length shall begin at the leading face or edge of the water-producing device or assembly and extend downstream from the leading face or edge to a distance of:

(1) one half of the installed vertical dimension of the water-producing device or assembly, or
(2) necessary to limit water droplet carryover beyond the drain pan to 0.404 in. per ft² (0.01 m² per m²) of face area per hour under peak conditions and peak design conditions, considering both latent and sensible face velocity.
Separation Distances of Exhausts and Outdoor Air Intakes
6.3.2.9. Supply, Return, Intake and Exhaust Air Openings

New Table

<table>
<thead>
<tr>
<th>Source of Contaminants</th>
<th>Minimum Distance of Outdoor Air Intake, m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garage entry of a garage for 5 or more motor vehicles, automobile loading area and drive-in queue</td>
<td>4.5</td>
</tr>
<tr>
<td>Truck loading area or dock, and bus parking</td>
<td>7.6</td>
</tr>
<tr>
<td>Driveway, street, and parking space</td>
<td>1.5</td>
</tr>
<tr>
<td>Thoroughfare, arterial road, freeway, and highway</td>
<td>7.6</td>
</tr>
<tr>
<td>Garbage storage/pick-up area and dumpsters</td>
<td>4.5</td>
</tr>
<tr>
<td>Discharge from evaporative cooling tower, evaporative fluid cooler and evaporative condenser</td>
<td>7.6</td>
</tr>
<tr>
<td>Sanitary vent</td>
<td>3.0</td>
</tr>
<tr>
<td>Kitchen cooking exhaust</td>
<td>3.0</td>
</tr>
<tr>
<td>Vent for combustion products</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Changes in the NFC 2015
4.2.12. Self-Service Storage Buildings

The scope of Section 3.9. of NBC 2015

- **4.2.12.2. Maximum Quantities**
  - Max. 50 L of flammable liquids and combustible liquids, max. 30 L shall be Class I liquids stored in individual self-service storage units

- **4.2.12.3. Dispensing and Handling**
  - not permitted

Other Changes

- **Dangerous Goods Classification**: Harmonizes with GHS-WHIMIS
- **Storage Tanks**: Storage Tank Repair and Refurbishment / New standard.
- **Hot Works**: Location of Operations / Low & high tech. inspection
- **Dangerous Goods**: Laboratories
  - Placard Use / Clarification
  - Interlocking of the Enclosure Exhaust Ventilation System with the Fire Alarm System
  - Dangerous Goods Maximum Quantities / Stored and in use operation
  - Containers / For storage to conform to 4.2.3.
Water-use Efficiency: Supply Fittings and Shower Heads

2.2.10.6. Supply and Waste Fittings

2) Except for lavatories in health care facilities, emergency eye washes, and emergency showers, supply fittings and individual shower heads shall have an integral means of limiting the maximum water flow rate to that specified in Table 2.2.10.6.
Water-use Efficiency: Plumbing Fixtures

2.6.1.6. Flushing Devices

3) Except as provided in Sentence (4), water closets and urinals shall have an integral means of limiting the maximum amount of water used in each flush cycle to that specified in Table 2.6.1.6.

Sentence (4) – Residential Retrofit.

<table>
<thead>
<tr>
<th>Fixtures</th>
<th>Maximum Water Usage per Flush Cycle, LfF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water closets – residential single-flush</td>
<td>4.5</td>
</tr>
<tr>
<td>dual-flush 0.124 LfF</td>
<td>4.9</td>
</tr>
<tr>
<td>Water closets – industrial, commercial, institutional</td>
<td>6.0</td>
</tr>
<tr>
<td>Urinals</td>
<td>1.9</td>
</tr>
</tbody>
</table>
No more detailed trade off

Section 3.3. Trade-off Path

- 3.3.4. Detailed Trade-off Path
- Modelling the building envelope is not an option for compliance in the prescriptive path.
- Now, the only option is the Simple Trade-off Path

New thermal requirements for semi-heated buildings

1.2.1.2. Defined Terms

2) For the purposes of this Code, a semi-heated building is considered to be a building with a design set-point temperature of less than 15°C.

Requirements are all around e.g.

2) The overall thermal transmittance of above-ground opaque building assemblies in semi-heated buildings, as defined in Sentence 1.2.1.2.(2), shall be not more than that shown in Table 3.2.2.2. Assembly, for the applicable heating-degree-day category taken at 15°C.

Remember:

Trade off does not apply to additions or to semi-heated buildings, as defined in Sentence 1.2.1.2(2).
A performance level for air barrier assemblies

3.2.4.2. Opaque Building Assemblies

NECB 2011: an air barrier assembly is required, no prescriptive or measurement method.

NECB 2015:
Air barrier assemblies conforms to CAN/ULC-S742, “Air Barrier Assemblies – Specification,” and an air leakage rate no greater than 0.2 L/(s·m²) at a pressure differential of 75 Pa. OR
Air barrier assemblies tested in accordance with ASTM E 2357, “Determining Air Leakage of Air Barrier Assemblies,” to meet the air leakage requirement stated in Sentence above, provided the 1-in-50 hourly wind pressures do not exceed 0.65 kPa, and the air barrier installed on the warm side of the thermal insulation.

Updated max (LPD)

4.2.1.5. Calculation of Interior Lighting Power Allowance Using the Building Area Method

<table>
<thead>
<tr>
<th>Building Type</th>
<th>NECB 2015</th>
<th>NECB 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotel</td>
<td>9.4</td>
<td>10.8</td>
</tr>
<tr>
<td>Hospital</td>
<td>11.3</td>
<td>13.0</td>
</tr>
<tr>
<td>Warehouse</td>
<td>7.1</td>
<td>7.1</td>
</tr>
<tr>
<td>Library</td>
<td>12.8</td>
<td>12.7</td>
</tr>
</tbody>
</table>

Harmonizing with ASHRAE 90.1-2013
Updated piping and duct insulation requirements

5.2.5.3. Piping Insulation

HVAC piping that conveys fluids with design operating temperatures greater than 13°C 16°C and less than 41°C need not comply with Table 5.2.5.3., if it is located within a conditioned space.

“meaning no insulation is required around piping”

The insulation thickness used to determine compliance with Table 5.2.5.3. shall be the thickness of the insulation after installation.

Heat Rejection

5.2.12.2. Heat Rejection Equipment

New article (*performance requirements for standalone heat rejection equipment)

Cooling towers, Fluid coolers and Condensers,

Categories:

• “Direct-contact”
• “Indirect-contact”
• “Air-cooled”

*Maximum allowed total motor power demand.
New prescriptive requirements for gas-fired outdoor packaged units (such as rooftop units)

<table>
<thead>
<tr>
<th>Component or Equipment</th>
<th>Cooling or Heating Capacity, kW (Btu/h)</th>
<th>Standard</th>
<th>Minimum Performance(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas-fired outdoor packaged units</td>
<td>&gt; 65.9 kW (225 000) and &lt; 2 930 kW (10 000 000)</td>
<td>CAN/CSA-P.8(8)</td>
<td>Et ≥ 80%</td>
</tr>
</tbody>
</table>

Updated performance requirements in the mechanical and service water tables

5.2.12.1. Unitary and Packaged HVAC Equipment
6.2.2.1. Equipment Efficiency

Mainly to align with the federal Equipment Efficiency Regulations.

e.g.

Added electric instantaneous - Et ≥ 98%
Added gas instantaneous- EF ≥ 0.8
Reduced hot water discharge rate for showers and lavatories

6.2.6. Hot Service Water

6.2.6.1. Showers
1) Except for emergency eye washes and emergency showers, individual shower heads shall have an integral means of limiting the maximum water flow rate to 9.5 L/min when tested in accordance with ASME A112.18.1/CSA B125.1, “Plumbing Supply Fittings.”

6.2.6.2. Lavatories
1) Except for lavatories in health care facilities and emergency eye washes, lavatories shall have an integral means of limiting the maximum water flow rate to 8.3 L/min for private use and 1.9 L/min for public use, when tested in accordance with ASME A112.18.1/CSA B125.1, “Plumbing Supply Fittings.”

Aligned with NPC 2015—as previously indicated.

Demand control ventilation

5.2.3.4. Demand Control Ventilation Systems

Enclosed semi-heated spaces or conditioned spaces where fuel-powered vehicles or mobile fuel-powered equipment or appliances are intermittently used shall be provided with sensors and demand control ventilation systems capable of limiting the expected air contaminants to acceptable levels by

a) Staging On-Off/ dedicated ventilation fans, or
b) Modulating the outdoor airflow rates—Variable speed.

- Indoor storage garage
- Ice Rink-ice surfacing
- Warehouse-forklift
Significant Changes in the NECB 2017

Energy Efficiency Improvements

Modeling for the changes in the NECB 2017 indicated a potential energy improvement of 10.3 to 14.4% over NECB 2011.

Important step towards Canada’s goal for new buildings as presented in the Pan Canadian framework on clean growth and climate change.
Part 3 Building Envelope

What's new?

News standards and options for Thermal characteristic of building assemblies calculation

- e.g. BC Hydro; Building Envelope Thermal Bridging Guide.
- Using Building Envelope Thermal Analysis (BETA)
- e.g. ASHRAE RP-1365; Thermal Performance of building envelope details for mid- and High rise.
- e.g. ISO 14683 Thermal Bridging in building Construction.
- The option to use two- or three-dimensional thermal modeling.
What's new?

Lowered U value for Roofs (increased R values); for all Zones

* e.g. Zone 7A

<table>
<thead>
<tr>
<th></th>
<th>NECB 2011</th>
<th>NECB 2015</th>
<th>NECB 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls</td>
<td>0.21</td>
<td>0.21</td>
<td>0.21</td>
</tr>
<tr>
<td>Roofs</td>
<td>0.162</td>
<td>0.162</td>
<td>0.138</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>RSI 6.17 (R35)</strong></td>
<td><strong>RSI 7.24 (R41)</strong></td>
</tr>
<tr>
<td>Floors</td>
<td>0.162</td>
<td>0.162</td>
<td>0.162</td>
</tr>
</tbody>
</table>

What's new?

Lowered U value for Fenestration and Doors; (increased R values) for all Zones

<table>
<thead>
<tr>
<th></th>
<th>NECB 2011</th>
<th>NECB 2015</th>
<th>NECB 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>2.2</td>
<td><strong>2.2 (RSI 0.45 – R 2.56)</strong></td>
<td><strong>1.9 (RSI 0.52 – R 2.95)</strong></td>
</tr>
<tr>
<td>Doors</td>
<td>2.2</td>
<td><strong>2.2 (RSI 0.45 – R 2.56)</strong></td>
<td><strong>1.9 (RSI 0.52 – R 2.95)</strong></td>
</tr>
</tbody>
</table>

No change for Below ground assemblies.
Part 4 Lighting

What's new?

Decreased LPD

For both Building area and Space by space method

<table>
<thead>
<tr>
<th>Building Type</th>
<th>NECB 2017</th>
<th>NECB 2015</th>
<th>NECB 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotel</td>
<td>8.1</td>
<td>9.4</td>
<td>10.8</td>
</tr>
<tr>
<td>Hospital</td>
<td>11.3</td>
<td>11.3</td>
<td>13.0</td>
</tr>
<tr>
<td>Warehouse</td>
<td>5.2</td>
<td>7.1</td>
<td>7.1</td>
</tr>
<tr>
<td>Library</td>
<td>8.4</td>
<td>12.8</td>
<td>12.7</td>
</tr>
</tbody>
</table>

Added exemption for washrooms (max 2W) night lighting in commercial temporary lodging, rooms and suites need to shut off within 20 minutes of the space being unoccupied.
**What's new?**

**Reduced Base Site Allowance for Exterior Lighting**

<table>
<thead>
<tr>
<th>Zone</th>
<th>NECB 2017</th>
<th>NECB 2015</th>
<th>NECB 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>900 W</td>
<td>1300</td>
<td>1300</td>
</tr>
<tr>
<td>3</td>
<td>500 W</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td>2</td>
<td>400 W</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>1</td>
<td>350 W</td>
<td>500</td>
<td>500</td>
</tr>
</tbody>
</table>

**Reduced LPD / LP allowance for Specific and General exterior applications**

<table>
<thead>
<tr>
<th>Application</th>
<th>NECB 2017</th>
<th>NECB 2015</th>
<th>NECB 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Through (DT)</td>
<td>200 W/DT</td>
<td>400 W/DT</td>
<td>400 W/DT</td>
</tr>
<tr>
<td>ATM machines</td>
<td>135 W + 45 for additional</td>
<td>270 + 90W for additional</td>
<td>270 + 90W for additional</td>
</tr>
</tbody>
</table>

**Part 5 HVAC**
What's new?

Demand Control Ventilation Systems

NEW! Commercial Kitchen where exhaust fan air flow rate design exceeds or meets certain values shall be equipped with demand control ventilation systems.

Why?

Energy Burden

To reduce the design exhaust and make up air flow rates at least 50% in response to appliance operation.

Temperature Control in guest rooms and suites in commercial temporary lodging.

Shall be controlled so it is automatically adjusted to a set back temperature within 15 minutes of the space being unoccupied.

What's new?

Energy Recovery systems:

- Change name from Heat Recovery ventilation to Energy recovery systems
- Clarified (e.g. if exhaust design exceeds or meets certain values, it shall be equipped with energy recovery system.
- Tables for continuous and non-continuous ventilation.
- Ventilation systems that operates less than 8000 hours per year are considered non-continuously operating.
Some proposed changes:

- Encapsulated Mass Timber Construction (EMTC)
- Group C (12 storey combustible construction)
- Group D (12 storey combustible construction)
- New Occupancy: Group G (Agriculture) 4 divisions:
  - G1 High-hazard agricultural occupancies
  - G2 Agricultural occupancies not elsewhere classified in Group G
  - G3 Greenhouse agricultural occupancies
  - G4 Agricultural occupancies with no human occupancy

- Guards exempted in repair garages floor pits

Thank you

Questions
E-mail: Safety.services@gov.ab.ca
Phone: 1.866.421.6929

Prepared and Presented By:
Nabil Habashy, Architect AAA, LEED®AP, BSCO,
Technical Advisor, AMA.
Walk Out Basement Drainage

Question:
Walk out basement designs (best practices?)

Background Information
ABC 2014
Section 9.14. Drainage

9.14.2.1. Foundation Wall Drainage
1) Unless it can be shown to be unnecessary, the bottom of every exterior foundation wall shall be drained by drainage tile or pipe laid around the exterior of the foundation in conformance with Subsection 9.14.3. or by a layer of gravel or crushed rock in conformance with Subsection 9.14.4.

9.14.3. Drainage Tile and Pipe
9.14.3.3. Installation
1) Drain tile or pipe shall be laid on undisturbed or well-compacted soil so that the top of the tile or pipe is below the bottom of the floor slab or the ground cover of the crawl space.

9.14.4.2. Installation
1) Granular material described in Article 9.14.4.1. shall be laid on undisturbed or compacted soil to a minimum depth of not less than 125 mm beneath the footing of the building and extend not less than 300 mm beyond the outside edge of the footings.

9.14.5.1. Drainage Disposal
1) Foundation drains shall drain to a sewer, drainage ditch or dry well.
Commissioning

Question:
When is commissioning typically being asked for in buildings where there are multiple tenants; completion of base building, tenant fit-ups, both?

Commissioning of life safety and fire protections systems is a necessity in order to ensure the proper operation and inter-relationship between the systems. Exactly when commissioning of life safety and fire protection systems is to take place may differ on a case-by-case basis. For instance, when a strip mall is constructed, the first permit application will likely be a base building application – the permit is likely only for the construction of the building’s shell, fire alarm system, sprinkler system, fire separations and perhaps a washroom in each suite. In order for the commissioning to take place, all life safety and fire protections systems must be installed and functioning as per their Code-compliant design. It is likely that only once a suite is at the tenant fit-up stage that all required life safety and fire protection systems are installed, as many tenant/owner leases stipulate that the tenant is responsible for things such as emergency lighting, completing ventilation, fire dampers in service rooms, emergency power, door hold-open devices, additional exit signage, etc.

If at the completion of the base building a suite possessed all the life safety and fire protection systems that are required for that suite – and the proposed tenant fit-up renovations will not have a negative affect on these systems – then the commissioning required by Articles 3.2.4.6. and 9.10.1.2. could be completed upon the completion of the base building. If the tenant fit-up renovations will include the construction/installation of any life safety and/or fire protection system required by Code for that suite, then any commissioning completed prior to the completion of the tenant fit-up completion is invalid for that suite/building.

An SCO must remember that life safety and fire protection systems such as fire alarm systems, sprinkler systems, standpipe systems, etc., apply to the entire building and not just the specific suite he or she is inspecting; therefore, when systems like these are altered due to tenant fit-up renovations, the system must be reviewed in a scope relevant to its presence in the entire building, not just that suite.

The Alberta Building Code (ABC) does not provide a specific format by which commissioning documentation should be completed or provided. The ABC requires that commissioning of the integrated systems be performed as a whole to ensure the proper operation and inter-relationship between the systems.

The required documentation provided to the Authority Having Jurisdictions (AHJ) is at the discretion of the AHJ, and prior to occupancy of a building where commissioning is required.

Currently the National Building Code 2015 requires “CAN/ULC-S1001-11 INTEGRATED SYSTEMS TESTING OF FIRE PROTECTION AND LIFE SAFETY SYSTEMS” to be used for the commissioning of the life safety systems and their components. Alberta will be harmonizing with the NBC and will be referencing the same standard for commissioning compliance. Until
that time, Standata 14-BCB-005/14-FCB-004 is provided as example documentation that can be used by the Integrated Testing Coordinator (ITC).

Standata:


**Background Information:**

**2014 Alberta Building Code**

3.2.4.6./9.10.1.2 Commissioning of Life Safety and Fire Protection Systems

1) Where life safety and fire protection systems are installed to comply with the provisions of this Code or the Alberta Fire Code 2014, the commissioning of these integrated systems must be performed as a whole to ensure the proper operation and inter-relationship between the systems. (See Appendix A.)

A-3.2.4.6.(1) Commissioning of Life Safety and Fire Protection Systems. When commissioning a building, the owner must ensure that the life safety systems and their components (i.e. fire alarm systems, sprinklers, standpipes, smoke control, ventilation, pressurization, door hold-open devices, elevator recalls, smoke and fire shutters and dampers, emergency power, emergency lighting, etc.) are functioning according to the intent of their design. The commissioning provides the documented confirmation that building systems satisfy the intent of the Code.

Ultimately, someone will have to ensure that the interconnected operation of all life safety systems within the building has been confirmed: this responsibility may fall on the designer, owner, contractor or a commissioning body. The Alberta Building Code does not specify who must fulfill this role as this is an administrative issue.

**2015 National Building Code**

3.2.9. Integrated Fire Protection and Life Safety Systems

3.2.9.1. Testing

1) Where fire protection and life safety systems and systems with fire protection and life safety functions are integrated with each other, they shall be tested as a whole in accordance with CAN/ULC-S1001, “Integrated Systems Testing of Fire Protection and Life Safety Systems,” to verify that they have been properly integrated. (See Note A-3.2.9.1.(1).)

**Note A-3.2.9.1.(1).** A-3.2.9.1.(1) Testing of Fire Protection and Life Safety Systems. Building owners should verify that fire protection and life safety systems and their components (i.e. fire alarm systems, sprinklers, standpipes, smoke control, ventilation, pressurization, door hold-open devices, elevator recalls, smoke and fire shutters and dampers, emergency power, emergency lighting, fire pumps, generators, etc.), including their interconnections with other building systems, are functioning according to the intent of their design. CAN/ULC-S1001, “Integrated Systems Testing of Fire Protection and Life Safety Systems,” provides the methodology for verifying and documenting that interconnections between building systems satisfy the intent of their design and that the systems function as intended by the Code. Clause 6.1.5 of CAN/ULC-S1001 allows the Integrated Testing Coordinator to accept documented evidence of any tests that have been performed on a system as part of its acceptance testing for the purpose of demonstrating compliance with the integrated testing requirements of that standard, so as to avoid duplication of work.
Mobile Cooking Operations

Question:
Annual Re-inspection of Food Trucks?

NFPA 96-11 (Excerpts)
Chapter 4 General Requirements

4.1.5 The responsibility for inspection, testing, maintenance, and cleanliness of the ventilation control and fire protection of the commercial cooking operations shall ultimately be that of the owner of the system, provided that this responsibility has not been transferred in written form to a management company, tenant, or other party.

Chapter 11 Procedures for the Use, Inspection, Testing, and Maintenance of Equipment

11.2 Inspection, Testing, and Maintenance of Fire-Extinguishing Systems.

11.2.1* Maintenance of the fire-extinguishing systems and listed exhaust hoods containing a constant or fire-activated water system that is listed to extinguish a fire in the grease removal devices, hood exhaust plenums, and exhaust ducts shall be made by properly trained, qualified, and certified person(s) acceptable to the authority having jurisdiction at least every 6 months.

11.2.2* All actuation and control components, including remote manual pull stations, mechanical and electrical devices, detectors, and actuators, shall be tested for proper operation during the inspection in accordance with the manufacturer’s procedures.

11.2.3 The specific inspection and maintenance requirements of the extinguishing system standards as well as the applicable installation and maintenance manuals for the listed system and service bulletins shall be followed.

11.2.4* Fusible links of the metal alloy type and automatic sprinklers of the metal alloy type shall be replaced at least semiannually except as permitted by 11.2.6 and 11.2.7.

11.2.5 The year of manufacture and the date of installation of the fusible links shall be marked on the system inspection tag.
11.2.5.1 The tag shall be signed or initialed by the installer.
11.2.5.2 The fusible links shall be destroyed when removed.

11.2.6* Detection devices that are bulb-type automatic sprinklers and fusible links other than the metal alloy type shall be examined and cleaned or replaced annually.

11.2.7 Fixed temperature-sensing elements other than the fusible metal alloy type shall be permitted to remain continuously in service, provided they are inspected and cleaned or replaced if necessary in accordance with the manufacturer’s instructions, every 12 months or more frequently to ensure proper operation of the system.
11.2.8 Where required, certificates of inspection and maintenance shall be forwarded to the authority having jurisdiction.

11.3 Inspection of Fire Dampers.

11.3.1 Actuation components for fire dampers shall be inspected for proper operation in accordance with the manufacturer's listed procedures.

11.3.2 Replacement of Fusible Links.
11.3.2.1 Fusible links on fire damper assemblies shall be replaced at least semi-annually or more frequently as necessary.
11.3.2.2 Replacement shall be made by a certified person acceptable to the authority having jurisdiction.

11.3.3* Documentation Tag.
11.3.3.1 The year of manufacture and the date of installation of the fusible links shall be documented.
11.3.3.2 The tag shall be signed or initialed by the installer.

11.4* Inspection for Grease Buildup. The entire exhaust system shall be inspected for grease buildup by a properly trained, qualified, and certified person(s) acceptable to the authority having jurisdiction and in accordance with Table 11.4.

Table 11.4 Schedule of Inspection for Grease Buildup

<table>
<thead>
<tr>
<th>Type or Volume of Cooking</th>
<th>Inspection Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems serving solid fuel cooking operations</td>
<td>Monthly</td>
</tr>
<tr>
<td>Systems serving high-volume cooking operations, such as 24-hour cooking, charbroiling, or wok cooking</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Systems serving moderate-volume cooking operations</td>
<td>Semiannually</td>
</tr>
<tr>
<td>Systems serving low-volume cooking operations, such as churches, day camps, seasonal businesses, or senior centers</td>
<td>Annually</td>
</tr>
</tbody>
</table>

11.5 Inspection, Testing, and Maintenance of Listed Hoods Containing Mechanical, Water Spray, or Ultraviolet Devices.
Listed hoods containing mechanical or fire-actuated dampers, internal washing components, or other mechanically operated devices shall be inspected and tested by properly trained, qualified, and certified persons every 6 months or at frequencies recommended by the manufacturer in accordance with their listings.

11.6.13 When an exhaust cleaning service is used, a certificate showing the name of the servicing company, the name of the person performing the work, and the date of inspection or cleaning shall be maintained on the premises.
11.6.14 After cleaning or inspection is completed, the exhaust cleaning company and the person performing the work at the location shall provide the owner of the system with a written report that also specifies areas that were inaccessible or not cleaned.

11.6.15 Where required, certificates of inspection and cleaning and reports of areas not cleaned shall be submitted to the authority having jurisdiction.

11.7 Cooking Equipment Maintenance.

11.7.1 Inspection and servicing of the cooking equipment shall be made at least annually by properly trained and qualified persons.

11.7.2 Cooking equipment that collects grease below the surface, behind the equipment, or in cooking equipment flue gas exhaust, such as griddles or char broilers, shall be inspected and, if found with grease accumulation, cleaned by a properly trained, qualified, and certified person acceptable to the authority having jurisdiction.

Standata 14-FCI-003
Annunciator Panel Location

Fire Alarm annunciator panel location in buildings having multiple bays each with access to the exterior and no interior corridor to connect the bays?

Building Details:
Fire alarm system is being put in voluntarily. A one storey building Group E occupancy, has an area of 1395 m², occupant load of 300 or less. Building has 9 independent bays so there is no “building entrance” each bay provides its own entrance.

Current consideration:
Accept the annunciator panel be installed in a mechanical room in the corner of the building, in conjunction with each bay have a strobe over the entrance and an additional strobe placed at the mechanical room where the annunciator panel be installed. The designer has indicating that an individual lock box will be placed at each bay and at the mechanical room. The intent is to have a visible identifier at each bay and one to locate the mechanical room where the annunciator panel will be. This would allow the responding unit to attend to the bay with one firefighter checking on the FA panel.

What is being considered within other municipalities?
Potential issues or hurdles being faced?

Code Requirements:

3.2.4.9. Annunciator and Zone Indication
1) Except as permitted by Sentences (3) to (5), an annunciator shall be installed in close proximity to a building entrance that faces a street or an access route for fire department vehicles that complies with Sentence 3.2.5.5.(1).

3) An annunciator need not be provided for a fire alarm system if not more than one zone indicator is required by Sentence (2).

4) If an annunciator is not installed as part of a fire alarm system in conformance with Sentence (1), a visual and audible trouble signal device shall be provided inside the main entrance of the building.

5) The requirements of Sentence (1) are waived in a building
   a) in which an automatic sprinkler system is not installed,
   b) that has an aggregate area for all storeys of not more than 2 000 m², and
   c) that is not more than 3 storeys in building height.
3.2.5.5. Location of Access Routes
1) Access routes required by Article 3.2.5.4. shall be located so that the principal entrance and every access opening required by Articles 3.2.5.1. and 3.2.5.2. are located not less than 3 m and not more than 15 m from the closest portion of the access route required for fire department use, measured horizontally from the face of the building.
CAN/ULC-S561
To comply, or not to comply….actually it's not even a question!
By Frank Donati, Al Cavers and Brian McBain

CAN/ULC-S561, Installation And Services For Fire Signal Receiving Centres And Systems is without a doubt one of the most misunderstood standards in the lexicon of the ULC SS00 Series of Fire and Life Safety Standards. Simply stated, CAN/ULC-S561 promotes reliable fire alarm monitoring. This standard has been a Code requirement in Canada for over 10 years and yet every day Authorities find non-compliant systems and ULC, along with organizations like the Canadian Fire Alarm Association (CFAA), field daily inquiries about in conformity to, listing of, requirements for and understanding of CAN/ULC-S561. This article will endeavor to provide for a better understanding of this Standard, its place and requirements, in fire and life safety systems.

Why is it important?
In Ontario, fire alarm system installations are required to meet the intent of the Ontario Building Code (OBC). The OBC requires that signals to the Fire Signal Receiving Centre are received and disposed of in a uniform manner.

The CAN/ULC-S561 Standard covers:
- Construction, operation, installation, inspection and tests applicable to fire signal receiving centres for fire protective signalling services utilizing fire signal receiving centre facilities and satellite centres and bridging centres;
- Construction and operation of a proprietary fire signal receiving centre; and
- Installation, inspection and tests applicable to a fire signal transmitting unit and its field device inputs at the protected premises.

Fire signal receiving centres come in two defined types; a Signal Receiving Centre and a Proprietary Fire Signal Receiving Centre. What’s the difference? A Signal Receiving Centre is a facility that receives alarm signals and at which trained personnel and service persons are on duty at all times.
- Think normal commercial businesses like an ADT or Chubb Edwards - these involve the monitoring of multiple properties and/or for multiple owners.

A Proprietary Fire Signal Receiving Centre is a facility, operated by the owner of the protected premises in which services encompassed in this Standard are monitored at all times by trained personnel.
- Think Specific business or facility with one owner, often having multiple sites and no third party monitoring. These are often Hospitals or Universities with large multi-building campuses with their own in-house policing/security service that can provide 24/7 monitoring. Also some national retail chains will provide their own monitoring of their facilities.

Codes and Standards
The OBC governs the requirements for signals to the fire department for new buildings and for existing buildings it is the Ontario Fire Code (OFC). The occupancies that are generally required to have CAN/ULC-S561 compliance are:
For Single Stage Fire Alarm System
- Group A – Assembly Occupancy - >300
- Group B – Detention, Care and Care and Treatment Occupancies
- Group F, Division 1 – High Hazard Industrial Occupancy
- Buildings regulated by the provisions of Subsection 3.2.6. (Additional requirements for high buildings)
- Buildings containing interconnected floor space required to conform to Articles 3.2.8.3 to 3.2.8.11
- A retirement home regulated under the Retirement Homes Act, 2010 that is a Group C – Residential Occupancy
- Occupancies with Fire Alarm System that includes workflow indicating devices

For Two Stage Fire Alarm System
- All Occupancies at the initiation of an Alert Signal

The fire monitoring service for a building fire alarm system is mandated in Ontario in the OBC Division B, 3.2.4.8 (4) and in the OFC Division B, 6.3.1.2. Further Code references for fire alarm monitoring service and CAN/ULC-S561 conformity are made through three other Code referenced ULC fire alarm standards.

1. CAN/ULC-S524, Standard for Installation of Fire Alarm Systems which is referenced at OBC Division B, 3.2.4.5 (1) has as its last enforceable clause:
   - 5.15.1 (CAN/ULC-S524) - The interconnection wiring from the fire alarm control unit or transponder to the fire signal receiving centre shall comply with CAN/ULC-S561, Installation and Services for Fire Signal Receiving Centres and Systems.

2. and CAN/ULC-S537, Verification of Fire Alarm Systems in OBC 3.2.4.5.(2) contains within it the following:
   - CAN/ULC-S537-04 Appendix C2 (G) - Documentation to include the name and number of the Fire Signal Receiving Centre (CAN/ULC-S561), and the latest edition of CAN/ULC-S537-13, has expanded this section to impart the importance on fire monitoring:
   - (CAN/ULC-S561-13) NOTE: This standard presupposes that, where provided, the interconnection from the fire alarm control unit or transponder to the fire signal receiving centre shall comply with CAN/ULC-S561, Standard for Installation and Services for Fire Signal Receiving Centres and Systems. (Refer to Items A to I in Appendix C5.13, Interconnection to Fire Signal Receiving Centre.)

3. And CAN/ULC-S536, Inspection and Testing of Fire Alarm Systems in OFC Division B, 6.3.2.2.(1)

The key take away here is that the fire alarm system monitoring is an extension of the fire alarm system, hence similar installation methods, and carries the same importance for installation and maintenance as the fire alarm system.

**Fire Monitoring System**

So, what is a fire monitoring system? It is a Fire alarm system or a sprinkler riser that is connected to a fire alarm transmitter for the purposes of transmitting fire alarm conditions from the protected property to a fire signal receiving centre in order to dispatch the correct responding authorities.

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**Compliant System**

- **Protected Premise Transmitter**
  - Fire Alarm Panel
  - Sprinkler Riser

- **Communication Path**
  - Active or Passive Multiplex, Internet DACT c/w Cell

- **Fire Signal Receiving Centre**
  - Receiving Units
  - Sufficient Staff

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All 3 parts are required to make up a compliant system. This article focuses on Fire Signal Receiving Centres but will touch on the installation and periodic testing for them.

**Signal Receiving Centre vs. Proprietary**
There are two types of Fire Signal Receiving Centres (FSRC) as defined earlier in this article and CAN/ULC-SS61 outlines how to construct, secure, equip and operate each of these types of Centres.

**Fire Signal Receiving Centre**
Is a facility that receives alarm signals and at which trained persons are on duty at all times. This facility must consist of the following:
- Facility with 2hr. Fire rating
- Signal receivers, station automation computer
- Dedicated Power Source
- Back-up systems which include – Telephone back-up, generator, Uninterrupted Power Supply Units (UPS)
- Security Vestibule- Interlocked Doors where only one can be opened at a time by the alarm room operator.
- CCTV Camera System and intercom
- Early warning fire protection system
- Fire Extinguishers
- Buddy System – as in back up alarm centre
- Trained staff to handle and dispatch alarms – 24hrs a day/7 days a week
- Contingency Plan – for unforeseen disasters – natural or man-made

Fire Signal Receiving Centres receiving the following alarms or notification from the fire alarm system
- Fire Alarm
- Fire Trouble
- Fire Supervisory
- AC Fail
- Communication Failures

**Proprietary Signal Receiving Centre**
Is a facility that is operated by the owner of the protected premises in which services encompassed in this Standard are monitored at all times by trained personnel. The owner of the property monitors and maintains its own premise. Examples again include - universities, hospitals, Walmart, Target. These facilities must consist of the following:
- 2 hour fire separation.
  - Exception- 1 hour only if the building is sprinklered.
- Single locked door
- Owner will provide Staffing  24/7
- Owner usually provides installation and maintenance on the protected premises.
- Owner usually provides a runner service.

Also the installations at the protected buildings can be proprietary fire alarm equipment or off the shelf fire alarm transmitters.
Installation of a Fire Alarm Monitoring System

Although there are differences between an FRSC and a Proprietary system regarding the physical centres themselves, the installation of a CAN/ULC-S561 compliant fire alarm monitoring system at the protected premises are very similar. Both require:

- Transmitter that is CAN/ULC-S559 (a Proprietary System is eligible to use CAN/ULC-S527 Compliant transmitter)
- Manufacturer’s Installation Instructions.
- Communication Channels
- Metallic raceway for interconnecting wires
- Supervision of circuits
- Installed as per CAN/ULC-S561
- Tested prior to occupancy

When it comes to the transmission of signals, CAN/ULC-S561 lays out the methods of communication for these systems. Communications can be Active or Passive. Active means that the channel between the fire alarm system and the alarm centre is continuously monitored so that any fault or failure that could affect signal transmission and reception is identified to the fire signal receiving centre. Passive means that it is not monitored but that incorporates dual or multiple communications. These dual or more channels create a communication system where the signal is transmitted through all channels and when acknowledgement through one is received, the other(s) will stop transmitting that signal. These channels also monitor each other for any faults and is tested every 24hrs.

Regardless of Active or Passive, the maximum time to receive a fire alarm signal from a protected premise is **60 seconds**, and this brings us to the requirements for accuracy of signals.

All installed fire monitoring systems shall be properly programed to transmit accurate signals to the Signal Receiving Centre in order that the operators can quickly dispatch responding authorities. Therefore there can be no miscommunication of what is occurring at the system,

- Fire Alarm = Fire Alarm
- Fire Trouble = Fire Trouble
- Fire Supervisory = Fire Supervisory

and there can be no conflicting signals (i.e. Burglar alarm – there are provisions for a location to be both fire and burglar alarmed through the same transmitter but fire alarm signals ALWAYS take precedents over burglar).

It’s not just the transmitted signals that are required to be accurate for compliance with CAN/ULC-S651 but also that the Contact Lists for each protected premise is up to date, that the proper fire department phone numbers are recorded (and not just 911) and that there is no system of verification of fire alarm signals prior to notification of the fire service to respond. CAN/ULC-S651 provides for the disposition of signals as follows:

- maximum time to receive a fire alarm signal from a protected premise is **60 seconds**.
- maximum time to contact the fire department is within **30 seconds**
- maximum time to contact persons designated by the owner is within **5 minutes**
- maximum time for Fire Trouble and Supervisory, Communications Troubles or Signal Transmitting Unit Troubles is to contact the owner within **5 minutes**
- and that a service company/personnel is within **4 hours** of the location to effect repairs.
A note on Standalone Sprinkler Risers

Standalone Sprinkler Risers that are monitored have the same time frame requirements but only transmit the following signals:
- Waterflow (alarm)
- Fire Trouble
- Fire Supervisory (pressure and gate valves)

As the communications systems of fire alarm systems are tested communication, active or passive, CAN/ULC-S561 lays out further required periodic testing which is also referenced in CAN/ULC-S536.
- Fire Alarm System - Annually
- Waterflow - Every two months
- Supervisory- Gate Valves, Pressure -Every Six months

How do you make sure all these requirements are met?
Compliance with CAN/ULC-S561 is not a simple matter of just checking off a box or two but rather involves a complete audit of both the Receiving Centre and the Fire Alarm Transmitter. Authorities Having Jurisdiction (AHJ), Property Owners and Alarm Companies all require the knowledge that the fire monitoring system as a whole is in compliance. The National Codes required that these systems to comply to the NBC/ NFC – Signals to the Fire Department by way of Fire Alarm Monitoring System in Compliance to CAN/ULC-S561 and that they shall provide a Certificate of Compliance attesting that the fire alarm monitoring system is in compliance to the applicable Standard for submission to the AHJ.

What kind of certificate to submit? There are two options,
1. A document that is acceptable to the Authority Having Jurisdiction. Your local Building Official for new construction/installation and your Fire Official for existing buildings/installations. Or
2. A ULC Protective Signalling System Certificate – provided through ULC listed Alarm Company. Companies that are certified to CAN/ULC-S561 can be found on our ULC Online Directory at [http://database.ul.com/cgi-bin/XYV/template/JISCANADA/1FRAME/index.html](http://database.ul.com/cgi-bin/XYV/template/JISCANADA/1FRAME/index.html) and using the following ULC Category Codes:
   - DAYRC - CAN/ULC-S559-04 – Equipment
   - DAYYC - CAN/ULC-S561-04 – Shared Installation Co.
   - DAYIC - CAN/ULC-S561-03 – Shared and Full Service Fire Signal Receiving Centres
A Final Note
CAN/ULC-S561 is a vital component in the chain of Fire Alarm standards and is mandated by our Codes, yet is possibly one of the highest non-conformity issues with fire alarm systems that require monitoring. Although the National Codes have since 2005 explicitly required CAN/ULC-S561 conformity, for the upcoming 2015 National Codes ULC has submitted an Appendix Note to further clarify the interconnection between it and CAN/ULC-S524 Installation of Fire Alarm Systems so that Code users and enforcement authorities ensure complete conformance with Code requirements. The draft Appendix note submitted (and as of this writing not yet finalized by the Codes Commission) is:

CAN/ULC-S561, “Installation and Services for Fire Signal Receiving Centres and Systems,” which is referenced in Sentence 3.2.4.8.(4), and CAN/ULC-S524, “Installation of Fire Alarm Systems,” which is referenced in Sentence 3.2.4.5.(1), go hand-in-hand: conformity to CAN/ULC-S561 entails conformity with the fire alarm system components required in that standard. These components include fire alarm transmitter (signal transmitting unit), interconnections and communication path.

We hope you have a clearer picture and understanding of CAN/ULC-S561, its requirements and how it fits into our Codes and requirements for fire alarm systems. If any further assistance, interpretation, details or concerns are required, do not hesitate to contact either ULC Regulatory Services or Certificate Services below. The CAN/ULC-S561 Standard, along with any other ULC standards, can be purchased at the link below:
ULC Store: http://canada.ul.com/ulcstandards/aboutus/salesofulcstandardsmaterials/

ULC Regulatory Services
For additional information or questions ULC Regulatory Services is here to help.
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