Administrative Requirements & Professional Involvement
From a Building Code Perspective

Presented By:
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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 (2.2.2/3/5/6/7.):

- 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

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

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)

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 m$^2$ or less,

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.

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

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

May Contradicts Architects/Engineers Act?
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


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: CONSTRubSales-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, damp proofing 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 AB –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 NFC 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

- **NBC 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

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

Part 6
- Section 6.1. General
- Section 6.2. Planning
- Section 6.3. Ventilation Systems
- Section 6.4. Heating Systems
- Section 6.5. Thermal Insulation Systems
- Section 6.6. Refrigeration and Cooling Systems
- Section 6.7. Piping Systems
- Section 6.8. Equipment Access
- Section 6.9. Fire Safety Systems
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.
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 0118.3
- Gyypsum 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>NBC 2010/ABC 2014</th>
<th>NBC 2015</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>

![Stairs-Run width diagram]
**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

Seismic and Snow Loads have increased

Low:
- $Sa \leq 0.7$, $HWP < 0.8$
- $Sa > 0.7$, $HWP < 1.2$
- $HWP$ - 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))

- Expanded (XPS) polyurethane Type II
- Polyurethane spray foam–medium density
- Foil-faced polyisocyanurate (XPS) polyurethane 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

Average annual heating degree days (°C)
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*

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**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 (−35±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 hoods.
- (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-37.2-M, “Application of Emulsified Asphalts for Dampproofing or Waterproofing,”
   - b) CGSB 37-GP-12Ma, “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

Exterior Insulation and Finish Systems (EIFS) Figure A-9.27.13.5/11: 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

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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)

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**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),
  - b) it is sprinklered throughout or, where 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
  - c) the interconnected floor space contains only Group A, Division 1, 2 or 3, Group D, Group E, or Group F, Division 2 or 3 major occupancies (see Appendix A), 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 3.2.8.1. to 3.2.8.8. 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.(140-900 mm)
- 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

3.8.1.1. 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>
<thead>
<tr>
<th>Barrier-Free Application (Code References)</th>
<th>Applicable CSA B651 Provisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior accessible routes (A.8.3.2.)</td>
<td>A.3.1 and A.5.1</td>
</tr>
<tr>
<td>Exterior accessible routes (A.8.3.3)</td>
<td>8.2.1 to 8.2.5 and 8.2.7</td>
</tr>
<tr>
<td>Passenger pickup areas (A.8.3.4)</td>
<td>8.3</td>
</tr>
<tr>
<td>Ramps (A.8.3.7)</td>
<td>8.3 and 8.5</td>
</tr>
<tr>
<td>Doors and doorways (A.8.3.8)</td>
<td>8.2</td>
</tr>
</tbody>
</table>

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

Exterior 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
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.
Separation Distances of Exhausts and Outdoor Air Intakes

6.3.2.9. Supply, Return, Intake and Exhaust Air Openings

- New Table

Table 6.3.2.9:
Minimum Distances of Air Intakes from Sources of Contaminants
Forming Part of Sentence 6.3.2.9(2)

<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>0.5</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.
Changes in the NPC 2015

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.

Changes in the NECB 2015
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. ……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 conform 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 12°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

- Staging On-Off/ dedicated ventilation fans, or
- 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><strong>R35</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>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>RSI 0.45 - R 2.56</strong></td>
<td><strong>RSI 0.52 - R 2.95</strong></td>
</tr>
<tr>
<td>Doors</td>
<td>2.2</td>
<td><strong>RSI 0.45 - R 2.56</strong></td>
<td><strong>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 its 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 operate 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.
Cannabis Production facility Ventilation

Question:
Applicant is to identify contaminants being generated and propose system to address these. In conversation with OH&S officers, they indicate their Code does not list the contaminants generated by cannabis production processes. What are SCO’s seeing in proposal documents and what is deemed acceptable?

Reference: ABC 6.2.1.1.(2) and 6.2.2.5.(1) & (4)

ABC-14 [B] 6.2.1.1. Good Engineering Practice (See Appendix A.)
1) Heating, ventilating and air-conditioning systems, including mechanical refrigeration equipment, shall be designed, constructed and installed in conformance with good engineering practice such as that described in, but not limited to,
   a) the ASHRAE Handbooks and Standards,
   b) the HRAI Digest,
   c) the Hydronics Institute Manuals,
   d) the NFPA Standards,
   e) the SMACNA Manuals,
   f) the Industrial Ventilation Manual published by the ACGIH,
   g) CSA B214, “Installation Code for Hydronic Heating Systems,”
      i) EPA 625/R-92/016, “Radon Prevention in the Design and Construction of Schools and Other Large Buildings.”

2) Where a health or safety hazard to a worker could result from the production or dissemination of airborne contaminants or from oxygen deficiency in the air, the ventilation systems serving these spaces shall conform to the Occupational Health and Safety Act and its Regulations.

ABC-14 [B] 6.2.2.5. Air Contaminants
1) Air contaminants released within buildings shall be removed insofar as possible at their points of origin and shall not be permitted to accumulate in concentrations greater than permitted in the Industrial Ventilation Manual published by the American Conference of Governmental Industrial Hygienists.

2) Systems serving spaces that contain sources of contamination and systems serving other occupied parts of the building but located in or running through spaces that contain sources of contamination shall be designed in such a manner as to prevent spreading of such contamination to other occupied parts of the building.
3) Heating, ventilating and air-conditioning systems shall be designed to minimize the growth of micro-organisms. (See Appendix A.)

4) Air contaminants in spaces where workers will be present shall not exceed the occupational exposure limits set out in the Occupational Health and Safety Act and its Regulations.

A-6.2.1.1. Good Engineering Practice.
Building Pressurization
New buildings tend to be considerably more airtight than older ones. Consequently, these buildings may have a reduced pressurization requirement compared to the normal requirement in order to limit drafts and provide a reasonable level of comfort. The humidification and relative pressurization of buildings and individual spaces in buildings can be significant factors in compromising the on-going performance of the building envelope and other environmental separators.
In new construction, HVAC designers should take this issue into consideration and confer with those responsible for the design of the environmental separators so as to limit stress where these building elements are not intended to resist or accommodate such loads. In existing buildings, the ability of the environmental separators to resist or accommodate increases in pressure differential or moisture loading should be considered before changes are made to the HVAC system.

A-6.2.2.5.(3) Minimizing Growth of Micro-organisms.
Sources for microbial growth causing hypersensitivity, pneumonitis and humidifier fever include drain pans, spray-water air-washers, contaminated filters, poorly maintained cooling coils, water incursion into ductwork, cafeteria dishwasher drainage leaks, high humidity and stagnant water. Some of the control measures are as follows:
(a) Drain pans should be pitched toward the drain outlet and the outlet bottom should be flush with the drain pan bottom, otherwise there will be standing water in the pan, exposed to the supply air passing through the cooling section of the air-handling unit.
(b) Access into air-handling equipment should be provided for maintenance of filters, cooling coils and condensate drain pans located below the cooling coils. Access doors should be large and easy to open to facilitate thorough and regular maintenance. Hinged access doors are preferable to bolted access panels.
(c) If moisture is added to commercial building ventilation air (such as in hospital operating rooms and dedicated computer rooms) to maintain humidity levels in a designated range (for example, 40% to 50% relative humidity), humidifiers that inject steam or water vapour into central air-handling units or main supply ducts are normally used. Injection nozzles should not be located in air-handling unit plenums or ductwork that is insulated with internal fibrous lining. If the lining becomes wet, conditions conducive to microbial growth will result.
The above only addresses built-in features of an HVAC system that can help to minimize growth of micro-organisms. Even more important than the built-in features is a program of regular maintenance and cleaning of those portions of the system where such growth is likely to occur.
Commissioning (ABC 3.2.4.6.)

Question:
What documents should we be looking for at plans review, and where does the building discipline responsibility end and the fire discipline begin? In existing buildings with new tenant improvements or new tenants in previously occupied bays, are we looking for IST? Should IST reports be a part of C schedules?

3.2.4.6. 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.

Commissioning of life safety and fire protection 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 protection 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 effect 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.
A Safety Codes Officer 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.

**Background Information:**
The Alberta Building Code does not provide a specific format by which commissioning documentation should be completed or provided. The ABC does require 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 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).

**National Building Code of Canada 2015**

Table 1.3.1.2.
3.2.9.1.(1), A-3.2.9.1.(1), 9.10.1.2.(1)

**National Building Code of Canada 2015**

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).)

1) Where life safety and fire protection 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).)

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.

CAN/ULC-S1001-11:

SEPTEMBER 2011 CAN/ULC-S1001-11

1. SCOPE
1.1 This Standard prescribes the methodology for verifying and documenting that all interconnections between systems provided for fire protection and life safety functions are installed and operating in conformance with their design criteria. Refer to Appendix A 1.1.
1.2 This Standard is intended to satisfy the requirement for integrated systems testing in the National Building Code of Canada and the National Fire Code of Canada.
1.3 It is not the intent of this Standard that integrated systems testing ensure individual fire protection and life safety systems are functioning and installed in accordance with their design criteria or referenced Standards.
1.4 This Standard prescribes the following:
A Integrated Systems Testing Qualifications
B Integrated Systems Testing Process;
C Integrated Systems Testing Requirements;
D Integrated Systems Testing Documentation;
E Periodic Integrated Systems Testing;
F Retro-Integrated Systems Testing; and
G Integrated Systems Testing for Modifications

5.3 INTEGRATED SYSTEMS TESTING IMPLEMENTATION PHASE

5.3.1 During this phase of a project, and prior to implementing the integrated testing plan, the following documentation shall be provided to the integrated testing coordinator, as required. Refer to Appendix A5.3.1:

A: Written confirmation from design professional(s) that they have conducted acceptance testing and that the fire protection and life safety systems, or parts thereof, have been installed in accordance with the design and are ready for integrated fire protection and life safety systems testing;

B: Written confirmation from the installing contractor(s) that the fire protection and life safety systems, or parts thereof, have been installed in accordance with the design and are ready for integrated fire protection and life safety systems testing,

C: Documentation from the verifying party(s) confirming that the fire protection and life safety systems have been installed in accordance with the design. Refer to Appendix A5.3.1 C;

D: Confirmation of inspection by the local authority responsible for enforcing CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations;
E: Confirmation of inspection by the local authority responsible for enforcing ASME A 17.11CSA 844, Safety Code for Elevators and Escalators;

F: Confirmation of implementation of occupant notification procedures; and

G: Confirmation of implementation of alternate measures for ensuring occupant safety.

5.3.2 Where required, the integrated testing coordinator shall provide sufficient notification to the authority having jurisdiction of the implementation of the integrated testing plan to allow them to witness the integrated systems testing.

5.3.3 Upon receipt of documentation, the integrated testing coordinator shall implement the test protocol and procedures outlined in the integrated testing plan.

5.3.4 The design professional(s), installing contractor(s), and verifying party(s) shall participate in the test protocol and procedures, as required by the integrated testing plan.

5.3.5 Failure of any integrated fire protection and life safety systems tests shall result in the correction and re-testing of the affected integrated fire protection and life safety systems. Refer to Appendix A5.3.5.

5.3.6 Fire protection and life safety system(s) shall be returned to their functional operating condition upon completion of integrated systems testing.

5.3.7 Upon successful completion of the integrated fire protection and life safety systems tests, documentation as required in Section 7, Integrated Systems Testing Documentation, shall be:

A: Provided to the building owner,

B: Provided to the authority having jurisdiction, where required; and

C: Maintained on site as specified in the National Fire Code of Canada.

7.2 INTEGRATED SYSTEMS TESTING FORMS

7.2.1 Integrated testing forms are to be developed by the integrated testing coordinator based on the test protocol and procedures for integrated fire protection and life safety system(s) as outlined in the integrated testing plan.

7.2.2 Integrated testing forms shall indicate the test protocol and procedures and allow for documenting the resultant conditions observed by the integrated testing coordinator.

7.2.3 Integrated testing forms shall be signed upon completion of the test protocol and procedures confirming that the participants in the integrated systems testing concur that the resultant conditions observed are correctly stated in the integrated testing report.

7.2.4 Participants in the integrated testing shall only be required to sign integrated testing forms detailing the test protocol and procedures for their respective fire protection and life safety systems.

7.2.5 Where test protocols and procedures are required to be re-implemented due to failure of the initial integrated systems tests, the resultant conditions shall be recorded in an integrated testing form.
7.2.6 Integrated testing forms for re-tests shall clearly indicate the tests as confirmation of integrations after a failed result during initial integrated systems testing.

7.3 INTEGRATED TESTING REPORTS

7.3.1 Following the successful completion of integrated testing, the integrated testing coordinator shall prepare an integrated testing report.

7.3.2 The integrated testing report shall include, but not be limited to the following:

A: The integrated testing plan;
B: Initial integrated testing forms:
C: Re-test integrated testing forms; and
D: Documentation provided as required by Subsection 5.3, Integrated Systems Testing Implementation Phase.

A5.2.6 PHASED OCCUPANCY

Systems integrations can be impacted by ongoing construction due to changes to both the physical installation of the system or integration, and by changes to control software.

A5.2.8 and A5.2.9 AUTHORITY HAVING JURISDICTION REVIEW

The intent of this Standard is that the authority having jurisdiction be provided with a copy of the integrated testing plan for review and comment, but not approval. In some jurisdictions, the authority having jurisdiction may not want to review integrated testing plan for certain buildings. It is recommended that the integrated testing coordinator confirm if review is required on a project by project basis.

A5.3.1 IMPLEMENTATION PHASE DOCUMENTATION

Documentation to be requested by the integrated testing coordinator will be dependent on the Codes and Standards enforced within the jurisdiction of the project. For example, not all electrical installations may require inspection by the local electrical authority, or the authority having jurisdiction may designate non-governmental organizations for review of construction. It is the responsibility of the integrated testing coordinator to ensure that the appropriate documentation is requested and received prior to the implementation of the integrated testing plan.

A5.3.1C DOCUMENTATION FROM VERIFYING PARTIES

Documentation that may be requested from the verifying parties may include, but not be limited to, the following, as applicable:

(a) Fire alarm system verification report;
(b) Emergency generator initial installation performance test report;
(c) Contractor's material and test certificate for fire pump systems;
(d) Fire pump system field acceptance test report;
(e) Standpipe system contractor's material and test certificate for aboveground piping;
(f) Sprinkler system contractor's material and test certificate for aboveground piping;
(g) Cooking equipment fire suppression system acceptance test report;
(h) Fixed fire suppression systems approval test report;
(i) Emergency pressurization system testing, adjusting, and balancing report;
(j) Smoke exhaust system testing, adjusting, and balancing report; and
(k) Contractor's material and test certificate for underground piping.

B7 PHASED OCCUPANCIES

Where a building and/or facility is intended to be occupied in phases, the integrated testing plan must consider this occupancy plan.

Those systems which are required to be functional to protect occupants within the portion of the building that is to be occupied, are to be subjected to integrated systems testing prior to the occupancy.

INTERCONNECTION - The link between two or more integrated fire protection and life safety systems which has an associated input/output correlation. The link between two or more integrated fire protection and life safety systems may or may not be a physical connection. Refer to Appendix A3.

INTEGRATED FIRE PROTECTION AND LIFE SAFETY SYSTEMS - A combination of two or more fire protection and life safety systems, which may or may not be physically connected with one another, but that are designed to operate together to achieve an overall fire protection and life safety objective.

INTEGRATED TESTING COORDINATOR - The person, firm, corporation, or organization responsible for the development and implementation of the integrated testing plan. Where a firm corporation, or organization is responsible for integrated fire protection and life safety systems testing, a representative of that firm corporation, or organization shall be designated as the integrated testing coordinator.

CAN/ULC-S 1001-11

4.2 INTEGRATED TESTING COORDINATOR

4.2.1 The integrated testing coordinator shall be knowledgeable and experienced in the design, installation, and operation of fire protection and life safety system(s), and the fire protection and life safety functions of building systems. Refer to Appendix A4.2.1.

4.2.2 The integrated testing coordinator shall have knowledge and understanding of:
A The Codes and Standards that regulate the design and installation of fire protection and life safety system(s);
B How individual and integrated fire protection and life safety system(s) are designed to operate during normal operating conditions and emergency conditions; and
C Methods for validating the intended functionality of integrated fire protection and life safety system(s).

4.2.3 The integrated testing coordinator shall have all licenses and certification if required by:
A: Federal, provincial, territorial or other applicable regulations; and/or
B: Contractual obligations.
INTEGRATED TESTING PLAN - A written project specific document, prepared by the integrated testing coordinator, outlining the required tests and necessary functional results to conduct integrated fire protection and life safety systems testing.

INTEGRATED TESTING REPORT - A written project specific document, prepared by the integrated testing coordinator, documenting the implementation of the integrated testing plan.

OWNER - Any person, firm corporation, or organization controlling the property under consideration.

CAN/ULC-S1001-11

10. INTEGRATED SYSTEMS TESTING FOR MODIFICATIONS

10.1 GENERAL

10.1.1 Section 10, Integrated Systems Testing for Modifications applies to the testing of:
A: Integrated fire protection and life safety systems which have undergone a modification or
B: Integrated fire protection and life safety systems which are affected by a modification to the building or facility in which they are located.

10.1.2 Section 10, Integrated Systems Testing for Modifications shall only be applied where mandated by the local governing Building and Fire Codes, or other legislation or contract requirements.

10.2 INTEGRATED TESTING PROCESS FOR MODIFICATIONS

10.2.1 Where the modified fire protection and life safety systems underwent an initial integrated test or a retro-integrated test, only those portions of the integrated testing plan affected by the modification shall be implemented.

10.2.2 Where the modified fire protection and life safety systems did not undergo an initial integrated test or a retro-integrated test, an integrated testing plan shall be prepared for the testing of the affected integrated fire protection and life safety systems, in accordance with the applicable requirements of Section 5, Integrated Systems Testing Process.

10.2.3 As the system design professional(s) may not be involved in the modification the integrated testing coordinator shall investigate the affected fire protection and life safety systems to establish the appropriate sequence of operation and integrations for each system.

COMMISSIONING OF LIFE SAFETY AND FIRE PROTECTION SYSTEMS (INTEGRATED SYSTEMS TESTING) PURPOSE

This bulletin was developed to remind Code users that commissioning of life safety and fire protection systems is a requirement to be addressed using integrated systems testing (IST).

DISCUSSION

Both Alberta Building Code 2014 (ABC 2014) and the Alberta Fire Code 2014 (AFC 2014) reference the requirement for commissioning of life safety and fire protection systems to ensure proper operation and integration of these systems.

Within a building there are various life safety and fire protection systems. Individually these systems must be tested and verified for operation by the applicable discipline or personnel through a process typically called “commissioning”. However, for the purposes of Articles 3.2.4.6. and 9.10.1.2. of the ABC 2014 and Article 2.1.3.8. of the AFC 2014, the overall system must be tested to verify the integrated operation of the system using the IST process. Newly installed life safety systems and alterations to existing life safety systems would require IST to verify proper integration and performance of these systems.

It is expected that the integrated testing coordinator prepare integrated testing plans for each building or facility. While formatting and layout of the integrated testing plan is not mandated by the ABC 2014 or AFC 2014, the intent of the ABC 2014 and AFC 2014 is to ensure proper operation of these integrated systems. Therefore, all integrated testing plans are expected to include an integrated testing
plan that allows for future periodic integrated systems testing and integrated systems testing after modifications.


Appendix A is an example of a verification letter an Authority Having Jurisdiction (AHJ) may accept as confirmation IST has been completed. Depending on the complexity of the life safety systems, the AHJ may also request a copy of the integrated testing plan and a report of the test results.

It is expected that a registered engineering professional will be retained as the INTEGRATED TESTING COORDINATOR (ITC).

CODE REFERENCES

ABC 2014 Sentence 3.2.4.6.(1) states:

3.2.4.6. 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.

ABC 2014 Sentence 9.10.1.2.(1) states:

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 of the systems. (See A-3.2.4.6.(1) in Appendix A.)

AFC 2014 Division B, Sentence 2.1.3.8.(1) states:

2.1.3.8. 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 ABC, 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-2.1.3.8.(1) 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 AFC does not specify who must fulfill this role as this is an administrative issue.
(APPENDIX A) - Example

COMMISSIONING

Integrated Systems Testing of Fire Protection and Life Safety Systems

_________________________ on behalf of

Name of Company or Person Performing Integrated Systems Testing
(INTEGRATED TESTING COORDINATOR)

_________________________ has developed

Name of Building Owner or Designer/Design Engineer

and implemented the integrated testing plan at:

_________________________

Address of Installation (Municipality)

This test was carried out as required by Article 3.2.4.6 of Division B of the Alberta Building Code 2014, and in accordance with the appropriate standard noted below.

_________________________

Name of Company or Person Performing Integrated Systems Testing

on __________, the integrated testing was performed in accordance with integrated testing plan to ensure proper operation & inter-relationship between the systems per original design prepared by

_________________________

Name of Designer

And subsequently updated to "As-Built" status by:

_________________________

Name of Contractor

The integrated testing was performed on __________ and proper operation and inter-relationship between the systems found to be fully operational in accordance with:

1. The Alberta Building Code 2014, and

Note: Interconnection between the following integrated systems was subject to the test:

[ ] fire alarm systems,
[ ] sprinkler & standpipes systems,
[ ] fire pumps,
[ ] electromagnetic locks,
[ ] door hold-open devices,
[ ] kitchen fire suppression

[ ] elevator recalls,
[ ] emergency power,
[ ] emergency lighting,
[ ] smoke and fire shutters and dampers,
[ ] smoke control, ventilation, pressurization,
[ ] other

_________________________

Name of Company or Person Performing Integrated Systems Testing

_________________________

Signature or Person Responsible for Test

Note: Modifications to the integrated system after __________ will invalidate this Certificate.

_________________________

Signature of Person Assuming Responsibility for Test
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 semi-annually 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
Renovation in Large Existing Buildings

Question:
Renovation in large existing buildings that was originally classified as a Business and Personnel Services building (Group D) resulting addition of an assembly occupancy.

Consideration: Impacts on Fire alarm, suppression and exiting/travel distance requirements?

There is always a challenge to determine the extent to which building codes shall apply to regulate existing buildings as the applicable Article 1.1.1.2. of Division A of ABC-2014 does not provide concrete instructions on how to determine what is required to be upgraded / changed when an occupancy or use is changed.

The decision lies with AHJ to determine what is necessary & required to meet the building codes intent. User’s guide & guidelines for existing building published by NBC are good references for AHJs to refer in such situations.

Building codes provisions are developed primarily for new construction, they may require modification to reflect the cost / benefit equations that apply to existing construction. In many cases, a selective compliance permitted by AHJ of meeting a building code requirement does not necessarily mean a reduction in life safety.

Three major objectives:
1. Protection of the lives of occupants in the event of fire
2. Structural Sufficiency
3. Health of building occupants (target areas: ventilation, sanitation, control of contaminants such as radon)

If safe evacuation can be achieved by design alternatives not specifically described in the building codes, it can be assumed that first objective is met.
<table>
<thead>
<tr>
<th>Building Code Requirement</th>
<th>#1</th>
<th># 2</th>
<th># 3</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Alarm System</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Assuming occupants are ambulatory and no fire department assistance is required for evacuation. If the occupant load is marginally greater than the triggering occupant load (say 10%) then need for new system may be ignored by AHJ.</td>
</tr>
<tr>
<td>Sprinkler System</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>May be installed if required to ensure safe evacuation e.g., if the travel time to evacuate seems more than normal, fire resistant rating of assembly not meeting requirements, more travel distance to exit.</td>
</tr>
<tr>
<td>Travel Distance</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Travel distance is relatively unimportant as long as the egress path remains tenable. This requirement may be ignored by AHJ if building is sprinklered &amp; egress route can be kept smoke free for the period of estimated evacuation time.</td>
</tr>
<tr>
<td>Alternative Exit Route</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>When the travel distance is very small this requirement may be ignored by AHJ for practical design purpose, this is an assumed small additional risk when a building is sprinklered.</td>
</tr>
</tbody>
</table>

**Background Information:**

2014 Alberta Fire Code Section 5.6. Construction and Demolitions Sites
2014 Alberta Building Code Part 8 Safety Measures at Construction and Demolition Sites

8.1.1.1. Scope
1) The scope of this Part shall be as described in Subsection 1.3.3. of Division A.
2) This Part applies to fire safety and the protection of the public during the construction, alteration or demolition of every building, including any incompleted or abandoned building.
3) Fire safety at construction and demolition sites shall conform to Section 5.6. of Division B of the Alberta Fire Code 2014.
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:

Alberta Building Code 2014

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.

Alberta Fire Code 2014
2.5.1.3. Fire Department Building Access
1) A building that incorporates the fire protection equipment, elevator control or door access outlined in Sentence (2) shall provide a key box constructed, keyed, and located in a manner acceptable to the authority having jurisdiction containing a set or sets of keys or devices required to be used in an emergency. (See Appendix A.)
2) A fire department key box shall be installed and provided with keys and devices in conformance with Sentence (1) in a building equipped with
   a) a fire alarm system whose control features, including those for emergency voice communication systems, are located behind a locked panel,
   b) a fire alarm system in which manually operated devices require a key or device in order to be reset,
   c) a fire alarm system in which the electrical circuit breaker is located within a locked panel or room,
   d) an automatic sprinkler system in which the main control valve is locked in the open position,
   e) an automatic sprinkler system in which the main control valve is located within a locked room or enclosure,
   f) firefighting standpipe and water supply connections in a locked room or area,
   g) a key-operated elevator control feature that will permit exclusive use of elevators by firefighting personnel only,
   h) a key-operated elevator control feature that will switch selected elevators to operate on emergency power,
   i) stairway doors that have been locked on the stairway side in conformance with the ABC, or
   j) locked access doors to a roof provided for firefighting purposes.
3) Keys or devices provided in conformance with Sentence (2) shall be affixed to a key ring or rings, and identified with tags indicating their function.
4) If a fire alarm system or sprinkler system is required to transmit a signal to the fire department in conformance with the ABC, a key box shall be installed on the exterior wall of the building in proximity to the principal entrance.
5) A key box installed in conformance with Sentence (4) shall contain an entrance door key with a tag affixed to this key in conformance with Sentence (3).